South Asia Development Update
Toward faster, cleaner growth

PRESS RELEASE
World Bank Expects Solid Growth but Risky Outlook for South Asia
Energy transition creates opportunities for faster, cleaner growth

WASHINGTON, October 3, 2023—South Asia is expected to grow by 5.8% this year—higher than any other developing country region in the world, but slower than its pre-pandemic pace and not fast enough to meet its development goals, says the World Bank in its twice-a-year regional outlook.

Released today, the latest South Asia Development Update, ***Toward Faster, Cleaner Growth*** forecasts growth to slow to 5.6% in 2024 and 2025, as post-pandemic rebounds fade and a combination of monetary tightening, fiscal consolidation, and reduced global demand weigh on economic activity.

Growth prospects are subject to downside risks, including due to fragile fiscal positions. Government debt in South Asian countries averaged 86% of GDP in 2022, increasing the risks of defaults, raising borrowing costs, and diverting credit away from the private sector. The region could also be affected by a further slowdown in China's economic growth and natural disasters made more frequent and intense by climate change.

"*While South Asia is making steady progress, most countries in the region are not growing fast enough to reach high-income thresholds within a generation*," said **Martin Raiser, World Bank Vice President for South Asia**. "*Countries need to urgently manage fiscal risks and focus on measures to accelerate growth, including by boosting private sector investment and seizing opportunities created by the global energy transition.*"

In **India**, which accounts for the bulk of the region's economy, growth is expected to remain robust at 6.3% in FY23/24. Output in **Maldives** is expected to grow by 6.5% in 2023 and in **Nepal** is expected to rebound to 3.9% in FY23/24, thanks to the strong rebound in tourism in both countries. Several countries in the region are still suffering from the aftermaths of recent currency crises. In **Bangladesh**, growth will slow to 5.6% in FY23/24. In **Pakistan**, growth is forecast at only 1.7% in FY23/24, below the rate of population growth. **Sri Lanka** is showing signs of recovery after a severe recession and the economy is expected to grow by 1.7% in 2024, after contracting by 3.8% in 2023.

Constrained by fiscal challenges, governments have limited room to help their economies fully capitalize on the global energy transition. Though often seen as an additional burden for developing countries, for South Asia, the energy transition could present an opportunity for future growth and job creation—if it leads to more investments by firms, cuts air pollution, and reduces the reliance on fuel imports. Even with limited fiscal space, countries can encourage firms to adopt more energy-efficient technologies through market-based regulations, information campaigns, broader access to finance, and reliable power grids.

"*South Asia's energy intensity of output is about twice the global average and the region lags in the adoption of more advanced energy-efficient technologies*," said **Franziska Ohnsorge, World Bank Chief Economist for South Asia**. "*Improvements in energy efficiency, in the context of a rapid global energy transition, are an opportunity for South Asia to make progress toward both environmental and economic goals."*

The energy transition will also have significant impacts on South Asia's labor markets. Almost one-tenth of the region's workers are employed in pollution-intensive jobs. These jobs are concentrated among lower-skilled and informal workers who are more vulnerable to labor market shifts. While the energy transition can help create more new jobs, it could also leave some workers stranded in declining industries. The report recommends a wide range of policies to protect such workers, including providing better access to high-quality education and training, finance, and markets; facilitating worker mobility; and strengthening social safety nets.

The World Bank's development updates for Afghanistan, Bangladesh, India, Maldives, Nepal, Pakistan, and Sri Lanka were also released today.

	Country fiscal year	Real GDP growth at constant market prices (percent)				Revision to forecast from April 2023 (percentage point)	
Calendar year basis		**2022**	**2023(f)**	**2024(f)**	**2025(f)**	**2023(f)**	**2024(f)**
South Asia region (excluding Afghanistan)		**8.2**	**5.8**	**5.6**	**5.6**	**0.2**	**-0.3**
Maldives	January to December	13.9	6.5	5.2	5.5	-0.1	-0.1
Sri Lanka	January to December	-7.8	-3.8	1.7	2.4	0.4	0.7
Fiscal year basis		**21/22**	**22/23(e)**	**23/24(f)**	**24/25(f)**	**22/23(e)**	**23/24(f)**
Bangladesh	July to June	7.1	6.0	5.6	5.8	0.8	-0.6
Bhutan	July to June	4.8	4.6	4.0	4.6	0.1	0.9
India	April to March	9.1	7.2	6.3	6.4	0.3	0.0
Nepal	mid-July to mid-July	5.6	1.9	3.9	5.0	-2.2	-1.0
Pakistan	July to June	6.1	-0.6	1.7	2.4	-1.0	-0.3

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

Note: (e)=estimate, (f)=forecast. GDP measured in 2015 prices and market exchange rates. Pakistan is reported at factor cost. National accounts statistics for Afghanistan are not available. To estimate regional aggregates in the calendar year, fiscal year data are converted to calendar year data by taking the average of two consecutive fiscal years for Bangladesh, Bhutan, Nepal, and Pakistan, as quarterly GDP data are not available.

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HIGHLIGHTS from Chapter 1: SOLID PROGRESS, BUT A LONG WAY TO GO

Key Points

- *At just under 6 percent, output growth in South Asia is expected to remain stronger than in other regions in 2023–25, even with weak growth in the countries recovering from recent balance-of-payments crises. Foreign exchange and financial markets in these countries have stabilized. But the financial systems of many countries in the region remain vulnerable and fiscal positions remain fragile. In some cases, restrictions on imports and foreign exchange transactions have yet to be fully unwound.*
- *The outlook represents a slowdown from pre-pandemic averages and is subject to downside risks from weak financial systems and fiscal positions, the possibility of a sharper-than-anticipated slowdown in China, and climate change-related natural disasters.*
- *In the short term, policy priorities include preserving financial stability and improving fiscal positions. In the longer term, priorities are to boost private investment, make economies more open to trade, and seize opportunities offered by the global energy transition.*

Outlook: Stronger than elsewhere, but not strong enough. South Asia's output growth is forecast to slow from 8.2 percent in 2022 to 5.8 percent in 2023 and remain broadly steady at 5.6 percent in 2024 and 2025. Growth in the region remains stronger than in any other EMDE region, supported by faster potential output, resilient exports, and increasing remittance inflows. However, in all South Asian countries, growth will remain below the 2015–19 pre-pandemic average, with the fading of post-pandemic rebounds accentuated by combinations of monetary tightening, fiscal consolidation, and slowing global demand growth. Current growth rates are not strong enough for most countries to reach high-income thresholds within a generation. Headline inflation has been declining in the rest of the world, but has remained elevated in South Asia.

Risks to the outlook: Financial sector strains and spillovers from China. A number of downside risks could derail growth from its projected path. Financial systems in several countries are fragile, with limited capital buffers, high exposure to heavily indebted sovereigns, and elevated levels of nonperforming loans. A deterioration in market sentiment could trigger renewed pressures on currencies, capital outflows, rebounds in inflation, and further increases in borrowing costs. The region would also be affected by any further slowdown in China's economy. Finally, South Asia is highly exposed to the adverse effects of climate change. More than 60 million people are affected by natural disasters every year, on average—far more than in any other region. South Asia is also vulnerable to disruptions to food markets, given its large agricultural sector and the fact that it has the highest share of food in consumption baskets of any EMDE region.

Policy challenges: Avoid crisis, boost growth. In the near term, policy priorities include preserving financial stability and restoring fiscal sustainability. In the longer term, a range of reforms will be needed to accelerate growth and job creation in a sustainable manner. In all countries in South Asia, private investment growth has slowed since the pandemic, or is forecast to do so. Accelerating the pace of catch-up with high-income countries will require policy makers to facilitate substantial new investment and increases in productivity. South Asian countries also impose more restrictions on trade and capital flows than countries in most other regions. Lowering these barriers could help the region integrate into the global marketplace and boost long-term productivity. The global energy transition presents an opportunity for South Asia to upgrade technologies and lift productivity, cut pollution, reduce reliance on energy imports, and create jobs.

TABLE 1.1. Growth in South Asia

Country	Fiscal year	Real GDP growth at constant market prices (Percent)				Revision to forecast from April 2023 (Percentage point)	
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South Asia region (excluding Afghanistan)		8.2	5.8	5.6	5.6	0.2	-0.3
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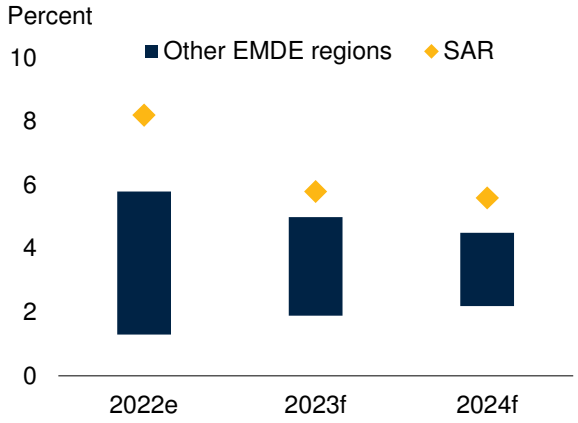
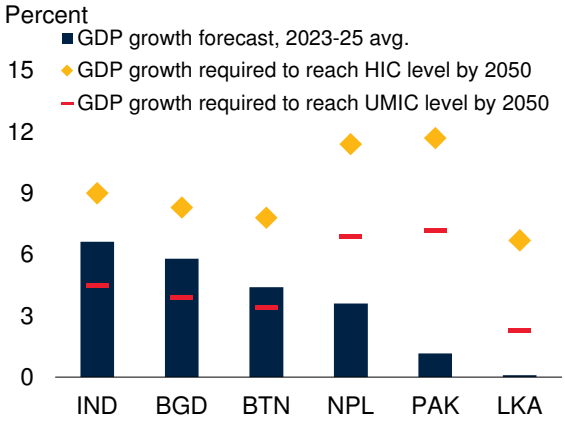
Sources: World Bank Macro Poverty Outlook; World Bank staff calculations.
Note: (e) = estimate; (f) = forecast. GDP measured in 2015 prices and market exchange rates. Pakistan is reported at factor cost. National accounts statistics for Afghanistan are not available. To estimate regional aggregates in the calendar year, fiscal year data are converted to calendar year data by taking the average of two consecutive fiscal years for Bangladesh, Bhutan, Nepal, and Pakistan, as quarterly GDP data are not available.

Figure: Growth and policy challenges in South Asia

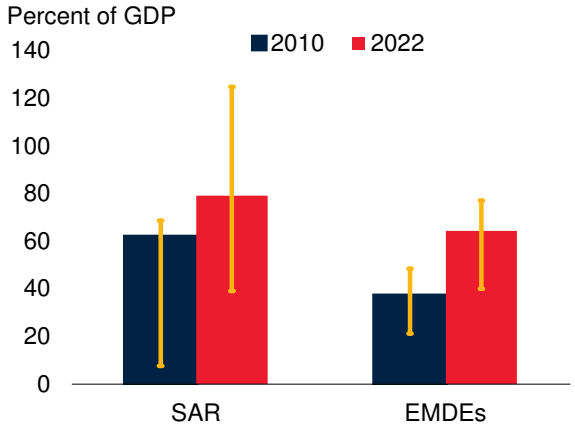
A. Output growth in South Asia



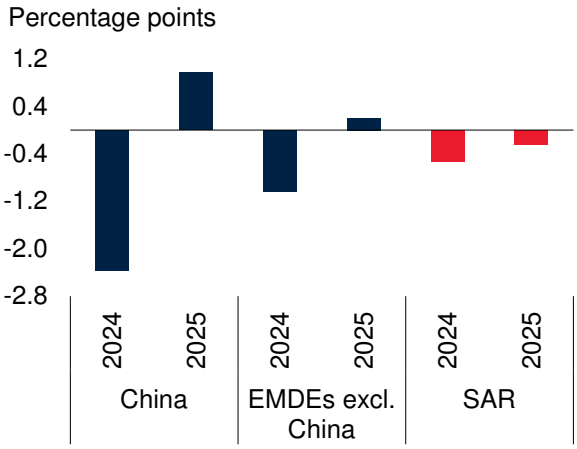
B. GDP growth rate required to reach higher income thresholds by 2050



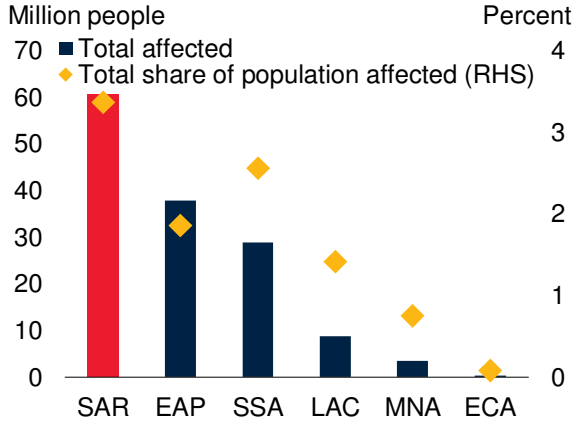
C. Government debt



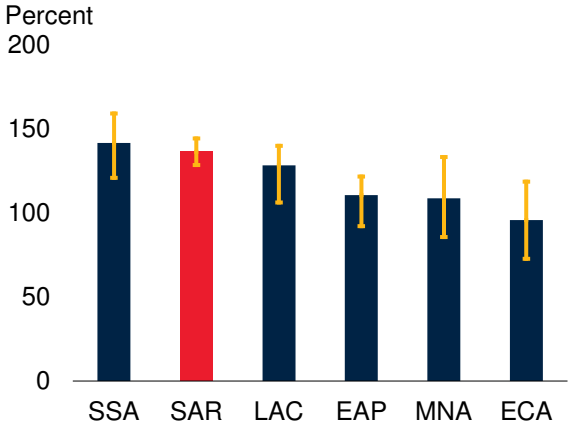
D. Growth impact of sharper slowdown in China



E. Number of people affected by natural disasters, 2013-22 average



F. Cost of trading in EMDE regions, 2019



Sources: Comtrade (database); ESCAP-World Bank Trade Costs Database; International Disaster Database (EM-DAT); WDI (database); WEO (database); World Bank (Macro Poverty Outlook); World Trade Organization.
Note: (e) = estimate; (f) = forecast; BGD = Bangladesh; BTN = Bhutan; EAP = East Asia and Pacific; ECA = Europe and Central Asia; EMDEs = emerging market and developing economies; HIC = High-income country; IND = India; LAC = Latin America and the Caribbean; LKA = Sri

Lanka; MNA = Middle East and North Africa; NPL = Nepal; PAK = Pakistan; RHS = Right hand side; SAR = South Asia; SSA = Sub-Saharan Africa; UMIC = Upper middle-income country.

A. Blue bars reflect the range of growth in all the EMDE regions. Regional aggregate computed using 2015 GDP as weights. Sample includes 7 countries in SAR and 136 in other EMDE regions.

B. Figure shows the GDP growth rate forecast for 2023-25 and the GDP growth rate required to achieve high-income and upper middle-income status by 2050. Population growth is from United Nation population projections. and the threshold for high- and upper middle-income status is assumed to grow by 1.5 percent, its average growth rate between 1999 and 2019. The income threshold is based on GNI per capita in current U.S. dollars (Atlas method). Since the income threshold is based on GNI, while the forecast is based on GDP, this figure assumes equal growth rates of the two measures. Estimates for the required growth rate from other studies (e.g., Behera et al. 2023) assume an inflation rate differential and real appreciation between advanced economies and the corresponding country.

C. 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.

D. Bars show growth revisions between the China slowdown scenario and the baseline. SAR includes 6 countries.

E. Bars show the total population affected by natural disasters, and diamonds show the share of total population affected; annual averages over 2013-2022. Sample includes 144 EMDEs (22 in EAP, 20 in ECA, 31 in LAC, 18 in MNA, 8 in SAR, and 45 in SSA).

F. Bilateral trade costs (as defined in the UNESCAP/World Bank database) measure the costs of a good traded internationally in excess of the same good traded domestically and are expressed as ad valorem tariff equivalent. Bilateral trade costs are aggregated into individual country measures using 2018 bilateral country exports shares from the Comtrade database. Regional and sectoral aggregates are averages of individual country measures. Bars show unweighted averages, whiskers show interquartile ranges. Sample includes 53 EMDEs (9 in EAP, 12 in ECA, 16 in LAC, 4 in MNA, 2 in SAR, and 10 in SSA).

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HIGHLIGHTS from Box 1.1:
Fiscal deteriorations around elections

Key Points

- *Among EMDEs, primary fiscal deficits, primary government expenditures, and government wage bills have tended to rise significantly around election years.*
- *While primary spending increases have tended to be partially reversed in the following year, post-election reversals of primary deficit and government wage bill increases have been more variable and at best partial.*
- *The consequent ratcheting up of primary deficits around elections in EMDEs can erode fiscal sustainability over the longer term, while the expansion of government wage bills can result in spending rigidities.*
- *In South Asia, in particular, fiscal positions have tended to deteriorate around national elections, and, in some cases, there is also evidence of targeted fiscal actions around subnational elections.*

A wave of elections in South Asia. In 2023 and 2024, parliamentary or presidential elections will be held in seven out of the eight South Asian countries. Elections in South Asian countries have tended to be bunched together approximately every five years.

Past elections in South Asia. In South Asia, primary fiscal deficits tended to widen in or just before national elections, on average by 0.5 percentage point of GDP, and only half of this deterioration was reversed in the two years after the election (Figure 1). For several South Asian countries, the literature also finds evidence of more narrowly targeted fiscal actions around subnational elections.

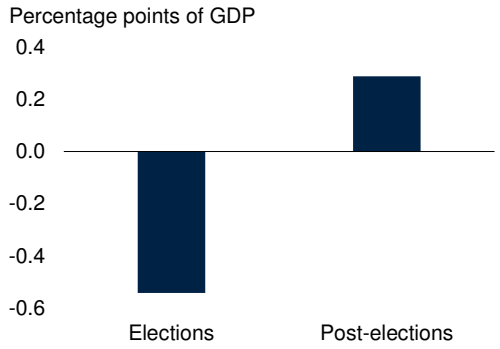
Past elections in EMDEs. Among EMDEs, primary fiscal deficits, primary government expenditures, and government wage bills rose significantly around elections, on average by 0.7, 0.5, and 0.1 percentage point of GDP, respectively. South Asia was among the regions where election effects were especially pronounced.

Aftermath of past elections in EMDEs. On average among EMDEs, primary spending increases averaging 0.5 percentage point of GDP were virtually fully reversed within a year following the election. However, increases in the government wage bill—small (0.1 percentage point of GDP) but statistically significant—were not reversed: in fact, they continued.

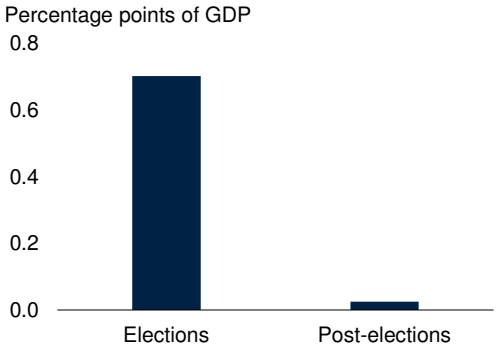
Policy implications. The consequent ratcheting-up of deficits as well as wage bills around elections could erode fiscal sustainability and lock in spending rigidities over the longer term. To help prevent fiscal deteriorations around elections and their longer-term consequences, the establishment of more robust fiscal frameworks and institutional arrangements could be considered, as suggested by the experience of other countries.

Figure 1. Fiscal deteriorations around elections

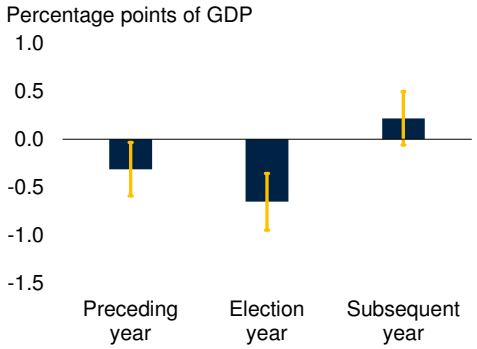
A. South Asia: Change in primary fiscal balance around elections



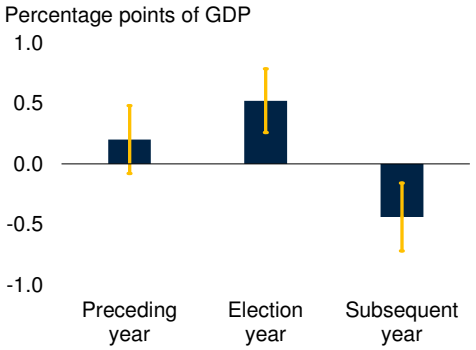
B. South Asia: Change in primary government expenditures around elections



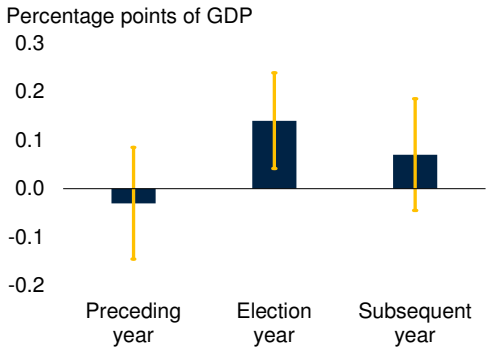
C. EMDEs: Change in primary fiscal balance around elections



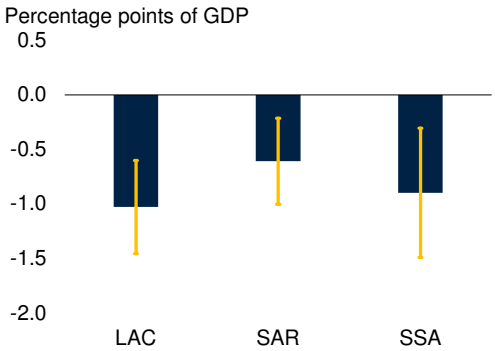
D. EMDEs: Change in primary government expenditures around elections



E. EMDEs: Change in government wage bill around elections



F. EMDEs: Change in primary fiscal balances in elections



Sources: The Database of Political Institutions 2020; de Haan, Ohnsorge, and Yu (forthcoming); International Monetary Fund; World Bank.
A.B. Based on 28 parliamentary or executive elections in SAR since 1991. Unweighted averages unless otherwise indicated. "Elections" is defined as the unweighted average of the change in the year before the election and the election year; "Post-elections" is defined as the unweighted average of the change in the year following the election and the subsequent year.

C.-E. Coefficient estimates from a generalized-method-of-moments regression of elections on the primary fiscal balance (in percent of GDP), primary government expenditures (in percent of GDP), and compensation of employees (in percent of GDP), controlling for country characteristics. The sample includes up to 122 EMDEs for 1984–2022. Yellow whiskers indicate 90 percent confidence intervals unless otherwise specified. "Preceding year" is the coefficient on a lead of the election variable, and "Subsequent year" is the coefficient on the lagged election variable. F. Coefficient estimates from a panel regression (GMM estimator) of elections on the primary fiscal balance (in percent of GDP), primary government expenditures (in percent of GDP), and compensation of employees (in percent of GDP), controlling for country characteristics. The sample includes up to 122 EMDEs for 1984–2022. Yellow whiskers indicate 90 percent confidence intervals unless otherwise specified. LAC stands for "Latin America and the Caribbean", EAP stands for "East Asia and the Pacific", SAR stands for "South Asia", and SSA stands for "Sub-Saharan Africa.

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HIGHLIGHTS from Spotlight 1:
An ounce of prevention, a pound of cure: Averting and dealing with sovereign debt default

Key Points

- *South Asia has the highest average government debt ratio among emerging market and developing economy regions and four countries are rated in or near sovereign debt distress.*
- *The current juncture resembles the circumstances under which the majority of past defaults occurred. Past defaults often failed to lower government debt or borrowing costs in a lasting manner.*
- *Some countries have reduced their default risk by predominantly borrowing from domestic creditors. However, this comes at a price: high domestic shares of government debt have been associated with higher borrowing costs and lower bank credit to the private sector.*
- *With the external environment likely to remain challenging over the next several years, it is important to adopt policies to accelerate sustainable growth and shore up fiscal positions.*

High debt in South Asia. At 86 percent of GDP on average in 2022, South Asia has the highest average government debt-to-GDP ratio among emerging market and developing economy (EMDE) regions. Four South Asian countries are already rated by the Moody's ratings agency or by the IMF/World Bank Debt Sustainability Analysis as in or near sovereign debt distress.

Heightened risk of debt default. Past experience suggests that the current economic environment heightens risks of debt default. The vast majority of defaults since 1979 have taken place within a year of the end of a U.S. monetary policy tightening cycle, in countries without fiscal rules, and in countries with above-median government debt-to-GDP ratios (Figure 1).

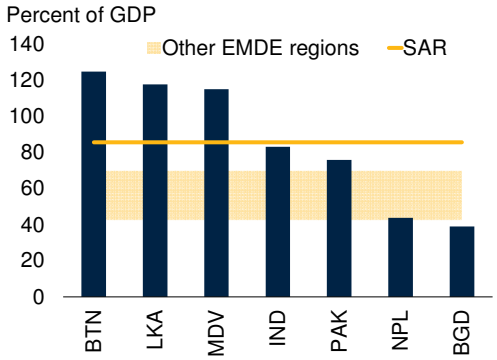
Successful versus unsuccessful defaults. Historically, fewer than two-thirds of sovereign debt defaults reduced the government debt-to-GDP ratio or the effective interest rate on government debt five years later. Sovereign debt defaults accompanied by above-median debt restructurings, domestic or global growth accelerations, and fiscal consolidations more frequently succeeded in reducing government debt-to-GDP ratios or borrowing costs over the following five years.

Mitigating factors in South Asia. South Asia's above-average growth mitigates some of the default risks arising from its above-average government debt-to-GDP ratios. Debt risks in some South Asian countries may also be mitigated by the high share of government debt (on average, more than half) that is owed to domestic creditors. In the past, predominantly domestically financed government debt runups were less likely to end in default than externally financed ones. However, above-median shares of government debt have been associated with higher government borrowing cost, lower debt maturities, and smaller shares of bank credit to the private sector.

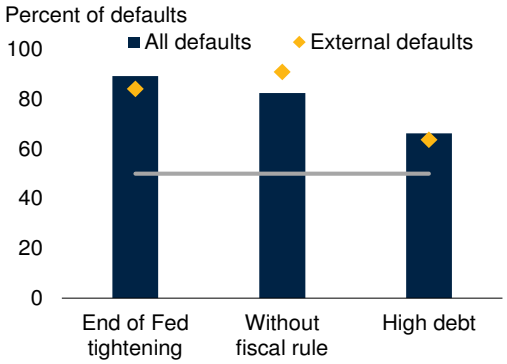
Policy priorities. Slowing global growth, elevated global borrowing costs, and high government debt levels increase the probability of sovereign debt default, and reduce the likelihood that sovereign debt defaults, when they occur, will be successful. But the historical record also suggests that measures to boost domestic growth and put fiscal positions on a sounder footing will improve the chances of success.

Figure 1. Government debt challenges in South Asia

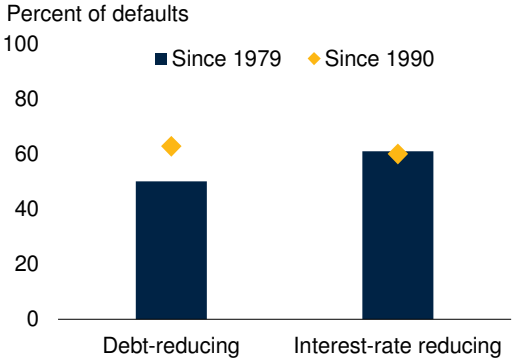
A. Government debt, 2022



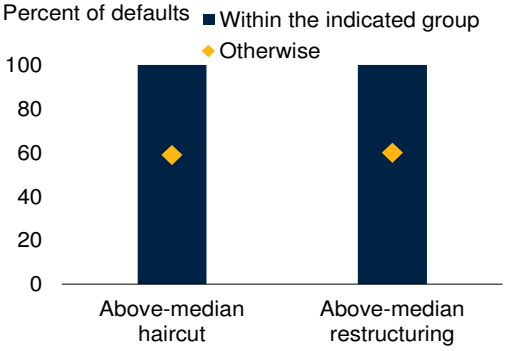
B. Shares of defaults in the most common circumstances



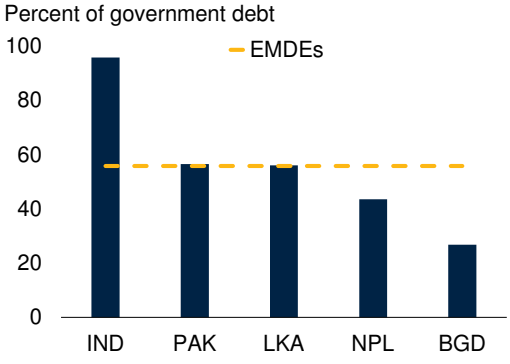
C. Share of successful defaults



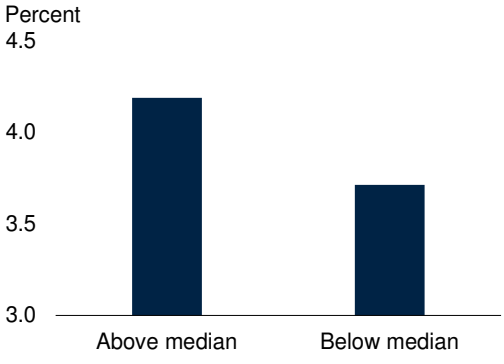
D. Share of debt-reducing external defaults, by restructuring terms



E. Share of domestic debt



F. Effective government interest rates, by domestic share of government debt, 2010–22



Sources: Asonuma and Trebesch (2016); Cruces and Trebesch (2013); Erce, Mallucci, and Picarelli (2022); IMF (various staff reports); Kose et al. (2022); World Bank.

A. Unweighted averages (at 2010–19 average prices and market exchange rates). Yellow shaded area indicates range of GDP-weighted averages of other EMDE regions. Yellow line indicates GDP-weighted average for South Asia (SAR).
B. Share of all defaults that occurred in the year of the end of U.S. Federal Reserve tightening cycle as defined in World Bank (2022) or in the subsequent year. Share of all defaults that occurred in countries without a fiscal rule or in countries with above-median (across the full EMDE sample) government debt at the time of default. All defaults include defaults on domestic and external creditors; external defaults refers to defaults on external creditors. Gray line denotes 50 percent.
C. Default episodes are differentiated between those that featured lower ("Successful") or higher ("Unsuccessful") government debt-to-GDP ratios or effective interest rates on government debt five years after the default than in the year of default. Based on 177 domestic or external default episodes in 64 EMDEs during 1979–2018.
D."Above-median restructuring" indicates above-median size of restructured debt in percent of total government debt at time of default, as calculated by Cruces and Trebesch (2013). "Above-median haircut" indicates above-median market haircut at time of default, as calculated by Cruces and Trebesch (2013). Sample includes 88 external debt defaults since 1979, of which 43 occurred from 1990 onwards.
E. Latest data are for 2021. Domestic government debt for Nepal, Pakistan, and Sri Lanka (from various IMF Article IV staff reports) is domestic currency-denominated debt; for Bangladesh and India (from Kose et al. 2022) domestic government debt is debt held by domestic residents. Unweighted average for EMDEs.
F. Unweighted averages for 2010–22 for EMDEs with above-median or below-median share of domestic debt of government debt.

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HIGHLIGHTS from Chapter 2:
Recruiting firms for the energy transition

Key Points

- *New energy-efficient technologies offer South Asian countries the opportunity to modernize their firms and reduce their reliance on fossil fuels.*
- *The region's energy use per unit of output is twice the global average but it has been declining, in large part due to firm-level, within-sector cuts in energy intensity.*
- *The region's firms are adopting basic energy-efficient technologies but lag behind in the adoption of more advanced technologies.*
- *Market-based regulations, dissemination of accurate information on energy-efficient technologies and financial support policies have been effective in encouraging the adoption of energy-efficient technologies.*

Energy consumption and the energy intensity of output in South Asia. Energy consumption per unit of output is twice the global average in South Asia. It has declined since 2010, but not at a pace rapid enough to offset the impact of the region's economic growth on total energy consumption, which has increased by about 3 percent per year over the past decade.

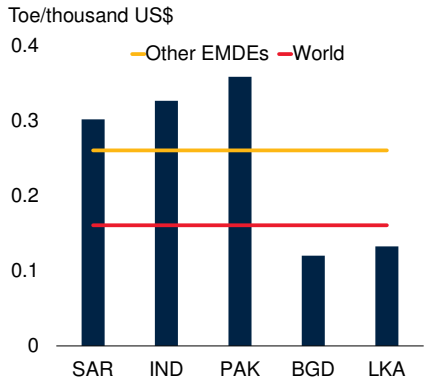
Declining firm-level energy intensity. South Asia's energy use per unit of output in manufacturing and services has declined largely due to cuts in energy intensity within subsectors, among firms, and not shifts in activity to less energy-intensive subsectors. The region's firm-level energy intensity declined by 4 percent per year between 2006 and 22, faster than in other emerging markets and developing economies (EMDEs).

Energy-efficient technology adoption by firms. South Asian firms are enthusiastic adopters of basic energy-efficient technologies, but lag in the adoption of more advanced technologies. For example, a recent survey finds that more than three-quarters of South Asian firms have adopted basic energy-efficient lighting, a larger share than in other EMDEs. In contrast, fewer than 7 percent of firms have installed a more advanced technology, programmable thermostats—a rate in the lower half of the range across other EMDEs. In part, this reflected limited access to information. In a study of leather goods firms in Bangladesh, the actual energy savings from a new technology were more than twice those initially expected by firms.

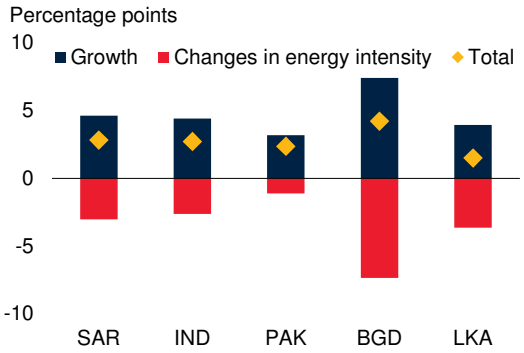
Policy implications. Diffusion of energy-efficient technologies could help lower harmful energy-related emissions, while also generating energy expenditure savings among firms. Regulation and/or environmental taxation can help to close the gap between the social and private benefits of energy-efficient technologies. Eliminating wasteful energy subsidies would be a start: in some South Asian countries, fossil fuels and fossil fuel-generated electricity are priced so far below world prices that the effective price of carbon is negative. Well-targeted technology dissemination programs could employ information and behavioral "nudges" to promote energy-efficient technologies among firms, while financial support policies could prove effective for firms deterred by the high upfront cost of such technologies.

Figure 1. Recruiting firms for the energy transition in South Asia

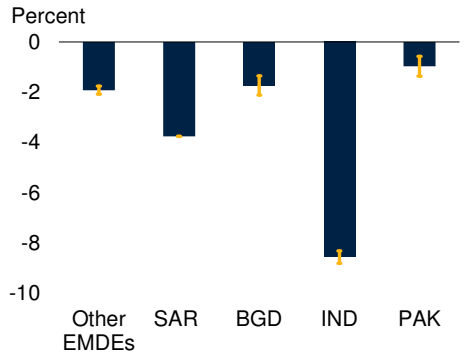
A. Energy intensity of output, 2020



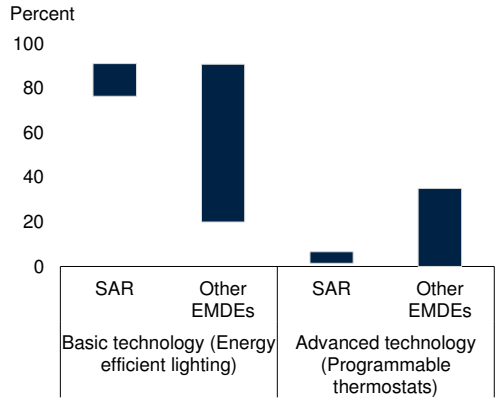
B. Contributions to energy consumption growth, 2010-20



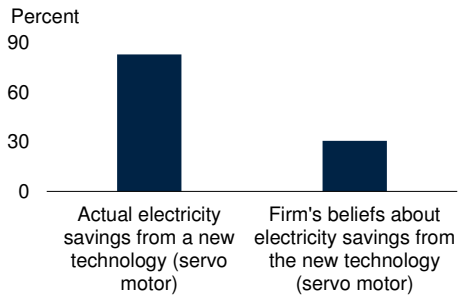
C. Average annual change in firm level energy intensity, 2006–22



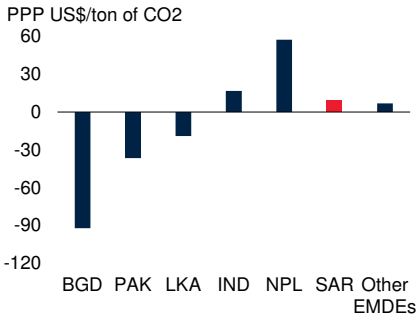
D. Share of firms adopting energy efficient technologies



E. Average electricity savings from a new technology: Actual versus firms' beliefs



F. Total carbon price, 2021



Sources: Agnolucci et al. (2023); Chaurey et al. (2023); European Commission; OECD Green Growth database; World Development Indicators; World Bank Enterprise Surveys, World Bank; Wave 2 Firm-level Adoption of Technology Survey, World Bank.

Note: EMDEs = emerging market and developing economies; SAR = South Asia; BGD = Bangladesh; IND = India; LKA = Sri Lanka; NPL = Nepal; PAK = Pakistan.

A. Data on energy consumption in South Asia are only available 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 '000 U.S. dollars) in 2020.

B. Based on decomposition of total energy growth into contribution of sectoral changes in energy intensity and sectoral output growth in three sectors—agriculture, industry, and services.

C. The chart shows the annual within-subsector growth rate of mean firm-level energy intensity. It is based on OLS regressions of log firm-level energy intensity on year, with country-specific subsector fixed effects, using data from two waves of World Bank Enterprise Surveys: Bangladesh 2022 and 2006; India 2022 and 2014; Pakistan 2022 and 2006; Other EMDEs 2006 and 2022. India 2006 unavailable. Total sample size is 73,171 firms. Separate regressions estimated for Bangladesh, India, Pakistan and a pooled dataset of all other EMDEs. The SAR average is the unweighted average of the estimated annual growth rate of South Asian countries. The WBES do not cover firms in agriculture, transportation, mining, and construction. Energy intensity defined as ratio of electricity and wage bill.

D. The chart depicts the range of country-level averages of percent of firms adopting energy-efficient lighting and programmable thermostats in South Asia and other EMDEs. For each country, the average percent of firms adopting a technology is estimated using sampling weights. Based on data from Wave 2 of the World Bank's Firm-level Adoption of Technology Surveys of 10,090 firms in Bangladesh, India and five other EMDEs (Brazil, Cambodia, Chile, Ethiopia, and Georgia).

E. From a study of technology adoption among 504 firms in the leather goods sector of Bangladesh (Chaurey et al. 2023). The left bar depicts the estimated percentage reduction in electricity consumption per day from switching a clutch motor (old technology) with a servo motor (new technology) in a sewing machine, based on readings from electricity meters installed in 124 firms. The right bar depicts the percentage reduction in electricity consumption implied by firms' mean beliefs about electricity consumption per day in clutch versus servo motor sewing machines, estimated from survey data.

F. The Total Carbon Price combines a comprehensive set of direct carbon pricing policies with indirect interventions on carbon-containing energy source to measure the aggregate carbon price signal faced by agents in the economy. The Direct Carbon Price component of the Total Carbon Price includes all carbon taxes and emission trading systems, adjusted for the share of the country's carbon emissions covered by such direct carbon taxes. The Indirect Carbon Price component includes fuel excise taxes, fuel subsidies, and value-added tax (VAT) deviations (arising if VAT rates on fuels are below the standard VAT rate). For each fuel and sector, the Indirect Carbon Price is estimated as the deviation between the retail price and the supply cost, adjusting for the upstream carbon price. A negative Total Carbon Price is to be interpreted as a net subsidy on carbon, while a positive Total Carbon Price is to be interpreted as a tax. Further details are available in Agnolucci et al. (2023). SAR and EMDE averages are emissions-weighted.

South Asia Development Update
Towards faster, cleaner growth

HIGHLIGHTS from Chapter 3:
Stranded jobs? The energy transition in South Asia's labor markets

Key Points

- *South Asia has more pollution-intensive jobs than green jobs. The majority of jobs are "pollution-neutral"—neither green nor pollution-intensive.*
- *Workers in pollution-intensive jobs are concentrated in manufacturing, have lower education, are more likely to be informal, and earn less than other workers. Even after taking into account differences in characteristics, workers in green jobs earn a 7 percent wage premium relative to other workers.*
- *Policies to accelerate job creation, facilitate worker mobility, improve access to high-quality education, training, and well-design social safety nets can ease affected workers' transition.*

More pollution-intensive jobs than green jobs in South Asia. In the six countries with available data, 2-11 percent of workers were employed in green jobs. The range was narrower for pollution-intensive jobs, at 6-11 percent. In all countries except India, pollution-intensive jobs outnumbered green jobs. The vast majority of jobs are classified as "pollution-neutral"—neither green nor pollution-intensive.

Workers in green and pollution-intensive jobs are systematically different. Pollution-intensive jobs were highly concentrated in manufacturing, which accounted for about one-half of them, with about one-sixth in construction. Conversely, green jobs were more dispersed across sectors. Highly-educated and formal workers were more likely to be employed in green jobs, while workers in pollution-intensive jobs were less educated and more likely to be informally employed.

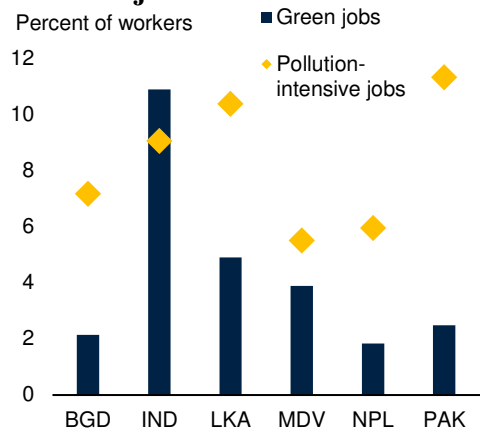
Earnings premium in green jobs. Workers in green jobs earn about 31 percent more than other workers. Much of this wage differential reflected worker characteristics. Even after controlling for worker, industry, and location characteristics, workers in green jobs received 7 percent higher wages than their peers in non-green jobs.

Potential for green jobs in South Asia. South Asia has strong potential for solar and wind power generation. Solar-powered electricity generation in the region has grown rapidly and large-scale investment in green technologies is already underway. The green transition requires investments that will likely produce a skill-biased shift in the composition of jobs and lift labor productivity, including by encouraging more firms and workers to operate in the formal sector.

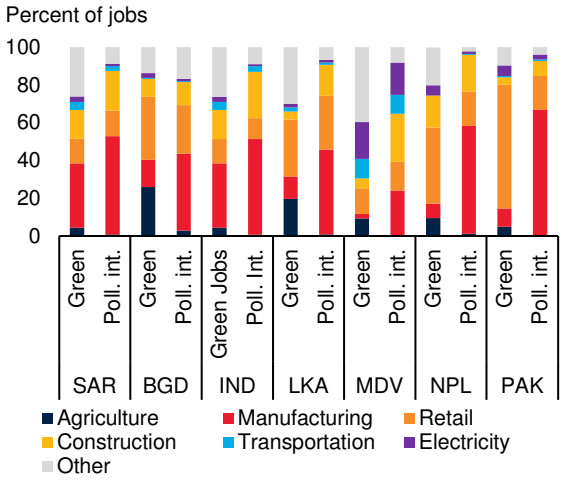
Policy priorities. Lower-educated, informal, lower-paid workers in pollution-intensive jobs are at risk of being stranded. Efforts to accelerate overall job creation and to help the most affected workers and regions adjust are a priority. Measures to improved access to finance and high-quality education and training, to facilitate the mobility of workers, as well as a robust social safety net, can support the transition of affected workers into pollution-neutral jobs. Regional policies can help shore up economic activity in the most adversely affected regions. Each policy needs to be carefully designed and coordinated across different levels of government to avoid fiscally costly interventions that do not improve aggregate employment or productivity and incomes.

Figure 1. Green and pollution-intensive jobs in South Asia

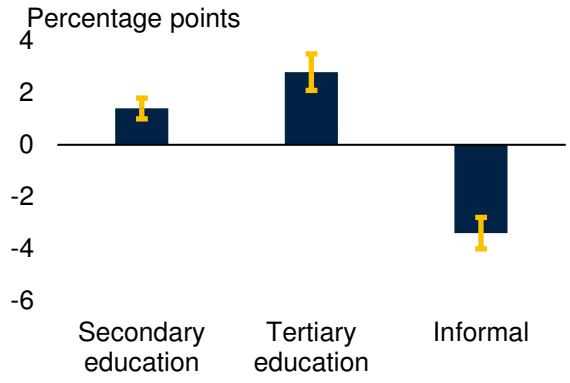
A. Share of green jobs and pollution-intensive jobs



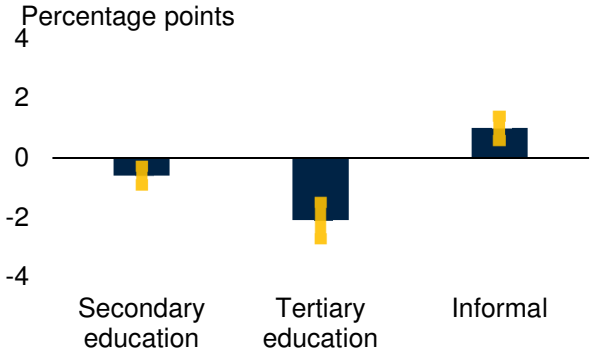
B. Distribution of green jobs and pollution-intensive jobs



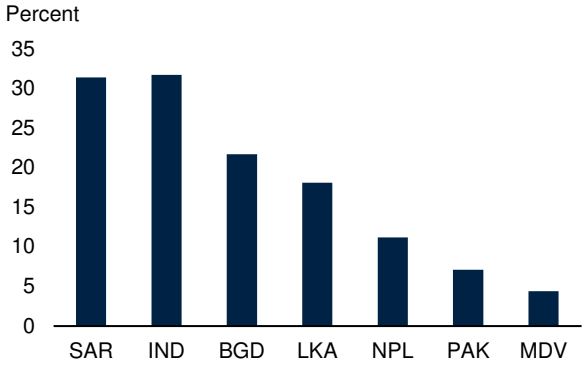
C. Marginal probability of working in a green job relative to the average job



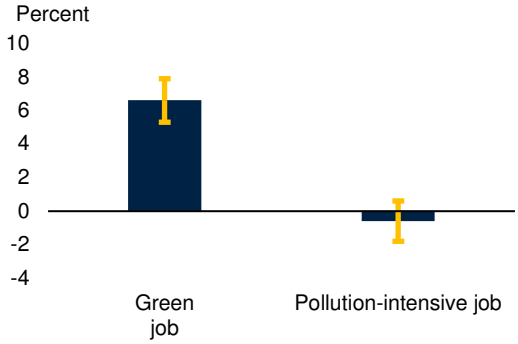
D. Marginal probability of working in a pollution-intensive job relative to the average job



E. Raw wage differential between workers in green jobs and other workers



F. Wage premium for green and pollution-intensive jobs



Sources: National statistical offices, World Bank.

Note: Green jobs are those in occupations that have some environmentally friendly tasks, such as recycling. Pollution-intensive jobs are those that are most common in industries with above-median pollution intensity, such as machinery mechanic. Labor force surveys are available for Bangladesh (2015), India (2018), the Maldives (2019), Nepal (2017), Pakistan (2018), and Sri Lanka (2019).

B. All other sectors include mining and quarrying; financial services and insurance; health and social work, education, public administration and defense; compulsory social security; and other community, social and personal services.

C.D. Marginal probabilities as estimated in probit regressions of a dummy variable of being employed in a green job (A) or polluting job (B) conditional on being in an urban location, having completed secondary or tertiary education, being aged 24–54 or 55 or older, and being informally employed. The regressions control for industry and subnational entity dummies.

E. Wage differential is the difference in the average wages between workers in green jobs and other workers.

F. A Mincer regression estimates the rate of returns to being in a green and pollution intensive jobs, dubbed “wage premium”. The analysis entails regressing log earnings on dummy variables for being employed in a green job or pollution-intensive jobs conditional on being in an urban location, having completed secondary or tertiary education, and being aged 24–54 or 55 or older, potential experience, and being informally employed. The regressions control for industry and subnational entity dummies.