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).

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,
**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

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**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

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

Notes: 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.

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).3

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 productivity increases are needed to achieve per capita income gains.2

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2 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.

3 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, 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.

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.

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 2002 in Bangladesh (in 1966), India (in 1967), 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.
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; Kapso 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). The baseline employment data come 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 Marshallian (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 countries except Nepal, women’s long-run employment ratios are significantly below the EMDE average.

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4 Because of unavailable data, Afghanistan is excluded from this chapter’s analysis.
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.

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.\(^5\) 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.\(^6\) 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 in countries with similar per capita incomes (World Bank 2021). Among South Asian countries, the employment

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\(5\) 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.

\(6\) 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 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
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. Employment-weighted averages for all country groups. Sample comprises 128 EMDEs.

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.

Labor productivity growth: Above-average. Following above-average rates during the 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

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.

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.

Employment composition: A shift toward government, as elsewhere. Over 2009–19, amid rapidly rising government debt and major public
reduced growth until the pandemic. Since the pandemic, labor productivity has slowed sharply.\(^7\)

### 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.

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

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**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.

**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.

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

**Note:** Productivity = output per worker. Agri. = Agriculture; Emp. = Employment; Indus. = 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.
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.8 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.

- 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. 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-

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9 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.
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 Lapošek 2010).

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

\[\text{Sources: GGDC/UNU-WIDER Economic Transformation Database; International Labour Organization; Penn World Tables database; WDI database; World Bank.}\]

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

A. Major constraints cited by firms, 2000–19

<table>
<thead>
<tr>
<th>Constraint</th>
<th>Percent of firms citing major constraint</th>
<th>Average long-run employment ratio, by quartile of EMDEs</th>
<th>Coefficient estimates for firms’ major constraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political instability</td>
<td>20.4%</td>
<td>Bottom quartile: 45.3%</td>
<td>-0.01</td>
</tr>
<tr>
<td>Corruption</td>
<td>19.1%</td>
<td>Top quartile: 77.0%</td>
<td>0.00</td>
</tr>
<tr>
<td>Tax rate</td>
<td>16.9%</td>
<td>Bottom quartile: 45.3%</td>
<td>-0.01</td>
</tr>
<tr>
<td>Tax administration</td>
<td>16.9%</td>
<td>Top quartile: 77.0%</td>
<td>0.00</td>
</tr>
</tbody>
</table>

B. Aggregate employment ratio: Coefficient estimates for firms’ major constraints

C. EMDEs: Predicted deviations from average long-run employment ratio, by percent of firms citing major constraints

D. South Asia: Differences in predicted long-run employment ratios if share of firms citing constraints were in the best quartile of EMDEs

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

Notes: 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.
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.

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-agriculture sectors have been associated with significantly higher long-run non-agriculture 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.\(^\text{11}\)

\(^\text{11}\) 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). 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 Goaied 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 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

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12 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). 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 (Jiwattanakulpaisarn 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 (Jiwattanakulpaisarn 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 Cooperation 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).

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13 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 uncertain.
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 Santaeulàlia-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 McGranahan 2013). That said, agglomeration benefits such as economies of scale

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**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**

- Number per 100,000 adults
  - Range: Percent of working capital
  - Weighted average

**B. Non-agricultural employment ratio: Coefficient estimates for access to finance**

- Coefficient: Bank branches
- Coefficient: Bank-financed capital
- Coefficient: Constrained financial access

**C. EMDEs: Predicted deviations from average long-run non-agricultural employment ratio, by indicator**

- Percentage points of working-age population
- Bottom quartile
- Top quartile

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

- Percentage points of working-age population
- Bank branches
- Bank-financed capital
- Constrained financial access

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: EMDE = 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 that is bank financed. 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. Charts are based on the regression results of annex table A2.5.1.

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 bank financed are 5.5 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 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.

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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-agricultural sectors.

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.

A. Indicators of education, 2000–19

B. Coefficient estimates for government education spending, gender education gap, and literacy rate

C. EMDEs: Predicted deviations from average long-run non-agricultural employment ratio, by indicators

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

Source: 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; Edu. = 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. 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 and gender education gap are ~0.8 percentage points 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.
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 indicators 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 Asia 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 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 2.18 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.

A. Women: Deviations from long-run employment ratio and GDP per capita

B. Women in agriculture: Deviations from long-run employment ratio and GDP per capita

C. Women in non-agriculture: Deviations from long-run employment ratio and GDP per capita

D. Coefficient estimates on long-run women’s total and non-agricultural employment ratios

Source: 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 show the trajectory 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.
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.

**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.

A. Selected features of South Asian economies, latest

<table>
<thead>
<tr>
<th>Feature</th>
<th>SAR</th>
<th>Other EMDEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Exports Literacy</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>Export</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Literacy</td>
<td>6</td>
<td>4</td>
</tr>
</tbody>
</table>

B. South Asia: Difference in predicted long-run non-agricultural employment ratio if indicator was equal to median of other EMDEs

![Graph showing differences in employment ratios]

Source: 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.

**Policy priorities for South Asia**

**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, Ubfal, 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

*Note: Annex 2.1 was prepared by Lynn Hu (SARCE).*
The literature provides a wide range of estimates on the growth elasticity of total employment. The range estimates for the advanced economies (AEs) were derived from 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:

$$EWAP_{c,t} - EWAP_{c,t-1} = a + b_1 DProd_{c,t} + b_2 DWAP_{c,t} + b_3 EWAP_{c,t-1} + d_t + e_{c,t}$$

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 ($e_{c,t}$) capture country characteristics that do not change over time. The analysis is conducted separately for the total employment ratio, by gender and by sector. Only two sectors are considered: agriculture and non-agriculture.

**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 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).

**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.

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14 In the analysis by gender, gender-specific working-age population growth is used.

15 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.\(^{16}\)

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.

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\(^{16}\) 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:

\[ \log y_{i,t+1} - \log y_{i,t} = a + b (\log y_{i,t} - \log y^*) \]

where \( y_{i,t} \) 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:

\[ \log y_{i,t+1} - \log y_{i,t} = c + b \times \log y_{i,t} \]

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 \( y_{i,*} \). (V/e equation that captures the relationship between growth and steady state becomes:

\[ \log y_{i,t+1} - \log y_{i,t} = a + b (\log y_{i,t} - \log y_{i,*}) \] 

The value \( b \times \log y_{i,*} \) is now a country-specific constant, which motivates the fixed effects regression:

\[ \log y_{i,t+1} - \log y_{i,t} = c_i + b \times \log y_{i,t} \]

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-Bernaté 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

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<th>Paper</th>
<th>Period of main sample</th>
<th>Region</th>
<th>Sample coverage</th>
</tr>
</thead>
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<td>1972-2010</td>
<td>South Asia</td>
<td>India</td>
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<td>Ben-Salha and Zmami (2021)</td>
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<td>Africa</td>
<td>Nigeria</td>
</tr>
</tbody>
</table>

*Source: World Bank.*
## ANNEX TABLE A2.3.1 Baseline regression

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1) Total</th>
<th>(2) Female</th>
<th>(3) Male</th>
<th>(4) Non-agriculture</th>
<th>(5) Agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor productivity growth</td>
<td>-0.1192***</td>
<td>-0.1043***</td>
<td>-0.1308***</td>
<td>-0.0404***</td>
<td>-0.0797***</td>
</tr>
<tr>
<td>Working-age population growth</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>-0.1937***</td>
<td>-0.1210***</td>
<td>-0.0730***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>-0.1879***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td>-0.2520***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial employment ratio</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>-0.0622***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>-0.0599***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td>-0.0607***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-agriculture</td>
<td></td>
<td>-0.0512***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td></td>
<td></td>
<td>-0.0485***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>4.4334***</td>
<td>3.4728***</td>
<td>5.2174***</td>
<td>2.2074***</td>
<td>1.4587***</td>
</tr>
</tbody>
</table>

| 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

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1) Baseline All countries, 1960-2019</th>
<th>(2) All EMDEs</th>
<th>(3) Baseline with trimmed sample</th>
<th>(4) Baseline with 10-year averages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor productivity growth</td>
<td>-0.1192*** [0.0218]</td>
<td>-0.0527*** [0.0114]</td>
<td>-0.1069*** [0.0211]</td>
<td>-0.1671*** [0.0151]</td>
</tr>
<tr>
<td>Working-age population growth</td>
<td>-0.1947*** [0.0368]</td>
<td>-0.2726*** [0.0800]</td>
<td>-0.1882*** [0.0353]</td>
<td>-0.2365*** [0.0302]</td>
</tr>
<tr>
<td>Initial employment ratio</td>
<td>-0.0622*** [0.0124]</td>
<td>-0.0437*** [0.0086]</td>
<td>-0.0696*** [0.0116]</td>
<td>-0.0598*** [0.0108]</td>
</tr>
<tr>
<td>Constant</td>
<td>4.4334*** [0.7700]</td>
<td>3.5284*** [0.6423]</td>
<td>4.8639*** [0.7126]</td>
<td>4.4522*** [0.6673]</td>
</tr>
</tbody>
</table>

- Observations: 2058
- Number of countries: 103
- Adjusted R-squared: 0.234
- Year dummies: Yes
- Country fixed effects: 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

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1) Female</th>
<th>(2) Female non-agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor productivity growth</td>
<td>-0.1043*** [0.0192]</td>
<td>-0.0387*** [0.0113]</td>
</tr>
<tr>
<td>Female working-age population growth</td>
<td>-0.1879*** [0.0356]</td>
<td>-0.1038*** [0.0342]</td>
</tr>
<tr>
<td>Initial employment ratio</td>
<td>-0.0599*** [0.0101]</td>
<td>0.0481** [0.0189]</td>
</tr>
<tr>
<td>Female non-agriculture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>3.4728*** [0.5260]</td>
<td>1.6094*** [0.4880]</td>
</tr>
</tbody>
</table>

- Observations: 2058
- Number of countries: 103
- Adjusted R-squared: 0.192
- Year dummies: Yes
- Country fixed effects: 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) 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

<table>
<thead>
<tr>
<th>Variables (included one at a time)</th>
<th>Number of obs.</th>
<th>(1) Total</th>
<th>(2) Female</th>
<th>(3) Male</th>
<th>(4) Non-agriculture</th>
<th>(5) Female non-agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trade-related variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total exports (percent of GDP)</td>
<td>101</td>
<td>0.0065</td>
<td>-0.0017</td>
<td>0.0123*</td>
<td>0.0249***</td>
<td>0.0166***</td>
</tr>
<tr>
<td>Goods exports (percent of GDP)</td>
<td>100</td>
<td>0.0077</td>
<td>-0.0002</td>
<td>0.0133</td>
<td>0.0232***</td>
<td>0.0151***</td>
</tr>
<tr>
<td>Services exports (percent of GDP)</td>
<td>100</td>
<td>-0.0149</td>
<td>-0.0171</td>
<td>-0.0119</td>
<td>0.0257**</td>
<td>0.0223</td>
</tr>
<tr>
<td><strong>Finance-related variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Credit to the private sector (percent of GDP)</td>
<td>102</td>
<td>-0.0006</td>
<td>-0.0057</td>
<td>0.0036</td>
<td>0.0131***</td>
<td>0.0083***</td>
</tr>
<tr>
<td>Number of commercial bank branches (per 100,000 adults)</td>
<td>102</td>
<td>-0.0114</td>
<td>-0.0193*</td>
<td>-0.0045</td>
<td>0.0224***</td>
<td>0.0155***</td>
</tr>
</tbody>
</table>

**Source:** 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

<table>
<thead>
<tr>
<th>Variables (included one at a time)</th>
<th>Number of obs.</th>
<th>(1) Total</th>
<th>(2) Female</th>
<th>(3) Male</th>
<th>(4) Non-agriculture</th>
<th>(5) Female non-agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average establishment size</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacturing</td>
<td>60</td>
<td>0.0157</td>
<td>-0.0024</td>
<td>0.0278</td>
<td>0.0493**</td>
<td>0.0293**</td>
</tr>
<tr>
<td>Services</td>
<td>55</td>
<td>0.2019***</td>
<td>0.0293</td>
<td>0.3292***</td>
<td>0.3287***</td>
<td>0.1629***</td>
</tr>
<tr>
<td><strong>Product market regulation index (EFW)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall index</td>
<td>103</td>
<td>0.0779</td>
<td>-0.0929</td>
<td>0.2105</td>
<td>0.3089***</td>
<td>0.1686**</td>
</tr>
<tr>
<td>Bureaucracy cost</td>
<td>103</td>
<td>0.0827</td>
<td>0.0412</td>
<td>0.1003</td>
<td>0.2491***</td>
<td>0.2071***</td>
</tr>
<tr>
<td>Impartial public</td>
<td>103</td>
<td>-0.0181</td>
<td>-0.0256</td>
<td>-0.0198</td>
<td>0.1436***</td>
<td>0.1348***</td>
</tr>
<tr>
<td><strong>Labor market regulation index (EFW)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall index</td>
<td>103</td>
<td>-0.0474</td>
<td>-0.0400</td>
<td>-0.0662</td>
<td>0.1265*</td>
<td>0.1086</td>
</tr>
<tr>
<td>Labor regulations and minimum wage</td>
<td>103</td>
<td>0.0781</td>
<td>0.0192</td>
<td>0.1199**</td>
<td>0.1658***</td>
<td>0.1136***</td>
</tr>
<tr>
<td><strong>Firms identifying major constraint in</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(percent of firms, Enterprise Survey)</td>
<td>95</td>
<td>-0.0134***</td>
<td>-0.0132**</td>
<td>-0.0127***</td>
<td>-0.0606</td>
<td>-0.0605</td>
</tr>
<tr>
<td>Tax rate</td>
<td>95</td>
<td>-0.0134**</td>
<td>-0.0146**</td>
<td>-0.0106**</td>
<td>-0.0102*</td>
<td>-0.0099</td>
</tr>
<tr>
<td>Tax administration</td>
<td>95</td>
<td>-0.0037</td>
<td>0.0004</td>
<td>-0.0060</td>
<td>-0.0270***</td>
<td>-0.0233***</td>
</tr>
<tr>
<td>Access to land</td>
<td>95</td>
<td>-0.0108**</td>
<td>-0.0155***</td>
<td>-0.0053</td>
<td>-0.0072**</td>
<td>-0.0107***</td>
</tr>
<tr>
<td>Political instability</td>
<td>95</td>
<td>-0.0094*</td>
<td>-0.0152***</td>
<td>-0.0021</td>
<td>-0.0056</td>
<td>-0.0083*</td>
</tr>
<tr>
<td>Corruption</td>
<td>95</td>
<td>-0.0032</td>
<td>0.0036</td>
<td>-0.0086*</td>
<td>-0.0200***</td>
<td>-0.0150***</td>
</tr>
<tr>
<td>Access to finance</td>
<td>95</td>
<td>-0.0054</td>
<td>0.0075</td>
<td>0.0032</td>
<td>-0.0179***</td>
<td>-0.0184***</td>
</tr>
</tbody>
</table>

**Source:** 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 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 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

<table>
<thead>
<tr>
<th>Variables (included one at a time)</th>
<th>Number of obs.</th>
<th>(1) Total</th>
<th>(2) Female</th>
<th>(3) Male</th>
<th>(4) Non-agriculture</th>
<th>(5) Female non-agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Literacy rate (percent of people 15+)</td>
<td>99</td>
<td>-0.0033</td>
<td>-0.0083**</td>
<td>0.0004</td>
<td>0.022***</td>
<td>0.016***</td>
</tr>
<tr>
<td>Government expenditure on education (percent of GDP)</td>
<td>100</td>
<td>-0.0949*</td>
<td>-0.1079</td>
<td>-0.0862</td>
<td>0.0908*</td>
<td>0.0766*</td>
</tr>
<tr>
<td>Gender education gap (female-male difference in secondary education rate)</td>
<td>97</td>
<td>0.0358**</td>
<td>0.0005</td>
<td>0.0648***</td>
<td>0.0646***</td>
<td>0.0398***</td>
</tr>
<tr>
<td>Overall index</td>
<td>103</td>
<td>0.0062</td>
<td>0.0252**</td>
<td>-0.0124</td>
<td>0.0048</td>
<td>0.0223***</td>
</tr>
<tr>
<td>Entrepreneurship</td>
<td>103</td>
<td>0.0021</td>
<td>-0.0010</td>
<td>0.0042</td>
<td>0.0148***</td>
<td>0.0125***</td>
</tr>
<tr>
<td>Mobility</td>
<td>103</td>
<td>0.0035</td>
<td>0.0135***</td>
<td>-0.0060</td>
<td>0.0000</td>
<td>0.0084***</td>
</tr>
<tr>
<td>Workplace</td>
<td>103</td>
<td>0.0036</td>
<td>0.0088**</td>
<td>-0.0016</td>
<td>0.0010</td>
<td>0.0065**</td>
</tr>
<tr>
<td>Pay</td>
<td>103</td>
<td>0.0040</td>
<td>0.0112***</td>
<td>-0.0019</td>
<td>0.0019</td>
<td>0.0083***</td>
</tr>
<tr>
<td>Marriage</td>
<td>103</td>
<td>0.0059</td>
<td>0.0155***</td>
<td>-0.0040</td>
<td>0.0042</td>
<td>0.0123***</td>
</tr>
<tr>
<td>Assets</td>
<td>103</td>
<td>0.0052</td>
<td>0.0130***</td>
<td>-0.0031</td>
<td>0.0068**</td>
<td>0.0139***</td>
</tr>
</tbody>
</table>

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 male 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


Braunmiller, J. C., I. S. Recavarren, A. Mittal, and T. Khatri. 2023b. “How Did India Successfully Reform


