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The Distributional Effects of FDI: Evidence from Ethiopia, Vietnam, and Turkey

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Key Findings

- **Many countries aim to attract foreign investment to help create jobs and reduce poverty.** Yet empirical evidence on the direct poverty-reducing effects of FDI is surprisingly scarce, especially in developing countries. Little is also known about the aggregate effects of FDI on income distributions.
- **Analysis of unique firm-level and household data from Ethiopia, Vietnam, and Turkey shows that FDI firms create new jobs and pay higher wages than domestic firms.** Workers in sectors and regions with higher foreign-firm presence are generally more likely to be formally employed and receive higher wages. FDI allowed more than 350,000 individuals to enter formal manufacturing employment in Vietnam between 2007 and 2016, and at least 40,000 in Turkey between 2009 and 2016. FDI also raised average manufacturing wages by 32 percent in Ethiopia, 12 percent in Vietnam, and 8 percent in Turkey.
- **Consequently, FDI-induced wage increases helped reduce poverty in all three countries.** Conservative estimates suggest that FDI contributed to lifting at least 35,000 individuals out of poverty in Ethiopia during 2009–14; 24,000 in Vietnam (2007–16); and 15,000 in Turkey (2009–16). Although the FDI-induced wage increases helped improve the incomes of the bottom 40 percent of the population in all three countries, the effects across the entire income distribution differed significantly across countries. In Ethiopia, the benefits of FDI were more concentrated in the bottom 40 percent, while in Vietnam, the welfare gains were evenly distributed across the income distribution. Turkey had the greatest average wage benefits from FDI but also experienced increases in wage inequality.
- **However, FDI can also contribute to inequality by disproportionately benefiting better-educated and higher-skilled workers.** When comparing regions and sectors with higher FDI activity with those with no FDI, higher-skilled workers experience large benefits, while low-skilled workers may see no changes or even experience relative short-term declines in formal employment and wages.
- **The possible adverse effects of FDI on income inequality and on lower-skilled workers emphasize the importance of a country's labor market and education policies.** Key policies include strengthening the absorptive capacity of domestic firms and workers (for example, through programs that foster FDI-supplier linkages and employment training); supporting vulnerable communities (such as lower-skilled workers, youths, and women) with active jobs information, provision, and skills certification; and establishing programs to stimulate labor mobility within countries.

Introduction

Many countries around the world aim to attract foreign investment to help create jobs and reduce poverty. Yet direct empirical evidence on the direct poverty-reducing effects of foreign direct investment (FDI) is surprisingly scarce. Most of the earlier literature focused on the ability of FDI to raise economic growth, which in turn is associated with reductions in poverty (Chen and Ravallion 2007). However, it is notably difficult to estimate the growth effects of FDI precisely (Lipsey 2003). FDI's poverty-alleviating effects may also be greater or less than average because of its direct influence on a country's aggregate employment numbers and average wages (Nunnenkamp, Schweickert, and Wiebelt 2007).

A second generation of literature then argued that FDI helps raise household income because formal firms pay premium wages.¹ While important, this literature focuses on firm-level effects. This can present a biased picture because foreign-owned firms may be "cherry-picking" the most productive workers, possibly leading to labor shifts among firms with no real change in overall employment or household income. Using firm-level data also means that the aggregate effects on labor markets that most policy makers care about (such as creation of formal jobs and growth in average wages) cannot be observed. To better establish the relationship between FDI and development, it is therefore important to consider FDI's effect at the household level. So far, robust economic analysis doing so has been limited.

Little is also known about the aggregate effect of FDI on income distributions. This relationship has become particularly important in recent years, as backlashes against globalization have been attributed to growing concerns around the effects of trade and investment on rising levels of income inequality. This may have played a role in reducing investor confidence and FDI flows in recent years (see Overview).

Recent findings about trade liberalization indeed confirm that some evidence backs such popular sentiments. For higher-income countries, import liberalization may have increased competition in less-skilled, labor-intensive industries while favoring demand for skilled workers (Acemoglu and Autor 2011; Acemoglu and Restrepo 2017; Goldberg and Pavcnik 2007; Maloney and Molina 2016; Michaels, Natraj, and Van Reenen 2014; Pavcnik 2017). Tariff reductions on Chinese products contributed to substantial job losses in U.S. manufacturing in the 1990s and 2000s (Autor, Dorn, and Hanson 2013; Pierce and Schott 2016). Similarly, in Brazil, trade liberalization and import competition strongly affected local labor markets, resulting in wage increases for skilled workers but wage declines for unskilled workers. These effects persisted up to 20 years after import liberalization (Dix-Carneiro and Kovak 2015).

It is important to better understand the role that FDI plays in national income distributions. This could help counter nationalist sentiments around FDI by providing opposing evidence or by stressing the need for complementary interventions that proactively address FDI's impact on income inequality. To do so, it is critical to understand the potential impact that FDI may have across different countries, sectors, and workers with different skill levels.

This study aims to answer two vital questions around the contribution of FDI to development:

- How does the presence of FDI firms influence labor market outcomes (formal employment and wages)?
- What are the effects of FDI firms' presence on poverty and income distributions?

This analysis will help demonstrate the effects of FDI on jobs and offer practical insights into how investment promotion can support inclusive growth. It will investigate the effect of FDI presence on the World Bank Group's twin goals to end extreme poverty and boost shared prosperity.²

This report also ties in with the wider discussions around FDI and development and relates to the renewed focus by the United Nations (UN), Organisation for Economic Co-operation and Development (OECD), and others on “Promoting Investment in the Sustainable Development Goals” (UNCTAD 2018).³

To examine the effects of FDI, this chapter studies three countries where FDI increased greatly in the past 20 years: Ethiopia, Vietnam, and Turkey (in order of lowest to highest income level). The analysis links firm-level data with household survey data to examine the effect that economic activity from multinational enterprises (MNEs) has on local labor market outcomes (jobs and wages).

The analysis focuses on MNE presence rather than FDI inflows for two reasons: First, FDI inflow data broken down by sector are rarely available across countries. Second, FDI inflows merely measure the amount of cross-border financing, which may or may not materialize into meaningful economic activities. By focusing on the activity of MNEs, this study follows recent research that has increasingly analyzed firm-level operational data to better understand the impact of FDI on host economies (Alfaro and Chauvin, forthcoming; Antràs and Yeaple 2014).

The exercise exploits variations in MNE total sales (as a share of a sector’s and region’s total output) to compare the formal employment and average wages of workers employed in sectors and regions with higher MNE activity with those with lower MNE activity. To explore the distributional impact of FDI firms, the analysis focuses on the potential skill bias by comparing the effects of MNE activities on labor market outcomes in higher- and lower-skilled sectors and for workers with different education levels. It uses these estimated effects to estimate a simple back-of-the-envelope counterfactual income (without MNE activities). From this, it assesses the aggregate effect of FDI on poverty reduction and shared prosperity (income gain of the bottom 40 percent).

Income equality is measured through two metrics: the Gini coefficient and the Palma ratio (the ratio of the richest 10 percent of the population’s share of gross national income divided by the poorest 40 percent’s share).

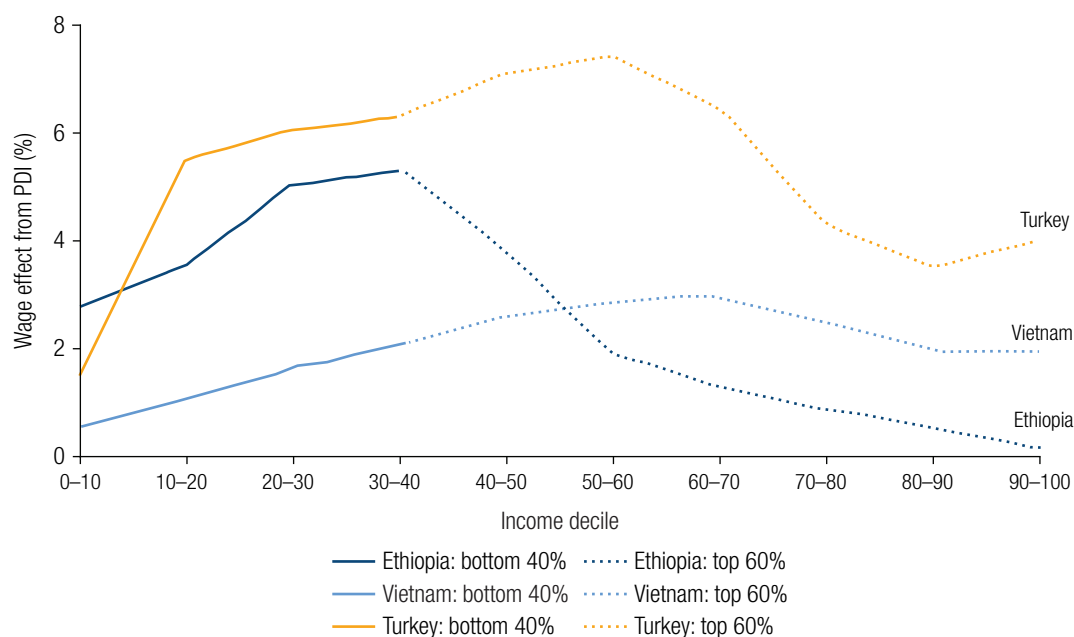
The analysis finds that increases in MNE activities have a significant differential effect on formal job creation and wages. Workers in sectors and regions with a higher share of MNE output are more likely to be formally employed and receive higher wages (relative to workers in sectors with a lower share of MNE output). In aggregate, the estimations suggest the following:

- *In Vietnam*, on average, FDI has contributed to more than 350,000 individuals switching from informal to formal manufacturing employment each year between 2007 and 2016. FDI also resulted in 12 percent higher wages in manufacturing and 2 percent higher wages in services.
- *In Turkey*, manufacturing FDI is associated with around 40,000 additional formal jobs from 2009 to 2016 annually and an 8 percent increase in average wages. No effects were identified on formal employment or on average wages in Turkey’s services sector.
- *In Ethiopia*, aggregate formal employment effects are insignificant, but FDI contributed to a large increase (32 percent) in manufacturing wages. No information was available for Ethiopia’s services.

FDI-induced growth in formal jobs and wages has translated into increased shared prosperity and reduced poverty. The wage benefits from FDI were positive and sizable for all three countries studied. Yet, the distributional effects differ across countries (figure 3.1):

- *In Ethiopia*, the wage effects from low-skilled manufacturing FDI are highly positive but limited in magnitude because of the manufacturing sector’s small scale. The income benefits are with the bottom 40 percent and linked to declining income inequality. Wage increases from FDI are

FIGURE 3.1 FDI Has Had Varied Effects on National Income Distributions in Ethiopia, Vietnam, and Turkey



Source: World Bank.
Note: FDI = foreign direct investment.

found to have reduced poverty for at least 35,000 individuals between 2009 and 2014.

- *In Vietnam*, the wage benefits from FDI have also been positive and are the most widespread and evenly distributed across incomes. Corresponding to these effects, FDI has almost no effect on income inequality. These wage increases from FDI contributed to lifting at least 24,000 individuals out of poverty between 2007 and 2016.
- *In Turkey*, FDI had the largest average wage benefits across the three countries. It increased average wage income for the bottom 40 percent and helped reduce poverty for over 15,000 individuals between 2009 and 2016. However, FDI was associated with substantial benefits for high-skilled workers and evidence of displacement and potential wage reductions for the lowest-skilled workers—thus contributing to increased income inequality.

The aggregate FDI effects across the three countries mask significant variations by sectors and workers' education levels (summarized in table 3.1). In general, the average effects of FDI on formal employment and wages are positive for manufacturing and high-skilled services but neutral for extractives and low-skilled services.

There is also evidence of FDI's skill premium. In regions and sectors with higher MNE activity, higher-skilled workers experience large increases, while low-skilled workers may see no changes or relative declines in formal employment and wages (relative to the sectors not receiving FDI). The skill premium is more pronounced in services than in manufacturing.

This analysis suggests that FDI, especially in tradable sectors, can contribute meaningfully to development by stimulating formal job creation, poverty reduction, and shared prosperity. FDI brings about productivity improvements and structural transformation

TABLE 3.1 The Effects of FDI on Labor Markets Vary by Sector and Workers' Skill Levels

| Broad sector | Average effect | Low-skilled workers | High-skilled workers |
|----------------------------|----------------|---------------------|----------------------|
| Extractives | No effect | No effect | No effect |
| Low-skilled manufacturing | Positive | Positive | Positive |
| High-skilled manufacturing | Positive | Neutral | Positive |
| Low-skilled services | Neutral | Negative | Positive |
| High-skilled services | Positive | Negative | Positive |

Source: World Bank calculations, summarizing table 3.2.

Note: Low-skilled workers are defined as those with primary education or less, while high-skilled workers have completed at least secondary education. All results are relative to workers in sectors with less or no investment by multinational enterprises (MNEs). For all sector- and country-specific data, see annex 3C, table 3C.6. FDI = foreign direct investment.

that boost long-term economic growth. Yet, in some cases, skill-intensive FDI can be associated with a skill premium that increases wage inequality. To maximize FDI's contribution to inclusive growth, countries should therefore complement investment policy and investment promotion efforts with progressive labor market policies to counter FDI's potential effect on any (temporary) declines in employment and increased income inequality. The chapter makes six recommendations (discussed in detail in the concluding "Policy Implications" section):

- *Better align investment promotion strategies* with a country's labor skill base, related sectors, and relevant source countries.
- *Strengthen the absorptive capacity of domestic firms and workers* (for example, through programs supporting FDI-supplier linkages and employment training) to help extend the labor market benefits from FDI.
- *Open up services sectors to foreign investment* to help (indirectly) create new jobs. Governments may wish to combine the promotion of services FDI with progressive labor market interventions to ensure that both high- and low-skilled workers in the services sector benefit.
- *Improve bargaining power and knowledge spillovers* for workers by enforcing sufficient labor standards and supporting labor representation.
- *Support vulnerable communities* (such as lower-skilled workers, youth, and

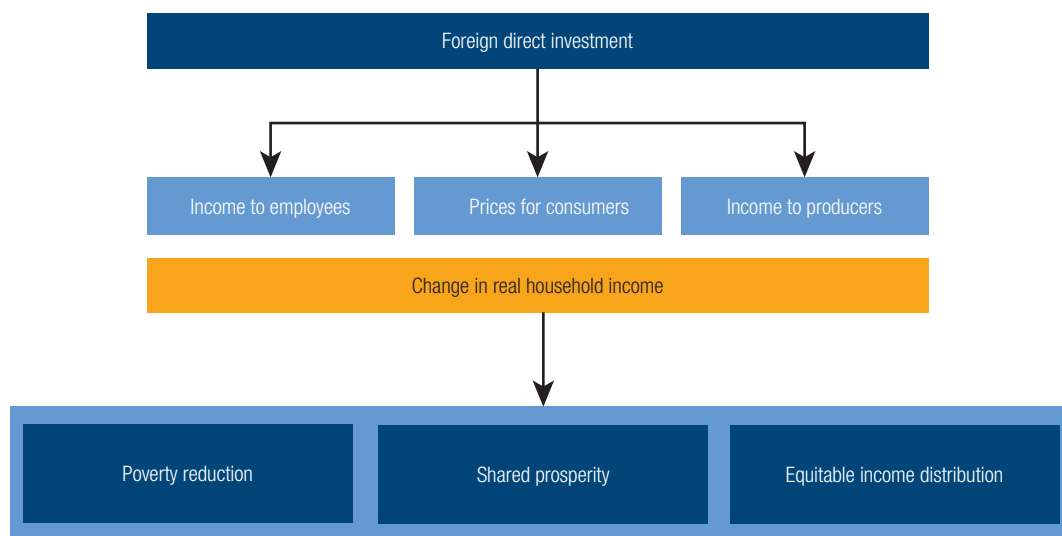
women) by providing active jobs information and skills certification.

- *Establish programs to stimulate internal migration*, which can further help improve access to employment, with important household welfare benefits.

Conceptual Framework: The Link between FDI and Welfare

FDI can affect welfare by both changing individuals' incomes and altering the prices of goods and services available to consumers through three channels (figure 3.2):

- *Employment income*: As FDI brings capital and new technology to a sector, it often raises the overall labor demand and productivity in the sector. This can raise total employment and average wages, leading to higher household incomes.
- *Consumer prices*: The entry of new (and possibly more productive) foreign firms to markets also increases competition. This may lower the price of goods and services, thus raising household purchasing power and consumption possibilities.
- *Producer income*: As foreign firms compete with, buy from, and sell to domestic firms, they may influence the productivity and profitability of these enterprises, increasing or cutting into income for domestic producers.

FIGURE 3.2 FDI Affects Household Incomes through Several Broad Channels

Source: World Bank, based on World Bank and OECD 2017.

Note: FDI = foreign direct investment.

Depending on how important such effects are for individuals along the income distribution, FDI will have different consequences on three welfare goals often considered by policy makers around the world: poverty reduction, shared prosperity, and an equitable income distribution. Poverty is often defined as those households that fall below a minimum basic level of real household income (based on income or consumption patterns). To the extent that FDI raises income for these households, it also helps reduce poverty.

Yet governments often face a parallel challenge to ensure that any general income gains are equitably distributed within the country. This is captured by two different metrics. Shared prosperity has been defined as “expanding the size of the pie continuously and sharing it in such a way that the welfare of those at the lower end of the income distribution rises as quickly as possible” (World Bank 2013). It is measured as income growth of the bottom 40 percent of the income distribution in the population. In some lower-income countries, this goal will coincide with that of reducing poverty.

Finally, metrics of income inequality reflect on a country’s overall (wage) income distribution. Recent research suggests that, for many countries, inequality trends are mainly driven at the top and the bottom (with limited shifts in the middle of the income distribution). Such research thus promotes the use of the Palma ratio, which considers the aggregate income share for the top 90 percent versus the bottom 40 percent (Krozer 2015).

This analysis focuses on how FDI affects labor income, which has been shown to be the main channel through which individuals escape poverty. Historically, poverty reduction has been shaped most by growth in labor income rather than by changes in non-labor income or demographics (Ferreira 2010). Among 21 developing countries, growth in labor income accounts for more than half of the poverty reduction in 12 countries, while it accounts for more than 40 percent of poverty reduction in another 6 countries, Inchauste et al. (2014) find. They note that wage growth (rather than increased employment) contributed most to poverty reduction.

The Effect of FDI on Labor Market Outcomes

The overall labor market impact of FDI is theoretically and empirically ambiguous because of the opposing effects it can have on labor demand for different types of workers (figure 3.3).

Effects on the aggregate demand for labor.

Inflows of FDI affect a sector’s labor demand through scale, competition, and productivity. Scale effects may take place when the foreign firm produces new or extra goods and services (for example, for export-oriented firms). This often increases overall labor demand. FDI can also take away market share from domestic firms (for example, for domestic products).

The effect this has on employment depends on the relative labor intensity of foreign versus domestic firms. MNE productivity may be reflected in higher employment and workers’ compensation. Alternatively, MNEs may adopt labor-saving technologies that could be associated with a net negative employment effect. In addition, there may be labor demand effects from other sectors that supply to

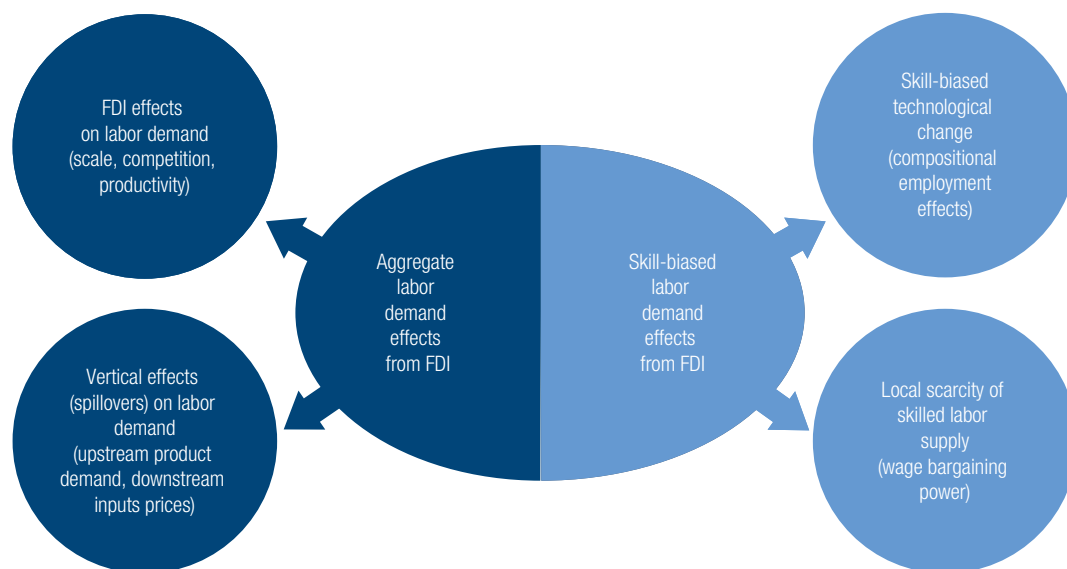
MNEs (upstream) or that rely on MNE inputs in producing their goods or services (downstream).

Effects on the demand for skilled versus unskilled labor (skill-biased labor demand). Alongside overall shifts in employment demand, there may also be changes in the employment and remuneration across different types of workers. MNEs often bring in new technology, which requires higher-skilled workers to operate. For that reason, high-skilled workers may be more likely to be employed and could enjoy a wage premium. In contrast, demand for lower-skilled workers might fall. A limited supply of skilled labor in the local economy further helps raise benefits for skilled work by affecting their wage bargaining power, further intensifying the skill bias for FDI.

Effects on Aggregate Labor Demand

Empirically, FDI has often been found to have a positive impact on wages and employment, particularly for lower-income countries. Much of the evidence points to FDI’s

FIGURE 3.3 Conceptual Framework: FDI Has Varied Effects on Labor Market Outcomes



Source: World Bank.
 Note: FDI = foreign direct investment.

potential to raise wages, driven primarily by new technology and increased labor productivity (Hale and Xu 2016). In many cases, the literature also finds a positive effect of FDI on aggregate employment. For example, FDI was found to increase the employment rate in China, the Czech Republic, and Uruguay (Dinga and München 2010; Karlsson et al. 2009; Peluffo 2015). FDI also had a strong positive employment effect on Mexico's manufacturing FDI, with stronger effects in export-oriented industries (Walckirch, Nunnenkamp, and Bremont 2009).

However, the evidence is more mixed for higher-income countries. Although manufacturing FDI in Sweden was associated with an increase in employment (Bandick and Karpaty 2011), FDI in central and eastern Europe led to job losses through competitive pressure and introduction of labor-saving technology (Jude and Silaghi 2015). For higher-income countries, FDI may decrease the number of jobs in the short term by introducing labor-saving technology, but it will likely increase job growth in the long term by enhancing labor productivity (Hale and Xu 2016).

There is limited and inconclusive evidence on the effect of FDI's vertical spillovers. The overall effect of FDI on upstream firms that supply inputs to foreign-invested firms is ambiguous. In some cases, product demand rises, and positive technological spillovers may push up employment and the average wage. On the other hand, target firms might switch from domestic to foreign suppliers of intermediate inputs, in which case production, labor demand, and wages of upstream industries will decline (Reyes 2017).

The effect of FDI on downstream firms' wages is similarly unclear. Access to cheaper or higher-quality inputs (such as in business services) can improve domestic firms' productivity, increase output, and raise wages (Arnold et al. 2016; Arnold, Javorcik, and Mattoo 2011; Duggan, Rahardja, and Varela 2013). Yet FDI firms may shift production focus from domestic to international markets, so that the cost of intermediate inputs may increase for domestic downstream firms.

This can lead to lower production, lower employment, and possibly lower wages (Hale and Xu 2016). So far, the overall effect is unclear, given that few studies consider the vertical spillovers of FDI to labor market outcomes.

Effects on Skill-Biased Labor Demand

FDI often introduces new technologies that raise the demand for higher-skilled workers and increase the wage gap between skilled and unskilled workers. There is considerable empirical evidence confirming that FDI contributes to rising wage inequality in host countries.

In developing countries, wage inequality increases with stocks of inward FDI, a cross-country study shows (Figini and Görg 2011). A rise in Japanese FDI in developing countries is associated with an increase in nonproduction wages (for more-skilled workers) relative to production wages (for less-skilled workers), according to Head and Ries (2002). Similar effects of foreign investments have been found for firms in Indonesia and Mexico (Feenstra and Hanson 1997; Lee and Wie 2015).

However, technological change is not necessarily biased in favor of skilled workers (Luo 2017). There is an important sector bias in the type of FDI attracted. FDI in some types of low-skilled sectors (such as textiles and food processing) could disproportionately benefit unskilled workers (Cruz et al. 2018; Leamer 1998). For this reason, FDI in labor-intensive manufacturing and infrastructure is associated with declining inequality in Ethiopia, Ghana, and Mozambique (Cornia 2016).

The effects of FDI can be local, at least in the short term. Overall employment in receiving industries tends to increase with FDI. Yet because of these industries' greater reliance on technology that requires complementary skills, a larger presence of foreign firms or affiliates in the region and industry also increases demand for skilled labor. Because the supply of skilled labor is highly inelastic in

the short and medium term, this further pushes up the wages of skilled workers in the regions and industries with higher FDI presence (Hale and Xu 2016). Given that most developing countries have considerable restrictions on worker mobility between regions, the effects tend to be rather concentrated in local labor markets (Dix-Carneiro and Kovak 2015; Pavcnik 2017). This also means that FDI can lead to another form of inequality—geographical inequality—as has been found in Bolivia and Vietnam (McLaren and Yoo 2016; Nunnenkamp, Schweickert, and Wiebelt 2007).

Overall, the literature suggests that FDI has positive but unequal effects on host countries' labor markets. FDI is associated with higher aggregate employment and a rise in average wages. Many of these benefits accrue to higher-skilled workers, while lower-skilled workers may experience adverse effects. Yet the literature also suggests that FDI might change local norms about labor conditions (Hale and Xu 2016; Javorcik 2015). Although the increase in inequality resulting from disproportionate growth of demand for skilled labor is a worrying dynamic, this may also induce the labor force, in the long term, to seek additional education and training (Heath and Mobarak 2015).

The Sectoral Impact of FDI on Labor Market Outcomes

"FDI flows come in at least three—and probably four—separate forms: FDI in extractive industries, FDI in infrastructure, FDI in manufacturing, plus the underresearched field of FDI in services. Each form presents such distinctive policy challenges for developing-country host authorities, and generates such diverse impacts on the developing host economy, as to undermine the usefulness of any research that does not disaggregate the FDI flows."

—Theodore H. Moran, *Foreign Direct Investment and Development* (2011)

Depending on a sector's labor and skill content, FDI can have markedly different impacts on employment and wages. Much of the evidence considered so far has either been cross-sectoral or focused only on manufacturing. However, policy makers often must decide which sectors should receive priority in their investment promotion efforts (Javorcik 2004). For that reason, it is important to consider the various impacts of FDI by sector.

Labor Market Impact in the Services Sector

The distributional impact of FDI in the services sector is underresearched but deserves greater policy attention. FDI in services differs from FDI in manufacturing in three important ways.

First, the services sector tends to increase the demand for higher-skilled labor. Many service-oriented firms rely more than manufacturers on intellectual capital and may therefore exhibit larger skill premiums (Kianto, Hurmelinna-Laukkanen, and Ritala 2010). For example, in the Philippines, service liberalization in banking, distribution, and telecommunications created employment opportunities for higher-skilled workers and generated negative impacts on the employment and wages of low-skilled workers (Amoranto, Brooks, and Chun 2010). Greenfield FDI in business support services (for example, professional services, information and communication technology [ICT], and research and development [R&D]) across 17 higher-income countries benefited high-skilled workers at the expense of medium-skilled workers (Davies and Desbordes 2015).

Second, FDI in the services sector is more likely to reduce domestic employment because of labor-saving productivity improvements. Although some services are export-oriented (such as ICT), many operate exclusively within the domestic market. This means that FDI in services often lacks scale effects and instead captures market share from domestic firms, often resulting in little or no aggregate employment effects.

Evidence from China on services liberalization finds that although output increased in almost all services industries, employment losses occurred because of labor-saving improvements in productivity (Li, Wang, and Zhai 2003). Although these job losses could be offset by expansion of overall labor demand in nonservice industries and by long-term growth of aggregate labor demand, these findings suggest that there are important short-term labor adjustment costs from FDI in services sectors.

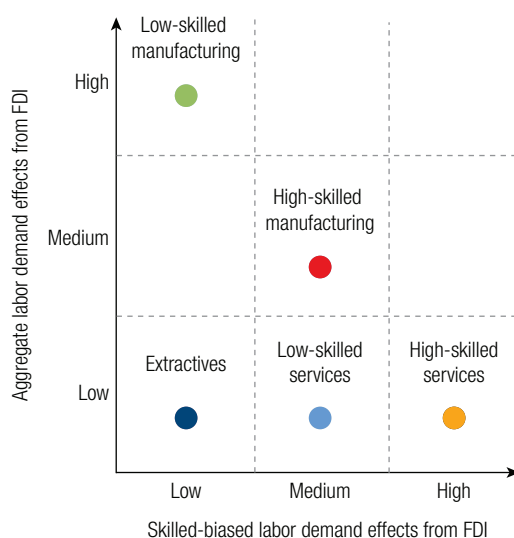
Third, services sector FDI exerts competitive pressure on smaller businesses. Services sectors in developing countries are more often dominated by small, family-owned businesses (such as retail operations). Unlike manufacturing, which is often dominated by a few large firms, competitive pressures on these smaller businesses might lead to a more regressive impact of FDI. A notable example is the entry of foreign supermarkets in Mexico, which helped lower the cost of living and substantially benefited the average household (Atkin, Faber, and Gonzalez-Navarro 2018)—an effect represented by the consumer

price channel in figure 3.2. However, those researchers also find evidence of a sizable reduction in the monthly incomes of workers in traditional retail sectors as well as some decline in the labor incomes of workers in modern retail sectors. In total, the household benefits are positive but regressive.

Labor Market Impact in the Manufacturing Sector

A synthesis of the literature previously discussed suggests that FDI in different sectors has different effects on overall and skill-biased labor demand. FDI in low-skilled manufacturing is expected to have the largest effects on labor demand, with limited skill premiums. Higher-skilled manufacturing is more skill-biased but with some aggregate benefits to labor demand. FDI in low- and high-skilled services has been found to create few jobs but to have notable effects on average wages and skill premiums. As a capital-intensive sector, FDI in extractives is expected to have little overall impact on wage incomes (figure 3.4).

FIGURE 3.4 FDI Has Different Labor Market Outcomes by Sector



Source: World Bank.

Note: The figure is a stylistic representation based on available literature. Each aggregated sector (manufacturing, services, and extractives) is subdivided based on workers' average education: "high skilled" are those in which at least 50 percent of workers had secondary or postsecondary education; the remainder is considered "low skilled." For more about the subclassification, see annex 3C, table 3C.1. FDI = foreign direct investment.

Finally, it is worth noting that while this chapter focuses on the potential skill bias of FDI, there are other channels through which FDI can have different consequences on income distribution and inclusive growth. One such example comes from gender-specific labor market effects. Although this chapter does not explicitly analyze this issue in the case studies, a discussion on past findings on FDI's impact on women's opportunities is presented in box 3.1.

Country Case Studies: Ethiopia, Vietnam, and Turkey

To examine the effects of FDI, this chapter studies three countries where FDI has taken off significantly in the past 20 years: Ethiopia, Vietnam, and Turkey (figure 3.5).

Turkey's first episode of significant growth was in the early 2000s, when FDI increased twentyfold in the five-year period between

2002 and 2007. Despite the slowdown following the global financial crisis, cumulative inflows in the 15 years between 2003 and 2017 are still almost 13 times higher than total inflows in the preceding 30 years.⁴

In Vietnam, FDI growth has been more gradual but more persistent. FDI there first jumped in 2007–08 and has since steadily increased, leading to inflows matching those of Turkey by 2017.

As the least developed country among the three countries, the FDI takeoff in Ethiopia lags Turkey's and Vietnam's by almost a decade. Nevertheless, acceleration of FDI since 2012 has made Ethiopia one of the largest FDI recipients in Africa (UNCTAD 2019).

These episodes of FDI growth took place when the three countries were at different stages of development. The countries have also had distinct economic structures and supplies of skills.⁵ In 2018, Turkey's income per capita was close to US\$28,000 (in purchasing

BOX 3.1

FDI's Potential to Improve Women's Economic Opportunities

Through its impacts on labor market outcomes, foreign direct investment (FDI) can notably affect women's economic opportunities (for example, by raising the female participation rate in the country or reducing the gender wage gap).^a Unfortunately, little evidence currently exists on the gender-specific effects of FDI. What evidence does exist indicates that FDI generally has a positive effect on gender equality, partly by raising the overall demand for all labor and partly through cultural norm transfers from source countries with more gender-equal cultures. Yet much of these benefits ultimately depend on the sectoral FDI type and skill level of women in the host economy.

FDI can increase gender equality by raising labor demand. Women in many developing countries are relatively overrepresented in the informal sector, which is often poorly remunerated. More formal employment opportunities brought by FDI can thus present a

significant step up in pay for women relative to informal employment.

Empirical studies from economies in three different parts of the world provide supportive evidence that FDI can help raise women's labor demand. *In Honduras*, FDI inflows were critical in establishing export-oriented manufacturing maquiladoras.^b Surveys found that women who moved to this kind of employment for the first time earned about 50 percent more than in their previous jobs (Ver Beek 2001). *In China*, the establishment of foreign firms helped raise the female participation rate; female employment rates in such firms were 13 percent higher than for domestic-owned firms (Chen, Li, and Shapiro 2012). *In Madagascar*, FDI generated jobs in export-processing zones (EPZs) that provided women with high-wage jobs relative to their skill level and with similar pay between men and women. Looking at

Box continues next page

BOX 3.1**FDI's Potential to Improve Women's Economic Opportunities (continued)**

firm-level data from 1995 to 2002, the study found that after three initial years, wage growth for women even outstripped that of men: 35 percent versus 25 percent (Glick and Roubaud 2006).

FDI may also affect cultural norm transfers. Women's position in the labor force may be affected by gender-biased norms and perceptions.^c Recent evidence suggests multinational firms may be less subject to such gender-biased norms and can help the global diffusion of gender-equal norms. Cross-country analysis for 94 developing countries finds that higher FDI inflows are associated with increases in gender development (including female participation rates) and with declines in gender inequality (including the gender wage gap) (Ouedraogo and Marlet 2018). Similarly, in China, foreign affiliates from countries with a more gender-equal culture are found to employ proportionally more women and appoint more female managers. They also generate cultural spillovers, increasing domestic firms' female labor shares in the same industry or city (Tang and Zhang 2017).

Women's skill level affects the impact of FDI on women's empowerment. In many developing countries, women are relatively unskilled and face lower wages relative to men. These features can be a pull factor for FDI in low-skilled, labor-intensive sectors (such as textiles) and help increase women's access to employment. Yet as countries move toward better technology and higher demand for skilled labor, women's employment and wages may decline or even reverse (Braunstein 2006; Seguino and Grown 2006). Lower-skilled women working within these firms may be disproportionately assigned to low-value-added, low-tech,

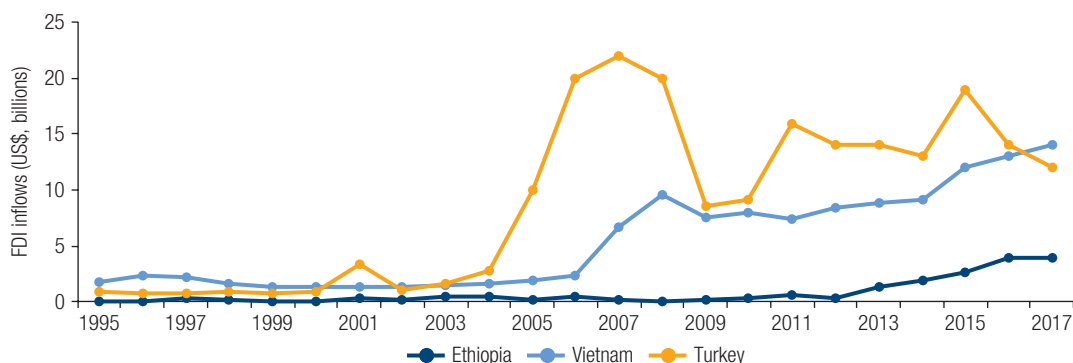
and low-training tasks in foreign firms, with lower relative wages as a result (Chen, Li, and Shapiro 2012). China provides some evidence of this dynamic effect. Looking at household data from 1995–2002, FDI was found to have positive effects on both female and male wages. At the beginning, women experienced larger wage increases from FDI than men. At the end of the sample period, however, this trend reversed, and men experienced larger wage increases (Braunstein and Brenner 2007).

Finally, the sectoral dimension of FDI also influences its gender impact. The overall skill requirements of labor differ significantly across sectors. FDI's impact on women's employment and wages may therefore depend on FDI's sectoral differences *and* women's skill level. Evidence from this comes from a study in rural Indonesia, which considered the effect of FDI on women's employment in lower-skilled plantation employment and higher-skilled hotel employment. The study found that low wages affected employment in plantations the most, while skills availability was the main determinant for employment in hotels. On the whole, female workers in rural Indonesia were both low waged and low skilled. As a result, relatively more women ended up being employed on plantations, while relatively fewer women ended up working in the new hotels (Siegmann 2007).

a. This box is based in part on Fang, Shamseldin, and Xu (2019) and on extensive inputs from Matthew Stephenson.

b. Maquiladoras are factories producing labor-intensive products with imported goods; a high share of their employment is female.

c. For example, about two-thirds of firms surveyed in Pakistan's Enterprise Survey in 2013 reported gender-discriminatory attitudes as reasons for not hiring women. These reasons include "women should focus on family responsibilities"; "women employees 'disrupt' the workplace"; and "male colleagues/customers are hesitant to interact with women" (Amir et al. 2018).

FIGURE 3.5 FDI Has Increased Significantly in Ethiopia, Vietnam, and Turkey

Source: World Development Indicators database.
 Note: FDI = foreign direct investment.

power parity terms), more than 3 times that of Vietnam and 14 times that of Ethiopia. The Turkish economy is typical of an upper-middle-income economy, with services contributing 65 percent of gross domestic product (GDP). Vietnam still has a substantial agriculture and industry base (contributing 15 percent and 34 percent of GDP, respectively), while Ethiopia still depends heavily on agriculture (31 percent of GDP). Gaps in educational attainment also remain substantial. In 2017, lower-secondary completion rates were 95 percent and 87 percent for Turkey and Vietnam, respectively, but were only 30 percent in Ethiopia.

Ethiopia, Vietnam, and Turkey have attracted FDI in different types of sectors, reflecting both their current economic structure and educational attainment. Ethiopia has mainly attracted FDI in agroprocessing and manufacturing, notably in the textile and food and beverages sectors (EIC 2017). Vietnam's FDI remains concentrated in manufacturing but with increasing diversification from less-skilled activities (such as textiles/clothing and plastics/rubber) to more sophisticated activities, particularly in the electronics sector. Investments in real estate and retail/wholesale have also increased following the recent opening up of these

sectors—these investments reflecting the increased share of output and of employment due to FDI (VFIA 2018). Turkey's FDI inflows have been the most broad based, covering substantial investments in both manufacturing and services. The financial sector has attracted the highest amount of FDI, closely followed by manufacturing, energy, and ICT services (ISPAT 2018).

The differences in economic structure, labor supply composition, and types of investments the countries have attracted provide a rich setting to study the distributional impact of FDI. As discussed earlier, the impact of FDI will depend on the scale of investments as well as the interaction between the labor and skill content of FDI activities and the domestic skills supply. To organize the empirical analysis, the exercise explores these interactions through a sector typology that classifies FDI activities based on their labor content (extractives versus nonextractives); tradability (manufacturing versus services); and skill intensity (high skilled versus low skilled), as detailed in box 3.2 and the next section. Analyzing the labor market impact of FDI based on these characteristics will improve understanding of the channels through which FDI affects aggregate income distributions.

BOX 3.2**A Sector Typology**

To better understand the sectoral dynamics of foreign direct investment (FDI), this study uses a typology that clusters various sectors as grouped by the International Standard Industrial Classification of All Economic Activities (ISIC) at the two-digit level (ISIC2), based on their general classification (extractives, manufacturing, or services) combined with their average workers' skill intensity (low skilled or high skilled). The analysis focuses only on these sectors (and excludes others, such as agriculture, utilities, and personal recreation) because these are easier to analyze using firm- and household-level data, and they jointly make up around 87 percent of global FDI (with almost all other FDI going to the utilities sector).^a

The subsectoral classification is broadly based on Hallward-Driemeier and Nayar (2017). To provide additional detail at the ISIC2 level, the exercise divided up the low- and high-skilled sectors based on the average education profile of that sector's workers in Vietnam's and Turkey's household surveys. If at least 50 percent of workers had secondary or postsecondary education, the sector was classified as "high skilled." Otherwise, it was considered "low skilled." The exact subclassification is provided in annex 3C, table 3C.1.

a. Share of global FDI from World Bank calculations of 2010–15 global FDI, based on greenfield FDI announcements from fDi Markets, a *Financial Times* dataset (<https://www.fdimarkets.com/>) and Thomson Reuters's Mergers & Acquisitions database (<https://www.refinitiv.com/>).

A breakdown of foreign firms' investments across the five sectors (extractives, high-skilled manufacturing, low-skilled manufacturing, high-skilled services, and low-skilled services) shows that the three countries differ substantially in the type of FDI they have attracted (figure 3.6). Given the varying skill content and potential tradability of sectors receiving FDI in the three countries, the labor market outcomes will also likely differ significantly.

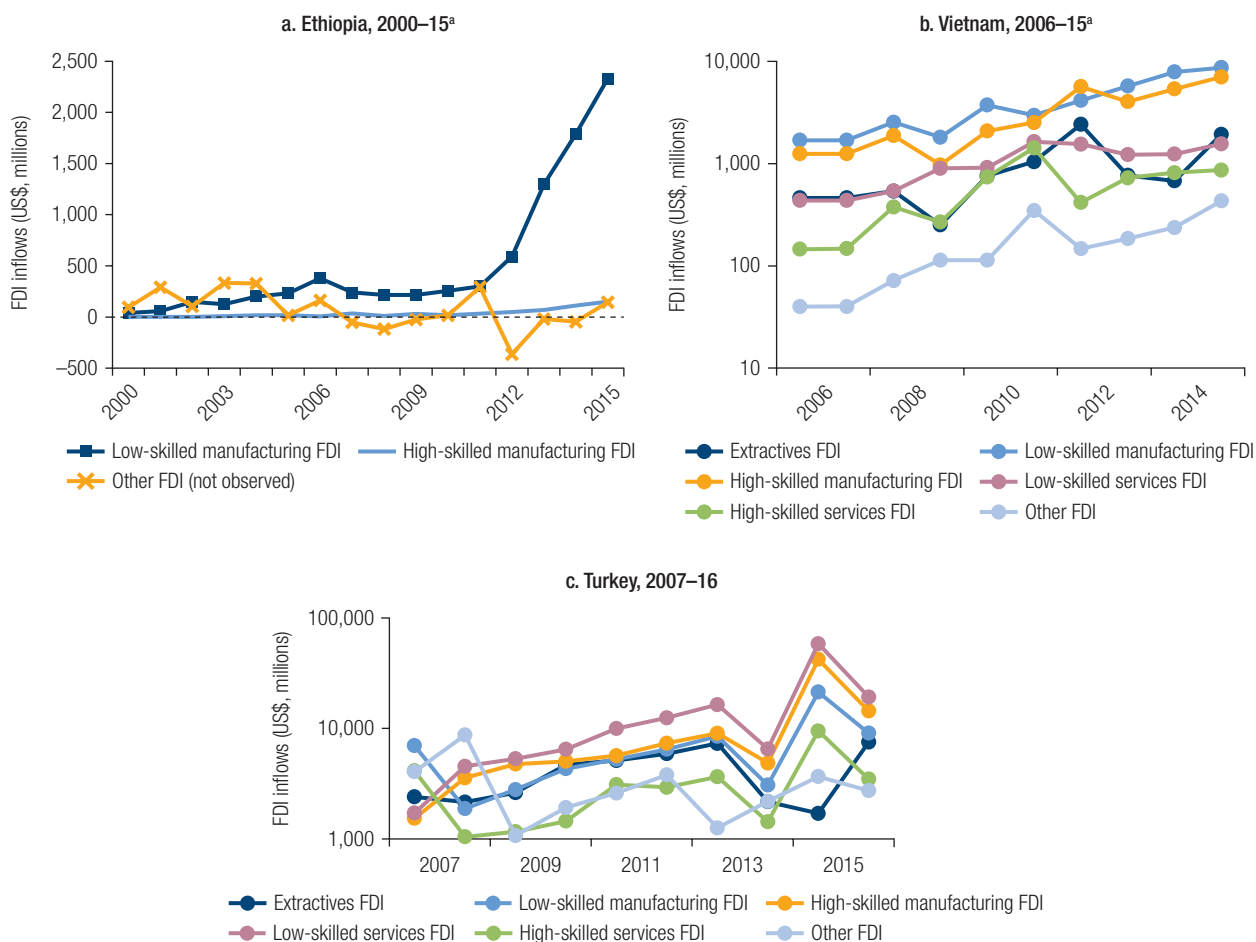
Ethiopia's FDI is heavily concentrated in low-skilled manufacturing activities, with very little FDI going to other sectors. Vietnam has had sizable increases in both low-skilled and high-skilled manufacturing as well as small but consistent increases in extractives and both types of services. Turkey has had the highest growth of investment in high-skilled manufacturing (driven by pharmaceuticals, motor vehicles, and chemicals) and low-skilled service activities (driven by employment services or activities). FDI in low-skilled manufacturing is also significant (driven mainly by tobacco).

Empirical Strategy

The significant takeoff of FDI in different sectors experienced by Ethiopia, Vietnam, and Turkey creates an ideal setting to study the impact of MNEs' presence on labor market outcomes. The analysis links household survey data with firm-level data to examine the relationship between individual workers' exposure to multinational activities and their employment and wages in each country.

The main data source for individual labor market outcomes is the World Bank's International Income Distribution Database (I2D2), supplemented with the countries' Labor Force Surveys. Firm-level data come from various sources, including the Large and Medium Manufacturing Survey (Ethiopia), Enterprise Census (Vietnam), and Enterprise Information System (Turkey). The period of analysis is limited by the overlap of household and firm-level data. Nevertheless, the analysis still captures periods with significant FDI growth in all three countries: Ethiopia (2009–14), Vietnam

FIGURE 3.6 Ethiopia, Vietnam, and Turkey Have Attracted Different Types of FDI



Source: World Bank calculations based on the World Development Indicators database, Ethiopia's Large and Medium Manufacturing Survey, Turkey's Enterprise Information System data, and Vietnam's Enterprise Census.

Note: Total foreign direct investment (FDI) inflow is calculated as the total investments in assets made by all foreign companies in the data. Sectors (extractives, manufacturing, or services) are aggregated based on International Standard Industrial Classification (ISIC) two-digit classification. Each is subdivided based on workers' average education: "high skilled" are those in which at least 50 percent of workers had secondary or postsecondary education; the remainder is considered "low skilled." For more about the subclassification, see annex 3C, table 3C.1.

a. Breakdown for Ethiopia includes only manufacturing FDI because very little of the country's FDI goes to other sectors.

(2007–16), and Turkey (2009–16). For further details on data, see annex 3A.

To study the direct impact of FDI, the analysis looks at different cohorts of workers over time in each country and compares labor market outcomes for workers who are employed in sectors *and* regions with higher versus lower MNE activity. It focuses on two main outcomes: formal employment and wages.⁶ To proxy for MNE activity, it uses the share of foreign firms' revenue in the total

output of a sector and region within a country. This approach takes the sector and region as the relevant labor market, as in Dix-Carneiro and Kovak (2015) and Cruz et al. (2018). The hypothesis is that FDI inflows into a sector have two potential opposing effects on the local (regional) labor market: Increased MNE activities create higher labor demand, which results in an increase in formal employment and wages. At the same time, FDI can compete away market share from

domestic firms, reducing their labor demand. If, for example, foreign firms are more efficient, the net effect on employment could be negative.

Increased FDI in upstream (selling) and downstream (buying) sectors can also affect labor demand.⁷ To examine this vertical impact of FDI, the exercise analyzes how workers' outcomes vary with the total amount of MNE activity in their upstream or downstream sectors as well as the strength of linkages between them. More specifically, this variable is calculated as the sum of FDI firms' output shares—the share of revenue (employment) by foreign firms in total output (employment)—in all upstream or downstream sectors, weighted by how much those sell to or buy from a workers' own sector (see annex 3B).

The main empirical challenge is to separate the impact of FDI from other unobserved changes in policies or market trends that can affect the labor markets at the same time. For example, infrastructure spending can attract FDI as well as other domestic investments that boost employment and wages. MNEs in certain sectors can also choose to locate in low-wage regions because of cost considerations, in which case higher FDI activity might appear to be associated with lower wages. As a result, a simple correlation between FDI activity and labor market outcomes can either inflate or underestimate the true impact of FDI. To account for this potential bias, lagged global FDI growth was used as an instrument to capture supply-side changes that affect FDI inflows and eventually MNE presence but are unlikely to be correlated with other domestic shocks. Operationally, the instrument is the growth in global FDI (greenfield FDI and mergers and acquisitions [M&A]) interacted with a region's original shares of FDI per ISIC2 sector.⁸

Beyond the average impact, how FDI affects the distribution of income will depend on what types of workers benefit most from these investments. The exercise attempts to answer this question from one main angle: how the skill content of the sector receiving

FDI interacts with workers' skills. That is, the impact of FDI on labor market outcomes is compared for high- versus low-skilled sectors and for workers with different education levels. If FDI concentrates more in skill-intensive sectors, then the more-educated workers will likely benefit the most, potentially increasing inequality. If FDI concentrates in less-skilled sectors, then it has the potential to improve employment and wage outcomes for those at the lower end of the income distribution.

Finally, the estimated average impact of FDI is used to calculate the aggregate impact on (wage) income in a simple back-of-the-envelope counterfactual exercise. To compare the actual (wage) income distribution to the hypothetical case without FDI presence, the exercise assumes that there is a constant effect of FDI on all workers that is equal to the estimated average effect. The counterfactual (wage) income is then equal to the actual wage minus the estimated average income gain (loss) due to FDI. From these two income distributions, estimates are made of FDI's aggregate contributions to poverty reduction, shared prosperity (other income gains within the bottom 40 percent), and income equality—the latter measured through the Gini coefficient and the Palma ratio, which considers the aggregate income share for the top 90 percent versus the bottom 40 percent (Krozer 2015).⁹ Annex 3B discusses these different empirical specifications in more detail.

Results

This section discusses results on the average impact of FDI and its implications for aggregate poverty, shared prosperity, and inequality. As discussed, results using ordinary least squares (OLS) can either underestimate or overestimate the true impact of FDI; this exercise finds indication of both types of biases across different countries and sectors. For the sake of brevity, only the results from the instrumental variables (IV) estimations are presented. A full comparison and discussion of results can be found in the online appendix.¹⁰

FDI in Manufacturing Has Been Most Effective in Shifting Employment toward the Formal Sector and Increasing Wages

On average, increases in MNE activities are associated with increased formal employment in manufacturing but not in services. In annex 3C, table 3C.2 presents the second-stage IV results from the baseline specification (see annex 3B, equation [3B.1]), estimated separately for manufacturing and services. The results suggest that a worker's relative probability of formal employment (versus informal employment in that sector) tends to increase with the output share of MNEs in the worker's sector and region.¹¹ However, this effect is significant only for manufacturing FDI (with positive average effects in Turkey and Vietnam). The estimated average effect of MNE presence in services is both smaller in magnitude and statistically imprecise.

Based on the coefficient estimates, the total impact of FDI activity was calculated as a population-weighted average effect.¹² These calculations suggest that in the sample period, manufacturing FDI has created around 350,000 additional formal jobs in Vietnam and around 40,000 new formal jobs in Turkey each year.¹³ Aggregate employment effects are minimal for Ethiopia because both baseline manufacturing employment and FDI activities have been relatively small.

The effects on average wages also vary by sector and by country. In annex 3C, table 3C.2 shows that increases in MNE presence in Vietnam were associated with very large, significant average wage increases in both manufacturing (12 percent nationwide) and services (2 percent across the country). In Turkey, average wages increased in manufacturing (nearly 8 percent), but there was no significant effect on services. In Ethiopia, large increases in manufacturing wages (almost 32 percent) were identified; no information was available for services.

FDI Resulted in a Skill Premium, Especially in Services Sectors

The effects from FDI presence on labor markets vary significantly across the broad

sectors and workers' education levels. In annex 3C, tables 3C.3, 3C.4, and 3C.5 present the FDI labor markets effects across the five broad sectors and by workers' education for Ethiopia, Vietnam, and Turkey, respectively (see annex 3B, equation [3B.2]). To get a better sense of the magnitude of FDI's effects, annex 3C, table 3C.6 presents the overall population-weighted average effects for each of the three countries, across the five broad sectors. These are further summarized stylistically in table 3.2.

Overall, there is considerable evidence of FDI's skill premium in Turkey and Vietnam. Although higher-skilled (more educated) workers benefit—enjoying greater formal employment opportunities and higher average wages—the effects of FDI on low-skilled (less-educated) workers are less positive. For them, there is either no effect or their probability of employment and wages decline relatively in regions with higher services FDI. As expected, the skill premium seems to be stronger in services than in manufacturing (annex 3C, tables 3C.4 and 3C.5). These results are broadly consistent with previous findings, as summarized in figure 3.4.

The exercise also finds considerable differences in the total effect of FDI across the five broad sectors.

Extractives. *FDI in the extractives sector has little impact on household income, as expected of a capital-intensive sector.* Few households are employed in this sector, and no significant effects from FDI on wage growth or formal employment were identified in Turkey or Vietnam, except among workers with primary education in Vietnam.

Low-skilled manufacturing. *Benefits on employment and wages are positive.* Low-skilled manufacturing FDI has the highest average effect in Ethiopia (+5 percent in formal jobs, +24 percent in average wages) but also has positive effects on Vietnam (+5 percent in formal jobs, +12 percent in average wages) and Turkey (+0.8 percent formal jobs, +6 percent in average wages).

Interestingly, the beneficiaries from these gains differ significantly across the three countries: In Ethiopia, FDI has primarily benefited those with no education or only

TABLE 3.2 The Relative Effects of FDI on Labor Markets (Formal Employment and Wages) in Ethiopia, Vietnam, and Turkey, by Broad Sector and Worker Skill Level

| Country | Broad sector | Average effect | Low-skilled workers | High-skilled workers |
|-----------------------|----------------------------|----------------|---------------------|----------------------|
| Ethiopia ^a | Low-skilled manufacturing | Positive | Positive | No effect |
| | High-skilled manufacturing | Positive | Positive | No effect |
| Vietnam | Extractives | No effect | No effect | No effect |
| | Low-skilled manufacturing | Positive | Positive | Positive |
| | High-skilled manufacturing | Positive | Positive | Positive |
| | Low-skilled services | Neutral | Negative | Positive |
| | High-skilled services | Positive | Negative | Positive |
| Turkey | Extractives | No effect | No effect | No effect |
| | Low-skilled manufacturing | Positive | Positive | Positive |
| | High-skilled manufacturing | Positive | Positive | Positive |
| | Low-skilled services | Neutral | Negative | Positive |
| | High-skilled services | Positive | Negative | Positive |

Source: World Bank summary, based on annex 3C, table 3C.6.

Note: Low-skilled workers are defined as those with primary education or less, while high-skilled workers have completed at least secondary education. All results are relative to workers in sectors with less or no multinational enterprise (MNE) involvement. Sectors (extractives, manufacturing, or services) are aggregated based on International Standard Industrial Classification (ISIC) two-digit classification. For more about the subclassification, see annex 3C, table 3C.1.

a. No data were available on foreign direct investment (FDI) in extractives or services for Ethiopia.

primary education (reflecting low-skilled factory work). In Turkey, those with primary or secondary education benefited most. In Vietnam, the total average effects are concentrated and similar among those with primary education.

High-skilled manufacturing. FDI in high-skilled manufacturing sectors results in the highest average benefits for Vietnam (+5 percent in formal employment, +14 percent in average wages). For Turkey and Vietnam, the benefits from this sector are concentrated among those with primary or secondary education. Turkey also had notable positive average effects in employment (+1.3 percent in formal jobs) and wages (+10.8 percent in average wages). Although Ethiopia saw some benefits in high-skilled manufacturing (+0.3 percent in formal jobs, +23 percent in average wages), few were affected given that the whole sector employed fewer than 25,000 individuals, on average.

Low-skilled services. FDI in low-skilled services results in significant wage dispersion. In Vietnam, wages increase relatively for

workers with postsecondary education (+5.5 percent), while workers with no education or only primary education both experience a relative decline in wages (−6.6 percent and −4.1 percent, respectively).

In Turkey, the effects differ even more strongly by education. Workers with secondary and postsecondary education enjoy both formal employment benefits (+2 percent for workers with secondary education, +3 percent for postsecondary education) and sizable wage benefits (+12 percent and +18 percent, respectively). In contrast, low-skilled workers experience sizable relative declines in their probability of formal employment and wages. This applies particularly for those with no education (−10 percent probability of formal employment, −49 percent in average wages) as well as for those with primary education, but to a much lesser extent (−2 percent in formal employment, no significant change in wages, respectively).

High-skilled services. FDI in high-skilled services also results in significant wage dispersion. FDI in this sector has the biggest average

effects in Turkey, with positive effects on formal employment (+1.2 percent) and wages (+12.9 percent), concentrated among workers with secondary and postsecondary education. Yet effects are negative for the small group of workers with no education working in these sectors, who are most likely to be displaced (with very high reductions in wages as a result). In Vietnam, the result is neutral in terms of employment but positive in terms of average wage effect (+4.9 percent), driven entirely by workers with postsecondary education (+11.1 percent).

The Vertical Spillover Effects of FDI Are Mixed

When controlling for FDI's direct effects, the results in other sectors (vertical labor market spillovers) are less conclusive. Findings are mixed across the three countries. The results from the second-stage IV (specifications in annex 3B, equation [3B.2]) are presented in annex 3C, table 3C.7. These present sector-region coefficients that interact FDI output share with intensity of a vertical sector's engagement with FDI. The magnitude can be hard to interpret. To aid interpretation, this table also includes the population-weighted average effects from each regression.

Ethiopia. *No significant effect is found on either backward or forward linkages.* This could indicate that relatively few domestic firms are currently supplying MNEs in Ethiopia. Another possibility is that the overall manufacturing sector is too small for any statistically significant results to appear.

Vietnam. *The FDI backward link appears to be the most important channel.* When FDI in upstream (selling) sectors increases, wages go up in the services sector (+5 percent), and formal employment in both manufacturing and services increases (+4.2 percent and +1.7 percent, respectively). Both types of increase may be the result of productivity increases linked to labor market benefits from accessing cheaper or higher-quality inputs (such as MNE producers of intermediate inputs, or in business services).

Turkey. *The effect of FDI's forward linkages is negative in manufacturing and has no*

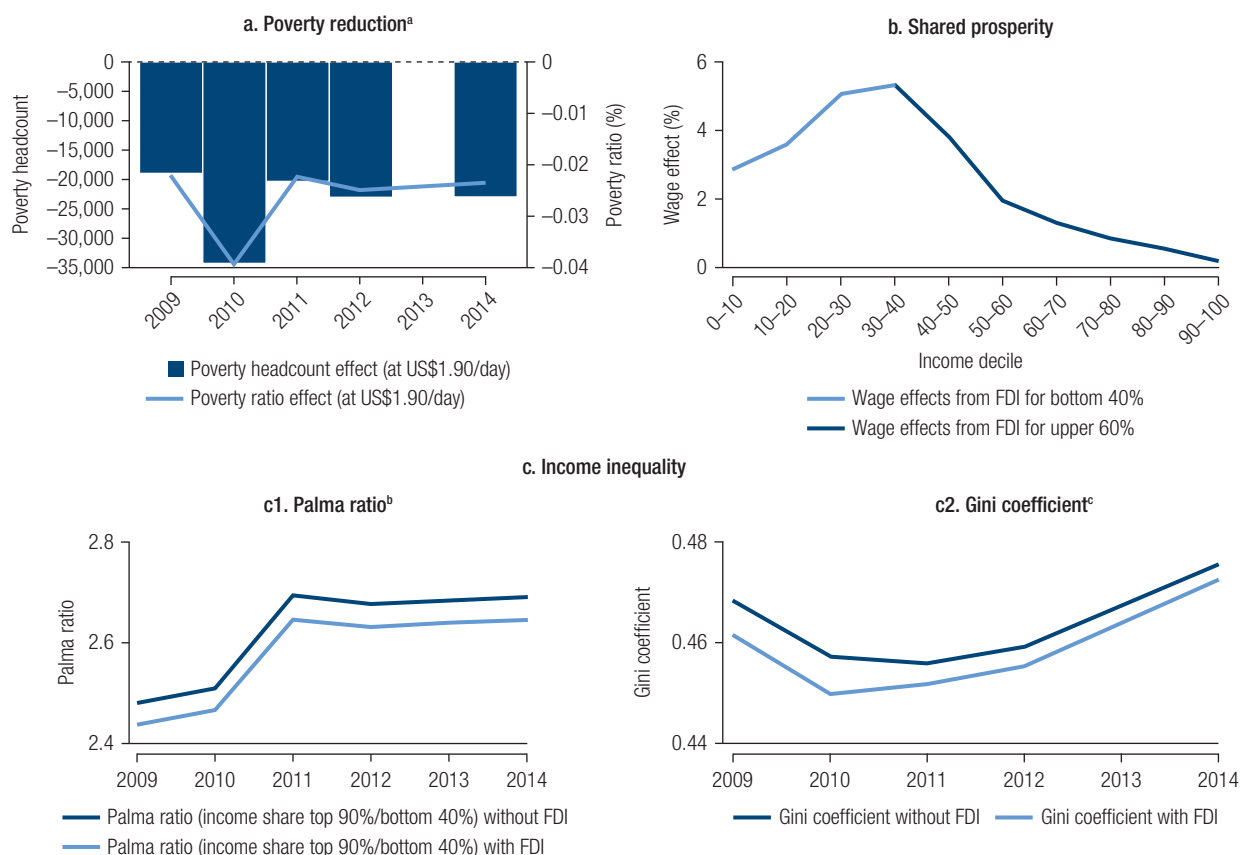
effect on services. Increased FDI in downstream (buying) sectors is associated with a reduction in both formal manufacturing employment (–5 percent) and wages (–36 percent).¹⁴ One potential explanation is that MNEs are switching from domestic to foreign suppliers of intermediate inputs, prompting a decline in domestic production, labor demand, and wages of sectors with forward links to FDI. Such a finding would warrant additional analysis to better understand potential constraints between MNEs and domestic suppliers.

FDI's Aggregate Effects on Poverty, Shared Prosperity, and Inequality Vary Notably among the Sample Countries

The aggregate effects of FDI on poverty, shared prosperity, and income inequality were estimated by comparing the observed income distribution against a counterfactual distribution with no FDI presence. This calculation combines the estimated direct effects from FDI activity in manufacturing in the case of Ethiopia and from FDI activity across extractives, manufacturing, and services in the cases of Turkey and Vietnam. The counterfactual income distribution is assumed to be the predicted wage income where foreign firms' revenue share is set to zero.

Undoubtedly, deriving counterfactual predictions from estimated differential responses across regions or sectors might lead to underestimation or overestimation of the true total effects (see Adão, Arkolakis, and Esposito [2019] for a discussion). Nevertheless, these estimates provide for a rough approximation as a useful first step to gauge the potential aggregate effect of FDI.

Ethiopia. In Ethiopia, the effects from FDI are highly positive, with noticeable effects on poverty reduction and shared prosperity, but they are limited in magnitude. The FDI wage benefits accruing to low-skilled workers have an important pro-poor effect, concentrating the FDI benefits in the bottom 40 percent (figure 3.7, panel b). Consequently, FDI is associated with a lower average Palma ratio and Gini coefficient—that is, a *decline* in

FIGURE 3.7 Ethiopia: FDI Effects on Poverty, Shared Prosperity, and Inequality

Source: World Bank calculations.

Note: Estimates of the effect on poverty headcount, Palma ratio, and Gini coefficients for 2013 are not available because firm-level data are not available for that year; FDI = foreign direct investment.

a. The poverty headcount effect is the effect of multinational enterprises (MNEs) on raising workers' income above the poverty headcount (at US\$1.90/day).

b. The Palma ratio is the ratio of the richest 10 percent of the population's share of gross national income (GNI) divided by the poorest 40 percent's share.

c. The Gini coefficient summarizes the dispersion of income across the entire income distribution. It ranges from 0 (indicating perfect equality, where everyone receives an equal share) to 1 (perfect inequality, where only one recipient or group of recipients receives all the income).

income inequality (figure 3.7, panel c). However, given that relatively few households are employed in the manufacturing sector, the effects apply to only a small share of the population.

Wage increases from FDI are found to have reduced poverty for only around 35,000 individuals in 2010 (0.04 percent of the population) (figure 3.7, panel a). This suggests that although FDI can offer a powerful tool for poverty reduction, a greater focus on investment promotion is needed to extend the benefits to a wider share of the population.

Vietnam. In Vietnam, effects from FDI are positive for poverty reduction and shared

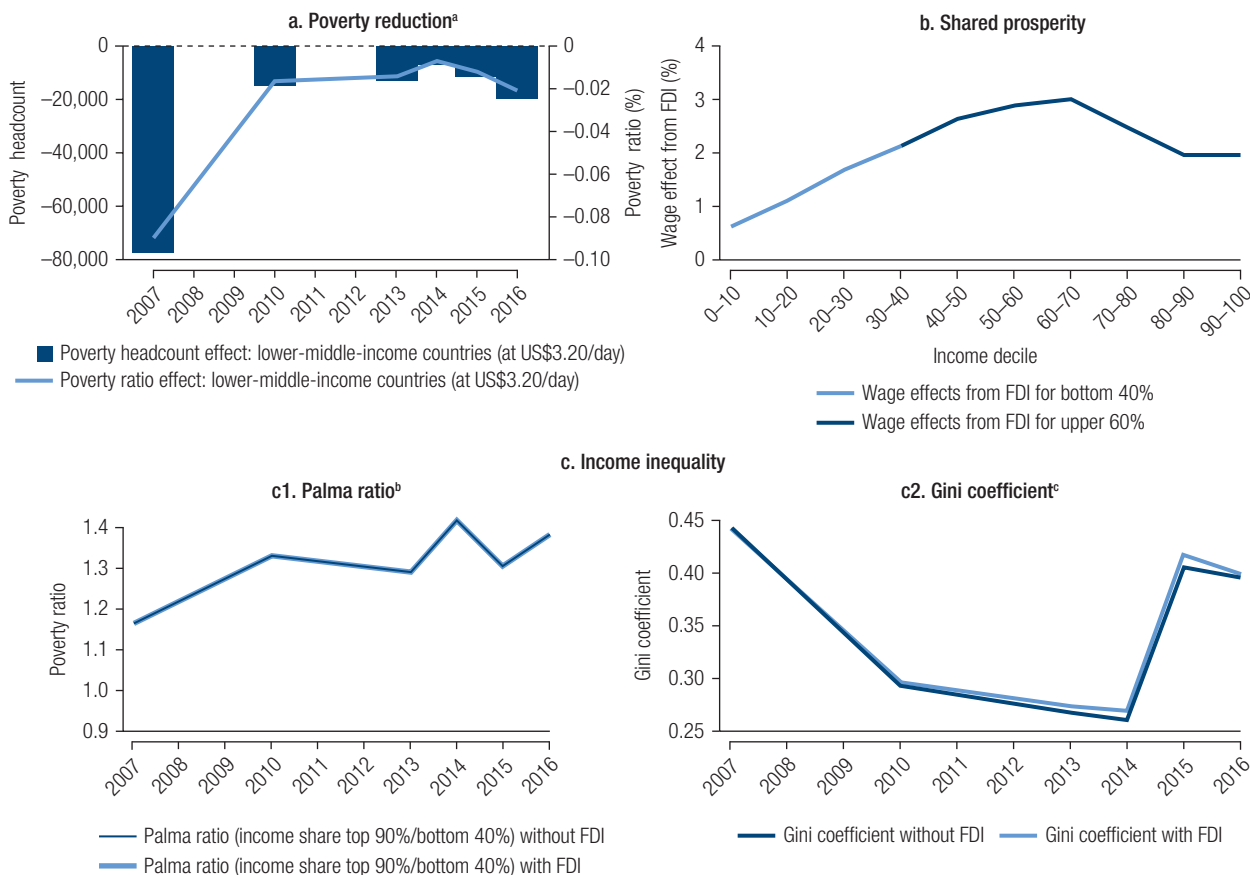
prosperity, but they are minimal on income inequality. The wage increases from FDI have helped lift almost 24,000 individuals out of poverty each year between 2007 and 2016, on average (figure 3.8, panel a). The wage income benefits from FDI are positive for all workers along the income distribution. While the largest wage increases are in the middle of the distribution, increases in income are also significant for the bottom 40 percent (figure 3.8, panel b). Given the fairly evenly distributed wage benefits, the effects from FDI on income inequality are minimal, with almost no changes in the Palma ratio and very small increases of the Gini coefficients over

time, with and without FDI (figure 3.8, panel c).

Turkey. In Turkey, FDI has had the most pronounced distributional effects. Although manufacturing FDI helped raise wages for lower-skilled workers, there is evidence of displacement for lower-skilled workers from services FDI. In total, FDI provided minor benefits to poverty reduction (affecting at most 15,000 individuals, or around 0.02 percent of Turkey’s population)

(figure 3.9, panel a). In contrast, higher-skilled workers enjoyed strong rises in their income when FDI flowed in, thus presenting evidence of skill premiums leading to wage dispersion. Overall, FDI has contributed to shared prosperity (with positive effects for both the bottom 40 percent and top 60 percent) (figure 3.9, panel b), but it did structurally contribute to income inequality (as identified by the Palma ratio and Gini coefficient) (figure 3.9, panel c).

FIGURE 3.8 Vietnam: FDI Effects on Poverty, Shared Prosperity, and Inequality



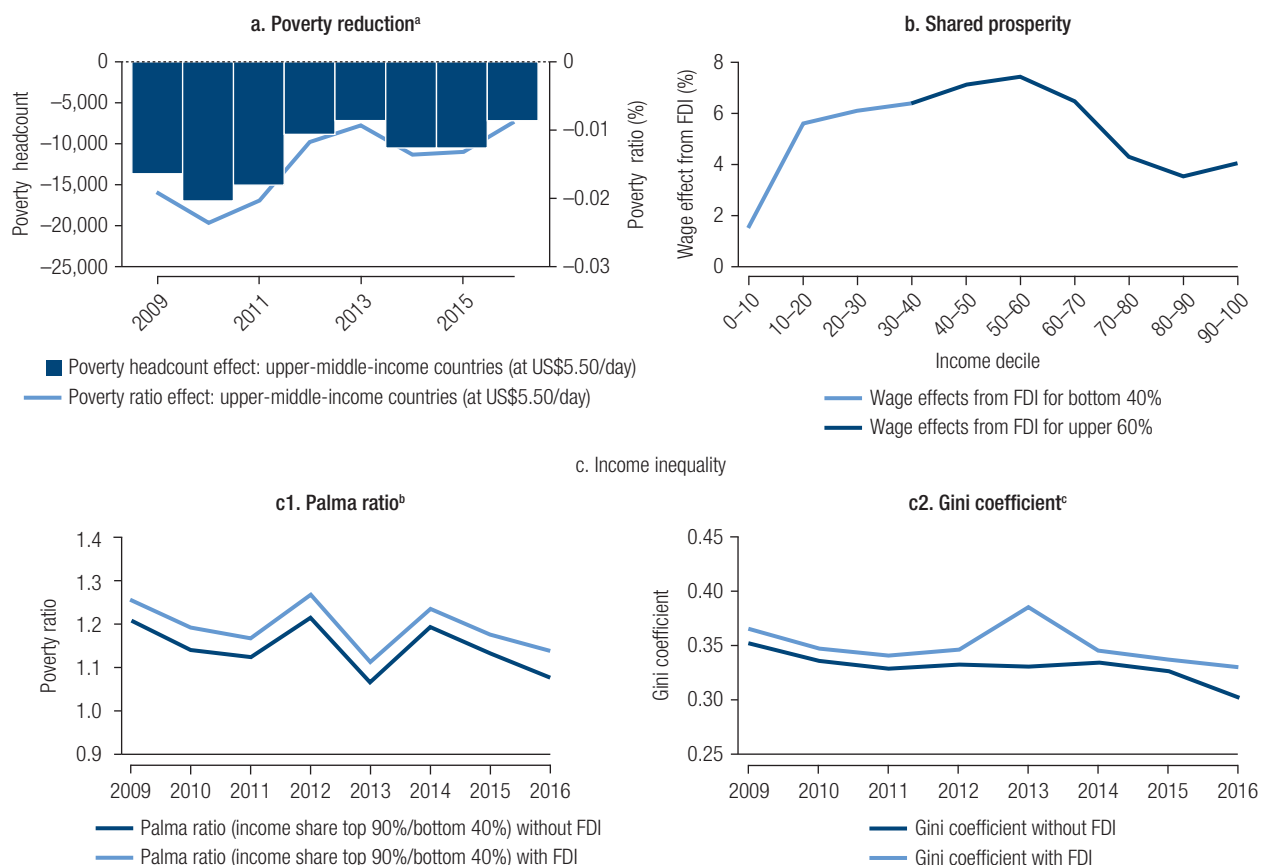
Source: World Bank calculations.

Note: Estimates of the effect on poverty headcount, Palma ratio, and Gini coefficients for 2008, 2009, 2011, and 2012 are not available because firm-level data are not available for those years. FDI = foreign direct investment.

a. The poverty headcount effect is the effect of multinational enterprises (MNEs) on raising workers’ income above the poverty headcount (at US\$3.20/day).

b. The Palma ratio is the ratio of the richest 10 percent of the population’s share of gross national income (GNI) divided by the poorest 40 percent’s share.

c. The Gini coefficient summarizes the dispersion of income across the entire income distribution. It ranges from 0 (indicating perfect equality, where everyone receives an equal share) to 1 (perfect inequality, where only one recipient or group of recipients receives all the income).

FIGURE 3.9 Turkey: FDI Effects on Poverty, Shared Prosperity, and Inequality

Source: World Bank calculations.

Note: FDI = foreign direct investment.

a. The poverty headcount effect is the effect of multinational enterprises (MNEs) on raising workers' income above the poverty headcount (at US\$5.50/day).

b. The Palma ratio is the ratio of the richest 10 percent of the population's share of gross national income (GNI) divided by the poorest 40 percent's share.

c. The Gini coefficient summarizes the dispersion of income across the entire income distribution. It ranges from 0 (indicating perfect equality, where everyone receives an equal share) to 1 (perfect inequality, where only one recipient or group of recipients receives all the income).

Policy Implications

The evidence in this chapter so far has shown that FDI plays an important role in shaping labor markets, affecting both aggregate labor demand and skill-biased employment and wage dynamics. The three countries examined in more detail (Ethiopia, Vietnam, and Turkey) further confirm the varied impact that FDI can have across different types of sectors and by workers' education levels. Although all three countries have been relatively successful at attracting FDI,

all have experienced notably different effects on poverty reduction, shared prosperity, and income inequality. In general, FDI in lower-skilled, tradable, labor-intensive sectors have had the most significant pro-poor impact. FDI in higher-skilled, less tradable sectors tend to benefit the more-educated workers at the expense of those at the lower end of the income distribution.

This section extracts lessons from the experience of the analyzed countries and incorporates other empirical evidence to suggest which complementary policies can

enhance FDI's contribution to poverty reduction and inclusive growth. Specific recommendations to help improve the developmental impact of FDI fall into two areas: (a) investment policy and promotion efforts, and (b) labor market policies.

Investment Policy and Promotion for Development

Recommendation 1: Align investment promotion with a country's labor skill base, related sectors, and relevant source countries.

Not all FDI will have the same impact on an economy. Thus, investment promotion officials may wish to target FDI that is most likely to bring the impact they seek (Javorcik 2004). For the purposes of designing investment promotion strategies and adopting investment promotion measures, officials may wish to consider targeting based on the country's *skill base, related sectors, and relevant source countries*.

The case studies showed that FDI has the biggest effect on inclusive income growth when it is aligned with a country's skill base. While FDI in low-skilled manufacturing resulted in the highest average welfare benefits for Ethiopia and Vietnam, Turkey benefited most from FDI in higher-skilled manufacturing. In addition, Turkey was the only country in the sample where benefits from higher-skilled services increased significantly, on average. A likely reason is that Turkey's population is higher-skilled on average, making it easier to employ domestic workers and absorb knowledge transfers from MNEs.

In practical terms, this suggests that to best use FDI for household income growth, investment promotion strategies should start with an assessment of the country's labor skill base (possibly through a jobs diagnostic).¹⁵ Sectors to be targeted may then be those in which the host economy has some skill endowment and in which it wishes to develop greater capacity when considering its national development strategy.

A country's skill base may also have implications for relevant FDI source countries. Source economies to be targeted may be those that have firms with capacity in these sectors, and especially at a level of technology that is complementary to the host economy. If the technology gap between foreign and domestic firms is too wide, it will be difficult for domestic firms to benefit from direct knowledge transfer or spillovers, limiting the developmental impact of the FDI on inclusive growth (Perea and Stephenson 2018).

Recommendation 2: Strengthen the absorptive capacity of domestic firms and workers (such as through programs fostering FDI-supplier linkages and employment training) to help extend the labor market benefits from FDI.

Host governments may wish to increase the level of absorptive capacity of their economy to increase the potential benefit of FDI. The results on vertical spillovers illustrated the potential impact that FDI-supplier linkages can have on household income. In the case of Ethiopia, the study found evidence that FDI in forward-linked areas has a positive effect on employment and wages (likely capturing the broader demand effects from manufacturing FDI on their suppliers). However, in the case of Turkey, the study found a negative effect on forward-linked FDI, suggesting that MNEs are switching from domestic to foreign suppliers of intermediate inputs, in which case production, labor demand, and wages of sectors forward linked to FDI can decline.

These two cases suggest that absorptive capacity is *relative to the type of FDI attracted*. Turkey's domestic suppliers likely have higher absorptive capacity than Ethiopia's suppliers, yet Turkey's MNEs are also involved in more-complex production (placing additional demands on Turkey's suppliers). To better improve FDI-supplier linkages would therefore warrant additional analysis to better understand potential constraints between MNEs and domestic suppliers in Turkey.

Policy makers have a role to play in helping develop the hard infrastructure and soft skills needed for domestic firms to assimilate

knowledge and technology brought by foreign firms when MNEs invest in the economy (Amann and Virmani 2014). As seen in the empirical evidence, skill level can make the difference between being locked into a low-income, low-skill cycle of FDI or moving up to a high-income, high-skill cycle of FDI (Te Velde and Xenogiani 2007). Measures to consider include promoting firm linkages, boosting R&D expenditures, increasing R&D employment, providing training programs, building business networks, establishing institutional partnerships, creating national infrastructure, helping to diffuse information, and designing appropriate school curricula. The specific type of relevant policy will depend in large part on a country's economy and stage of development. What is most critical is an approach of continuous learning and adaptation for domestic firms and the domestic economy to maximize the benefits of FDI.

Policy makers' interventions to boost absorptive capacity should be considered at the national level. Absorptive capacity can be measured at the levels of the firm and the economy. To provide the most transformational benefits for the country from FDI, it is most important to adopt the necessary horizontal measures that can boost the absorptive capacity of the economy as whole rather than try to boost the absorptive capacity of individual firms (Perea and Stephenson 2018).

Recommendation 3: Opening up services sectors to foreign investment can (indirectly) create new jobs. Governments may wish to combine the promotion of services FDI with progressive labor market interventions to ensure that both high- and low-skilled workers in the services sector benefit.

The three case studies suggest that FDI in services has little direct effect on aggregate (formal) job creation. Although FDI in high-skilled services led to a minor increase in formal employment for Turkey, FDI in lower-skilled services led to a decline (Turkey) or no effect on employment (Vietnam). A possible reason for this is that most services firms operate exclusively within the domestic market. FDI in services

can thus capture market share from domestic firms, resulting in little or no aggregate employment effects. Negative employment effects possibly indicate the use of labor-saving technology.

However, liberalization of services can also stimulate long-term economic development by raising an economy's overall total factor productivity (the efficiency with which societies combine labor, capital, and technology) (Van der Marel 2012). For 86 developing countries from 1985 to 1999, those that opened up their financial and telecommunications sectors grew, on average, 1.5 percentage points faster than countries that did not open up these sectors (Mattoo, Rathindran, and Subramanian 2006). Similarly, for 20 transition economies from 1990 to 2004, enabling entry of FDI in select services (finance, power, transport, and telecommunications) was associated with large new investments and provided statistically significant explanatory variables for their economic performance after 1990 (Eschenbach and Hoekman 2006). This suggests that services FDI may have important *dynamic* effects in stimulating household income growth.

Removing restrictions on foreign equity in the services sector is also known to improve productivity in other sectors and can therefore improve *indirect* job creation. Evidence from the Czech Republic, India, and Indonesia shows that opening up services to foreign investors improves the productivity of domestic firms in manufacturing, which may raise average wages in this sector (Arnold et al. 2016; Arnold, Javorcik, and Mattoo 2011; Duggan, Rahardja, and Varela 2013). This chapter found evidence that in Vietnam, FDI in backward-linked sectors (such as professional business services) led to higher employment in manufacturing and to higher wages in the service sector. This suggests that services liberalization can assist *indirectly* in creating jobs.

To limit the potential increase in wage inequality from services FDI in the short run, governments can prioritize promoting service sectors that are export oriented or that most affect (export-oriented) manufacturing.

The case studies showed that FDI in services is associated with the largest increases in wage inequality because lower-skilled workers are displaced in favor of higher-skilled workers. As shown in the conceptual framework, FDI is most associated with wage inequality in services sectors that are (a) *more skill intensive* (see the broad sectoral classification in box 3.2 and annex 3C, table 3C.1); (b) *domestically oriented* (such as construction and security services) rather than export oriented (such as tourism, ICT, and business process outsourcing); and (c) *dominated by small, family-owned businesses* (such as retail).

For that reason, it can make sense to prioritize promoting services in areas that are either export oriented or that strongly affect export-oriented manufacturing (such as logistics, transport, and wholesale trade) and adopt robust social safety net policies to compensate for potential losers, as discussed below.

Progressive Labor Market Policies

Progressive labor market policies can be important complements to counter FDI's effect on any (temporary) declines in formal employment

and increases in income inequality. This chapter shows that FDI is associated with skill premiums that can increase wage inequality (as seen in Turkey). Yet evidence also suggests that FDI can bring about productivity improvements and structural transformation that boost long-term growth. Hence, rather than undermine FDI flows, the best way to ensure inclusive growth is to *complement* investment policy with progressive labor market policies.¹⁶

Recent evidence suggests that some active labor market policies, including vocational training and employment subsidies, are not cost-effective (box 3.3). However, that does not mean that government policy cannot improve labor market outcomes. Three types of labor market policies have had the most beneficial effect on labor markets: (a) improving labor standards and labor representation; (b) providing labor market information and skills certification to vulnerable communities; and (c) stimulating internal labor mobility. These are discussed in Recommendations 4–6.

Recommendation 4: Improve bargaining power and knowledge spillovers for workers by enforcing sufficient labor standards and supporting labor representation.

BOX 3.3

The Limited Effectiveness of Traditional Active Labor Market Policies

A systematic survey of 24 randomized control trials of active labor market programs in 10 developing countries found that “these programs have at best modest impact in most circumstances” (McKenzie 2017).

Vocational training programs were found to have modest effects on employment. “For every 100 people offered vocational training, fewer than 3 will find a job they would not have otherwise found” (McKenzie 2017). The study finds that the cost of employing one additional person ranged from approximately US\$17,000 to US\$60,000.

Employment subsidies are also not effective, especially when firms had to formally register workers, the literature suggests. In the one study, initial positive results disappeared quickly once the subsidy ended. No study identified any long-term impact on employment from subsidies (McKenzie 2017). Such evidence from developing countries is consistent with findings of ineffective active labor market policies in developed countries (Crépon and van den Berg 2016).

While FDI may be job creating, FDI benefits in terms of creating “good” jobs are not automatic. The OECD defines job quality based on three dimensions: wages, labor market security, and the working environment (Cazes, Hijzen, and Saint-Martin 2015). Although this study finds that FDI has an impact on wages, evidence regarding FDI and labor market security and the quality of the working environment is mixed (Hijzen et al. 2013). Some studies have found that foreign firms adapt to local labor practices rather than export the labor practices of their home economy (Almond and Ferner 2006). Others have argued that governments have been tempted to lower labor standards to attract FDI, resulting in an international “race to the bottom” (Bernard and Jensen 2007; Bernard and Sjöholm 2003). Yet, in many cases, such policy is misguided, given that efficiency-seeking firms care about low *unit labor costs* (the average cost of labor per unit of output) rather than the lowest employment costs overall. Government-enforced labor standards may raise labor costs but can also reduce unit labor costs by reducing turnover.

One way to reduce labor turnover is to improve safety standards—in turn creating better opportunities for knowledge spillovers to workers and increasing labor productivity for firms. Many of the manufacturing jobs associated with FDI in low-income countries are associated with significant health risks. Blattman and Dercon (2018) find that, in Ethiopia, chances of a chronic health issue went up 1 percentage point for every month someone works in an industrial firm (associated with chemical use and dirty air). Combined with extremely low pay, this situation meant that worker turnover was very high, and 77 percent of workers quit within their first year. Other estimates also find evidence of extreme annual turnover in Ethiopia, ranging from 60 percent to 120 percent (with complete turnover of more than one cohort occurring in some years) (Barrett and Baumann-Pauly 2019). When workers are employed for such a short period, they have

little opportunity to learn on the job or receive knowledge spillovers from MNEs. This leads to low labor efficiency for the firm and little in productivity-linked wage benefits for the workers.¹⁷ Government can play a role by enforcing labor standards throughout an industry, which is likely to reduce turnover, raise employee health benefits, and give firms a reason to invest in training their workers.

Better labor representation can also reduce wage inequality, but more research is needed on ways to balance the costs and benefits of labor laws (Blattman and Dercon 2018). There is considerable evidence from developed countries that unions can reduce wage inequality (see, for example, Dinardo and Lemieux 1997; Lemieux 1993) and that differences in the rate of deunionization are correlated with differences in the growth of inequality (Card, Lemieux, and Riddell 2004, 2018; Gosling and Lemieux 2004). This evidence has led some experts to argue that labor law reforms should be part of any policy response to rising inequality (see, for example, Stiglitz 2012). Yet regulation also risks raising labor costs (which could scare off FDI in the country) and risks benefiting insiders (union members) at the expense of outsiders (those without employment).

More research is needed in this area. A key example comes from labor standards campaigns in Indonesia, which led to large real wage increases in targeted firms, with some costs (falling profits) but no adverse employment effects (Harrison and Scorse 2010). In the absence of union representation (which takes time to establish), governments can also foster workers’ councils to grant employees a voice and a venue to air grievances (Barrett and Baumann-Pauly 2019).

Recommendation 5: Support vulnerable communities (such as lower-skilled workers, youth, and women) by providing jobs information and skills certification.

Governments can also help vulnerable communities by lowering search costs in the labor market by offering public information about jobs and organization of job fairs.

Providing job seekers with information about the labor market can help improve employment. In rural India, informing young women about urban ICT jobs and helping them with the application process meant that these women were 4.6 percentage points more likely than others to work in ICT jobs (Jensen 2012). In Ethiopia, providing job seekers with bus fares to search for vacancies or attend job interviews improved labor market outcomes (Abebe et al. 2017). Finally, in the Philippines, a job fair also allowed attendees to learn about their labor market prospects, increasing the probability of working in a formal job by 11 percentage points (compared with the control group) (Beam 2016).

Recent experimental evidence also shows that programs that certify existing skills can also help job seekers find better jobs. In Ethiopia, workers who attended job application workshops that provided skill certificates as well as training on résumés, cover letters, and job interviews had 20 percent higher earnings than comparable workers in the control group. These gains were concentrated among those with the least education and experience (Abebe et al. 2018). In Uganda, certificates of soft skills led employed workers to earn 11 percent more in the two years after the intervention (Bassi and Nansamba 2018). Certificates work best when they focus on general skills rather than apprenticeships, which focus on firm-specific skills that are harder to certify and were valued less by other firms in the market (Alfonsi et al. 2017). In sum, reducing information gaps can increase employment quality and earnings for job seekers in vulnerable communities (Caria and Lessing 2019).

Recommendation 6: Establish programs to stimulate internal migration.

Regulatory changes and support programs to stimulate internal migration can further help improve access to employment, with important welfare benefits (Newman et al. 2016). FDI often creates more jobs close by, which often means that large wage benefits are restricted to urban areas. Stimulating urbanization can help expand some of these benefits to the wider population. Yet moving

is costly, and informal insurance in the form of relying on families and communities means that individuals rarely move (Munshi and Rosenzweig 2016).

Some of the most successful labor market interventions are those that helped workers access job opportunities in a different location (Jensen 2012) or subsidized job searches in different parts of the city (Abebe et al. 2016; Franklin 2015).¹⁸ More striking evidence comes from Bryan, Chowdhury, and Mobarak (2014), who show that a small subsidy equal to the cost of a bus ticket spurred new seasonal migration in Bangladesh, which improved employment opportunities and increased household consumption (analogous to income) by 30–35 percent.

Overall, this report calls for an integrated approach that combines (a) *proactive investment policy and promotion* (including targeting FDI, tackling absorptive capacity, and liberalizing services with the best prospects for employment and wage increases) with (b) *progressive labor market policies* (including support for workers' labor standards and labor representation, active provision of information to vulnerable job seekers, and support programs to stimulate internal migration). Policies that can align these different elements have the best chance of ensuring that FDI will bring benefits to the host economy, stimulate poverty reduction, promote shared prosperity, and produce inclusive growth.

Annex 3A. Data Description

The analysis links household survey data with firm-level data. The main source of household data comes from the World Bank's International Income Distribution Database (I2D2). The I2D2 is a harmonized dataset covering more than 900 nationally representative household surveys from more than 160 countries.¹⁹ The data include the industry of employment, which can be harmonized in all countries to two-digit ISIC (rev. 4) industries. In addition, it includes information on workers' characteristics

(gender, age, education) and geographic location (region). The analysis uses this sector and location information to match with the variable of interest concerning MNE activities. For Ethiopia, this resulted in five surveys between 2009 and 2014. For Vietnam, to increase overlap with the firm-level data, the I2D2 was supplemented with Labor Force Surveys for 2013–16. For Turkey, household surveys recorded two-digit industrial sectors only from 2009 onward (previously, it was one-digit).

Various firm-level datasets in each country were used to match with the household-level data. For Vietnam and Turkey, the analysis relies on information from the Enterprise Census and Enterprise Information System, respectively. Both include information on firms from all sectors in the economy. For Ethiopia, a census of all manufacturing establishments with 10 or more employees, the Large and Medium Manufacturing Survey, was used.

From firm-level data, the share of revenue (employment) by foreign firms in total output (employment) was calculated as a proxy for FDI activity. This MNE output share is estimated annually, across each region and ISIC two-digit sector. In Vietnam and Turkey, the data include information on firms in all sectors. In Ethiopia, the survey covers manufacturing activity only. As a result, the analysis in Ethiopia is restricted to FDI in the manufacturing sector, which nevertheless captures 70–89 percent of annual FDI inflows since 2007 (EIC 2017). The analysis covers the periods with significant FDI growth in Ethiopia (2009–14), Vietnam (2007–16), and Turkey (2009–16).

Before conducting the analysis, all the datasets were restricted to only working-age individuals (ages 15–65). The focus is on employed individuals. Two main outcomes were constructed: an indicator for whether a worker is formally employed and the worker's wage level. Because of differences in the household survey, the definition of formal employment varies slightly across the three countries. In Ethiopia and Vietnam, this

indicator takes a value of 1 if a worker is either a paid employee or employer, and 0 if the individual is a nonpaid employee or self-employed. In Turkey, this indicator takes a value of 1 if a worker contributes to social security (a common indicator of formal employment), and 0 otherwise. The measure of wages was normalized to monthly payments in constant 2010 terms.

The main variable of interest is defined as the share of FDI firms' revenue in a sector and region. Because of differing data availability, there are some variations in how this variable is measured across the three sample countries. In all countries, a region is defined as a level-2 administrative region (NUTS2 in the case of Turkey, and province in the case of Ethiopia and Vietnam), which results in 11 regions in Ethiopia, 26 in Turkey, and 64 in Vietnam. Foreign firms are defined as those with at least 10 percent foreign ownership in Ethiopia and Turkey. In Vietnam, foreign firms are those identified as having any positive foreign shares, given the lack of data on shareholders in some years. Nevertheless, when this variable is available, a high correlation is found between the two definitions.

Annex 3B. Empirical Specifications

The analysis is performed separately for each of the three country case studies. The baseline model estimates the following:

$$y_{irst} = \beta \times FDI_{srt-1} + \delta X_{irst} + \gamma * tariff_{st} + d_s + d_{rt} + \varepsilon_{irst}, \quad (3B.1)$$

where, y denotes formal employment or (log) wages, i is the specific individual, s is the two-digit sector, r is the region within a country, and t is the year. FDI_{srt-1} denotes lagged FDI activity, calculated as the share of foreign firms' revenue in the total output of a sector and region within a country. β is the main coefficient of interest, which measures the change in the probability of formal

employment or the percentage change in wages associated with a unit change in FDI activity.

Implicitly, this specification assumes that the relevant labor market is within a sector and region. There is an adjustment cost to move between sectors and regions, so there are differences in individual employment and wages due to differences in FDI activities. The analysis controls for a set of individual characteristics in X_{irst} , including age, gender, and education level to account for potential selection of workers into regions and sectors with higher FDI. The sectoral fixed effects, d_s , control for inherent differences in sectoral labor demand that could be correlated with FDI attractiveness.

Equation (3B.1) is estimated using an instrumental variable, where FDI_{srt} is instrumented for by growth in global FDI (greenfield and M&A) in sector s in year $t-4$, interacted with the original shares of FDI in region sector rs (that is, the shares at the beginning of the sample period). A quadratic term is included of the instrument to capture potential nonlinear effects between the instrument and the variable of interest. For example, agglomeration effects might imply that the original shares of FDI would have an exponential effect on FDI activities in later years.

Including another excluded instrument also allows the analysis to formally test for the exogeneity of the instruments and the error terms. Global FDI captures supply shocks that are unlikely to be correlated with other domestic changes. Nevertheless, this instrument is not exogenous if regional shocks occur that affect both the labor markets and FDI shares. To account for this, the model also controls for a set of region-year fixed effects. Finally, for all nonservices sectors, the model also controls for average tariff in the sector to separate out the potential impact of FDI from trade liberalization, given that FDI reforms are often accompanied by trade liberalization.

The effect of vertical FDI is estimated using the following specification:

$$y_{isrt} = \beta_{fw} \times \sum_j FDI_{j \rightarrow s, srt} + \beta_{fw} \times \sum_k FDI_{j \rightarrow k, srt} + \delta X_{irst} \gamma^* \quad (3B.2)$$

$$+ \text{tariff}_{st} + d_s + d_{rt} + \epsilon_{irst},$$

where $\sum_j FDI_{j \rightarrow s, srt}$ and $\sum_k FDI_{s \rightarrow k, srt}$ denote the weighted sum of FDI output shares in all sectors supplying to or buying from sector s , where the weights are the technical coefficients in the input-output table for each country, to capture the degree of linkages between sectors.

Intuitively, this specification examines the extent to which labor demand in a sector is affected by backward and forward linkages with other foreign-invested sectors. The instrument is the weighted sum of the original instrument for FDI in each sector and region.

To understand the distribution impact of FDI, the following specification is estimated:

$$y_{isrt} = \beta FDI_{rst} + n FDI_{rst} \times Edu_{irst} + \delta X_{irst} + \gamma^* \text{tariff}_{st} + d_s + d_{rt} + \epsilon_{irst}. \quad (3B.3)$$

Here, the interactions between FDI and workers' education is included to capture how worker outcomes vary with their education levels. In aggregate, the total effect will also depend on the types of sectors receiving FDI and the nature of FDI (low skill versus high skill, tradable versus nontradable, labor intensive versus capital intensive).

The impact of FDI on the income distribution is then aggregated using estimates from equation (3B.3). For each individual, the counterfactual wage *without* FDI is predicted assuming a zero FDI value. The aggregate poverty level, total income of the bottom 40 percent, and the inequality indicators (Palma ratio and Gini coefficient) are estimated for the actual and this counterfactual (wage) income distribution. The contribution of FDI to poverty reduction, shared prosperity, and inequality are then calculated as the differences between these numbers.

Annex 3C. Additional Tables

TABLE 3C.1 Broad Sectoral Classification and their Subsectors

| <i>Broad sector</i> | <i>Subsectors</i> |
|------------------------------------------------|----------------------------------------------------------------------|
| Extractives | Mining of coal and lignite |
| | Extraction of crude petroleum and natural gas |
| | Mining of metal ores |
| | Other mining and quarrying |
| | Mining support service activities |
| Low-skilled manufacturing | Food, beverages, and tobacco products |
| | Wood and wood products |
| | Other nonmetallic mineral products |
| | Fabricated metal |
| | Paper and paper products; printing and publishing |
| | Rubber and plastics products |
| | Basic metals |
| | Textiles, wearing apparel, and leather products |
| | Furniture; manufacturing n.e.c. (not specified) |
| | High-skilled manufacturing |
| Chemicals and chemical products | |
| Machinery and equipment n.e.c. (not specified) | |
| Transport equipment | |
| Electrical machinery and equipment | |
| Computer, electronics, and optical equipment | |
| Pharmaceutical products | |
| Low-skilled services | Construction |
| | Wholesale and retail trade; repair of motor vehicles and motorcycles |
| | Transportation and storage (land, warehousing) |
| | Accommodation and food service activities |
| | Security, landscape, and employment activities |
| High-skilled services | Transportation and storage (water, air, postal) |
| | Information and communication |
| | Financial and insurance activities |
| | Professional, scientific, and technical activities |
| | Travel agencies and tour operators |
| | Office administration and other business support activities |

Source: World Bank, based on Hallward-Driemeier and Nayyar 2017.

Note: Based on International Standard Industrial Classification (ISIC) rev. 4 classification. Extractives follows ISIC 05–09. Low-skilled manufacturing covers ISIC 10–18, 22–24, 31–32. High-skilled manufacturing covers ISIC 19–21, 25–30, 33. Low-skilled services covers ISIC 41–49, 52, 55–56, 68, 77–78, 80, 81. High-skilled services covers ISIC 50–51, 53, 58–66, 69–75, 79, 82. n.e.c. = not elsewhere classified.

TABLE 3C.2 FDI Labor Market Effects: All Countries (Second-Stage IV Results)

| Outcome Variables | Vietnam | | | Turkey | | | Ethiopia | | | |
|-------------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| | Wages (LN) | Wages (LN) | Formal Employment | Formal Employment | Wages (LN) | Wages (LN) | Formal Employment | Formal Employment | Wages (LN) | Formal Employment |
| Household Sample | Manu- facturing | Services | Manu- facturing | Services | Manu- facturing | Services | Manu- facturing | Services | Manu- facturing | Manu- facturing |
| MNE output share (lagged Y1) | 0.340*** (2.78) | 0.577** (2.20) | 0.141** (2.45) | -0.0200 (-0.16) | 1.054*** (0.356) | 1.033 (1.247) | 0.122*** (0.045) | -0.010 (0.168) | 1.156* (0.654) | 0.124 (0.100) |
| Additional controls | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age |
| Sectoral tariffs | Yes | No | Yes | No | Yes | No | Yes | No | Yes | Yes |
| Region x year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| ISIC2 sector fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 265,335 | 489,660 | 393,905 | 885,941 | 202,855 | 392,785 | 211,900 | 418,975 | 10,683 | 11,084 |
| R-squared | 0.405 | 0.342 | 0.260 | 0.296 | 0.050 | 0.049 | 0.053 | 0.049 | 0.120 | 0.082 |
| Hansen J statistic (p-value) | 0.222 | 0.168 | 0.000 | 0.061 | 0.7107 | 0.6907 | 0.9815 | 0.3867 | 0.2904 | 0.2700 |
| Kleibergen-Paap LM test (test) | 107.6 | 34.8 | 115.9 | 37.2 | 42.4 | 25.3 | 42.4 | 25.1 | 11.4 | 11.6 |
| Kleibergen-Paap LM test (p-value) | 4.21e-24 | 2.83e-08 | 6.91e-26 | 8.42e-09 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0033 | 0.0030 |
| Kleibergen-Paap Wald rk F statistic | 68.39 | 35.28 | 88.94 | 34.56 | 142.44 | 24.11 | 139.64 | 23.17 | 10.36 | 10.93 |
| Total average effects (%) | 12.0 | 2.0 | 5.2 | 0 | 7.7 | 0 | 0.9 | 0 | 31.5 | 0 |

Source: World Bank.
 Note: FDI = foreign direct investment; IV = instrumental variables; ISIC2 = International Standard Industrial Classification of All Economic Activities two-digit code; LM = Lagrange Multiplier; LN = natural logarithm; MNE = multinational enterprise; Y1 = Year 1.
 Standard errors are clustered at the region*sector level. *** p < 0.01 ** p < 0.05 * p < 0.10

TABLE 3C.3 FDI Labor Market Effects by Broad Sector and Education Level: Ethiopia (Second-Stage IV Results)

| Outcome variables | (1) Wages (LN) Manufacturing | (2) Wages (LN) Low-skilled manufacturing | (3) Wages (LN) High-skilled manufacturing | (4) Formal Emp. Manufacturing | (5) Formal Emp. Low-skilled manufacturing | (6) Formal Emp. High-skilled manufacturing |
|------------------------------------------------------|------------------------------------|---------------------------------------------------|----------------------------------------------------|-------------------------------------|----------------------------------------------------|-----------------------------------------------------|
| MNE output share (lagged Y1)*no education | 1.810*** (0.637) | 1.793*** (0.643) | 17.20*** (3.780) | 0.239** (0.104) | 0.233** (0.107) | 2.295*** (0.484) |
| MNE output share (lagged Y1)*primary education | 1.595** (0.729) | 1.913** (0.781) | 1.108 (1.177) | 0.199* (0.109) | 0.235** (0.117) | 0.0983 (0.145) |
| MNE output share (lagged Y1)*secondary education | 2.741 (2.672) | 2.750 (3.143) | — (.) | 0.332 (0.400) | 0.198 (0.467) | — (.) |
| MNE output share (lagged Y1)*postsecondary education | -0.772 (1.225) | -0.847 (1.609) | 1.255 (1.408) | -0.246 (0.171) | -0.260 (0.225) | 0.0120 (0.196) |
| Additional controls | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age |
| Sectoral tariffs | Yes | Yes | Yes | Yes | Yes | Yes |
| Region-year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| ISIC2 sector fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 10,683 | 10,024 | 659 | 11,084 | 10,411 | 673 |
| R-squared | 0.112 | 0.106 | -0.082 | 0.071 | 0.069 | -0.182 |

Source: World Bank.

Note: See first-stage results in the supplementary appendix; FDI = foreign direct investment; ISIC2 = International Standard Industrial Classification of All Economic Activities two-digit code; IV = instrumental variables; LN = natural logarithm; MNE = multinational enterprise; Y1 = Year 1. Both the dash and (.) mean that there were insufficient observations for this, and so no results were identified. Standard errors are clustered at the region*sector level. *** $p < 0.01$ ** $p < 0.05$ * $p < 0.10$

TABLE 3C.4 FDI Labor Market Effects by Broad Sector and Education Level: Vietnam (Second-Stage IV Results)

| Outcome variables | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) |
|----------------------------------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| | Wages (LN) | Wages (LN) | Wages (LN) | Wages (LN) | Wages (LN) | Wages (LN) | Wages (LN) | Formal Emp. | Formal Emp. | Formal Emp. | Formal Emp. | Formal Emp. | Formal Emp. | Formal Emp. |
| Household sample | Extratives | Manu- facturing | Low- skilled manuf. | High- skilled manuf. | Services | Low- skilled services | High- skilled services | Extratives | Manu- facturing | Low- skilled manuf. | High- skilled manuf. | Services | Low- skilled services | High- skilled services |
| MNE output share (lagged Y1)* no education | 1.560*** (9.48) | 0.627 (1.48) | 0.836 (1.58) | -0.217 (-0.75) | -3.791** (-2.30) | -3.995** (-2.22) | 4.230 (1.40) | -0.514*** (0.16) | 0.372*** (2.70) | 0.443*** (2.72) | 0.223* (1.77) | -0.401 (-0.79) | -0.457 (-0.79) | 1.242 (1.60) |
| MNE output share (lagged Y1)* primary education | -1.418 (2.48) | 0.356** (2.42) | 0.445*** (2.62) | -0.005 (-0.03) | -1.57** (-2.13) | -1.838** (-1.99) | 0.425 (0.49) | -0.750*** (0.32) | 0.259*** (3.83) | 0.329*** (4.17) | 0.043 (0.69) | -0.422 (-1.38) | -0.509 (-1.28) | -0.048 (-0.31) |
| MNE output share (lagged Y1)* secondary education | 0.783 (0.51) | 0.319** (2.43) | 0.368** (2.40) | -0.108 (-0.83) | 0.478 (1.21) | 0.853* (1.72) | 0.028 (0.10) | 0.029 (0.14) | 0.149** (2.57) | 0.226*** (3.25) | -0.035 (-0.64) | 0.185 (1.31) | 0.352* (1.89) | 0.004 (0.02) |
| MNE output share (lagged Y1)* postsecondary education | 0.370 (0.44) | 0.348*** (2.64) | 0.969*** (3.33) | -0.166 (-1.28) | 0.837*** (2.95) | 1.115** (2.22) | 0.211 (0.97) | -0.096 (0.14) | -0.103* (-1.65) | -0.052 (-0.56) | -0.199*** (-3.46) | -0.162 (-1.16) | -0.120 (-0.64) | 0.072 (0.59) |
| Additional controls | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age |
| Sectoral tariffs | Yes | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes | Yes | No | No | No |
| Region-year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| ISIC2 sector fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 11,436 | 265,325 | 215,664 | 49,661 | 489,641 | 446,685 | 42,956 | 17,450 | 393,895 | 324,270 | 69,625 | 885,922 | 826,071 | 59,851 |
| R-squared | 0.0339 | 0.0221 | 0.0121 | 0.0329 | 0.0140 | 0.0122 | 0.0534 | -0.0284 | 0.0667 | 0.0654 | 0.0202 | 0.0944 | 0.0923 | 0.0956 |

Source: World Bank.
 Note: See first-stage results in the supplementary appendix; FDI = foreign direct investment; ISIC2 = International Standard Industrial Classification two-digit code; IV = instrumental variables; LN = natural logarithm; MNE = multinational enterprise; Y1 = Year 1.
 Standard errors are clustered at the region*sector level. *** p < 0.01 ** p < 0.05 * p < 0.10

TABLE 3C.5 FDI Labor Market Effects by Broad Sector and Education Level: Turkey (Second-Stage IV Results)

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) |
|------------------------------------------------------|------------------------|------------------------|---------------------------|----------------------------|------------------------|-----------------------------|------------------------------|------------------------|------------------------|---------------------------|----------------------------|------------------------|-----------------------------|------------------------------|
| Outcome variables | Wages (LN) | Wages (LN) | Wages (LN) | Wages (LN) | Wages (LN) | Wages (LN) | Wages (LN) | Formal Emp. | Formal Emp. | Formal Emp. | Formal Emp. | Formal Emp. | Formal Emp. | Formal Emp. |
| Household sample | Extractives | Manu- facturing | Low- skilled manuf. | High- skilled manuf. | Services | Low- skilled services | High- skilled services | Extractives | Manu- facturing | Low- skilled manuf. | High- skilled manuf. | Services | Low- skilled services | High- skilled services |
| MNE output share (lagged Y1)*no education | 0.119 (1.070) | 0.189 (1.145) | 0.155 (1.372) | 0.546 (0.763) | -11.690*** (2.377) | -11.040*** (2.558) | -2.772 (1.725) | -0.510 (0.488) | 0.260** (0.122) | 0.290* (0.148) | 0.075 (0.092) | -2.344*** (0.381) | -2.324*** (0.404) | -0.316 (0.203) |
| MNE output share (lagged Y1)*primary education | 0.184 (0.326) | 1.424*** (0.414) | 1.902*** (0.571) | 0.571* (0.312) | -1.859 (1.167) | -0.762 (1.433) | -1.989 (1.243) | 0.007 (0.013) | 0.174*** (0.052) | 0.236*** (0.073) | 0.053 (0.039) | -0.467*** (0.158) | -0.353* (0.191) | -0.204 (0.153) |
| MNE output share (lagged Y1)*secondary education | -0.512 (0.730) | 0.813*** (0.307) | 1.099** (0.509) | 0.232 (0.245) | 3.269*** (1.018) | 5.469*** (1.346) | -0.191 (0.967) | 0.016 (0.015) | 0.076** (0.038) | 0.087 (0.063) | 0.021 (0.031) | 0.363*** (0.133) | 0.610*** (0.176) | -0.075 (0.109) |
| MNE output share (lagged Y1)*postsecondary education | 0.322 (0.489) | 0.431 (0.317) | 0.550 (0.522) | 0.024 (0.280) | 4.037*** (1.245) | 2.505 (1.600) | 1.412 (1.256) | 0.007 (0.019) | 0.041 (0.039) | 0.031 (0.063) | 0.009 (0.034) | 0.690*** (0.186) | 0.712*** (0.240) | 0.089 (0.142) |
| Additional controls | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age |
| Sectoral tariffs | Yes | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes | Yes | No | No | No |
| Region-year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| ISIC2 sector fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 5,948 | 202,855 | 153,448 | 49,407 | 444,774 | 392,785 | 51,989 | 6,102 | 211,900 | 159,955 | 51,945 | 475,068 | 418,975 | 56,093 |
| R-squared | 0.021 | 0.050 | 0.061 | 0.025 | 0.042 | 0.048 | 0.012 | -0.004 | 0.053 | 0.066 | 0.022 | 0.039 | 0.046 | 0.027 |

Source: World Bank.

Note: See first-stage results in the supplementary appendix; FDI = foreign direct investment; ISIC2 = International Standard Industrial Classification two-digit code; IV = instrumental variables; LN = natural logarithm; MNE = multinational enterprise; Y1 = Year 1.

Standard errors are clustered at the region*sector level. *** $p < 0.01$ ** $p < 0.05$ * $p < 0.10$

TABLE 3C.6 FDI Labor Market Effects by Broad Sector and Education Level: All Countries (Population Weighted, Total Average Effects)

| <i>a. Ethiopia</i> | | | | | | | | | | |
|-------------------------------------|-------------------|---------------------------|----------------------------|----------------------|-----------------------|--------------------|---------------------------|----------------------------|----------------------|-----------------------|
| Outcome variables | (1) Wages (LN) | (2) Wages (LN) | (3) Wages (LN) | (4) Wages (LN) | (5) Wages (LN) | (6) Formal Emp. | (7) Formal Emp. | (8) Formal Emp. | (9) Formal Emp. | (10) Formal Emp. |
| Household sample | Extractives | Low-skilled manufacturing | High-skilled manufacturing | Low-skilled services | High-skilled services | Extractives | Low-skilled manufacturing | High-skilled manufacturing | Low-skilled services | High-skilled services |
| <i>Total average effects (%)</i> | | | | | | | | | | |
| FDI effect: average | — | 37.1 | 23.5 | — | — | — | 4.7 | 0.3 | — | — |
| FDI effect: no education | — | 53.1 | 29.4 | — | — | — | 6.9 | 4.0 | — | — |
| FDI effect: primary education | — | 51.4 | 0 | — | — | — | 6.3 | 0 | — | — |
| FDI effect: secondary education | — | 0 | 0 | — | — | — | 0 | 0 | — | — |
| FDI effect: postsecondary education | — | 0 | 0 | — | — | — | 0 | 0 | — | — |
| <i>b. Vietnam</i> | | | | | | | | | | |
| Outcome variables | (1) Wages (LN) | (2) Wages (LN) | (3) Wages (LN) | (4) Wages (LN) | (5) Wages (LN) | (6) Formal Emp. | (7) Formal Emp. | (8) Formal Emp. | (9) Formal Emp. | (10) Formal Emp. |
| Household sample | Extractives | Low-skilled manufacturing | High-skilled manufacturing | Low-skilled services | High-skilled services | Extractives | Low-skilled manufacturing | High-skilled manufacturing | Low-skilled services | High-skilled services |
| <i>Total average effects (%)</i> | | | | | | | | | | |
| FDI effect: average | 0.2 | 11.6 | 14.4 | -0.8 | 4.9 | -0.8 | 5.1 | 5.5 | 0 | 0 |
| FDI effect: no education | 11.2 | 0 | 0 | -6.6 | -27.3 | 9.8 | 13.6 | 0 | 0 | 0 |
| FDI effect: primary education | 0 | 12.6 | 13.0 | -4.1 | -18.2 | -4.0 | 5.3 | 5.4 | 0 | 0 |
| FDI effect: secondary education | 0 | 11.4 | 14.1 | 0 | 0 | 0 | 5.3 | 6.6 | 0 | 0 |
| FDI effect: postsecondary education | 0 | 11.9 | 17.6 | 5.5 | 11.1 | 0 | 0 | 0 | 0 | 0 |

table continues next page

TABLE 3C.6 FDI Labor Market Effects by Broad Sector and Education Level: All Countries (Population Weighted, Total Average Effects) (continued)

| Outcome variables | c. Turkey | | | | | | | | | |
|-------------------------------------|-------------------|---------------------------|----------------------------|----------------------|-----------------------|--------------------|---------------------------|----------------------------|----------------------|-----------------------|
| | (1) Wages (LN) | (2) Wages (LN) | (3) Wages (LN) | (4) Wages (LN) | (5) Wages (LN) | (6) Formal Emp. | (7) Formal Emp. | (8) Formal Emp. | (9) Formal Emp. | (10) Formal Emp. |
| Household sample | Extractives | Low-skilled manufacturing | High-skilled manufacturing | Low-skilled services | High-skilled services | Extractives | Low-skilled manufacturing | High-skilled manufacturing | Low-skilled services | High-skilled services |
| Total average effects (%) | | | | | | | | | | |
| FDI effect average | 0 | 6.0 | 10.8 | 5.1 | 12.9 | 0 | 0.8 | 1.3 | -0.7 | 1.2 |
| FDI effect: no education | 0 | 0 | 0 | -49.3 | -116.0 | 0 | 1.1 | 2.0 | -9.8 | -23.0 |
| FDI effect: primary education | 0 | 7.5 | 14.7 | 0 | 0 | 0 | 0.9 | 1.8 | -2.2 | -4.2 |
| FDI effect: secondary education | 0 | 5.5 | 11.4 | 18.0 | 20.0 | 0 | 0.5 | 1.1 | 2.1 | 2.3 |
| FDI effect: postsecondary education | 0 | 0 | 0 | 22.4 | 14.3 | 0 | 0 | 0 | 3.8 | 2.4 |

Source: World Bank.

Note: Based on population-weighted, total average effects in the country, using regression coefficients from tables 3C.3 through 3C.5. FDI = foreign direct investment; LN = natural logarithm; — = not available.

TABLE 3C.7 Vertical Spillovers Effect of FDI on Labor Market Outcomes: All Countries (Second-Stage IV Results)

| Outcome variables | Vietnam | | | | Turkey | | | | Ethiopia | |
|-----------------------------------------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| | Wages (LN) | Wages (LN) | Formal Emp. | Formal Emp. | Wages (LN) | Wages (LN) | Formal Emp. | Formal Emp. | Wages (LN) | Formal Emp. |
| Household sample | Manuf. | Services | Manuf. | Services | Manuf. | Services | Manuf. | Services | Manuf. | Manuf. |
| MNE output share (lagged Y1) | 0.307*** (0.116) | 0.141*** (0.052) | 0.201*** (0.030) | -0.089 (0.130) | 1.036*** (0.378) | 0.760 (0.895) | 0.119** (0.048) | 0.032 (0.123) | 1.237* (0.679) | 0.135 (0.104) |
| MNE output share (lagged Y1)*backward intensity (backward link) | 0.829 (0.559) | 0.452** (0.212) | 0.415*** (0.066) | 0.169** (0.084) | 2.761 (2.251) | -0.194 (0.666) | 0.409 (0.309) | -0.080 (0.119) | 0.323 (3.648) | -0.015 (0.487) |
| MNE output share (lagged Y1)*forward intensity (forward link) | -0.515 (0.628) | 0.146 (0.266) | 0.205*** (0.063) | -0.024 (0.087) | -6.793*** (2.112) | 0.056 (0.571) | -0.945*** (0.282) | 0.076 (0.088) | 3.337 (2.794) | 0.471 (0.411) |
| Additional controls | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age | Education, Gender, Age |
| Sectoral tariffs | Yes | No | Yes | No | Yes | No | Yes | No | Yes | Yes |
| Region-year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| ISIC2 sector fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 265,335 | 393,905 | 489,660 | 885,941 | 202,855 | 444,774 | 211,900 | 475,068 | 10,683 | 11,084 |
| R-squared | 0.404 | 0.260 | 0.342 | 0.296 | 0.048 | 0.043 | 0.050 | 0.044 | 0.117 | 0.078 |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| <i>Total average effects (%)</i> | | | | | | | | | | |
| MNE output share (lagged Y1) | 10.8 | 5.0 | 0.9 | 0.0 | 8.4 | 0 | 1.0 | 0 | 33.8 | 0 |
| MNE output share (lagged Y1)*backward intensity (backward link) | 0 | 5.0 | 4.2 | 1.7 | 0 | 0 | 0 | 0 | 0 | 0 |
| MNE output share (lagged Y1)*forward intensity (forward link) | 0 | 0 | 1.7 | 0.0 | -35.7 | 0 | -4.9 | 0 | 0 | 0 |

Source: World Bank.

Note: See first-stage results in the supplementary appendix; FDI = foreign direct investment; ISIC2 = International Standard Industrial Classification two-digit code; IV = instrumental variable; LN = natural logarithm; MNE = multinational enterprise; Y1 = Year 1.

Standard errors are clustered at the region*sector level: *** $p < 0.01$ ** $p < 0.05$ * $p < 0.10$

Notes

1. For an overview of the general literature on FDI and firm dynamics, see Iršová and Havránek (2013) and Javorcik (2015). For examples from Africa, see El Badaoui, Strobl, and Walsh (2008) and Söderbom and Teal (2004). Other examples include Bernard, Robertson, and Schott (2010); Feenstra and Hanson (1997); and Verhoogen (2008).
2. More specifically, the goals are to reduce extreme poverty in the world to less than 3 percent by 2030 and to foster income growth of the bottom 40 percent of the population in each country (World Bank 2015).
3. The UN estimates the gap in financing to achieve the Sustainable Development Goals (SDGs) at US\$2.5 trillion per year in developing countries alone (UNCTAD 2014). Although governments and the public sector

- will continue to play a key financing role, there is greater scope for the private sector to engage in financing many areas of the SDGs to help close the gap (UNCTAD 2018). Out of the 17 SDGs, this chapter focuses on the link between FDI and three of the SDGs in particular: (a) SDG 1: End poverty in all its forms everywhere; (b) SDG 8: Promote inclusive and sustainable economic growth and decent work for all; and (c) SDG 10: Reduce inequalities within and among countries.
4. “FDI in Turkey,” Investment Office, Presidency of the Republic of Turkey website: <http://www.invest.gov.tr/en-US/investmentguide/investorguide/Pages/FDIinTurkey.aspx>.
 5. Data for the following discussion come from World Bank’s various World Development Indicator (WDI) statistical tables: <http://wdi.worldbank.org/tables>.
 6. Ideally, one would examine how FDI in a sector where an individual was *previously* employed affects their *subsequent* labor market outcomes. However, a lack of panel household data precludes the analysis from following individuals over time. As a result, the analysis cannot observe when a worker transitions between employment and unemployment and through different jobs.
 7. An example of an upstream effect comes from a car parts manufacturer increasing sales to an MNE auto manufacturer. An example of a downstream transaction may be professional services (such as lawyers and accountants) that are used for an MNE’s bookkeeping.
 8. Data for sectoral greenfield FDI come from public announcements recorded by the *Financial Times*’s fDi Markets dataset (<https://www.fdimarkets.com/>), while M&A data capture public announcements recorded by Thomson Reuters.
 9. The Gini coefficient uses the Lorenz curve to define the income distribution, with a number ranging from perfect equality (0) to perfect inequality (1). This analysis includes both the Gini coefficient and Palma ratio because the Gini coefficient is oversensitive to the middle of the distribution, and undersensitive to the tails, and thus might underestimate inequality for most countries today (Krozer 2015).
 10. For the full results of the empirical analysis, see the online appendix accessible through the report website: <http://www.worldbank.org/gicreport>
 11. Note that the effects estimated in this chapter capture relative effects of FDI (as proxied for by MNEs’ output share) across regions and sectors experiencing a higher or lower share of MNE activities, not aggregate national effects. Dix-Caneiro and Kovak (2015) raise a similar point in their study on trade liberalization in Brazil.
 12. To identify aggregate effects on formal employment, the regression coefficients from annex 3C, table 3C.1, are used and multiplied by the total yearly number of workers in manufacturing in the country using sampling weights. The results are averaged over time.
 13. Similar findings on FDI for Turkey’s manufacturing employment were identified by Kalemli-Ozcan, Sánchez-Martín, and Thirion (2016).
 14. The aggregate regressions (annex 3C, table 3C.3) find that Turkey’s manufacturing FDI is positively though insignificantly associated with manufacturing wages and employment. This suggests that any negative vertical effect is undone by the positive direct effects.
 15. For more details on the World Bank’s Jobs Diagnostics, see Hallward-Driemeier (2015) and Merotto, Weber, and Aterido (2018).
 16. Similar arguments could be made for social policy (including unemployment and disability benefits) to complement FDI and temporarily accommodate labor market adjustment. Yet such policies are often not within the fiscal space of developing countries, which is why this section focuses on labor market policies.
 17. More research is needed to better understand why firms do not try to combat high turnover (for example, through efficiency wages or self-enforced standards). It is possible that firms are poorly managed or constrained in unobserved ways. But it is also possible that high turnover at very low wages, where only those workers with the poorest outside options remain, is the firm’s profit-maximizing choice (Blattman and Dercon 2018). Given the positive externalities associated with workers’ knowledge transfer, this would call for government intervention.
 18. One notable exception comes from countries that have seen high internal migration patterns (such as in the Middle East, where some countries experienced a large inflow of refugees in a short period). Because it takes time for labor markets to adapt to such labor supply shocks, in such cases, there may be limited benefits (or possible harm) from furthering internal migration.

19. As the World Bank's repository of household surveys, I2D2 harmonizes nationally representative household surveys—both welfare and labor force surveys—from around the world, presenting data using the same variables and coding in each country and survey.

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