

CHAPTER 1

Overview

Motivation

By now, the economic damage of the COVID-19 pandemic has been extensively documented. The pandemic and associated containment measures plunged the global economy into a severe contraction. Global output shrank by more than 4 percent in 2020, with output in emerging market and developing economies (EMDEs) contracting by about 3 percent, the group's first annual contraction in more than sixty years (World Bank 2021). Over the past century and a half, the pandemic-driven global recession was the deepest since the Second World War and featured the largest fraction of economies with declines in per capita output since at least 1870 (World Bank 2020a). The decline in per capita incomes during the pandemic has pushed millions of people into extreme poverty since the beginning of the pandemic.

While the pandemic has been simply devastating, its impact has been particularly severe on the informal sector (World Bank 2020a). With a prominent presence in the services sector, informal workers were more likely to lose their jobs or suffer severe income losses during lockdowns (Balde, Boly, and Avenyo 2020; Schotte et al. 2021). A large informal sector is also associated with poorer access for many to public health and sanitation facilities, making it harder to contain the spread of the pandemic (World Bank 2020a). Informal workers are largely excluded from formal social safety nets and have low incomes and limited buffers such as savings or access to government support programs.

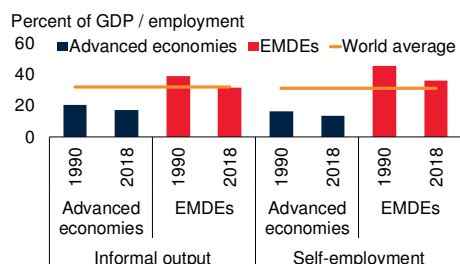
Informality has been associated with broader development challenges since long before the pandemic (World Bank 2019). In EMDEs, the informal sector accounts for about a third of GDP and more than 70 percent of employment (of which self-employment is more than a half; figure 1.1). Regardless of the nature and causes of informality, countries with larger informal sectors tend to have less access to finance for the private sector, lower labor productivity, slower physical and human capital accumulation, and smaller fiscal resources (Docquier, Müller, and Naval 2017; La Porta and Shleifer 2014). Informality is also associated with higher income inequality and poverty and less progress toward the Sustainable Development Goals (SDGs; Chong and Gradstein 2007; Loayza, Servén, and Sugawara 2010). The informal sector is, on average, less productive than the formal sector because it tends to employ more low-skilled workers, have more restricted access to funding, services and markets, and lack economies of scale (Amaral and Quintin 2006; Loayza 2018).

Note: This chapter was prepared by Franziska Ohnsorge and Shu Yu. Research assistance was provided by Hrisyana Doytchinova and Maria Hazel Macadangdang.

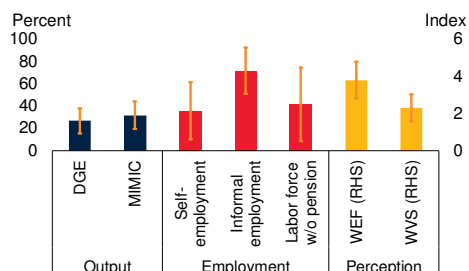
FIGURE 1.1 Informality: Main features

The informal sector accounts for about a third of GDP and more than 70 percent of employment (of which self-employment is more than a half) in EMDEs. A large informal sector is often associated with lack of development and weak governance as well as greater poverty and income inequality.

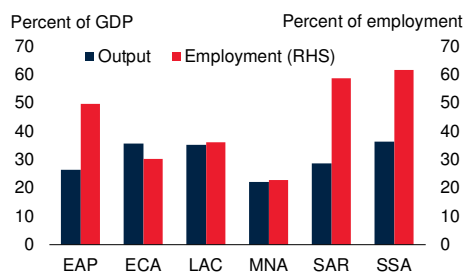
A. Share of informal output and self-employment



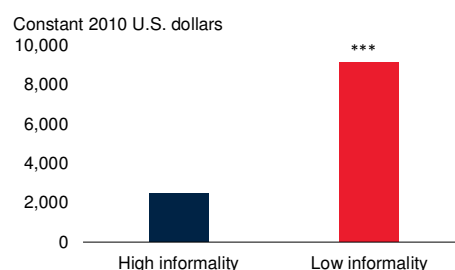
B. Informality: output and employment shares, and perceptions



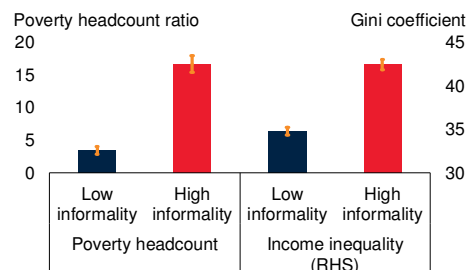
C. Informality by EMDE region



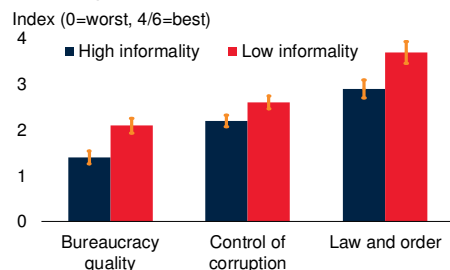
D. Per capita incomes and informality



E. Informality, poverty, and income inequality



F. Governance in EMDEs with high and low output informality



Sources: International Country Risk Guide (ICRG); International Labour Organization; World Bank (World Development Indicators); World Economic Forum; World Values Survey.

Note: EAP = East Asia and Pacific; ECA = Europe and Central Asia; EMDEs = emerging market and developing economies; DGE = dynamic general equilibrium model-based estimates in percent of official GDP; LAC = Latin America and the Caribbean; Labor force w/o pension = the share of labor force without pension; MIMIC = multiple indicators multiple causes model-based estimates in percent of GDP; MNA = Middle East and North Africa; SAR = South Asia; SSA = Sub-Saharan Africa; WVS = World Values Survey estimates (1-10; a higher value means that cheating on taxes is more justifiable); WEF = World Economic Forum estimates (1-7; 7 = most informal).

A. Unweighted averages. Self-employment shares with missing value interpolated in EMDEs for earlier years and filled using the latest available observation in recent years. They are proxies for informal employment. World averages between 1990-2018 are in orange.

B. Unweighted averages for latest available year. Whiskers are ± 1 standard deviation. Measures are grouped into output informality, employment informality, and perception-based informality. Data on informal employment are for EMDEs.

C. Bars show simple average shares of DGE-based informal output (in blue; self-employment shares in red) for 1990-2018.

D. GDP per capita in constant 2010 U.S. dollars. Unweighted average for EMDEs with above-median ("High informality") and below-median share of (DGE-based) output informality ("Low informality"). *** = statistically significant difference at the 10 percent level.

E-F. Bars are unweighted average for EMDEs with above-median ("High informality") and below-median share of (DGE-based) output informality ("Low informality") for 1990-2018. Poverty headcount measures the percent of population living on \$1.90 a day or less (2011 PPP). Whiskers are 90 percent confidence intervals.

Realizing the growth potential of the resources employed by the informal sector is a pressing matter, as EMDEs rebound from the current recession. Policy actions can unleash the growth potential of the informal sector's resources by promoting their transfer to the formal sector, and providing better public services and social safety nets to protect vulnerable groups who remain in the informal sector. These policy interventions are even more important now since the pandemic is expected to leave long-lasting scars on the global economy, including less physical capital because of lower investment, erosion of the human capital of the unemployed, and a weakening of global trade and supply linkages (World Bank 2020a). These effects may well lower the levels and growth rates of potential output and labor productivity over a long period.

Against this backdrop, this book presents the first comprehensive study of informality—of its extent, evolution and consequences, and of the policy options to address its challenges. The book makes several contributions to an already-large literature.

Comprehensive assessment. The book brings together a wide range of topics related to the informal economy, ranging from measurement issues to policy options. In contrast, earlier work typically examines only one of the dimensions covered in this book, such as the advantages and drawbacks of existing informality measures, the cyclical features of the informal sector, the developmental implications of informality, or examples of policy impacts.¹

Regional emphasis. The book brings a regional dimension to the discussion of informality in EMDEs (chapter 5). Existing studies often group all countries together (Medina and Schneider 2018, 2019) or focus on a few specific regions or countries (Loayza, Servén, and Suguwara 2010; Perry et al. 2007). To allow comparisons across all six EMDE regions, the book utilizes a comprehensive data set that covers more than 120 EMDEs. In addition, the two chapters in Part II include only EMDEs in the analysis to avoid the results being driven by differences in the nature of informality between advanced economies and EMDEs.

Analysis of the implications of COVID-19. The book provides an analysis of the impact of COVID-19 in EMDEs with pervasive informality (chapter 2). This links the features of the informal sector with the health and economic consequences of COVID-19. It also highlights the policy challenges arising from informality when EMDEs have been facing the consequences of the deepest global recession since the Second World War.

Multiple approaches. The book uses a wide range of approaches and synthesizes findings based on multiple measures of informality. The literature on informality has mostly relied on either survey-based estimates of informality or model-based estimates

¹ See Medina and Schneider (2018) and Schneider, Buehn, and Montenegro (2010) for discussions of the advantages and drawbacks of informality measures; Bosch, Goni, and Maloney (2007), Fiess, Fugazza, and Maloney (2010), and Loayza and Rigolini (2011) for the cyclical features of the informal sector; La Porta and Shleifer (2014), Loayza (2016), and Loayza, Servén, and Suguwara (2010) for the developmental implications of informality; and Dix-Carneiro et al. (2021) and Ulyssea (2020) for examples of policy impacts.

and examined informality in terms of either output or employment.² The book examines three dimensions of informality, including output, employment, perceived level of informality, and uses a combination of informality measures to overcome the limitation of each measure (chapter 2). In addition, various empirical strategies are employed to address the specific questions posed in different chapters. The study is the first to conduct a Bayesian Model Averaging (BMA) estimation—designed to capture model uncertainty—to identify robust correlates of informality, and a meta-analysis of published empirical studies to estimate the wage gap between formal and informal workers (chapter 4).

For the purposes of this study, informality is defined as market-based legal production of goods and services that is hidden from public authorities for monetary, regulatory, or institutional reasons (Schneider, Buehn, and Montenegro 2010).³ Output informality is proxied by dynamic general equilibrium (DGE) model-based estimates in percent of GDP, and employment informality is proxied by self-employment in percent of total employment, unless otherwise specified (chapter 2).

Key findings and policy messages

Using a comprehensive database of multiple informality measures, this book examines the main characteristics of the informal economy, discusses its developmental implications, and presents a range of policy options to address issues associated with it.

Features of informal activity

Informality is associated with underdevelopment more broadly (La Porta and Shleifer 2014). While the informal economy accounts for one-fifth of GDP and 16 percent of employment in the advanced economies, it accounts for one-third of GDP and 70 percent of employment in an average EMDE (of which self-employment accounts for more than a half, chapter 2). Both informal output and employment have declined since 1990, especially in EMDEs. Thus, on average in EMDEs, the share of informal output in GDP fell by about 7 percentage points (to 32 percent), and the share of self-employment in total employment declined by about 10 percentage points (to 36 percent) over 1990-2018. These declines were broad-based.

There is wide heterogeneity in informal activity among EMDEs and EMDE regions. For example, in 2018, in terms of output, the informal economy ranged from around 10 percent of GDP to 68 percent of GDP, while in terms of employment, self-employment ranged from near-zero to 96 percent of total employment. On average among the EMDE regions, the informal economy's output share is highest in Sub-Saharan Africa

² Studies like Fajnzylber, Maloney, and Montes-Rojas (2011) and Amin (2021) relied on survey-based estimates, while studies like Dreher and Schneider (2010) and Elgin, Elveren, and Bourgeois (2020) utilized model-based estimates. Bajada (2003), Dell'Anno (2008), and Giles (1997) examined output informality, while studies like Fiess, Fugazza, and Maloney (2010) and Loayza and Rigolini (2011) examined employment informality.

³ The definition and classification of informality are context-specific. See chapter 2 for various other definitions.

(SSA), Europe and Central Asia (ECA), and Latin America and the Caribbean (LAC). The share of self-employment, however, is highest in Sub-Saharan Africa (SSA), South Asia (SAR), and East Asia and Pacific (EAP; chapter 5). While all EMDE regions have witnessed declines in informality between 1990 and 2018, declines in output informality have been largest in East Asia and Pacific (EAP) and South Asia (SAR) while declines in employment informality have been largest in the Middle East and North Africa (MNA) and Sub-Saharan Africa (SSA). In Europe and Central Asia (ECA), employment informality has remained broadly unchanged, while in Latin America and the Caribbean (LAC) it has risen.

The pandemic's toll in EMDEs with widespread informality

COVID-19 has taken a particularly heavy toll on participants in the informal sector. Several features of the informal sector cause its participants to suffer more severe economic losses than their formal counterparts during lockdowns and provide support to informal workers and firms.

Characteristics of informal workers. Workers in the informal sector tend to be lower-skilled and lower-paid, with less access to finance and social safety nets, than workers in the formal sector (Loayza 2018; Perry et al. 2007). They often live and work in crowded conditions and conduct all transactions in cash—factors that promote the spread of disease (Chodorow-Reich et al. 2020; Surico and Galeotti 2020). The absence of social safety nets makes informal workers less able to afford to adhere to social distancing requirements, which undermines policy efforts to contain the spread of COVID-19 (Loayza and Pennings 2020). In EMDEs with the most pervasive informality, people are more likely to be driven into poverty if they have to make direct out-of-pocket payments for health-care emergencies.

Characteristics of informal firms. Informal firms tend to be labor-intensive and more prevalent in the services sector. Such firms have been particularly hard-hit by measures to curtail social interactions.⁴ In EMDE service sectors, about 72 percent of firms are informal, compared with 33 percent in manufacturing sectors (Amin, Ohnsorge, and Okou 2019). Informal firms rely on internal funds, making them especially vulnerable to disruptions to cashflows caused by mitigation and other control measures (Farazi 2014).

Broader development challenges. A larger informal economy is associated with weaker economic, fiscal, institutional, and development outcomes. GDP per capita in countries with above-median informality is about one-quarter that of countries with below-median informality. EMDEs with more informality lack adequate public health systems, access to clean water and handwashing facilities. Government capacity to mount an effective policy response to pandemics is more limited (box 2.1). In addition, in countries with widespread informality, governments have limited resources and the

⁴ See Benjamin and Mbaye (2012); Panizza (2020); and Surico and Galeotti (2020).

administrative structures in place to effectively deliver well-targeted relief to those most in need (Muralidharan, Niehaus, and Sukhtankar 2016).

Development challenges associated with informality

EMDEs with pervasive informality face a wide range of development challenges (chapter 4). Countries with larger informal sectors have lower per capita incomes, greater poverty, less developed financial sectors, and weaker growth in output, investment and productivity. People living in EMDEs with more widespread informality suffer from greater prevalence of hunger, poorer health and education, and greater gender inequality. Informal firms are less productive than their formal counterparts, while informal workers are paid less than their formal counterparts due to their lack of work experience and education.

Policy challenges associated with informality

Underdevelopment. More pervasive informality is associated with significantly lower government revenues and expenditures, less effective institutions, more burdensome tax and regulatory regimes, and weaker governance (chapters 4 and 6). Weaknesses in governance and revenue collection constrain the provision of public services, contributing to poorer development outcomes and poorer access to, and lower-quality, infrastructure. Limited fiscal resources constrain the government's ability to provide social safety nets during recessions, as exemplified during COVID-19, and to use policy measures to smooth business cycles.

Cyclical features of the informal economy. Additional challenges are posed by the behavior of informal economic activity through business cycles. While informal employment remains broadly stable through business cycles in the formal economy, informal output is mildly procyclical, responding positively, although less than proportionately, to formal-economy output swings (chapter 3). As a result, the informal sector appears to dampen output losses during downturns—but also seems to moderate output gains during upturns, as well as the impact of macroeconomic stabilization policies.

Tackling informality

The decline in informality over the past three decades has been accompanied by improvements in policy climates in EMDEs. Most EMDEs have reduced tax burdens, enhanced access to finance, education, and public services, and improved governance and regulatory quality. Meanwhile, some policy measures have sometimes had unintended consequences. A coherent reform strategy calls for well-integrated reforms that complement each other and address the complexity of informality.

Need for comprehensive reform packages. Many EMDE governments implemented policies at the microeconomic level and found that the implications for informality were more benign when these reforms were implemented in a supportive institutional and

macroeconomic environment. For instance, trade liberalization programs that raised real wages and reduced firms' profitability in the tradable sector were associated with greater informality in the short term—unless they were accompanied by higher labor market flexibility and more skilled labor force (chapter 6).

Need for tailored reform packages. Country experiences suggest the need for a comprehensive development strategy that is informed by the drivers of, and challenges posed by, informality and carefully tailored to country circumstances. Each reform component requires a diagnosis of the country's current situation, followed by specific reforms to address the main weaknesses associated with and underlying sources of informality. In SSA, SAR, and the non-GCC economies of MENA, for example, general education and training programs to raise human capital could be prioritized (chapter 5). In LAC, reducing particularly high tax and regulatory costs to businesses could incentivize firms to join the formal sector. In ECA, improving government effectiveness and reducing corruption could be policy priorities.

The success of implementation also depends on careful monitoring of potential unintended consequences and a supportive macroeconomic, political and institutional environment. The latter ensures the political and fiscal viability of the implementation and reduces the transition costs for workers moving from the informal sector to the formal sector.

Policies that seek to improve fiscal operations, such as strengthened tax administration or streamlined tax regulations, can be associated with lowering informality in some economies. Separately, policies that aim at invigorating private sector activity and productivity and leveling the playfield for all workers and firms, particularly measures to make the labor market more flexible, the regulatory framework more adaptable, and governance more effective, can lower informality and/or improve the working conditions in the informal sector. Finally, supportive macroeconomic and social policies (such as enhancing public service and social protection) can ease the implementation of these reforms and facilitate a smoother transition from the informal sector to the formal sector.

These policy measures can help lower informality while also spurring growth more broadly. They need to be accompanied by strengthening the basic social safety nets to preserve incomes of vulnerable groups. Disruptions to formal activity from interventions to lower informality could be mitigated by reforms to increase labor and product market flexibility.

Synopsis

The remainder of this introduction summarizes the main messages of each chapter. For each chapter, the main questions, contributions to the literature, and analytical findings are presented. These summaries are followed by a brief discussion of future research directions.

Part I: Characteristics of the informal economy

Part I examines the evolution of informality, as well as its main correlates. Chapter 2 documents the main features of, and trends in, informality over the past three decades, with an emphasis on EMDEs. Chapter 3 explores the cyclical features of informality.

Chapter 2. Understanding the Informal Economy: Concepts and Trends

By its nature, informality is difficult to observe and measure. Chapter 2 introduces a comprehensive database of informality measures and describe the evolution of informality across EMDEs. In these economies, on average, informal-economy output accounts for about one-third of GDP and informal employment constitutes about 70 percent of total employment (of which self-employment accounts for more than one-half). In some countries in Sub-Saharan Africa (SSA), informal employment accounts for more than 90 percent of total employment and informal output for as much as 62 percent of official GDP (ILO 2018).

Against this backdrop, this chapter reviews conceptual and measurement issues regarding the informal economy and documents its main features across countries and over time. Specifically, it addresses the following questions:

- How is the informal economy defined?
- How has informality evolved?
- What are the features of the informal economy?

Contributions. The chapter makes the following contributions to the literature. *First*, it compiles a comprehensive database of measures of informality developed in the literature, with a focus on measures that have broad cross-country and long historical coverage. The resulting dataset combines 12 cross-country databases and data provided by almost 90 national statistical agencies.⁵ *Second*, the chapter presents two applications of this database. It distills stylized facts about the informal economy, such as its size and evolution over time, using a wide range of informality measures, and tests the consistency of these stylized facts across these measures. In addition, the chapter documents the cyclical behavior of the informal economy, such as the duration and amplitude of its recessions and recoveries.

Main findings. *First*, the chapter presents a careful analysis of the advantages and drawbacks of existing informality measures. Most of the macroeconomic literature on

⁵ Official GDP statistics often make an adjustment for informal activity. However, the magnitude of such adjustments is rarely specified. In a survey in 2008, national statistical agencies for about 40 mostly advanced economies or economies in transition reported adjusting their official GDP statistics by amounts ranging from 0.8 to 31.6 percent for activity in the non-observed economy (NOE), which is a broader concept than the informal economy (United Nations 2008). For all reporting economies, the adjustments were well below those suggested by the measures of informality presented in this study.

informality has relied solely on either survey-based or model-based estimates. Survey-based measures can cover many dimensions of the informal economy, but they suffer from poor country and year coverage (especially for EMDEs), reporting bias, and lack of consistency in survey methods.⁶ Indirect, model-based measures of informal output stand out in their potentially comprehensive country and year coverage and their consistent economic meaning, but they rely on strong assumptions. The chapter highlights the circumstances in which the various individual informality measures could be particularly helpful. This adds to earlier literature that has focused on the limitations of a narrow range of estimation methods.

Second, the chapter argues that the combination of direct, survey-based indicators with indirect, model-based estimates can overcome the limitations of each. Informal employment measures tend to cover either the number of hours worked per day in informal employment (“intensity” of participation in informal employment) or, regardless of the number of hours worked per day, the presence of informal employment (“extent” of participation; Meghir, Narita, and Robin 2015). Since the extent of participation in the informal economy and its intensity may evolve differently, informal production may move asynchronously with informal employment.⁷ Thus measures of informal output are an important complement to measures of informal employment.

Third, the chapter distills the main features of the informal economy and its evolution over time. Three different dimensions of informality are identified in the chapter: output, employment, and perception. Cross-country rankings of informal output and employment are typically consistent. Both output and employment measures of informality have trended downward since 1990 and have shown some cyclicity (figure 1.2). In contrast, perception-based measures have tended to be highly stable over time and could, therefore, be more appropriate for cross-country comparisons.

Fourth, the chapter is the first study that documents the cyclical features of the informal sector in both advanced economies and EMDEs. Cyclical features of informal economy output do not differ statistically significantly from those of formal economy output. Like the formal economy, the informal economy undergoes larger output movements over the business cycle in EMDEs than in advanced economies. Steeper recessions and stronger recoveries in EMDEs contribute to greater output volatility, as shown in previous studies (Aguiar and Gopinath 2007). Meanwhile, unlike formal employment, which contracts significantly in advanced economies during formal economy recessions, informal employment in both advanced economies and EMDEs appears largely acyclical during informal output business cycles. This may reflect wage movements or changes in

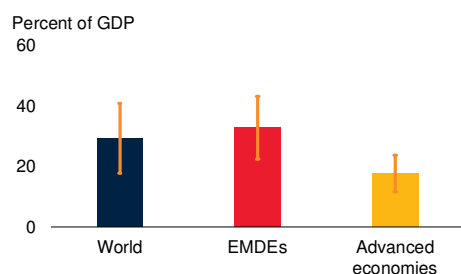
⁶ Survey-based informality measures are based on income data from surveys or audits that differ from incomes declared for tax purposes (Binelli and Attanasio 2010; McCaig and Pavcnik 2015), or earnings from firm surveys (Almeida and Carneiro 2012; Putnins and Sauka 2015).

⁷ For example, during a recession, labor may move from the formal sector to the informal sector and raise participation in the informal economy (Loayza and Rigolini 2011). However, due to the fall in demand, the intensity of participation, captured by the number of hours worked in informal employment, may remain the same or even drop, and informal output may decline.

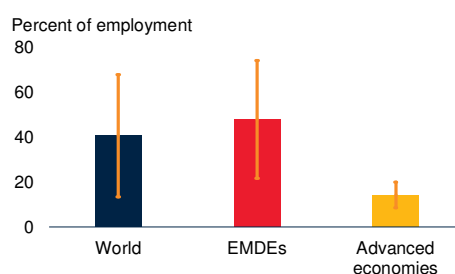
FIGURE 1.2 Informality: Extent and evolution

Informality is more pervasive in emerging market and developing economies (EMDEs) than in advanced economies. While there remains wide cross-country heterogeneity in informality among EMDEs, informality has generally declined over the past three decades.

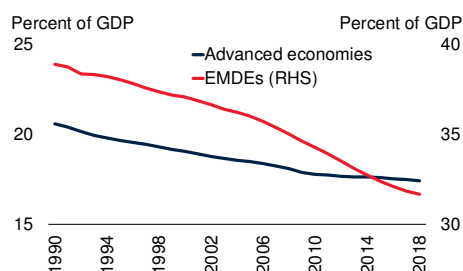
A. Informal share of output



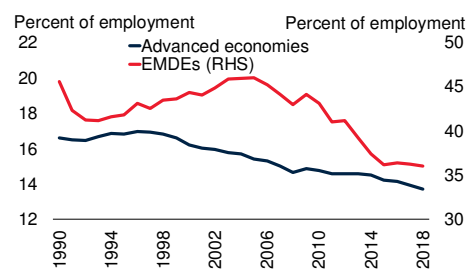
B. Informal share of employment



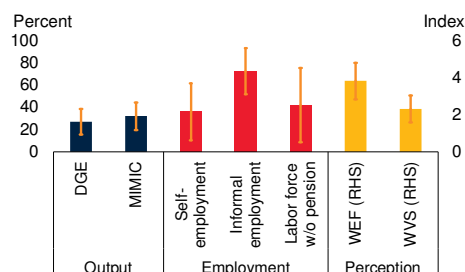
C. Informal share of output, 1990-2018



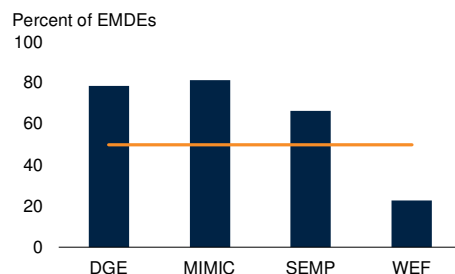
D. Informal share of employment, 1990-2018



E. Informality: output and employment shares, and perceptions



F. EMDEs with downward trend in informality, 1990-2018



Source: World Bank.

Note: See chapter 2 for details on data definitions. Output informality is measured by dynamic general equilibrium (DGE) model-based estimates on informal output in percent of official GDP. In B and D, Informal employment is proxied by self-employment (SEMP) in percent of total employment. EMDEs = emerging market and developing economies; Labor force w/o pension = the share of labor force without pension; MIMIC = multiple indicators multiple causes model-based estimates on informal output in percent of GDP; WEF = World Economic Forum estimates (1-7; 7 = most informal); WVS = World Values Survey estimates.

A.B. Bars show simple group averages (world, advanced economies, and EMDEs) over the period 2010-2018; -1 and +1 standard deviations (SD) shown in orange whiskers.

B.D. Missing data for self-employment in percent of total employment are interpolated in EMDEs for earlier years and filled using the latest available observation in recent years.

C-D. Lines show simple group averages.

E. Unweighted averages for latest available year. Whiskers are +/-1 standard deviation. Measures are grouped into output informality, employment informality, and perception-based informality.

F. Based on country-specific linear regressions of the share of informality by each of the four measures of informality with a sufficiently long time-dimension. Bars show the share of EMDEs for which the time trend is statistically significantly negative (at least at 10 percent level). Orange line indicates 50 percent.

intensity (measured as number of hours worked per day) in labor markets, which may bear the brunt of adjustment during business cycles (Guriev, Speciale, and Tuccio 2019; Meghir, Narita, and Robin 2015).

Chapter 3. Growing Apart or Moving Together? Synchronization of Informal- and Formal-Economy Business Cycles

Chapter 3 investigates the role of the informal economy as a potential dampener of business cycles that policy makers need to take into account when deciding on countercyclical macroeconomic policies. If the informal economy expands while the formal economy contracts, it may support household incomes and consumer demand during economic downturns and serve as a safety net for the economy (Loayza and Rigolini 2011). If the informal economy expands during expansions in the formal economy, it could function as an auxiliary “growth engine” during economic expansions (Chen 2005; Dell’Anno 2008; Meagher 2013).

In theory, the cyclical relationship between informal and formal sectors is ambiguous.⁸ Some theoretical models have shown that the informal economy may absorb a larger share of workers as jobs become scarce in the formal sector during economic downturns (Bosch, Goni and Maloney 2007; Dix-Carneiro et al. 2021; Loayza and Rigolini 2011). Such behavior by the informal sector could facilitate economic recovery—by providing a potential supply of labor to the formal sector and preventing the hysteresis costs on unemployment—if re-entry into the formal sector is possible when the formal economy returns to expansion (Colombo, Onnis, and Tirelli 2016; IMF 2017).

In contrast, if informal firms provide services, as well as final and intermediate goods, to the formal sector, a positive correlation may emerge between formal and informal sector activity (Arvin-Rad, Basu, and Willumsen 2010; Lubell 1991). In addition, informal-economy income can support formal-economy demand (Docquier, Muller, and Naval 2017; Gibson 2005; Schneider 1998). In these circumstances, the informal economy would amplify macroeconomic fluctuations (Restrepo-Echavarría 2014; Roca, Moreno, and Sánchez 2001).

Empirical evidence on the behavior of the informal economy over the business cycle is also inconclusive. This has been attributed partly to different country characteristics and the roles of different economic shocks.

In light of these observations, this chapter addresses the following questions:

- What conclusions does the literature offer about the cyclical behavior of the informal economy?
- How synchronized are movements in informal and formal economies?

⁸ Some early works suggested that the degree of cyclicity of the informal economy depends on the measure of informality used and country characteristics.

- Do fluctuations in formal economy output “cause” fluctuations in output or employment in the informal economy?

Contributions. The chapter makes three contributions to the literature. *First*, it is the first analysis of the cyclical linkages between formal and informal sectors using data for multiple measures of informality for a large set of economies—about 160 economies, comprising 36 advanced economies and about 124 emerging markets and developing economies (EMDEs). It covers a long, recent period—1990-2018—and is the first study of the behavior of both output and employment in the informal economy: previous studies only focused on one of these two variables. The comparison yields insights into the cyclicity of labor productivity.

Second, the chapter clarifies earlier studies by focusing on the size of the informal economy in absolute terms, rather than merely relative to the formal economy. Several earlier studies rested on examining the size of the informal economy relative to that of the formal economy, without explaining the underlying mechanism. For instance, when this ratio rises during recessions, it could reflect an expanding informal economy or an informal economy that shrinks less than the formal economy. Some previous studies have interpreted the rising ratio only as evidence for an expanding informal economy during recessions. The few previous studies of the procyclicality of informal output levels have been restricted to a small group of countries and either study solely output (Bajada 2003; Dell’Anno 2008; Giles 1997) or only employment (Fiess, Fugazza, and Maloney 2010).

Third, the chapter is the first to document a causal link from formal-economy developments to the informal economy by using an instrumental variables approach. This improves on existing studies that have tested for Granger causality between formal and informal economy within individual countries. The previous Granger causality tests help to determine whether one time-series is useful in forecasting another. However, they do not test for “true causality” (as instrumental-variable regressions do; Angrist and Pischke 2009), since omitted variables can generate spurious causality (Eichler 2009).

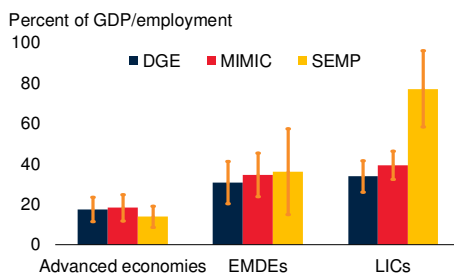
Main findings. The chapter reports two major results. *First*, informal-economy output moves in step with formal-economy output: informal-economy output movements are strongly positively correlated with formal-economy output movements. Hence, when earlier studies found that the share of the informal economy rose during formal-economy recessions, this reflected a slower absolute decline in informal than formal output rather than an absolute increase in informal activity (figure 1.3). In addition, this study finds that informal employment largely behaves “acyclically.”

Second, in an instrumental variable estimation, this study shows that the direction of causality runs from the formal economy to the informal economy. Specifically, it documents a causal link from fluctuations in formal-economy output to fluctuations in informal-economy output. In terms of employment, such a causal link is not found: whereas informal output behaves procyclically, informal employment is not cyclical. The latter may indicate that informal labor markets do not adjust in terms of

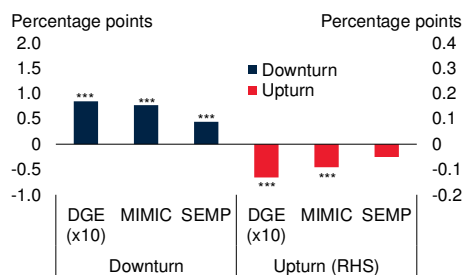
FIGURE 1.3 Formal and informal economy business cycles in EMDEs

The shares of informal output and employment rise significantly above their long-term averages during downturns in the formal economy. Informal output levels fall less than formal output levels; informal employment remains broadly stable while formal employment falls. The reverse holds for formal economic upturns.

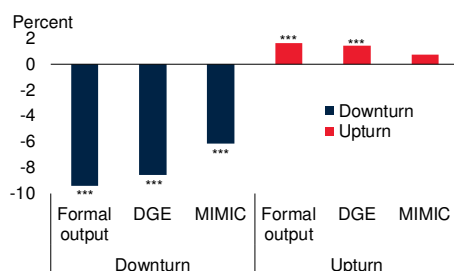
A. Informal shares of output and employment



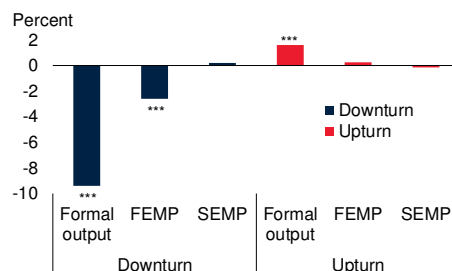
B. Changes in shares of informal economy during formal economy upturns and downturns



C. Output growth during formal economy upturns and downturns



D. Employment growth during formal economy upturns and downturns



Sources: Penn World Table 9.1; World Bank.

Note: Data are for 1990–2018. AEs = advanced economies; DGE = dynamic general equilibrium model estimates; EMDEs = emerging market and developing economies; FEMP = formal employment; LICs = low-income countries; MIMIC = multiple indicators and multiple causes model estimates; SEMP = self-employment. “Downturn” refers to growth rates of official GDP below zero, while “upturn” refers to growth rates of official GDP equal to or above zero. In B–D, *** indicates that the group average is significantly different from zero at the 10 percent level.

A. Bars show unweighted group averages for the latest year available, with the whiskers showing ± 1 standard deviation.

B. Shares of informal output (in percent of official GDP) and informal employment (in percent of total employment) are first-differenced and demeaned to capture detrended annual changes. Bars show unweighted group averages of detrended annual changes in shares of informal output/informal employment. Results for DGE-based estimates are shown in tenths (not percentage points).

C,D. Levels of output and employment in both formal and informal economies are logged, first-differenced and demeaned to capture detrended annual growth rates. Bars show unweighted group averages of detrended annual growth rates.

employment status during economic cycles but in terms of wages or working hours (Guriey, Speciale, and Tuccio 2019; Meghir, Narita, and Robin 2015).

Part II: Country and regional dimensions

Part II examines the features of informality across different economies and EMDE regions. Chapter 4 documents countries’ economic and social characteristics that are associated with higher informality. Chapter 5 documents differences and similarities across EMDE regions.

Chapter 4. Lagging Behind: Informality and Development

Widespread informality is associated with a plethora of development challenges, as shown in Chapter 4. Informal activity is widespread in emerging market and developing economies (EMDEs). While informality is often considered a cause of development challenges, it is also a consequence of under-development.⁹ EMDEs with more pervasive informality tend to be less developed; rely more on labor-intensive activities that employ unskilled and poorly paid workers; and have limited fiscal resources (World Bank 2019). Life expectancy, maternal mortality and other human-development indicators are, on average, lagging behind in EMDEs with more pervasive informality. Access to public services, such as electricity provision, that are essential to economic development, is limited.

A large informal sector weakens policy effectiveness and the government's ability to generate fiscal revenues.¹⁰ Government revenues in EMDEs with above-median informality are 5-12 percentage points of GDP below those with below-median informality (chapter 6). Limited fiscal resources constrain governments' ability to offer adequate coverage of social protection programs, provide broad access to public sector services, smooth business cycles, and close the productivity gap between the formal and informal sectors (Schneider, Buehn, and Montenegro 2010; World Bank 2020a). In turn, the limited access to public services further discourages firms and workers from engaging with the government, resulting in more participation in the informal sector (Loayza 2018; Perry et al. 2007).

EMDEs with widespread informality score particularly poorly on indicators of development. Many development outcomes are captured and quantified in measures of progress toward the Sustainable Development Goals (SDGs). In 2020, EMDEs with above-median informality, on average, ranked around 110 out of 166 in overall SDG achievement, which is significantly worse than EMDEs with below-median informality (figure 1.4). About one-quarter (26 percent) of the population of EMDEs with above-median informality lived in extreme poverty, much more than the 7 percent of the population in the EMDEs with below-median informality. In countries with greater informality, income inequality was higher, in part reflecting the wage gap between formal and informal workers and less progressive tax policies (Chong and Gradstein 2007; World Bank 2019; box 4.1).

Against this backdrop, this chapter addresses the following questions:

- What are the development challenges associated with the informal economy?
- What are the correlates of widespread informality?
- What are the correlates of changes in the informal sector over time?

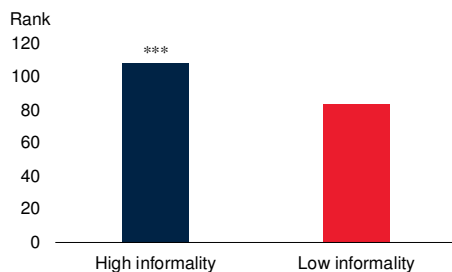
⁹ See Fields (1975); Harris and Todaro (1970); Loayza (2016); and Ulyssea (2020).

¹⁰ See Dabla-Norris, Gradstein, and Inchauste (2008); Joshi, Prichard, and Heady (2014); Ordóñez (2014); and World Bank (2019).

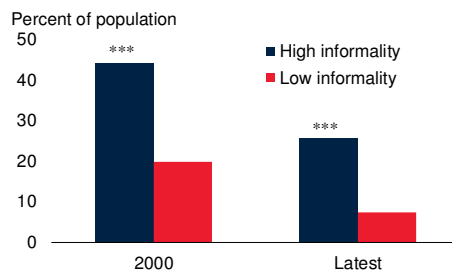
FIGURE 1.4 Development challenges and informality

EMDEs with widespread informality face a host of development challenges, ranging from extreme poverty to lack of public infrastructure. Those with more pervasive informality lag behind in Sustainable Development Goals (SDGs).

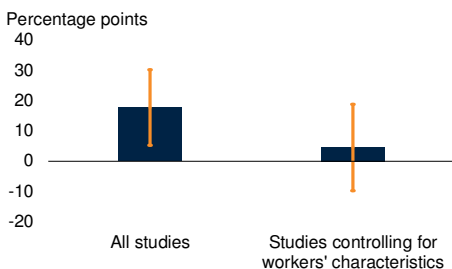
A. SDG Global Index Rank



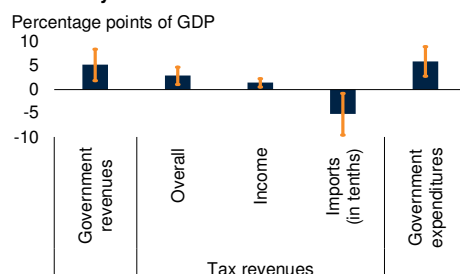
B. Extreme poverty headcount



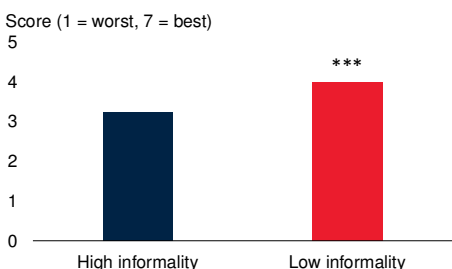
C. Wage premium for formal over informal employment



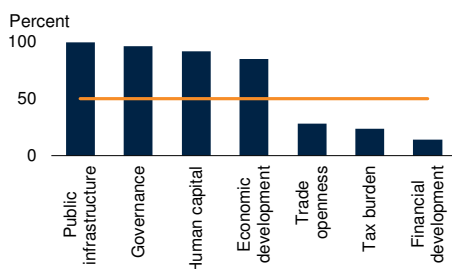
D. Differences in fiscal indicators between EMDEs with above-median and below-median output informality



E. Quality of infrastructure



F. Probability of inclusion of variable group among explanatory variables of informality



Sources: Sachs et al (2018); Sachs et al. (2020); World Bank (World Development Indicators).

Note: EMDEs = emerging market and developing economies; DGE = dynamic general equilibrium model-based estimates in percent of official GDP. "High informality" ("Low informality") are EMDEs with above-median (below-median) DGE-based informal output measure over the period 1990-2018 (unless otherwise specified). *** indicates that group differences are significant at the 10 percent level.

A. Simple averages for 2020 for 132 EMDEs. A higher SDG global index rank indicates greater achievement of SDGs. Informality as measured by share of DGE output informality in GDP.

B. Simple averages for 155 EMDEs with "high informality" or "low informality." "Latest" refers to data from latest year available (2018 or earlier). Poverty headcount ratio is the percent of the population living on less than \$1.90 a day at 2011 international prices.

C. The wage premium (shown in bars) is obtained from 18 empirical studies on the wage gap between formal and informal workers. The whiskers show the 90 percent confidence intervals. See box 4.1 for details.

D. Differences in percentage points of GDP between the average fiscal indicators among EMDEs with above-median and below-median informality are in bars. The whiskers show the 90 percent confidence intervals. All fiscal indicators and informality measures are 2000-18 averages for 74 EMDEs with populations above 3.5 million. (Several oil-exporting economies are dropped as outliers.)

E. Simple averages for the latest year available (Sachs et al. 2018).

F. Probability of including at least one variable from the group in the regression (posterior inclusion probability). The groups whose posterior inclusion probabilities exceed the prior of 50 percent (horizontal bar) can be regarded as most relevant.

Contributions. The chapter makes the following contributions to the literature on informality. *First*, it provides a systematic and comprehensive overview of developmental challenges facing countries with large informal sectors, highlighting their association with a wide range of development weaknesses and shortfalls from the SDGs. Previous studies have focused on the economic or institutional correlates of informality—such as per capita income (for instance, La Porta and Shleifer 2014; Loayza, Servén, and Sugawara 2010) or control of corruption (for instance, Choi and Thum 2005; Dreher and Schneider 2010)—and largely disregarded the linkages between informality and other aspects of sustainable development, ranging from life expectancy to lack of access to public infrastructure.

Second, the chapter is the first published study to empirically and systematically document a broad range of correlates of informality in a large group of EMDEs, numbering about 130 countries. Previous studies have tended to focus on one dimension of informality, rely on a more limited range of correlates, or only examine the correlates of cross-country differences in informality without focusing on EMDEs.¹¹ To identify the robust correlates of informality, the chapter is also the first to use a Bayesian Model Averaging (BMA) approach, which is designed to take account of model uncertainty (Fernandez, Ley, and Steel 2001).

Third, this chapter illustrates how informality can pose development challenges in EMDEs. First, it conducts the first extensive meta-analysis of studies that documented wage differences for workers in formal and informal sectors. Second, it utilizes a unique firm-level dataset to show how the productivity gap between formal and informal firms in EMDEs can be narrowed by improvements in business climates.¹² Third, it empirically tests for the robustness of the relationship between declines in informality and poverty reduction (or income inequality).

Main findings. The chapter demonstrates that EMDEs with pervasive informality face a wide range of greater development challenges than other EMDEs. *First*, informality is associated with poor economic outcomes. Countries with larger informal sectors have lower per capita incomes, greater poverty, less financial development, and weaker growth in output, investment and productivity. Informal firms are less productive than their formal counterparts (box 4.2).

Second, more pervasive informality is associated with significantly lower government revenues and expenditures, less effective policy institutions, more burdensome tax and regulatory regimes, and weaker governance. Weaknesses in governance and revenue collection constrain the provision of public services in EMDEs with more pervasive informality, contributing to poorer human development outcomes. People living in EMDEs with more widespread informality suffer from a greater prevalence of hunger,

¹¹ For instance, Medina and Schneider (2019); Ovedio, Thomas, and Karakurum-Özdemir (2009); and Schneider, Buehn, and Montenegro (2010).

¹² Existing studies, such as Meghir, Narita, and Robin (2015) and Ulyssea (2018), show the productivity gap between formal and informal firms in individual countries.

poorer health and education, and greater gender inequality. Countries with more widespread informality offer poorer access to, and lower-quality, infrastructure.

Third, the results from the BMA approach suggest that economic development, human capital, and governance are particularly robust correlates of output informality. That said, other correlates such as infrastructure, for instance, are also relevant.

Fourth, while informality is linked with a host of developmental challenges, formalization alone is unlikely to offer an effective path out of under-development. For instance, while declines in informality were associated with poverty reduction, they were not systematically linked with declining income inequality (box 4.3). This may reflect the fact that informality itself is a symptom of underdevelopment, in line with the meta-analysis of the literature that finds that the wage penalty largely reflects the characteristics of informal workers (box 4.1).

Chapter 5. Informality in Emerging Market and Developing Economics: Regional Dimensions

Chapter 5 explores regional differences in informal activity in EMDE regions and their implications for policies. Before the COVID-19 pandemic, informality was falling in the average EMDE over two decades, although the pace of decline varied widely across EMDE regions. The correlates of informality also vary across regions, shaped by distinctive regional cultures and histories, as well as economic, social and policy structures.

This chapter addresses the following questions:

- How has informality evolved over the past two decades in each EMDE region?
- What are the correlates of informality in each region?
- What policy options are available to address the challenges associated with informality in each region?

Contributions. The chapter makes the following contributions to the literature. *First*, the chapter brings a regional perspective to the existing literature on informality in EMDEs. Past studies either grouped all countries together or focused on one or a few countries or a specific region. The chapter distills commonalities among EMDEs within each region and differences across regions. *Second*, the chapter brings together multiple strands of literature by investigating two key types of informality—output and employment informality—thus helping policy makers better understand the nature of informality in their respective regions. Previous studies typically examined either output informality or employment informality. Lastly, the chapter provides policy recommendations that are tailored to regional specific needs and conditions. Former studies tend to have a broad overview of all relevant policies without applying them to regional context.

Main findings. *First*, the chapter documents large differences in the evolution of informality across regions. Output informality is highest in ECA, LAC, and SSA, while employment informality is highest in EAP, SAR, and SSA (figure 1.5). Output informality declined most in EAP and SAR between the 1990s and the 2010s, while employment informality fell most in MNA, SAR, and SSA. Despite declines in output informality, and consistent with slower productivity growth in the informal than the formal sector, employment informality remained broadly unchanged in EAP, ECA, and LAC between 1990-99 and 2010-18.

Second, a mix of cross-regional, intra-regional, and country-specific factors are associated with informality in EMDEs. Key correlates of high informality include low human capital, large agricultural sectors, and poor business climates. But there are also important region-specific factors, such as insufficient social protection coverage, trade liberalization, and economic disruptions due to armed conflict. Reflecting regional as well as national differences in informality, balanced policy mixes tailored to country circumstances are required to set the right conditions for informality to fall.

Part III: Policies

Part III examines the policy options available to address the challenges posed by informality. In particular, Chapter 6 offers a menu of policy options to address both long-term and short-term challenges and flags unintended consequences experienced in past policy experiments.

Chapter 6: Tackling Informality: Policy Options

Chapter 6 documents the challenges that informality poses for macroeconomic policies and explore policy options to address these challenges. Over the past three decades, many EMDE governments have implemented a wide range of policy reforms that may have helped to reduce informality (Jessen and Kluge 2021). These reforms have often been implemented to either increase the benefits of formal-sector participation or reduce the costs of formal activity.

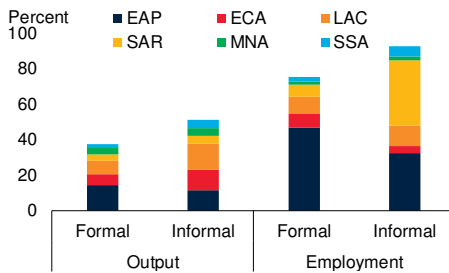
Both corporate and personal income tax rates in EMDEs have been reduced by about one-third between the early 1990s and 2019 (Végh and Vuletin 2015). Time spent on paying taxes was also cut by about one-third in EMDEs between 2006 and 2020. Value-added taxes, which can lower tax burdens through a refund on input taxes, had been adopted in 71 EMDEs by 2020 (World Bank 2020b). Access to financial services has broadened, with access to automatic teller machines (ATMs) per 100,000 adults and the share of the population with an account at a financial institution both increasing by more than 50 percent between 2010 and 2018. Over the same period, one-third to two-thirds of EMDEs improved their governance and institutional quality.

Policy reforms often had more benign effects on informality when they were implemented in a supportive institutional and macroeconomic environment. For instance, trade liberalization programs were often associated with greater informality in

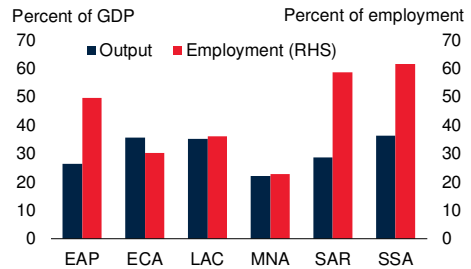
FIGURE 1.5 Informality in EMDE regions

Informality is pervasive across all EMDE regions. Although the share of informal output in GDP has fallen over time, its incidence remains high in the regions with the lowest per capita incomes.

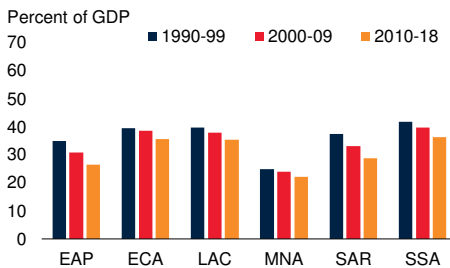
A. EMDE regions' shares of world output and employment



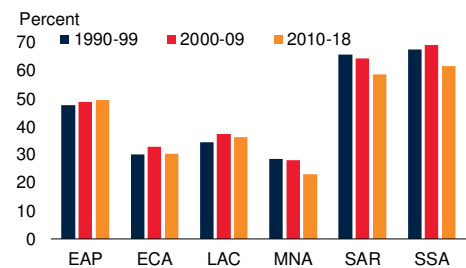
B. Output and employment informality by region



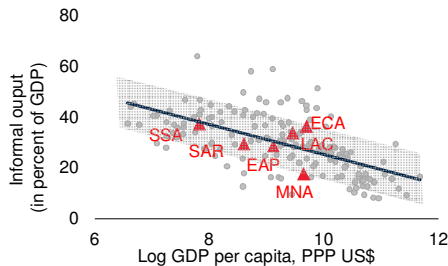
C. Output informality by region



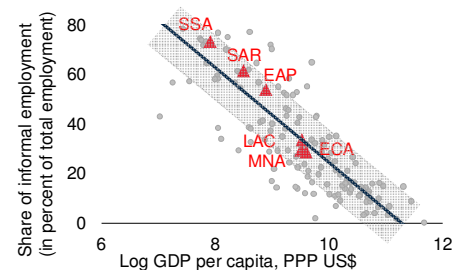
D. Employment informality by region



E. GDP per capita and output informality



F. GDP per capita and employment informality



Sources: International Labour Organization; World Bank.

Note: Output informality is proxied by the estimates using a dynamic general equilibrium (DGE) model in percent of official GDP. Employment informality is the share of self-employment in total employment. EAP = East Asia and Pacific; ECA = Europe and Central Asia; LAC = Latin America and the Caribbean; MNA = Middle East and North Africa; PPP = purchasing power parity; SAR = South Asia; SSA = Sub-Saharan Africa.

A. DGE-based estimates of informal output in each region as a proportion of total estimated informal GDP. Estimates are based on economies' shares of output and employment averaged over the period 2010-18.

B. Blue bars show the simple average share of informal output as estimated by DGE model during 2010-18. Red bars show the simple average informal employment rate (proxied by self-employment rate) during 2010-18.

C.D. Bars are simple averages for corresponding regions and time periods.

E.F. Grey markers show unweighted average log GDP (2011 PPP \$) relative to informal output and employment, with the fitted line shown in blue and the corresponding +1 and -1 standard errors shown in shaded gray areas. Red markers show median GDP per capita and median informal output (E) and employment (F) in EMDE regions. Data are for 2010-18.

the short term—unless they were accompanied by greater labor market flexibility and an upgrading of skills in the labor force (Goldberg and Pavcnik 2003; McCaig and Pavcnik 2015; World Bank 2019).

The untapped potential of informal sectors, if harnessed to boost income growth and resilience, can help build back better from the severe global recession of 2020. Against this background, the chapter addresses the following questions:

- Which fiscal measures can help reduce informality?
- Which other policies can help reduce informality?
- What should be the elements of a comprehensive policy package to tackle informality?

Contributions. The chapter makes the following contributions to the literature. *First*, it offers a systematic review of policies that could affect informality, ranging from fiscal policies to labor market regulations and policies to encourage financial development. It covers both policies that are intentionally designed to encourage formalization and ones that could incidentally affect the informal sector.

Second, the chapter is the first attempt to comprehensively examine the link between financial development and informality both theoretically and empirically (box 6.1). It reviews the literature identifying the channels through which limited financial development can discourage formalization. It uses both descriptive statistics and regression approaches to show that informality is associated with lack of financial development, and that improvements in access to finance are associated with declining informality.

Third, the chapter describes novel empirical estimates of the cumulative changes in informality following various policy changes, obtained using a local projection model. Policy-related variables examined include tax rates, access to credit by the private sector, labor market efficiency, governance, and regulatory quality. This is the first study to conduct such empirical analysis for a wide range of policies. It is also the first to examine the share of informality in both economic output and employment: earlier studies have tended to focus on either informal output, or informal employment, or informal firms.¹³

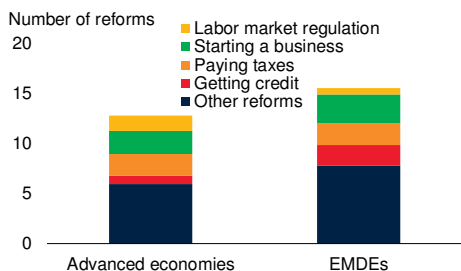
Main findings. *First*, macroeconomic policies, governance and business climates have become more conducive to lowering informality over the past three decades. In the past three decades, EMDEs have made progress in reducing tax burdens, improving governance and regulatory quality, and enhancing access to finance, education, and public services (figure 1.6).

¹³ See Bosch, Goni-Pacchioni, and Maloney (2012); Fajnzylber, Maloney, Montes-Rojas (2011); Ihrig and Moe (2004); and Rocha, Ulyseas, and Rachter (2018).

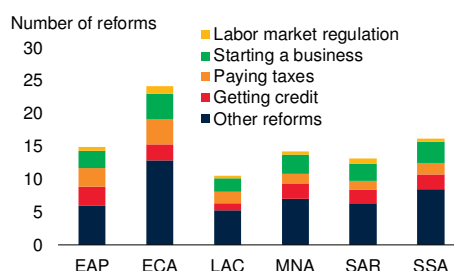
FIGURE 1.6 Policies to address challenges of informality

Governments have implemented a wide range of reforms that could affect informality.

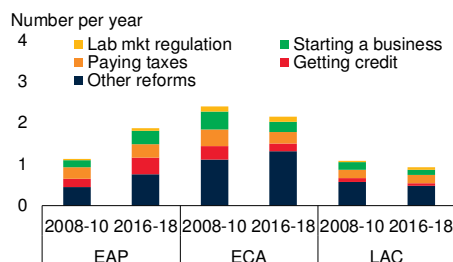
A. Reforms in advanced economies and EMDEs



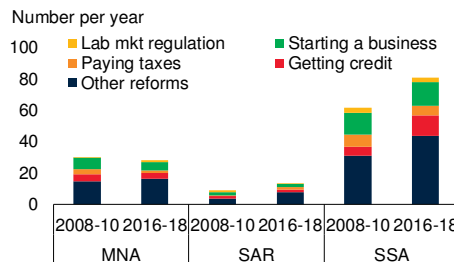
B. Reforms across EMDE regions



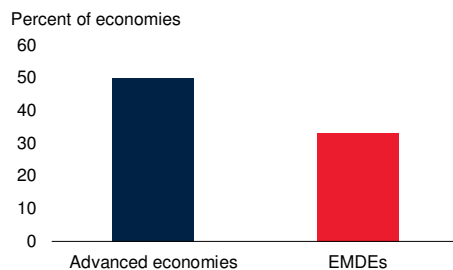
C. Reforms over time



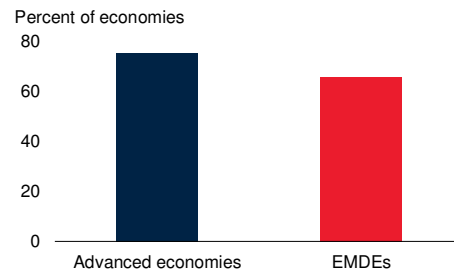
D. Reforms over time (continued)



E. Economies with improvement in control of corruption



F. Economies with improvement in the ease of doing business



Sources: *International Country Risk Guide*; World Bank (*Doing Business*).

Note: See *Doing Business* database for reform details. EAP = East Asia and Pacific; ECA = Europe and Central Asia; EMDEs = emerging market and developing economies; LAC = Latin America and the Caribbean; MNA = Middle East and North Africa; SAR = South Asia; SSA = Sub-Saharan Africa.

A.B. The number of policy reforms for an average country over the period 2008-18 that are regarded as "improvements" (according to components of the ease of doing business index) or "neutral" (with regard to "labor market regulation").

C.D. For an average country, the average number of policy reforms per year that have been implemented during 2008-10 in comparison to the annual average number of reforms conducted during 2016-18 (shown in bars).

E.F. Bars show the shares of economies with improved control of corruption (E; the ease of doing business in F) between 2010 and 2018.

Second, policies that seek to streamline tax regulation, strengthen tax administration, and improve public service delivery have been associated with declines in informality. Separately, policies aimed at invigorating private sector activity broadly, such as measures to increase labor market flexibility, streamline regulatory frameworks for firm start-up, expand access to finance, and improve governance have also been associated with declines in informality.

Third, policy measures can have unintended consequences. For instance, trade liberalization that raised competition in the tradable sector was sometimes associated with greater informality in the short run, unless accompanied by measures that increase labor market flexibility. Also, reductions in informality have tended to be greater for reforms accompanied by business development and training programs, public awareness campaigns, and stronger enforcement.

Fourth, financial development has been associated with declining informality (box 6.1). It reduces the average costs of access to external financing and incentivizes firms to invest in higher-productivity projects and to join the formal sector. Over the past three decades, increased access to financial services and increased credit availability have been followed by declining informality.

Fifth, a comprehensive policy package tailored to country circumstances offers the greatest chance of success in reducing informality. A combination of measures to strengthen economic development, boost productivity in both formal and informal sectors, streamline regulations and ensure effective enforcement can address multiple sources of informality. The relative priorities will depend on the country-specific features of informality.

Future research directions

The study suggests several avenues for future research.

Concepts and measurement. Despite the richness of the informality database compiled in chapter 2, the limitations and weaknesses of existing measures remain. Future research could improve the quality of these measures and explore new approaches to better capture the extent of informality in EMDEs. Chapter 2 distills the main features of informal economy business cycles but does not look into the factors and policies that could trigger cyclical turning points. Further analysis in this direction would be valuable.

Cyclical behavior of the informal economy. Chapter 3 focuses on how informal output and employment behave over the business cycle and points to several promising areas for future research. First, the cyclical behavior of other features of the informal economy could be examined. For example, if greater flexibility of wages or hours worked is indeed what makes informal employment acyclical despite procyclical informal output, informal wages or hours should be particularly procyclical, and evidence of this would be useful. Second, the channels through which formal-economy business cycles affect the informal economy could be further explored and quantified. This includes the

degree of interconnectedness between formal and informal firms. Third, the impact of the pandemic on the informal sector and the effectiveness of policy responses should be studied further.

Consequences of informality for development. Chapter 4 establishes the linkage between informality and a range of symptoms of underdevelopment. However, it does not demonstrate a causal link between informality and various development outcomes. Future research could aim to uncover, for at least some of these correlates, the degree to which informality *causes* underdevelopment. Second, due to data limitations, some variables, such as access to paved roads and bank account ownership, that are relevant to informality are not included in the empirical analysis. Future studies can improve upon the work reported here by incorporating those variables. Third, future research could explore asymmetries in the challenges posed by informality. There may be interactions between country circumstances and worker or firm characteristics that can mitigate some of the challenges posed by informality. For firms, some of these interactions were explored in box 4.2 but other important interactions may yet come to light in future research.

Regional perspectives of informality. The varied nature of informality in EMDEs requires different policy mixes appropriate to each country's circumstances. Drawing on the discussion of policy options for different regions in chapter 5, future research could look into options that could be considered for implementation at a regional level. This could, in particular, include an examination of promising new areas such as digitalization.

Policy options. A few policy areas remain under-explored in the literature. First, while digitalization is a recent development, it holds great potential for both informal-economy participants and policy makers. Chapter 6 does not touch upon the practical perspectives of realizing the potential of digitalization in EMDEs with pervasive informality, and this could be an area for future research. Little is known about the impact of digitalization of government services or private economic activity on the informal economy. Second, past studies have focused on the impact of policies on formalization without looking into their effects on vulnerable groups active in the informal economy. Future studies could examine policies that can better protect these groups and prevent informal participants from being tipped into poverty by negative shocks such as COVID-19.

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