

IMF STAFF DISCUSSION NOTE

# **Work in Progress: Improving Youth Labor Market Outcomes in Emerging Market and Developing Economies**

JaeBin Ahn, Zidong An, John Bluedorn, Gabriele Ciminelli, Zsóka Kóczán, Davide Malacrino, Daniela Muhaj, and Patricia Neidlinger

January 2019

SDN/19/02

## Work in Progress: Improving Youth Labor Market Outcomes in Emerging Market and Developing Economies

Prepared by JaeBin Ahn, Zidong An, John Bluedorn, Gabriele Ciminelli,  
Zsóka Kóczán, Davide Malacrino, Daniela Muhaj, and Patricia Neidlinger<sup>1</sup>

Authorized for distribution by Maurice Obstfeld

**DISCLAIMER: Staff Discussion Notes (SDNs) showcase policy-related analysis and research being developed by IMF staff members and are published to elicit comments and to encourage debate. The views expressed in Staff Discussion Notes are those of the author(s) and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.**

JEL Classification Numbers:

E24, J20, J21, J40, J46

youth labor markets, emerging market and developing economies, Okun's law, labor and product market institutions, structural reforms

Keywords:

[jahn@imf.org](mailto:jahn@imf.org), [zan@imf.org](mailto:zan@imf.org), [jbluedorn@imf.org](mailto:jbluedorn@imf.org),  
[gciminelli@imf.org](mailto:gciminelli@imf.org), [zkoczan@imf.org](mailto:zkoczan@imf.org),  
[dmalacrino@imf.org](mailto:dmalacrino@imf.org), [dmuhaj@imf.org](mailto:dmuhaj@imf.org),  
[pneidlinger@imf.org](mailto:pneidlinger@imf.org)

Authors' Email Address:

---

<sup>1</sup> Team led by John Bluedorn, under the guidance of Romain Duval. The authors would like to thank Jorge Alvarez, Benedicte Baduel, Angana Banerji, Davide Furceri, Faten Saliba, Petia Topalova, and other IMF colleagues and seminar participants for their insightful comments. We would also like to thank Rita Almeida at the World Bank and International Labour Organization colleagues for helpful discussions and advice. We are also grateful to IMF colleagues Mitali Das and Benjamin Hilgenstock for sharing their dataset on countries' exposure to routinization.

## CONTENTS

<b>EXECUTIVE SUMMARY .....</b>	<b>4</b>
<b>INTRODUCTION .....</b>	<b>5</b>
<b>DEVELOPMENTS AND CHALLENGES IN YOUTH LABOR MARKETS .....</b>	<b>9</b>
A. Expanding Productive Opportunities.....	9
B. Addressing Gender Gaps .....	11
C. Coping with New Technology.....	13
D. Encouraging Greater Formality in Employment.....	14
E. Managing Aggregate Demand.....	15
<b>IMPROVING YOUTH LABOR MARKET OUTCOMES: THE ROLE OF STRUCTURAL POLICIES..</b>	<b>16</b>
<b>CONCLUSIONS .....</b>	<b>21</b>
<b>REFERENCES .....</b>	<b>25</b>
<b>FIGURES</b>	
1. Cross-Country Distributions of Youth Population and Inactivity .....	5
2. Trust in Society and Youth Labor Markets.....	6
3. Population Projections.....	7
4. Employment Rates for Youth and Adults .....	8
5. Youth Labor Market Performance .....	10
6. Youth Gender Gaps.....	12
7. Exposure to Routinization Index.....	13
8. Informality Share of Employment in Emerging Market and Developing Economies.....	14
9. Estimated Effects of Formal Employment on Youth Job Satisfaction.....	14
10. Cyclical Sensitivity of Unemployment .....	15
11. Informal Employment and the Cyclical Sensitivity of Unemployment.....	15
12. Labor Market Effects of Structural Policies and Characteristics .....	17
13. Job Quality Effects of Structural Policies .....	20
<b>BOXES</b>	
1. Minimum Wages and Youth (Un)Employment: The Case of Indonesia.....	23
2. Youth Employment and City-Level Trade Openness in China.....	24

## EXECUTIVE SUMMARY

Economic development and growth depend on a country's young people. With most of their working life ahead of them they make up about a third of the working-age population in the typical emerging market and developing economy. But the youth in these economies face a daunting labor market—about 20 percent of them are neither employed, in school, nor in training (the youth inactivity rate). This is double the share in the average advanced economy. Were nothing else to change, bringing youth inactivity in these economies down to what it is in advanced economies and getting those inactive young people into new jobs would have a striking effect. The working-age employment rate in the average emerging market and developing economy would rise more than 3 percentage points, and real output would get a 5 percent boost.

A two-pronged strategy focused on better learning opportunities and improved job prospects for young people is needed. Secondary and postsecondary schooling has doubled over the past 25 years in the average emerging market and developing economy, which is impressive. But it will take further improvements in education and learning opportunities to close the gap with advanced economies, respond to technology-driven changes in the nature of work, and cope with aging populations. At the same time, young people who are not in school need help so they can find their place in the labor market. This discussion note draws on new analyses that use macro- and microeconomic data to look at how broad structural policies, including labor and product market reforms, can address challenges in the youth labor market.

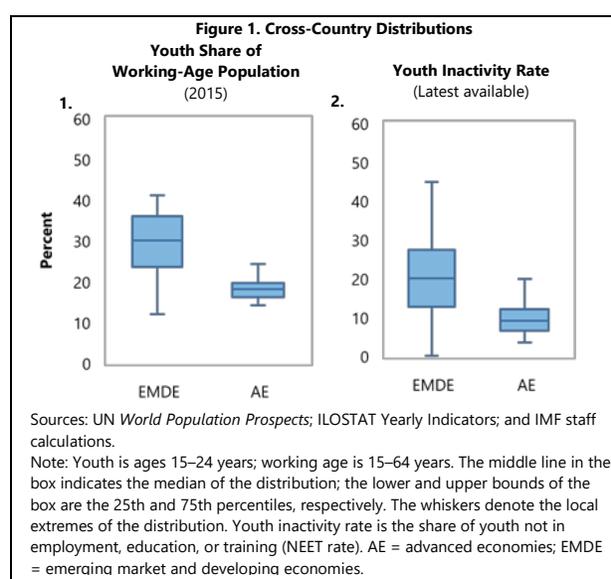
- Poor labor market outcomes for youth can be traced in part to large and persistent gender gaps. Young women's inactivity rate, at about 30 percent in the average emerging market and developing economy, is almost twice that of young men. Some of this can be explained by the effects of marriage and children on young women's employment prospects. The right policies can make a difference. For example, when women receive equal employment protection under the law, the gender gap in employment and participation is smaller; women's outcomes are better without men's outcomes being worse—for workers of all ages.
- In areas that are more vulnerable to automation fewer young men—and to a lesser extent, older men—participate or are employed. As technology makes it easier to substitute capital for labor, men may contend with a tougher labor market. Targeted expansion in the social safety net, enhanced general education, and active labor market policies may help the young better cope with such disruptions.
- Aggregate youth unemployment in all economies is twice as sensitive to overall demand as adults', underscoring how countercyclical macroeconomic policy can help protect young people from economic fluctuations. As emerging market and developing economies continue to develop and formal employment—which is more sensitive to the business cycle—rises, prompt countercyclical policy will be imperative.

- Everyone in emerging market and developing economies seems to benefit from broad policies that enhance the flexibility of the formal labor market and improve job quality—there is no trade-off between youth and adults' job prospects, even though young people tend to benefit more. Lower business start-up costs, more openness to trade, and encouraging greater competition and entrepreneurship also point to better youth outcomes. These findings are consistent with the very strong positive correlation between youth and adult employment across emerging market and developing economies. Broad structural reforms should therefore be part of the toolkit, alongside more targeted improvements in education and active labor market policies.

## INTRODUCTION

### 1. About 20 percent of young people in the average emerging market and developing economy are neither in school nor employed (the youth inactivity rate).<sup>2</sup>

This is about double the share in the average advanced economy. Youth unemployment is about 18 percent in these economies on average. Together with the youth inactivity rate, this translates to about 12 percent of young people who are unoccupied (not in education or employment or looking for a job). The implied loss in economic potential is magnified by demographics—about a third of the working-age population in the average emerging market and developing economy is made up of young people, nearly twice the share in advanced economies (Figure 1).<sup>3</sup>



**2. International migration, driven by both pull and push factors, is at the same time changing working-age populations in source and destination countries.** About 20 percent of international migrants are young, and their desire to migrate is closely related to countries' levels of economic development and opportunities for youth employment. The most capable young people are often the most likely to move (ILO 2016b). Economic policies must be strengthened to encourage them to stay, through improved opportunities for learning and—for those out of school—productive employment, all in an environment that is safe, secure, and youth-friendly.

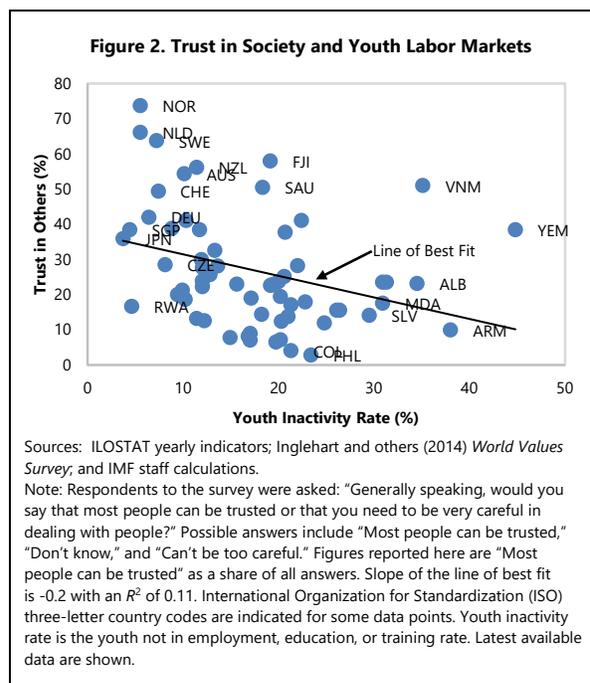
<sup>2</sup> See ILO (2017). Age ranges defining the working-age population and youth sometimes differ across data sets and publications. Unless indicated otherwise, the International Labour Organization (ILO) definitions are used: ages 15–64 (working age) and 15–24 (youth). Note that the rate of those not in education, employment, or training (NEET), or youth inactivity rate, comprises young people who are not in school *and* who are either unemployed or out of the labor force. Throughout this discussion note, the average emerging market and developing economy is defined as the notional emerging market and developing economy at the median values of the variables of interest for the available country data for emerging market and developing economies.

<sup>3</sup> Country group median population figures are calculated from the data published by the UN DESA Population Division (2017).

### 3. High youth inactivity is associated with lower levels of trust, which contributes to broader social problems

(Figure 2). When young people can't engage in meaningful and productive activity it can hurt social stability (Ruble and others 2003; Urdal 2006; Fox and others 2013; Filmer and Fox 2014). Taken together with the demographic picture, improving youth labor market prospects could yield a large aggregate dividend for emerging market and developing economies. Higher output, a better standard of living, and a more cohesive society are just some of the possible fruits of these efforts. Were nothing else to change, bringing youth inactivity in these economies down to what it is in advanced economies and getting those inactive young people into new jobs would have a striking effect.

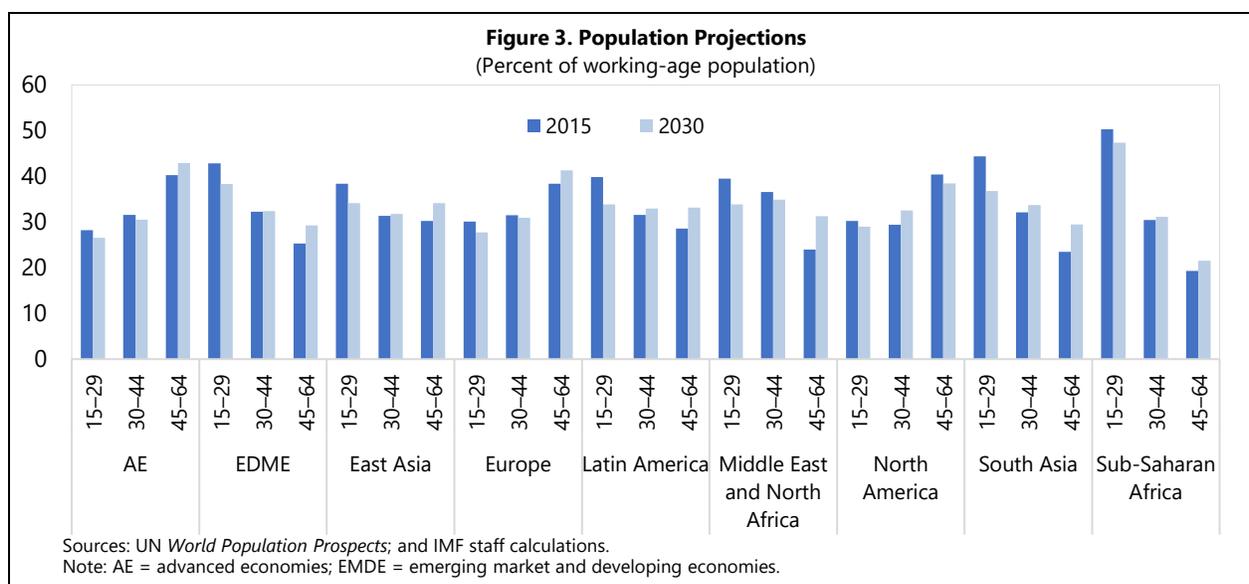
The working-age employment rate in the average emerging market and developing economy would rise more than 3 percentage points, and real output would get a 5 percent boost, which would be especially welcome during these economies' current growth slowdown.<sup>4</sup>



### 4. Early experience in the labor market can profoundly affect job prospects later in life.

Young people who enter the labor market during a recession tend to have a higher lifetime unemployment rate (as much as 1 to 2 percentage points; Raaum and Røed 2006) and persistently lower earnings (Oreopoulos, von Wachter, and Heisz 2012; Brunner and Kuhn 2014). A low-quality job early on can also affect later job prospects (ILO 2016b; O'Higgins 2017). Such harm to young people's prospects can undermine the broader economy for years to come (WBG 2006, 2012; Bell and Blanchflower 2011). By 2030, the demographic picture may be different: population profiles in emerging market and developing economies are expected to moderate with aging, although there will still be broad differences across countries and regions (Figure 3). But the share of people born after 1990 (current and future youth) will make up nearly two-thirds of the average emerging market and developing economy's working-age population by 2030. That calls for prompt action now to enhance these workers' opportunity for productive employment and human capital development.

<sup>4</sup> Assuming a standard production function and constant capital-to-output ratio and productivity, output growth in the steady state is equal to the growth of the employed workforce.



**5. This note outlines some of the key labor market challenges facing young people in emerging market and developing economies and looks at ways to address them, focusing on the role of broad structural policies, including product and labor market regulations.<sup>5</sup>** Among the key challenges considered are (1) consistently higher unemployment and lower participation, even among those out of school; (2) persistent and large gender gaps in youth participation and inactivity; (3) technology and job prospects; (4) highly informal employment; and (5) high sensitivity of youth unemployment to demand conditions.<sup>6</sup> The discussion and analysis focuses on employment and participation in emerging market and developing economies. It draws on an array of large individual-level data sets—sometimes tens of millions of observations—rather than on wages or income. This focus reflects the broader availability of labor market quantity data for young people in emerging market and developing economies.<sup>7</sup> Moreover, although there is some discussion of schooling, the analysis investigates primarily labor market outcomes for those who are *not* in school.<sup>8</sup>

<sup>5</sup> See the Technical Appendix for the structural policy indicators considered in the empirical analysis. Data availability limits the set of structural policies and characteristics that may be investigated.

<sup>6</sup> Unless noted otherwise, informal employment is as defined by the ILO. Roughly, it is employment without regular legal protections. See Hussmans (2005) for further details regarding the definitions of informal employment and the informal sector.

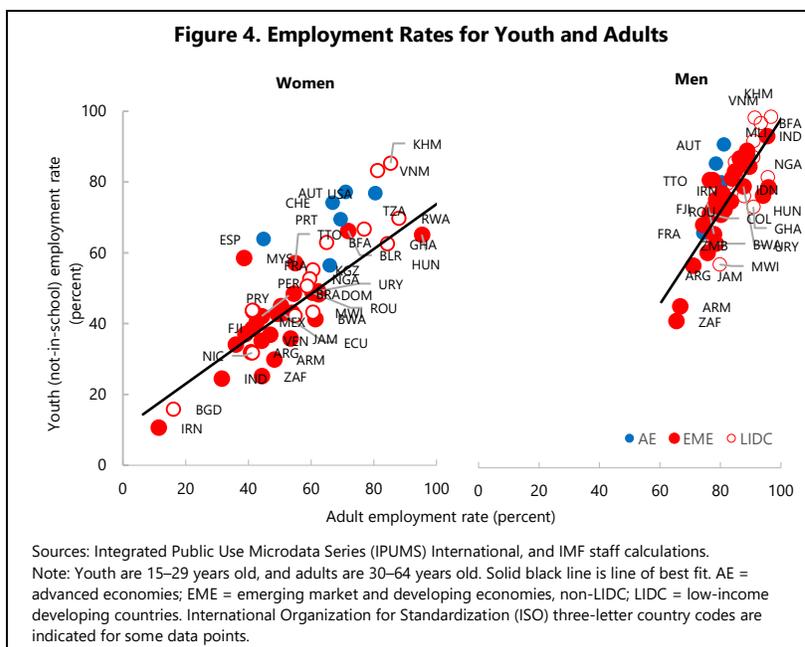
<sup>7</sup> Although not focused on youth as such, see Fabrizio and others (2017) for recent work on income inequality and structural policies in low-income countries. This work finds that sector-targeted structural policies have distributional consequences when workers' mobility is limited.

<sup>8</sup> For a comprehensive overview of schooling and learning more generally in fostering economic development, see WBG (2017). See also Quintini and Martin (2014) and O'Higgins (2017) for research on the transition from school to work in emerging market and developing economies. OECD (2017) discusses the transition through the lens of youth perceptions.

**6. Consistent with the positive relationship between youth and adult employment rates across emerging market and developing economies, the analysis suggests that policies to enhance labor market flexibility and improve job quality are associated with better youth outcomes, while also helping adults (Figure 4).**

Young people, particularly young women, appear to be generally more sensitive to these policies. In general, people are more likely to work and have a formal job when labor and product market

institutions are more flexible and open. At the same time, an expanded social safety net should accompany measures that boost labor market flexibility to protect workers (rather than jobs) from potentially greater volatility in employment, whether formal or informal. Moderate unemployment insurance benefits and targeted cash transfers with job search criteria and strong conditionality for the most vulnerable could be part of this safety net (Duval and Loungani, forthcoming). The findings suggest that broad structural reforms, combined with targeted improvements in education and the social safety net, can lead to lower youth inactivity, consistent with the United Nations Sustainable Development Goals (UNGA 2015).



**7. This note presents patterns and associations, rather than causal links, between youth labor market outcomes and individual and structural characteristics and policies.** The limited time and country coverage available on structural characteristics and policies means that much of the associated analysis is cross-sectional. It relies on differences in structural policies and characteristics across countries to identify their associations with individual outcomes. At the same time, it takes into account other—but not all—potentially influential factors, such as the level of economic development. In addition, structural policies are assessed one by one rather than simultaneously. To help address such shortcomings for future researchers, countries and statistical agencies should allocate more resources toward closing the sometimes large data gaps on youth labor markets and structural policies in emerging market and developing economies. Furthermore, many individual characteristics—such as educational attainment and having children—are determined jointly with labor market choices. Untangling these links is beyond the scope of this note, which aims at a rich description of youth labor market outcomes and their relationships to structural policies and characteristics. The analysis here can help guide policy action, further data development, and future research.

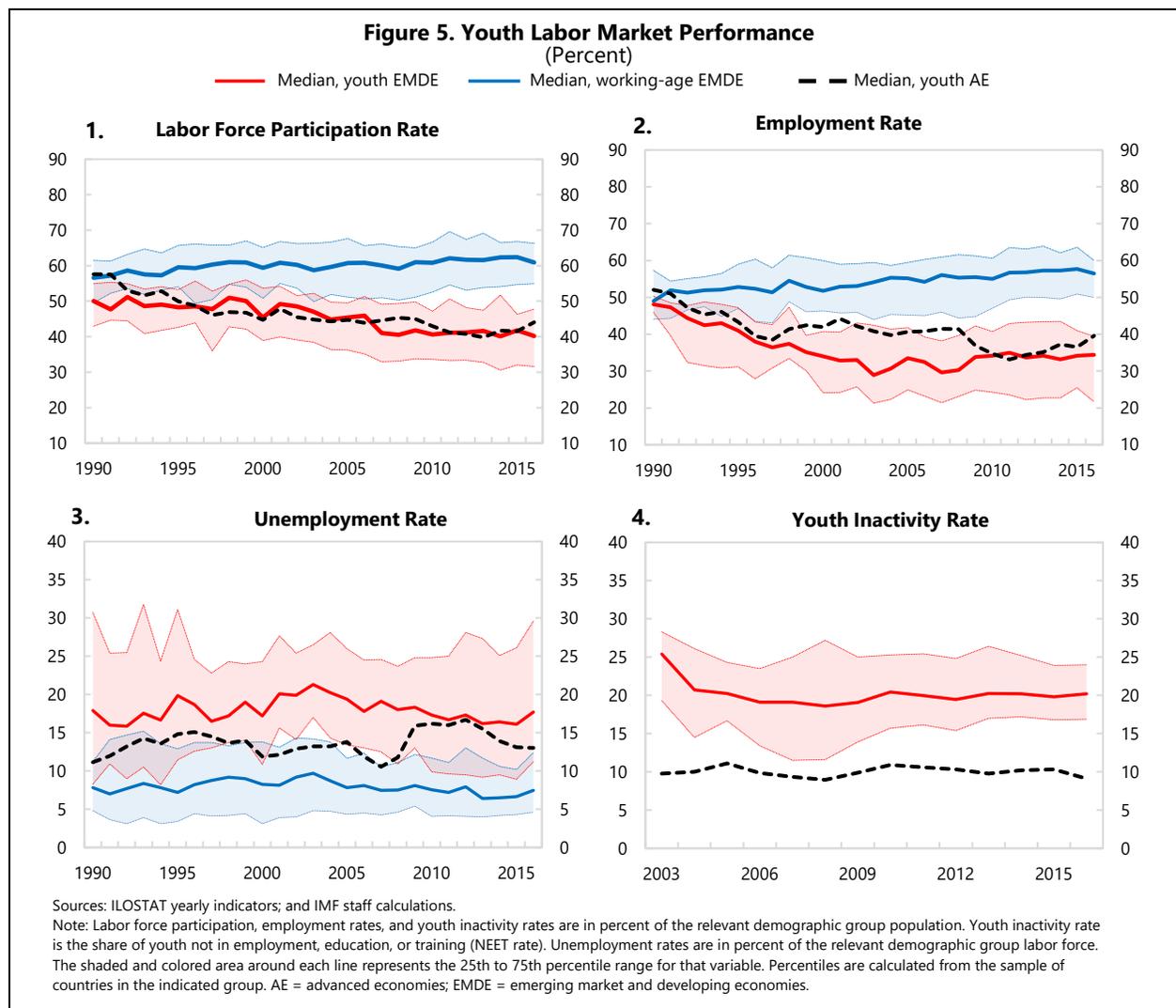
## DEVELOPMENTS AND CHALLENGES IN YOUTH LABOR MARKETS

### A. Expanding Productive Opportunities

**8. Youth labor force participation and employment rates have declined over the past 25 years in the average emerging market and developing economy, mostly because more young people are in school** (Figure 5, panels 1–2). Youth participation in these economies fell about 10 percentage points and is now about 40 percent on average; the youth employment rate is about 35 percent. Yet labor force participation and employment rates among the broader working-age population rose slightly and now hover at about 60 and 55 percent, respectively, for the average emerging market and developing economy. The divergence between youth and working-age-population labor market dynamics reflects in part higher school enrollment: both secondary and postsecondary enrollment rates doubled for the average emerging market and developing economy. Increases in educational attainment bode well for the economic prospects of these young people over their lifetime and for these economies over the long term.<sup>9</sup>

**9. But stubbornly high youth unemployment and inactivity point to a persistent lack of opportunities for productive employment and human capital investment** (Figure 5, panels 3–4). Youth unemployment decreased slightly in the early 2000s but is still about 18 percent in the average emerging market and developing economy. By contrast, in the average advanced economy, it is about 13 percent, despite larger scars from the global financial crisis. Moreover, the 2016 share of inactive youth—those not in education, training, or employment or looking for a job— among the total youth population is about 12 percent for the average emerging market and developing economy, about three times what it is in the average advanced economy.

<sup>9</sup> See WBG (2017) for an in-depth analysis of trends and drivers of schooling and learning outcomes around the world.



**10. Youth labor market outcomes vary widely across emerging market and developing economies, indicating differences in the nature and urgency of policy challenges across countries.** Cross-country variation in employment (captured by the difference between the 75th and 25th percentiles) is about twice as high for youth as for the broader working-age population. In Paraguay and Vietnam, for example, youth employment exceeds 50 percent, while in Saudi Arabia and South Africa it is 15 percent or lower.<sup>10</sup> Youth inactivity rates also exhibit wide spread—in Côte d’Ivoire and Senegal the rate exceeds 35 percent; in Poland and Thailand it is below 15 percent. Behind the headline employment and youth inactivity rates, school enrollment also varies a lot—the median schooling rate in sub-Saharan Africa is less than half what it is in emerging Europe and central Asia.

<sup>10</sup> For more in-depth description and discussion particular to the Middle East and North Africa, see the recent contribution of Purfield and others (2018).

## B. Addressing Gender Gaps

**11. Large and persistent gender gaps in youth labor market outcomes explain much of the higher youth inactivity rates in emerging market and developing economies.** Evidence from many millions of observations of individual-level microdata for young people ages 15–29 suggest that young women who are not in school are less likely than young men to participate in the labor force (about 15 to 30 percentage points less). They are also more likely to be inactive (about 15 to 25 percentage points more; Figure 6, panels 1–2).<sup>11</sup> These youth gender gaps have generally shrunk in recent years, indicating progress across a broad swath of emerging market and developing economies, but they remain much larger than those in advanced economies (Figure 6, panels 3–4). Regionally, the gaps are largest in Latin America and south and east Asia. Women who have children participate even less, which may reflect social norms and individual preferences regarding child-rearing, as well as policies (Figure 6, panels 5–6). This effect is most evident in Latin America and south and east Asia.

**12. Young women are more likely to be inactive than young men because of differences in the impacts of their individual characteristics rather than the levels of those characteristics.** Youth gender gaps in participation and inactivity at the country level can be broken down into two components: (1) differences in individual characteristics between young women and men (such as marital status, having children, educational attainment, and so on) and (2) differences in the impact of these characteristics—for example, the return to education—on labor market outcomes for young women and men.<sup>12</sup> The red bars of panels 1–2 of Figure 6 show that if the impact of young women’s individual characteristics were identical to that of young men’s, they would participate *more* and have a *lower* likelihood of inactivity on average than young men. In other words, young women tend to have non-gender-related individual characteristics that are rewarded more (for example, being married) or penalized less (for example, having children) for young men.

---

<sup>11</sup> See the Technical Appendix for details on how the microdata inform estimates of youth gender gaps in labor market outcomes, taking into account individuals’ characteristics.

<sup>12</sup> See the Technical Appendix for details on the individual-level probability model used to calculate the decomposition.

**Figure 6. Youth Gender Gaps**  
(Male rate minus female rate, percentage points)



Sources: Integrated Public Use Microdata Series (IPUMS) International; and IMF staff calculations.

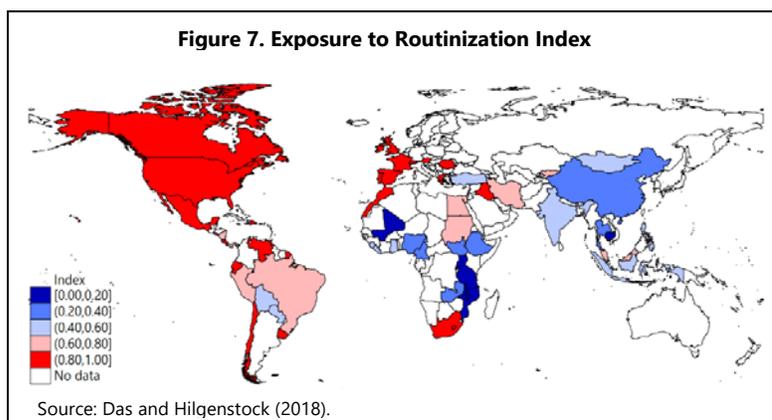
Note: Youth are 15-29 years-old. For participation, sample is youth not-in-school. The gender gap is defined here as the difference between a young woman's predicted probability of labor force participation or youth inactivity probability given her individual characteristics and the predicted probability given the same characteristics if she were male (a counterfactual). See the Technical Appendix for a description of the underlying probability model. AE = advanced economies; EUM = emerging Europe and the Middle East; LAC = Latin America and the Caribbean; SEA = Southeast Asia and the Pacific; SSA = sub-Saharan Africa.

### C. Coping with New Technology

**13. Despite uncertainty about the impact of technology on the future of work, current employment in emerging market and developing economies appears less vulnerable than in advanced economies.**

Automation and digital technology are taking over tasks that were once the sole purview of humans, changing the kinds of jobs in which humans have

an advantage. But economies vary in their vulnerability to these trends, depending on the principal type of work. Exposure to routinization offers a standard measure of this vulnerability, categorizing tasks and jobs (collections of tasks) as more or less exposed to routinization and computerization (Acemoglu and Autor 2011; Autor and Dorn 2013). When aggregated at the country level (Figure 7), it is evident that employment in emerging market and developing economies is typically less vulnerable to automation than in advanced economies.<sup>13</sup> Declining technology and capital costs in advanced economies, however, may still affect emerging market and developing economies. Jobs, such as those in light manufacturing, that once might have shifted toward lower-wage economies may stay put in advanced economies but be done by machines.



**14. As labor demand shifts toward workers with skills complementary to new technology, the rest of the workforce is likely to suffer at least temporary losses—it is crucial that young people in emerging market and developing economies be equipped with the necessary skills.**

Otherwise, greater income polarization and rising inequality may result, with workers in vulnerable industries displaced in the near term (Acemoglu and Restrepo 2017). Cost pressures from automation may also make it tougher to move up the quality ladder (particularly in traditional manufacturing) and to provide youth with high quality jobs. At the same time though, technology may also boost connectivity and the potential for innovation, generating new jobs that give young people an advantage (WBG 2016).

**15. What's more, young (and adult) men tend to be employed less in countries more dependent on sectors exposed to routinization.** Even for a given share of employment in manufacturing, exposure to routinization is associated with weaker labor market outcomes for young and older men in emerging market and developing economies.<sup>14</sup> Low-skilled young men are

<sup>13</sup> UNCTAD (2017) paints a similar picture. It examines the flow and stock of operational robots across advanced and emerging market and developing economies. Dao and others (2017) note how differences in sectoral structure between advanced and emerging market and developing economies contribute to differences in vulnerability.

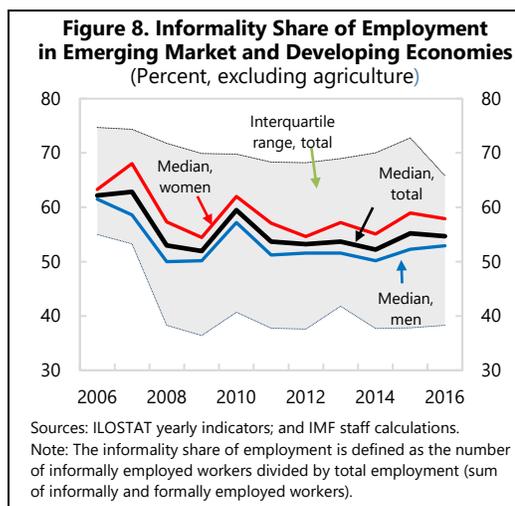
<sup>14</sup> See Figure 13 for results and the Technical Appendix for further details on the analysis.

especially affected. This suggests that these men are employed relatively more in sectors exposed to routinization and therefore are more likely to be displaced by technological change.

## D. Encouraging Greater Formality in Employment

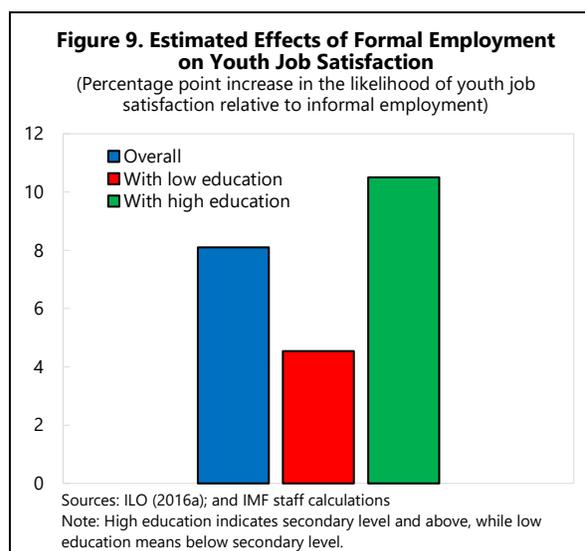
### 16. Informal jobs account for more than half of employment in the average emerging market and developing economy and are associated with lower productivity than formal jobs.

The share of informal jobs in employment has decreased since the early 2000s, but is still about 55 percent, excluding agricultural jobs (Figure 8). Informal jobs typically lack worker protections and tend to be less productive than formal jobs (Cho and others 2012; Günther and Launov 2012). As is true when it comes to many other emerging market and developing economy characteristics however, informality varies a lot across countries. The interquartile range is almost 30 percentage points—Mali’s share is among the highest at more than 90 percent, while Serbia’s is among the lowest at about 14 percent. Women’s average informality rate is about 5 percentage points higher than men’s, at about 58 percent. While aggregate informality rates are not available by age, the microdata suggest little difference between young and adult workers when it comes to non-salaried employment, a common proxy for informality.



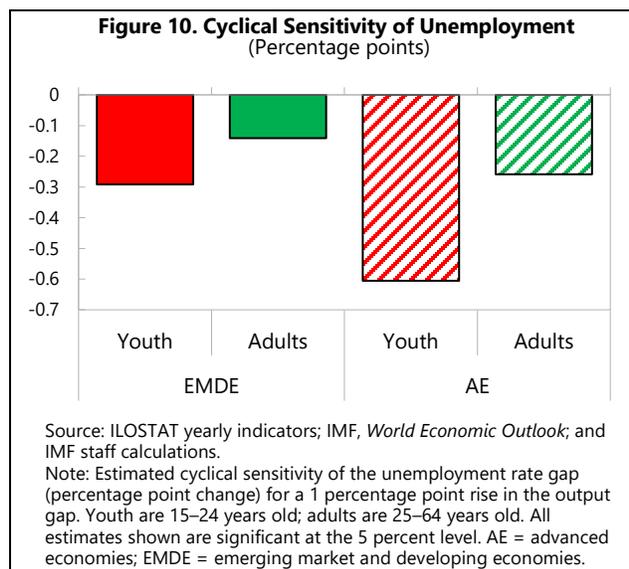
### 17. Youth job satisfaction is negatively related to informality.

Survey data across a large panel of emerging market and developing economies indicate that young people with a formal job are about 8 percent more likely to indicate they are satisfied than those with an informal job (Figure 9). The more educated they are, the greater is the effect, at almost 11 percent for those with higher levels of education. This effect holds, whether labor market regulation is more or less stringent, which suggests that qualities beyond regulatory job protections are what make formal jobs more satisfying. Other evidence however nuances this finding and suggests that there is higher youth job satisfaction in these economies among those self-employed by choice rather than necessity (OECD 2017).

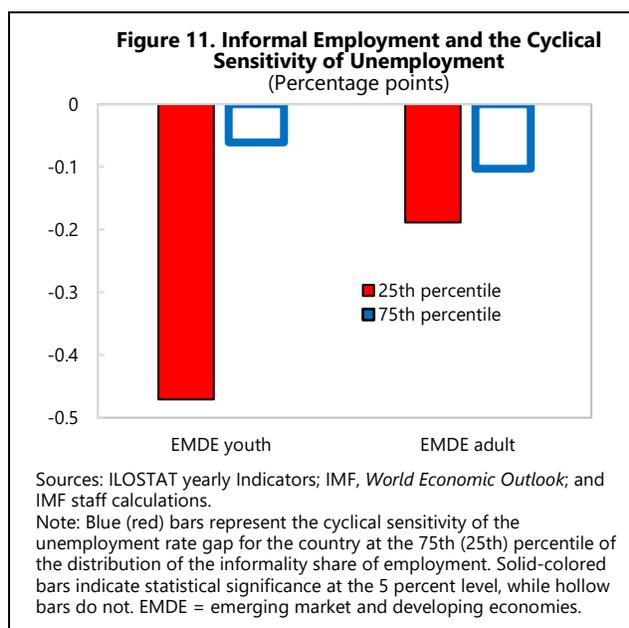


## E. Managing Aggregate Demand

**18. Youth unemployment in emerging market and developing economies is about twice as sensitive to demand conditions as adults’, highlighting the importance of prompt countercyclical policy.** The youth unemployment gap (defined as the difference between the current and medium-term—“natural”—youth unemployment rate) in these economies rises about a quarter of a percentage point for each percentage point cyclical drop in real output (the output gap). This response is about double what it is for adult unemployment in emerging market and developing economies (Figure 10). At the same time, unemployment rates of both youth and adults in these economies are about half as responsive as they are in advanced economies. And their relationship to the business cycle is looser. Other factors matter more for employment more than near-term aggregate demand conditions in emerging market and developing economies.<sup>15</sup> Although appropriate monetary and fiscal policies could benefit youth more, they have often been procyclical rather than countercyclical in many emerging market and developing economies. Despite some progress since the 2000s, these measures have tended to amplified fluctuations in unemployment instead of dampening them (Frankel, Vegh, and Vuletin 2013).



**19. The need for countercyclical demand policy will likely increase as emerging market and developing economies transform and labor market formality rises.** When informality is high, youth unemployment is less responsive to demand conditions in emerging market and developing economies, perhaps because workers use the informal sector as an employment buffer when formal jobs are lost in a downturn (Loayza and Rigolini 2011). The statistical relationship between youth unemployment and the output gap in these economies breaks down when informal



<sup>15</sup> The findings on the cyclical sensitivity of youth versus adult unemployment in advanced economies are similar to those in Banerji and others (2014) and Banerji, Lin, and Saksonovs (2015).

employment is high (at about 80 percent; Figure 11). But informality of about 25 percent would mean the sensitivity of youth unemployment to demand conditions would be comparable to that in advanced economies. Informality, however, is costly and not an efficient buffer. A stronger social safety net and enhanced efforts to reduce informality by lowering costs in the formal sector could ease the consequences of economic fluctuations and improve average job quality.

## IMPROVING YOUTH LABOR MARKET OUTCOMES: THE ROLE OF STRUCTURAL POLICIES

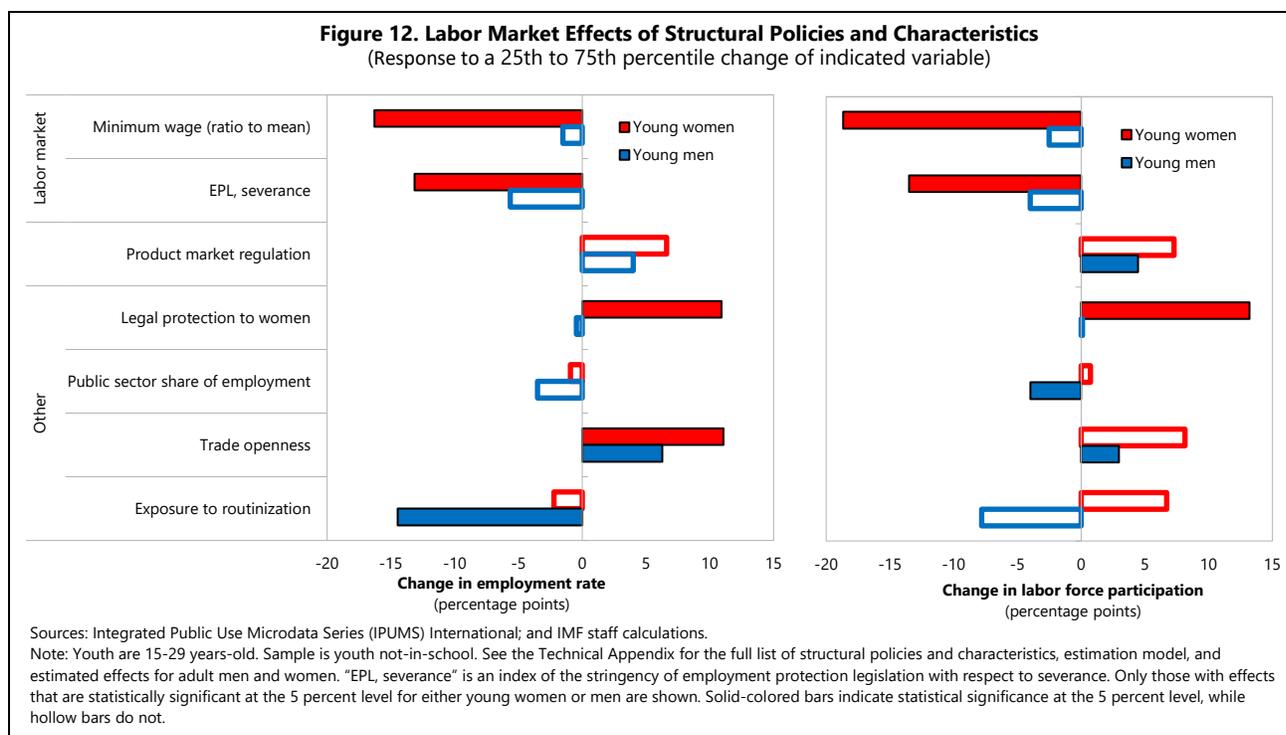
**20. Youth labor market outcomes vary across countries depending on structural policies and country characteristics.** Cross-country individual-level data from censuses and surveys offer new insight into the effects of country-level structural policies—including labor and product market regulations—while controlling for individual-level characteristics (including gender, age, educational attainment, marital status, having children or not, and so on) that are not typically available jointly in aggregate statistics.<sup>16</sup> Microdata spanning almost 90 million individuals and 47 make it possible to study differences in the effects of structural policies by age group (youth/adult), gender (male/female), and other characteristics. When aggregated, these individual-level effects reveal how economy-wide statistics, such as the employment or youth inactivity rate and gender gaps, reflect differences in countries' structural policies. These effects and those of other structural policies are considered one by one, while accounting for individual-level characteristics and a selected set of country-level and common variables.<sup>17</sup> For example, policies to help with family care may boost women's labor force participation more than men's, whereas policies that set minimum labor costs could affect opportunities for low-skilled youth but not high-skilled.

**21. More education is associated with higher youth labor force participation and employment in both advanced and emerging market and developing economies.** Those with more education are less likely to be inactive and more likely to have a salaried (formal) job. In general, the effects of individual-level demographic characteristics are qualitatively similar for youth and adults, even allowing for variation in their impact by country.<sup>18</sup> Among those not in school, age—which in part relates to experience—is also positively associated with labor force participation.

<sup>16</sup> For the microdata analyses, youth are defined as 15- to 29-year-olds, expanding slightly on the ILO definition. Adults are defined here as 30- to 64-year-olds. Microdata are from the International Integrated Public Use Microdata Series (Minnesota Population Center 2017; IPUMS International), the ILO School-to-Work Transition Survey (2016a), and the European Bank for Reconstruction and Development and the World Bank Life in Transition Survey (2016). See the Technical Appendix for further details regarding the microdata and sample coverage.

<sup>17</sup> Sparsity of data coverage limits the ability to jointly estimate the impacts of all potentially relevant structural policies and characteristics. See the Technical Appendix for further details.

<sup>18</sup> The individual-level results described here are based on the harmonized national census data from IPUMS International. The probability model for labor market status by age group (youth/adult) and gender (women/men) includes age (captured by five-year age groups), having children or not, marital status, nativity (native or foreign-born), educational attainment (captured by level of schooling completed, including primary, secondary, and tertiary), and dwelling ownership by the household. See the Technical Appendix for further details on the probability model specification and estimation.



**22. Overly stringent labor market regulations are associated with lower youth employment, although the association is statistically significantly only for young women.**

Figure 12 illustrates the estimated employment effects of selected structural policies and characteristics moving from their 25th to 75th percentiles, calculated across countries. In general, policies that affect youth labor market prospects also affect those of adults—making labor markets work better typically benefits both age groups.<sup>19</sup> Among labor market institutions, a higher-than-average formal minimum wage and stricter employment protection through larger severance payments are both associated with lower employment chances for young people, but the association is statistically significantly only for young women (Figure 12, panel 1). These findings are in line with the broader literature on labor markets and regulation in emerging market and developing economies (ILO and others 2012; Nataraj, Perez-Arce, and Kumar 2014; Kemper 2016; Broecke, Forti, and Vandeweyer 2017). When job prospects are diminished as a result of labor market regulations that are too tight, fewer young (and older) women participate in the labor force, which may reflect their more tenuous attachment to the labor force (Figure 12, panel 2).<sup>20</sup> Box 1 considers the case of Indonesia, looking at how provincial variation in minimum wages relative to average wages is related to youth employment. It finds comparable effects to those outlined here—higher relative minimum wages are associated with lower youth employment prospects.

**23. Since labor market institutions can protect workers and reduce inequality, the challenge is to design them so that they are neither too lax nor too stringent.** Minimum wages

<sup>19</sup> To conserve space, the estimated effects for adults are shown only in the Technical Appendix.

<sup>20</sup> WBG (2012) came to a similar conclusion regarding youth and women and employment costs.

for formal jobs can help address working poverty, curb excessive (and economically costly) market power of firms over workers in some cases, and enhance worker motivation and productivity. However, they should not be set at levels so high as to hurt formal employment opportunities for youth (Jaumotte and Buitron 2015). Minimum wages relative to the average wage are higher in the average emerging market and developing economy than in the average advanced economy, and much higher in some cases. In such countries, other tools might be considered to address income inequality, including targeted cash transfers or earned income tax credits. Unlike minimum wages, these can target the most disadvantaged households rather than just individual workers with formal sector jobs (Duval and Loungani, forthcoming). The stringency of employment protection legislation in the average emerging market and developing economy also approaches that in the average advanced economy, although with wide variation across countries. In many emerging market and developing economies, young people's income prospects would benefit from a gradual expansion of the social safety net, including targeted cash and in-kind transfers and adaptive social protection, combined with easier and more predictable protection of regular jobs (WBG 2018a). Shifting toward protecting workers rather than jobs would also help emerging market and developing economy labor markets cope better with future technology-driven changes in worker-firm relationships.

**24. Legal protections for women in employment are associated with higher employment and participation, regardless of a woman's age, with no adverse effects on men.** A rise from the 25th percentile, about the average in sub-Saharan Africa, to the 75th percentile, about the average in emerging Europe and central Asia, of the cross-country distribution for the index of legal protections for women's employment is associated with a 10–15 percentage points rise in women's employment and participation. These effects are somewhat larger for low-skilled young women.<sup>21</sup> Since there is no significant effect on men's employment and participation, such a shift is also associated with much lower gender gaps.<sup>22</sup>

**25. A larger public sector share of employment is related to lower participation by young men.** In particular, high-skilled young men participate less where public sector jobs are more prevalent. There are at least three possible, non-mutually exclusive, explanations for these findings. First, the public sector may show preference for more senior workers, lowering youth's expectations for employment and thereby participation. Second, if public jobs pay better than comparable private jobs, high-skilled young men may decide to "queue," opting to wait outside the labor force until public sector jobs become available, even if they are less likely than more senior workers to get such jobs. Third, if public sector jobs are financed through taxes on labor, it may discourage job formation elsewhere in the economy, which would affect groups more marginally connected to the labor market, such as young men (IMF 2018b).

**26. Greater trade openness is associated with improved labor market prospects for youth.** Participation and employment for both young men and young women tend to be higher in more

<sup>21</sup> See the Technical Appendix for the full results on youth differentiated by skill level.

<sup>22</sup> See also Gonzales and others (2015) and WBG (2018b) for related work on the impact of equal protection under the law on women's labor market outcomes.

open economies, although more so for young women. If trade openness doubles (from about 40 percent of output to about 80 percent)—which shifts an economy from the 25th to the 75th percentile of the trade openness distribution—the results point to a very large rise in youth employment rates of about 10 percentage points. In other words, youth employment rates are markedly higher in more open economies. This is consistent with earlier evidence that women’s outcomes benefit from openness and policies that enhance market competitiveness more broadly, as these help level the playing field (Black and Brainerd 2004; WBG 2011). The positive effects for young people are more evident among the more educated.<sup>23</sup> This may reflect greater employment of more highly educated people by more-export-oriented sectors, which may get a boost from more open trade policies (Acemoglu and Autor 2011). Box 2 examines how local openness to international trade affects youth prospects in China, finding that young men have greater employment opportunities in cities that are more open, whereas young women see no statistically significant benefit.

**27. Tighter product market regulations are found to be associated with higher participation by young men, but not with higher (or lower) employment.** When further differentiated by level of educational attainment, it becomes clear that the positive effects of product market regulation are evident only for low-skilled youth. Higher barriers to entry could reflect a larger informal sector (see next paragraph), which in turn is associated with higher participation and employment prospects for low-skilled workers. Theory (Blanchard and Giavazzi 2003) and empirical evidence for advanced economies (for example, Bassanini and Duval 2009; Fiori and others 2012; Duval and others, 2016) suggest that stringent entry regulation reduces employment, but no such effects could be detected here.

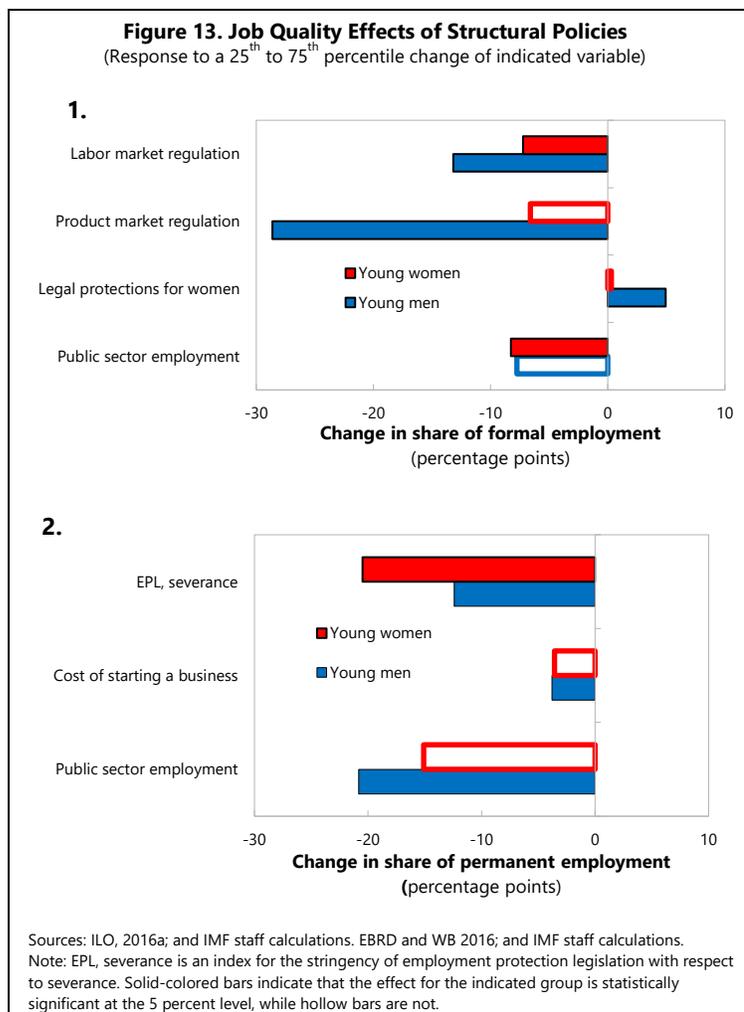
**28. More restrictive labor and product market regulations and larger public sector shares in employment are also associated with lower job quality, suggesting that there may be little trade-off between the quantity and quality of jobs for youth.** Unfortunately, the data from national censuses do not include detailed information on job quality. However, alternative microdata for different samples of emerging market and developing economies make it possible to analyze the prevalence of formal jobs and permanent contracts, both of which capture some aspects of job quality. Job formality is captured by the ILO’s School-to-Work Transition Survey, which focuses on young people in a broad group of emerging market and developing economies. Information on the behavior of the share of permanent versus temporary contracts in employment among European and central Asian emerging market and developing economies comes from the European Bank for Reconstruction and Development and World Bank Life in Transition Survey. Figure 13 suggests that tighter labor and product market regulations and a larger public sector share of employment are related to lower job formality for youth and—in emerging Europe and central Asia—a lower share of permanent contracts in youth employment. Together, these findings suggest that structural policies supporting greater labor market flexibility and—to a lesser extent—product market competition are associated with better youth labor market prospects and improved job quality. As mentioned earlier,

<sup>23</sup> See the Technical Appendix for further details.

the youth job quality results for the public sector share of employment may reflect a preference for seniority in the public sector and/or some crowding out of formal jobs for youth.

**29. Other labor market policies, such as labor taxation and active labor market policies (ALMPs), are also likely to affect youth labor market prospects.** Lacking consistent cross-country data, this analysis could not investigate other labor market policies, but some studies suggest that they make a difference. A high labor tax wedge—the difference between before- and after-tax wages—can reduce formal employment, and possibly employment overall, in emerging market and developing economies (Kugler and Kugler 2009; Betcherman, Daysal, and Pagés 2010). Even though social protection systems are less developed in these economies than they are in advanced economies, the average labor tax wedge—which includes employer and employee social contributions as well as personal income taxes—is largely similar, although with substantial cross-country variation.<sup>24</sup> ALMPs with broad reach remain underdeveloped in emerging market and developing economies, but they have the potential to strengthen the labor market attachment of the most vulnerable job seekers (including youth and people with few skills) and, more broadly, they could help reduce locational, sectoral, and job mismatches.

**30. ALMP design and regular (re)assessment are crucial.** Youth-targeted ALMPs must explicitly target well-identified labor market failures if they are to pass a cost-benefit analysis. Which ALMP instrument is best depends on the nature of the youth labor market failure. For example, if worker productivity is low or skill sets do not match firms’ production needs, training (vocational or in life skills) or private



<sup>24</sup> Ribe, Robalino, and Walker (2010) estimate the average emerging market and developing economy labor tax wedge at about 35 percent, which is fairly close to the average tax wedge across Organisation for Economic Co-operation and Development (OECD) member countries as computed by the OECD. However, unlike the World Bank’s calculations, the OECD average does not include the implicit tax generated by severance pay. The OECD’s own estimates as published in its Going for Growth database for selected emerging market and developing economies show wide cross-country variation. In some cases the tax wedge is very high—for example, above 30 percent for Brazil and China—and in others it is quite low, at less than 10 percent for India and Indonesia (for India, the average wedge cited is based on a one-earner couple with two children).

sector wage subsidies can make disadvantaged workers more appealing hires and give them opportunities to boost their productivity, including through on-the-job learning. Alternatively, more broad-based changes to education systems to improve learning outcomes may be merited (see WBG 2017). If instead young workers face hurdles in finding out about and getting matched to suitable jobs, interventions that improve job search may help. The large literature on the impact of ALMPs on employment and income has, so far, shown mixed results for both advanced and emerging market and developing economies, which points to a need for ALMP design tailored by country and group.<sup>25</sup> Estimated returns on ALMP interventions vary dramatically across countries and programs, even when thorny issues such as scalability and displacement effects are disregarded. Tentative evidence shows that certain interventions, such as those that target the geographic and sectoral mobility of labor, may work better than others, although more research is needed. Regardless, a sensible policy approach is to evaluate programs more systematically, keep and scale up those with benefits exceeding costs, and phase out others.

## CONCLUSIONS

**31. Young people in the average emerging market and developing economy make up about a third of the working-age population and close to 20 percent of them are inactive (either unemployed or not in school).** What this says is that about 6 percent of the working-age population is unoccupied youth, about four times the share in the average advanced economy. The macroeconomic and social costs of such high and persistent market inactivity are large. Policymakers must ask themselves how they can ensure that these young people have adequate opportunities for productive employment—the focus of this note—and human capital investment, also crucial but beyond the scope of this note.

**32. A larger gender penalty in emerging market and developing economies accounts for much of the average difference in youth outcomes between emerging market and developing and advanced economies.** Young women in developing economies fall well behind young men when it comes to participation and employment even after taking into account the effects of childbearing. This gender gap is much larger than it is in advanced economies. Strikingly, individual characteristics alone should mean higher participation and employment for young women in the average emerging market and developing economy, if these characteristics were similarly rewarded for women and men.

**33. Legal protections for women and family-friendly policies can help reduce gender gaps.** Greater legal protections for women boost participation and employment by women of all ages, without any significant effect on men's outcomes. Greater availability of childcare and family leave could further encourage participation by young women (Gonzales and others 2015). Broader, non-policy-related characteristics of the economy also matter, and some of them are associated with a

<sup>25</sup> For example, see Card, Kluve, and Weber (2018) and Fox and Kaul (2017). See the Technical Appendix for further description of the literature on ALMPs for youth.

lower gender gap. Exposure to routinization is related to reduced participation and employment for men in emerging market and developing economies, which suggests that men tend to work in sectors that are more vulnerable to automation. This finding therefore suggests a particular need for retraining and lifelong learning programs for men of all ages to help reorient their career paths as technological change accelerates.

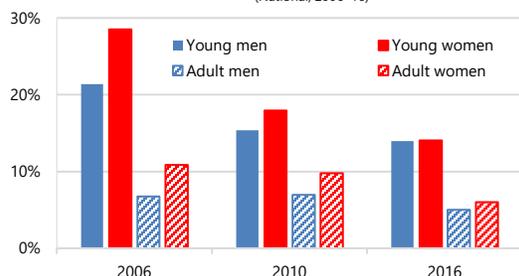
**34. Well-designed labor market institutions can enhance job prospects for both youth and adults.** What harms or helps one age group has similar effects on the other age group, but the magnitudes of these effects tend to be larger for the young. More stringent labor market regulations and minimum wages that are high relative to average wages are associated with lower likelihoods of labor market participation and employment for out-of-school youth. These effects are most pronounced and significant for young women. Less flexibility in the formal labor market is in general associated with greater informality in jobs for young people.

**35. Taken together, the evidence suggests that a package of structural policies increasing labor market flexibility and encouraging job formality could significantly benefit youth and shrink gender gaps, while also improving adults' outcomes.** Measures that enhance job market flexibility and provide buffers to individuals—such as less-rigid job protection legislation alongside a stronger safety net—could complement more active labor market policies for youth. But these policies must target well-identified labor market deficiencies and be regularly assessed and improved iteratively. Moreover, the structural policies investigated here do not appear to exchange stronger youth labor market prospects for weaker adult outcomes—they are inclusive growth policies. The exact mix of structural policies must be tailored to country-specific circumstances, including the economy's cyclical position and extent of fiscal space, while taking into account the most binding constraints on youth labor market performance in each country.

**Box 1. Minimum Wages and Youth (Un)Employment: The Case of Indonesia<sup>1</sup>**

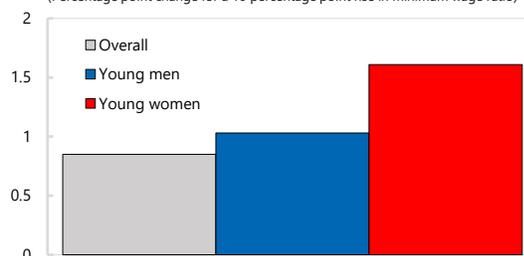
Economists and policymakers have long debated the effect of minimum wages on employment. On the one hand, to the extent that minimum wages are set above the market clearing wage, a minimum wage rise can reduce employment. On the other hand, insofar as employers have concentrated power in the labor market, a higher minimum wage may increase employment (Card and Krueger 1994). Furthermore, a higher minimum wage raises the earnings of low-income workers, who generally are more likely to consume, boosting aggregate demand and employment in the short term. According to much of the literature, minimum wage changes are likely to have larger impacts on working youth, who tend to be less experienced and whose wage tends to be closest to the existing minimum wage (for example, Abowd and others 2000; Gorry 2013).

**Figure 1.1. Unemployment Rate by Age and Gender**  
(National, 2006–16)



Sources: Indonesia Labor Force Survey (Sakernas); and IMF staff calculations.

**Figure 1.2. Estimated Minimum Wage Effects on Unemployment**  
(Percentage point change for a 10 percentage point rise in minimum wage ratio)



Sources: Indonesia Labor Force Survey (Sakernas); and IMF staff calculations.

This box examines the effect of the minimum wage on youth employment in Indonesia. The Indonesian labor market has several unique features, including high minimum wage levels relative to average wages and relatively rigid formal labor market institutions (IMF 2013). Moreover, Indonesia’s decentralized minimum-wage-setting mechanism leads to substantial variation—both in levels and relative to average wages—across provinces, which helps identify the effects of minimum wages. Nonetheless, Indonesia’s broad labor market characteristics are similar to those of the average emerging market and developing economy discussed in the main text. Youth unemployment remains substantially above adults’, with noticeable gender gaps, although these have narrowed in recent years (Figure 1.1).

Against this backdrop, comprehensive labor force survey (Sakernas) data sets covering three vintages (2006, 2010, 2016) are used to investigate the relationship between the minimum wage and the province-level unemployment rate. A careful econometric analysis suggests that a 10 percentage points higher minimum wage relative to the average wage is associated with about a 0.8 percentage points higher unemployment rate in the province considered. In particular, youth labor market outcomes, and especially those of young women, are hurt significantly more by a higher minimum wage. A minimum wage 10 percentage points higher than the average wage is associated with an unemployment rise of 1 percentage point for young men and 1.6 percentage points for young women (Figure 1.2).<sup>2</sup>

Although these associations do not necessarily reflect a causal relationship, the analysis suggests that it is important to calibrate the minimum wage level well, ensuring that it is neither too high nor too low. The analysis also offers some support for the Indonesian authorities’ increasing commitment to rationalizing minimum wages, including Government Regulation 78 of 2015, which makes the minimum-wage-setting mechanism more transparent and predictable through major provinces’ adoption of formulas that align increases with inflation and real GDP growth (IMF 2018a).

<sup>1</sup> Prepared by JaeBin Ahn.

<sup>2</sup> The estimates are from a linear regression where the dependent variable is the unemployment rate defined at a highly disaggregated group level based on demographic factors such as age, gender, marital status, education, and locality. Control variables include dummy variables for these same demographic characteristics, province-level real GDP, GDP per capita, and year and province fixed effects.

### Box 2. Youth Employment and City-Level Trade Openness in China<sup>1</sup>

Over the past three decades, the world has “flattened” as the global economy has become more integrated. China’s accession to the World Trade Organization (WTO) in December 2001 led to a large expansion in its overall trade and output. Although much theory and evidence suggest that trade liberalization increases output and welfare, questions on its labor market effects remain hotly debated.

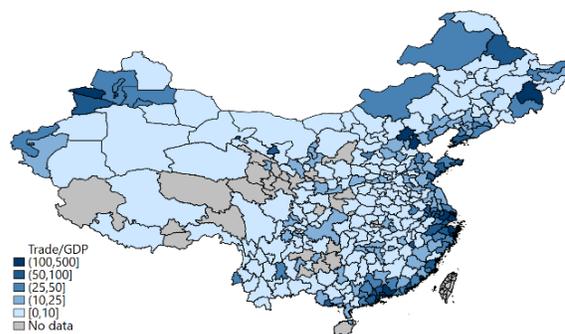
On the one hand, trade openness and the international diffusion of new technologies may increase the effective size of markets and raise production, boosting labor demand in export-oriented sectors and even in the broader economy. On the other hand, trade liberalization may differentially affect groups of workers, depending on their exposure to international competition and the ability of the sectors where they are employed to expand into international markets.

This box investigates the effects of city-level trade openness on youth and adult employment, using disaggregated individual-level data for Chinese urban households over 16 provinces from 2002–09, shortly after China’s WTO accession. City-level trade openness (defined as the ratio of international trade to GDP by city) varies markedly across provinces in China (Figure 2.1). Coastal regions tend to have higher trade openness on average than inland regions, but there is also variation within these regions.

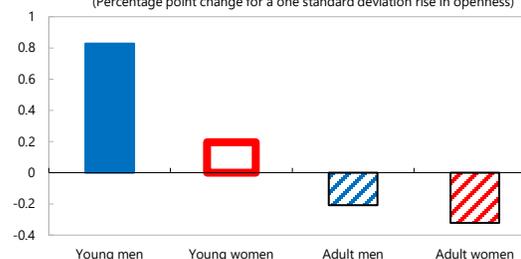
Focusing on youth who are not in school and using cross-provincial and cross-time variation in trade openness, analysis of the individual-level data suggests that young men’s employment likelihood rises by about 0.2 percentage points for every 10 percentage points rise in city-level trade openness, whereas young women see no statistically significant effect (Figure 2.2 presents the estimated marginal impacts of city-level trade openness on employment).<sup>2</sup> By contrast, adults’ likelihood of employment shrinks by about 0.05 percentage points.

What might account for these patterns? Greater trade openness may have raised the demand for labor within the tradables sector, with the greatest benefit for young men over the period. For example, manufacturing employment is about 60 percent male, which appears to benefit young men more relative to other groups. The estimated negative employment impact of trade openness for adults may be consistent with a reallocation of resources away from the more traditional, nontradables sector—which employs less-young workers—toward tradables. Li, Loungani, and Ostry (forthcoming) takes a detailed look at the income changes with liberalization in China, finding positive overall income and inequality effects. The evidence presented here points to a way inequality may have been affected—through a differential effect of trade on demographic groups.

**Figure 2.1. Trade Openness across Provinces in China**  
(Trade share of provincial GDP in 2006, percent)



**Figure 2.2. Effect of City-Level Trade Openness on Participation**  
(Percentage point change for a one standard deviation rise in openness)



Source: IMF staff calculations.  
Note: Youth are 15–29 years old; adults are 30–64 years old. The standard deviation of city-level trade openness is approximately 51 percentage points. Filled bars indicate statistical significance at the 5 percent level, while hollow bars do not.

<sup>1</sup> Prepared by Bin (Grace) Li.

<sup>2</sup> A probit model is used to relate the employment status of the sample of individuals not in school to city-level trade openness (which varies by city and year) and a set of controls for individual characteristics, as well as year and province fixed effects. See the Technical Appendix for further details.

## REFERENCES

- Abowd, John, Francis Kramarz, Thomas Lemieux, and David Margolis. 2000. "Minimum Wages and Youth Employment in France and the United States." In *Youth Employment and Unemployment in Advanced Countries*, edited by David Blanchflower and Richard Freeman, 427–72. Chicago: University of Chicago Press.
- Acemoglu, Daron, and David Autor. 2011. "Skills, Tasks, and Technologies: Implications for Employment and Earnings." In *Handbook of Labor Economics*, Volume 4b, edited by David Card and Orley Ashenfelter, 1043–171. Amsterdam: Elsevier.
- Acemoglu, Daron, and Pascual Restrepo. 2017. "Robot and Jobs: Evidence from US Labor Markets." *NBER Working Paper 23285*, National Bureau of Economic Research, Cambridge, MA.
- Autor, David, and David Dorn. 2013. "The Growth of Low-Skill Service Jobs and the Polarization of the US Labor Market." *American Economic Review* 103 (5): 1553–97.
- Banerji, Angana, Huidan Lin, and Sergejs Saksonovs. 2015. "Youth Unemployment in Advanced Europe: Okun's Law and Beyond." IMF Working Paper 15/5, International Monetary Fund, Washington, DC.
- Banerji, Angana, Sergejs Saksonovs, Huidan Lin, and Rodolphe Blavy. 2014. "Youth Unemployment in Advanced Economies in Europe: Searching for Solutions." IMF Staff Discussion Note 14/11, International Monetary Fund, Washington, DC.
- Bassanini, Andrea, and Romain Duval. 2009. "Unemployment, Institutions, and Reform Complementarities: Re-assessing the Aggregate Evidence for OECD Countries." *Oxford Review of Economic Policy* 25 (1): 40–59.
- Bell, David N. F., and David G. Blanchflower. 2011. "Young People and the Great Recession," *Oxford Review of Economic Policy* 27 (2): 241–67.
- Betcherman, Gordon, N., Meltem Daysal, and Carmen Pagés. 2010. "Do Employment Subsidies Work? Evidence from Regionally Targeted Subsidies in Turkey." *Labour Economics* 17 (4, August): 710–22.
- Black, Sandra E., and Elizabeth Brainerd. 2004. "Importing Equality? The Impact of Globalization on Gender Discrimination." *Industrial and Labor Relations Review* 57 (4, July): 540–59.
- Blanchard, Olivier, and Francesco Giavazzi. 2003. "Macroeconomic Effects of Regulation and Deregulation in Goods and Labor Markets." *Quarterly Journal of Economics* 118 (3, August): 879–907.

- Broecke, Stijn, Alessia Forti, and Marieke Vandeweyer. 2017. "The Effect of Minimum Wages on Employment in Emerging Economies: A Survey and Meta-analysis." *Oxford Development Studies* 45 (3): 366–91.
- Brunner, Beatrice, and Andreas Kuhn. 2014. "The Impact of Labor Market Entry Conditions on Initial Job Assignment and Wages." *Journal of Population Economics* 27: 705–38.
- Card, David, and Alan Krueger. 1994. "Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania." *American Economic Review* 84: 772–93.
- Card, David, Jochen Kluge, and Andrea Weber. 2018. "What Works? A Meta Analysis of Recent Active Labor Market Program Evaluations." *Journal of the European Economic Association*, 16(3): 894–931.
- Cho, Yoonyoung, David N. Margolis, Davide Newhouse, and David A. Robalino. 2012. "Labor Markets in Low- and Middle-Income Countries: Trends and Implications for Social Protection and Labor Policies." *Social Protection and Labor Discussion Paper* 1207, World Bank, Washington, DC.
- Dao, Mai Chi, Mitali Das, Zsoka Koczan, and Weicheng Lian. 2017. "Why Is Labor Receiving a Smaller Share of Global Income? Theory and Evidence." *IMF Working Paper* 17/169, International Monetary Fund, Washington, DC.
- Das, Mitali, and Benjamin Hilgenstock. 2018. "The Exposure to Routinization: Labor Market Implications in Developed and Developing Economies." *IMF Working Paper* 18/135, International Monetary Fund, Washington, DC.
- Duval, Romain, Davide Furceri, Alexander Hijzen, João Jalles, and Sinem Kılıç Çelik. 2016. "Time for a Supply-Side Boost? Macroeconomic Effects of Labor and Product Market Reforms in Advanced Economies." In *World Economic Outlook: Too Slow for Too Long*, April, Chapter 3. Washington, DC: International Monetary Fund.
- Duval, Romain, and Prakash Loungani. Forthcoming. "Designing Labor Market Institutions in Emerging and Developing Economies: Evidence and IMF Advice." *IMF Staff Discussion Note*, International Monetary Fund, Washington, DC.
- European Bank for Reconstruction and Development (EBRD) and World Bank (WB). 2016. *Life in Transition Survey III*. London.
- Fabrizio, Stefania, Davide Furceri, Rodrigo Garcia-Verdu, Bin Grace Li, Sandra V. Lizarazo Ruiz, Marina Mendes Tavares, Futoshi Narita, and Adrian Peralta-Alva. 2017. "Macro-Structural Policies and Income Inequality in Low-Income Developing Countries." *IMF Staff Discussion Note* 17/01, International Monetary Fund, Washington, DC.
- Filmer, Deon, and Louise Fox. 2014. *Youth Employment in Sub-Saharan Africa*. Washington, DC: World Bank.

- Fiori, Giuseppe, Giuseppe Nicoletti, Stefano Scarpetta, and Fabio Schiantarelli. 2012. "Employment Effects of Product and Labour Market Reforms: Are There Synergies?" *Economic Journal* 122 (558, February): F79–104.
- Fox, Louise, Cleary Haines, Jorge Huerta Muñoz, and Alun Thomas. 2013. "Africa's Got Work to Do: Employment Prospects in the New Century." *IMF Working Paper* 13/201, International Monetary Fund, Washington, DC.
- Fox, Louise, and Upaasna Kaul. 2017. "What Works for Youth Employment in Low-Income Countries?" <http://www.youthpower.org/resources/what-works-youth-employment-low-income-countries>.
- Frankel, Jeffrey A., Carlos A. Vegh, and Guillermo Vuletin. 2013. "On Graduation from Fiscal Procyclicality." *Journal of Development Economics* 100 (1, January): 32–47.
- Gonzales, Christian, Sonali Jain-Chandra, Kalpana Kochhar, and Monique Newiak. 2015. "Fair Play: More Equal Laws Boost Female Labor Force Participation." *IMF Staff Discussion Note* 15/02, International Monetary Fund, Washington, DC.
- Gorry, Aspen. 2013. "Minimum Wages and Youth Unemployment." *European Economic Review* 64: 57–75.
- Günther, Isabel, and Andrey Launov. 2012. "Informal Employment in Developing Countries: Opportunity or Last Resort?" *Journal of Development Economics* 97: 88–98.
- Hussmans, Ralf. 2005. "Measuring the Informal Economy: From Employment in the Informal Sector to Informal Employment." *ILO Working Paper* 53, International Labour Organization, Geneva.
- Inglehart, R., C. Haerpfer, A. Moreno, C. Welzel, K. Kizilova, J. Diez-Medrano, M. Lagos, P. Norris, E. Ponarin, B. Puranen, and others, eds. 2014. *World Values Survey: Round Six*. Country-Pooled Datafile Version: <http://www.worldvaluessurvey.org>. Madrid: JD Systems Institute.
- International Labour Organization (ILO). 2016a. *School-to-Work Transition Survey*. Geneva.
- . 2016b. *World Employment and Social Outlook 2016: Trends for Youth*. Geneva: International Labour Office.
- . 2017. *Global Employment Trends for Youth 2017: Paths to a better working future*. Geneva: International Labour Office.
- International Labour Organization (ILO), Organisation for Economic Co-operation and Development (OECD), International Monetary Fund (IMF), and World Bank. 2012. "Boosting Jobs and Living Standards in G20 countries." Geneva, Paris, and Washington, DC.

- International Monetary Fund (IMF). 2013. "Indonesia: Staff Report for the 2013 Article IV Consultation." IMF Country Report 13/362, Washington, DC.
- . 2018a. "Indonesia: Staff Report for the 2017 Article IV Consultation." IMF Country Report 18/32, Washington, DC.
- . 2018b. "Public Wage Bills in the Middle East and Central Asia." *IMF Middle East and Central Asia Departmental Paper*, Washington, DC.
- Jaumotte, Florence, and Carolina Osorio Buitron. 2015. "Inequality and Labor Market Institutions." *IMF Staff Discussion Note 15/14*, International Monetary Fund, Washington, DC.
- Kemper, Johanna. 2016. "Resolving the Ambiguity: A Meta-Analysis of the Effect of Employment Protection on Employment and Unemployment." *KOF Working Papers 16-405*, KOF Swiss Economic Institute, Zurich.
- Kugler, Adrian, and Maurice Kugler. 2009. "Labor Market Effects of Payroll Taxes in Developing Countries: Evidence from Colombia." *Economic Development and Cultural Change* 57 (2, January): 335–58.
- Li, Bin Grace, Prakash Loungani, and Jonathan Ostry. Forthcoming. "Trade, Growth and Inequality: Evidence from China." *IMF Working Paper*, International Monetary Fund, Washington, DC.
- Loayza, Norman V., and Jamele Rigolini. 2011. "Informal Employment: Safety Net or Growth Engine?" *World Development* 39 (9): 1503–15.
- Minnesota Population Center. 2017. Integrated Public Use Microdata Series, International: Version 7.0, various datasets. Minneapolis: University of Minnesota.  
<http://doi.org/10.18128/D020.V70>. See Technical Appendix for full list of underlying sources.
- Nataraj, Shanthi, Francisco Perez-Arce, and Krishna B. Kumar. 2014. "The Impact of Labor Market Regulation on Employment in Low-Income Countries: A Meta-Analysis." *Journal of Economic Surveys* 28 (3): 551–72.
- O'Higgins, Niall, ed. 2017. *Rising to the Youth Employment Challenge: New Evidence on Key Policy Issues*. Geneva: International Labour Office.
- Oreopoulos, Philip, Till von Wachter, and Andrew Heisz. 2012. "The Short- and Long-Term Career Effects of Graduating in a Recession." *American Economic Journal: Applied Economics* 4 (1): 1–29.
- Organisation for Economic Co-operation and Development (OECD). 2017. *Youth Aspirations and the Reality of Jobs in Developing Countries: Mind the Gap*. Development Centre Studies, Paris.
- Purfield, Catriona, Harald Finger, Karen Ongley, Bénédicte Baduel, Carolina Castellanos, Gaëlle Pierre, Vahram Stepanyan, and Erik Roos. 2018. "Opportunity for All: Promoting Growth and

- Inclusiveness in the Middle East and North Africa." *IMF Middle East and Central Asia Departmental Paper* 18/11, International Monetary Fund, Washington, DC.
- Quintini, Glenda, and Sébastien Martin. 2014. "Same Same but Different: School-to-Work Transitions in Emerging and Advanced Economies." *OECD Social, Employment and Migration Working Papers* 154, Organisation for Economic Co-operation and Development, Paris.
- Raaum, Oddbjørn, and Knut Røed. 2006. "Do Business Cycle Conditions at the Time of Labor Market Entry Affect Future Employment Prospects?" *Review of Economics and Statistics* 88 (2, May): 193–210.
- Ribe, Helena, David Robalino, and Ian Walker. 2010. *Achieving Effective Social Protection for All in Latin America and the Caribbean*. Washington, DC: World Bank Group.
- Ruble, Blair A., Joseph S. Tulchin, Diana H. Varat, and Lisa M. Hanley, eds. 2003. *Youth Explosion in Developing World Cities: Approaches to Reducing Poverty and Conflict in an Urban Age*. Washington, DC: Woodrow Wilson Center.
- United Nations Conference on Trade and Development (UNCTAD). 2017. "Robots, Industrialization, and Inclusive Growth." In *Trade and Development Report 2017, Beyond Austerity: Towards a Global New Deal*, Chapter 3. New York and Geneva: UNCTAD.
- United Nations Department of Economic and Social Affairs (UN DESA), Population Division. 2017. *World Population Prospects: The 2017 Revision, Volume II: Demographic Profiles*. ST/ESA/SER.A/400. New York.
- United Nations General Assembly (UNGA). 2015. "Transforming Our World: the 2030 Agenda for Sustainable Development." Resolution 70/1, New York.
- Urdal, Henrik. 2006. "A Clash of Generations? Youth Bulges and Political Violence." *International Studies Quarterly* 50: 607–29.
- World Bank Group (WBG). 2006. *World Development Report 2007: Development and the Next Generation*. Washington, DC: World Bank.
- . 2011. *World Development Report 2012: Gender, Equality, and Development*. Washington, DC: World Bank.
- . 2012. *World Development Report 2013: Jobs*. Washington, DC: World Bank.
- . 2016. *World Development Report 2016: Digital Dividends*. Washington, DC: World Bank.
- . 2017. *World Development Report 2018: Learning*. Washington, DC: World Bank.
- . 2018a. *The State of Social Safety Nets 2018*. Washington, DC: World Bank.

———. 2018b. *Women, Business, and the Law*. Washington, DC: World Bank.