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ENHANCING ACCESS TO OPPORTUNITIES



Prepared by Staff of the  
INTERNATIONAL MONETARY FUND\*  
and  
THE WORLD BANK\*

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## EXECUTIVE SUMMARY

**The COVID-19 pandemic has disproportionately hurt disadvantaged groups.** While many people have been adversely impacted by the health emergency and necessary mitigation measures, those with a lack of savings and insurance are particularly hard hit when faced with a sudden decline in income. People in the informal sector with weaker job attachment, workers in lower-skilled service sector occupations that are less likely to be able to work remotely, and people in areas with insufficient access to health care or where social distancing is difficult have been highly exposed to the economic damage wrought by the pandemic. Disruptions in public services also disproportionately affect disadvantaged children who are more likely to rely on social programs such as nutrition and early childhood programs and lack adequate access to distance learning opportunities.

**The crisis could leave permanent scars on the income distribution as it hit amid uneven access to opportunities and persistent income gaps in many economies.** Not only have income inequalities risen in many countries during the past quarter century, economies with high levels of inequality often also have low social mobility across generations owing to unequal access to opportunities. Moreover, the greater the pre-existing inequalities, the more unequal are likely to be the impact of the pandemic. In the absence of strong policy action to protect vulnerable groups, the crisis thus risks having a lasting impact on the income distribution.

**The impact of COVID-19 has reinforced the need to shed light on the uneven access to opportunities.** Policy design needs to take into account that gaps can be present throughout life.

- *Uneven access to health care, early childhood development, and education perpetuates throughout life.* Differences in long-term outcomes often reflect that children born into low socioeconomic status more often are exposed to poor nutrition and health risks. Furthermore, while educational attainment has increased across the G-20, gaps persist, including as people in advanced economies tend to have more years of schooling than in emerging market economies. A larger share of individuals in emerging market economies also exhibits “learning poverty”—that is, an inability to read and comprehend a simple text by age 10.
- *Youth and women face sizable gaps in the labor market.* Many young people face joblessness, and female labor force participation is often well below that of men. In addition, the informal sector accounts for a large share of activity, particularly among women, leaving many people with fewer safety nets than in the formal sector. Disparities also exist across space within countries, as lagging regions tend to have worse experiences in terms of health, education, and labor market outcomes.
- *Many people do not have full access to financial services and technology.* This impacts payments, savings, credit, and insurance, and constrains access to education, starting a business, and coping with shocks. Many small enterprises have difficulties obtaining credit to grow, which hinders firm dynamism and job creation. Uneven access to the full benefits from technological advances and structural impediments to the entry of new firms hold back competition and, in turn, job creation.

**Uneven access to opportunities, low intergenerational mobility, and persistent income inequality weigh on growth.** An empirical analysis shows that uneven access to opportunities is associated with low intergenerational mobility in income and education. In turn, it hampers growth through suboptimal levels of education, and inequality tends to hold back the strength and durability

of growth. Where intergenerational mobility is low, the analysis also shows that benefits from structural reforms may not be distributed evenly to all individuals.

**To ensure that any increase in inequality from the crisis does not become permanent and to foster a durable and inclusive recovery, action is required to level the playing field for all.**

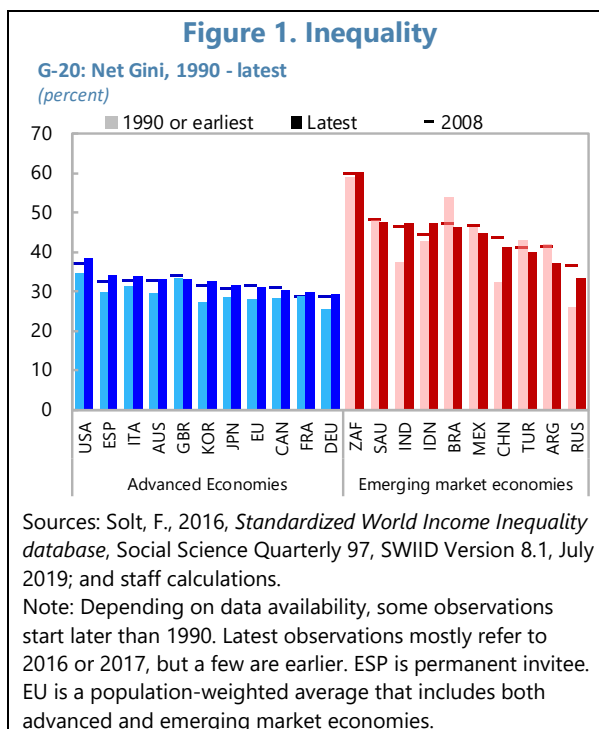
- *Focus on health, early childhood development, and education is essential.* Interventions should help ensure adequate health care and improve maternal health and the early childhood environment. This includes ensuring adequate nutrition, access to water and sanitation, and social protection for disadvantaged groups. Improving educational outcomes should focus not only on spending levels but also on the quality of education, including to address learning poverty. In this respect, model simulations show that increasing educational attainment in emerging market economies can benefit growth and reduce inequality. To complement national policies for systemic change, place-based policies targeted to disadvantaged communities—such as interventions to improve the quality of schooling, health, childcare, safety, housing, and infrastructure—can improve the prospects of upward mobility for children growing up in these communities.
- *Policymakers should level the playing field across age and gender.* Labor market policies and structural reforms to strengthen competition in product markets can be instrumental in leveling the playing field for all, so that the post-pandemic recovery expands economic opportunities across all groups. Considerations should be given to active labor market policies, training, as well as the design of labor market regulations. Complementary product market reforms can be particularly important in ensuring a business environment that encourages innovation and growth to help generate additional employment opportunities, including for youth. Leveling the playing field across gender would also require removing legal restrictions on women.
- *Enhancing access to financial services and technology is vital for inclusive growth.* This would require encouraging the availability of low-cost products and improving financial information and capabilities. Small and medium-sized enterprises would have better opportunities to grow if information gaps were closed, allowing for better assessment of their creditworthiness. While Fintech has helped expand access to financial services, more can be done by using the widespread availability of mobile phones to alleviate gaps in traditional financial account ownership.

**Fiscal policy can also facilitate enhancing access to opportunities and reducing inequality.** As we move forward from the immediate crisis response, fiscal policy would need to consider not only if there is fiscal space and a need to expand overall spending to enhance access to opportunities, as well as health care and social protection, but also if reprioritization can help enhance spending efficiency. Gender budgeting can help address gender inequality, in addition to improving access to affordable and high-quality childcare and parental leave policies. Removing tax policy provisions that discriminate against the second earner can help lift female labor force participation. More progressive taxation by increasing the tax rate for high-income earners can have the dual impact of generating revenue for additional expenditure and reducing ex-post inequality. Public transfers and safety nets can facilitate income and wealth redistribution and support families' investment in children. Reducing barriers to spatial mobility would raise social mobility by helping people move to better jobs, opportunities, and services. Policies include improving infrastructure and reducing explicit or implicit costs of internal migration, such as by ensuring that safety net programs are portable across space.

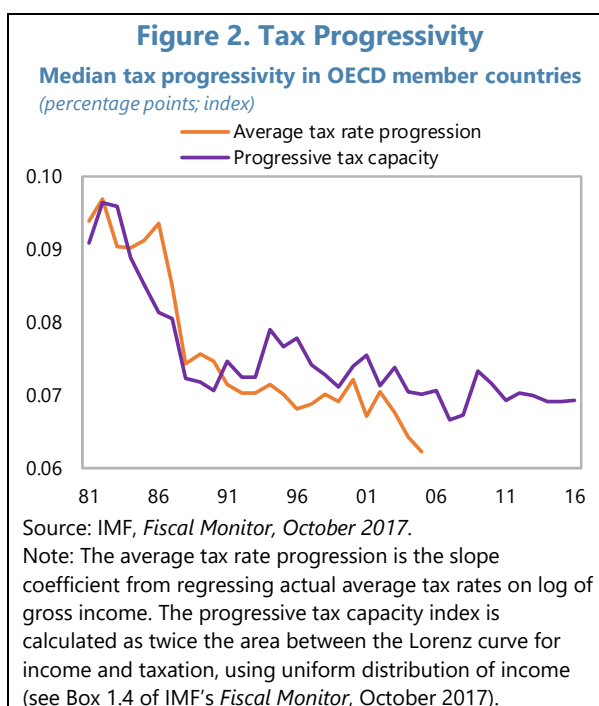
# INEQUALITY PERPETUATES ACROSS GENERATIONS

## 1. COVID-19 has spread across a world where high and rising inequality in many economies over the past quarter century have held back improvements in living standards. Since the early

1990s and until the global financial crisis, income and wealth inequalities rose across most G-20 economies. Since then, inequality has declined only slightly in some economies (e.g., *Canada, United Kingdom*) and has remained particularly high in many emerging market economies (e.g., *India, Indonesia, Saudi Arabia, South Africa*) and some advanced economies (Figure 1). In addition, higher inequality reflects a disproportionately large increase in the share of income accruing to the top-1 percent income earners. Alongside, per-capita real GDP growth across the G-20 (excl. *India and China*) has averaged less than 2 percent annually during 2010–19, reflecting also years with negative growth in some economies. And people in the middle of the income distribution have not seen much improvement in living standards either. In fact, median per-capita income grew at an average of about 1 percent during 2010–15.



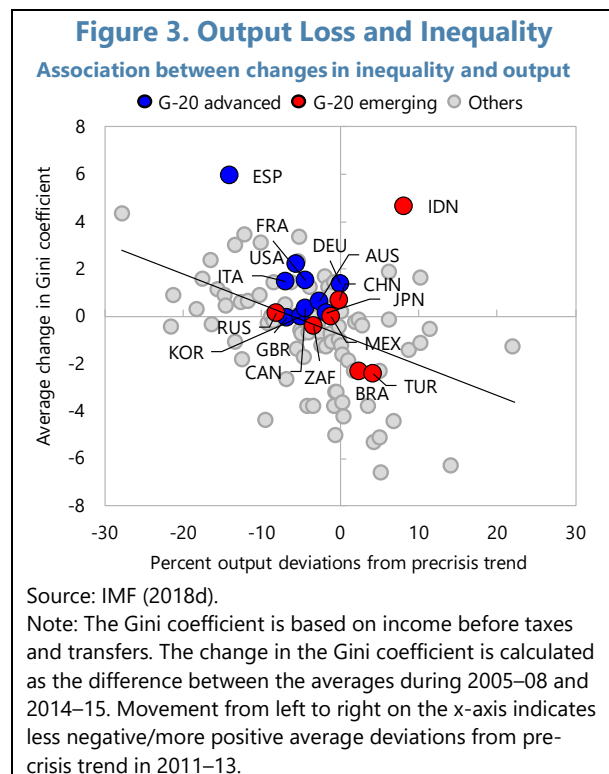
## 2. Over the past decades, trade and technological change as well as a reduction in the progressivity of taxation have contributed to the rise in inequality (Figure 2). While cross-border integration and technological advances during the past decades have allowed firms to grow and ideas and products to flow across borders—supporting improved living standards across the globe—the benefits have not accrued evenly within populations. For example, the distribution of labor income within countries has become more unequal as the change in demand for skills has led to a polarization of income gains, favoring high-skilled and disadvantaging low-skilled labor. Such disparities have also gradually crept up across regions in the average advanced economy, with technological change tending to raise unemployment in regions that are more



vulnerable to automation.<sup>1</sup> In addition, personal income taxation has become less progressive over the past three decades, and increasingly mobile capital has posed challenges for taxation.<sup>2</sup>

**3. The health emergency may have further increased inequality as disadvantaged groups, including women, have been particularly impacted.** In all economies, the poor and other vulnerable groups have been particularly hard hit by necessary mitigation measures as they are more likely to be engaged in the informal sector where employment relationships are more easily broken and where safety nets are fewer. They may also be more likely to work in sectors that are among the first to be impacted in a crisis. Low-skilled and informal workers may also be working in occupations where work cannot easily be done remotely in the context of stay-at-home orders or social distancing.<sup>3</sup> In addition, in emerging market economies with uneven access to clean water and health care, the poor may be less likely to be able to receive medical support; and around urban centers, the poor may be more likely to live in densely populated housing, making social distancing difficult. Mitigation measures have also led to disruptions in some public services, disproportionately affecting children in poor or vulnerable families who are likely to rely more on social programs (e.g., nutrition and early childhood programs) and are often unable to access distance learning opportunities due to the lack of learning resources, digital connectivity, and information.<sup>4</sup> The shift of public resources toward the public health emergency can also pose a risk to sexual, reproductive, and maternal health services, particularly where health system resources are highly constrained.<sup>5</sup>

**4. Evidence from past pandemics and output losses confirms concerns that the crisis may lead to higher inequality (Figure 3).** Notably, an analysis based on past pandemics suggests that events of this kind are associated



<sup>1</sup> IMF (2019a).

<sup>2</sup> IMF (2018b); IMF (2017a).

<sup>3</sup> Mongey and others (2020).

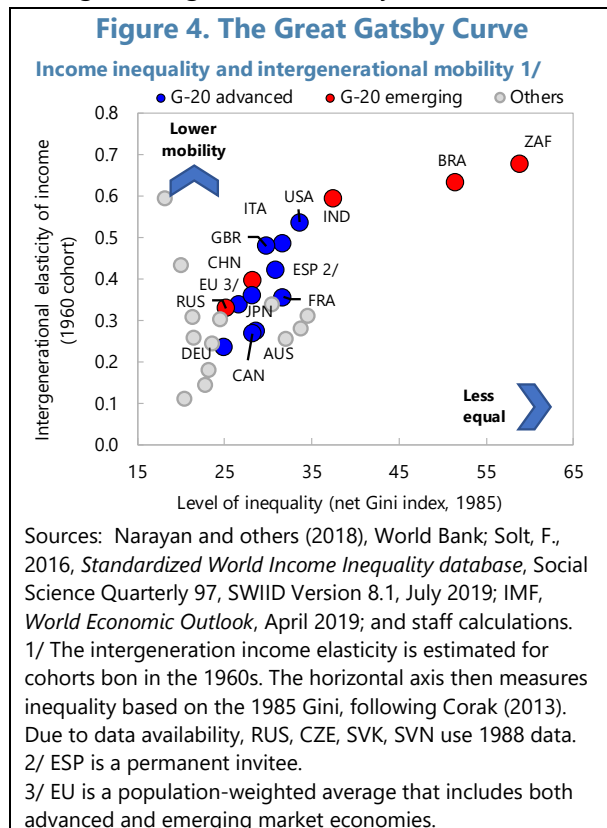
<sup>4</sup> Vulnerable here refers to those who were not poor before the pandemic but are at a high risk of becoming so as a result of the pandemic’s health or economic impacts.

<sup>5</sup> During past Ebola crises, increases in maternal mortality were reported partly due to reduced access to health services and fear of contagion in maternity wards. Likewise, limits on access to reproductive health might increase unwanted pregnancies, particularly among adolescent girls from low-income backgrounds. (Korkoyah and Wreh, 2015; Minor, 2017).

with increases in income inequality.<sup>6</sup> Moreover, economies with larger output and employment losses in the initial aftermath of the global financial crisis registered greater increases in income inequality compared with their pre-crisis average. Hence, as the global economy is currently experiencing large output losses amid the spread of COVID-19 and essential mitigation measures, inequality is likely to be adversely impacted. In addition, the crisis may have negative implications for gender equality in light of closures of schools, which may have disproportionately impacted working mothers, and as the decline in employment related to social distancing has had a large impact on sectors with high female employment shares. Conversely, long-term benefits, including for women, may result from higher prevalence of flexible work arrangements.<sup>7</sup>

**5. Moreover, the impact of COVID-19 is likely to exacerbate pre-existing sources of inequality and may therefore worsen social mobility and longer-term inequality.** Inequality of opportunity refers to disparities between groups in a society, differentiated by circumstances over which individuals have no control, such as parental background, gender, ethnicity, and location.<sup>8</sup> In this respect, higher levels of pre-existing inequality of opportunity in society are likely associated with greater and longer-lasting impacts on disadvantaged groups from the pandemic, as these groups may be more likely to need to sell productive assets and have less resources to invest in their children’s education. In turn, this could lead to greater inequality in capital accumulation (human and physical), causing social mobility to decline and income and wealth inequalities to widen, unless policies are available to mitigate the long-lasting impacts of the crisis.

**6. When social mobility is low, inequality is often passed down through generations, highlighting the risk that heightened inequality will leave lasting scars.** In countries where inequality is high (toward the right in Figure 4), children often end up later in life with similar position on the income scale as their parents—that is, the intergenerational elasticity of income is



<sup>6</sup> Furceri and others (2020).

<sup>7</sup> Alon and others (2020).

<sup>8</sup> Inequality of opportunity is often measured as the share of total inequality attributable to exogenous circumstances (such as family background, location, gender, etc.). It is associated with gaps between groups in access to opportunities, such as quality education, early childhood services, adequate nutrition, health care, basic infrastructure, and jobs. See, for example, World Bank (2005) and Ferreira and Peragine (2015) for a description of the concept and a review of the literature.



high (or, put differently, intergenerational mobility is low) (further toward the top in Figure 4).<sup>9</sup> This relationship is popularly known as the Great Gatsby Curve as introduced by Alan Krueger based on Miles Corak's data on intergenerational mobility.<sup>10</sup> A similar relationship is observed regarding the persistence of educational outcomes across generations, which has seen only moderate signs of improvement over time.<sup>11</sup> Hence, without policy action to address uneven access to opportunities, any increase in inequality may affect people's well-being for generations to come.

**7. Enhancing access to opportunities can make growth more inclusive and lift intergenerational mobility.** A certain extent of income and wealth inequalities between people is inevitable in a market-based economy as a result of differences in effort, innate abilities, or saving-investment decisions, and provides incentives for effort, innovation, and enterprise. However, a substantial share of inequality reflects a waste of human potential, as it arises from the fact that people born into very different circumstances do not have equal access to opportunities, such as in terms of education, nutrition, or finance.<sup>12</sup> Complementing existing G-20 work (e.g., on Fostering Inclusive Growth and the Future of Work), this note makes the case that enhancing access to opportunities benefits intergenerational mobility and supports more durable and inclusive growth. This goal is relevant both in the context of identifying policies to support the recovery from the COVID-19 crisis and for developing a strategy to reach strong, sustainable, balanced, and inclusive growth and increase resilience to future shocks. In particular, policies to foster a lasting and shared recovery from the current pandemic would need to address the underlying structural factors that have constrained access to opportunities also before the pandemic. Doing so will reduce the risk that the crisis leads to permanent increases in inequality and, with that, a lower trajectory of social mobility and living standards over time. Hence, this note focuses on the overarching benefits of enhancing access to opportunities and the policy considerations for doing so.

## GAPS IN ACCESS TO OPPORTUNITIES ARE SIZABLE

**8. Significant gaps in access to opportunities exist across many aspects of life.** Already at birth, stark differences in wealth levels can manifest in differences in health and growth of children. There may also be uneven access to high-quality education—including in the early childhood years—given differences in costs and distance from the home. In the labor market, gaps exist across age, gender, and geographic areas, as well as in the degree of labor market informality. Moreover, uneven access to technology or finance may impact the experience in the labor market and hinder small firms'

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<sup>9</sup> Imagine two generations of adults standing on different rungs of the same economic ladder, where the rungs indicate one's economic success relative to everyone else based on, for example, lifetime income. The intergenerational elasticity of income measures the extent to which every individual's position on the economic ladder is independent of the position of the individual's parents, with higher elasticity indicating greater persistence in outcome from parent to offspring and lower intergenerational mobility. See Narayan and others (2018).

<sup>10</sup> Krueger (2012); Corak (2010).

<sup>11</sup> See Narayan and others (2018).

<sup>12</sup> See World Bank (2005). Recent empirical literature suggests that greater inequality of opportunity could adversely affect future economic growth for a society (e.g., Marrero and Rodriguez, 2013; Marrero and others, 2016).

ability to innovate and grow. In addition, socio-economic disparities in access to health, education, and basic services are markers of inequality of opportunity and are associated with deprivation in non-monetary aspects of well-being, as captured by multidimensional poverty indices. According to the multidimensional poverty measure published by the World Bank (which includes the dimensions of monetary poverty, education, and access to basic infrastructure), almost one out of every five people in the world (18.3 percent) lived in a household deprived in one or more of these dimensions in 2013.<sup>13</sup>

## A. Gaps in Early Years Constrain Human Capital Development

**9. Differences in outcomes often reflect that children born into low socioeconomic status are more likely to be negatively impacted by poor nutrition and health risks.** At the prenatal stage, mothers from disadvantaged backgrounds are more likely to be exposed to environmental factors such as pollution, stress, and violence; have lower access to medical care and family planning services; and have lower levels of health and nutrition. This impacts children's health and development and constrains human capital formation. Numerous studies (e.g., from the *Netherlands, United States, Ukraine, and Sweden*) have found that children exposed to various shocks in utero (e.g., influenza, malnutrition, radiation, or excessive alcohol consumption) tend to have worse outcomes in adulthood in terms of health, education, and/or earnings. Child malnutrition—which is often the combined effect of prenatal and postnatal disadvantages in the nutritional and health environment—can also generate learning difficulties, poor health, and lower productivity and earnings over a lifetime.<sup>14</sup> Thus, skill gaps between individuals can open up early in life, including in both cognitive and non-cognitive abilities, and, hence, interventions for disadvantaged children can have high economic benefits, as compared to remedial efforts later in life.<sup>15</sup>

**10. Low socioeconomic status is also linked to greater risks of disease and morbidity during pandemics such as COVID-19.** For example, income and wealth inequalities are linked to greater crowding especially in urban areas, lower access to basic infrastructure—including sanitation—and higher prevalence of pre-existing health conditions, which increases the risks of exposure to infectious diseases among disadvantaged groups. In many high-income countries, women are more likely to seek health care than men, even after adjusting for reproductive care visits.<sup>16</sup> In addition, less access to information and health care resources during health crises can worsen the spread of communicable diseases and the health outcomes among vulnerable groups, potentially exacerbating socioeconomic disadvantages.<sup>17</sup> Key services such as sexual and reproductive health may be interrupted during public health emergencies, with negative consequences for women.<sup>18</sup>

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<sup>13</sup> World Bank (2018d).

<sup>14</sup> Aizer and Currie (2014); Currie (2009); Alderman and others (2006); Hoddinott and others (2008).

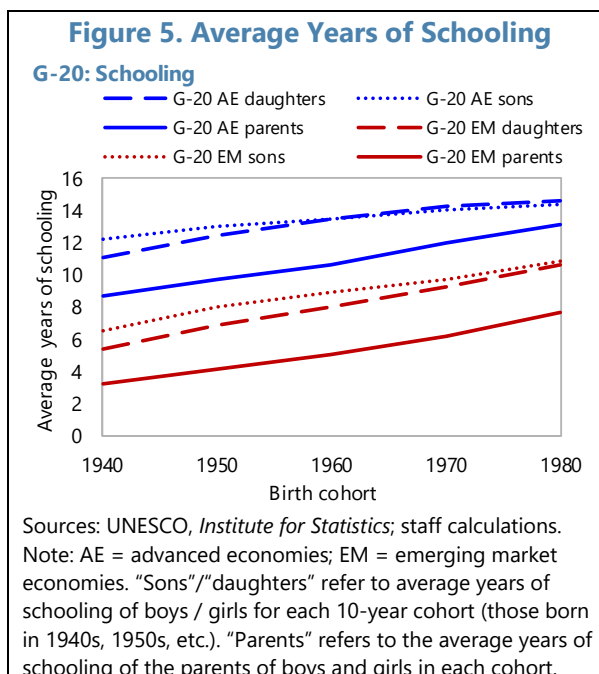
<sup>15</sup> Cunha and Heckman (2009).

<sup>16</sup> Bertakis and others (2000).

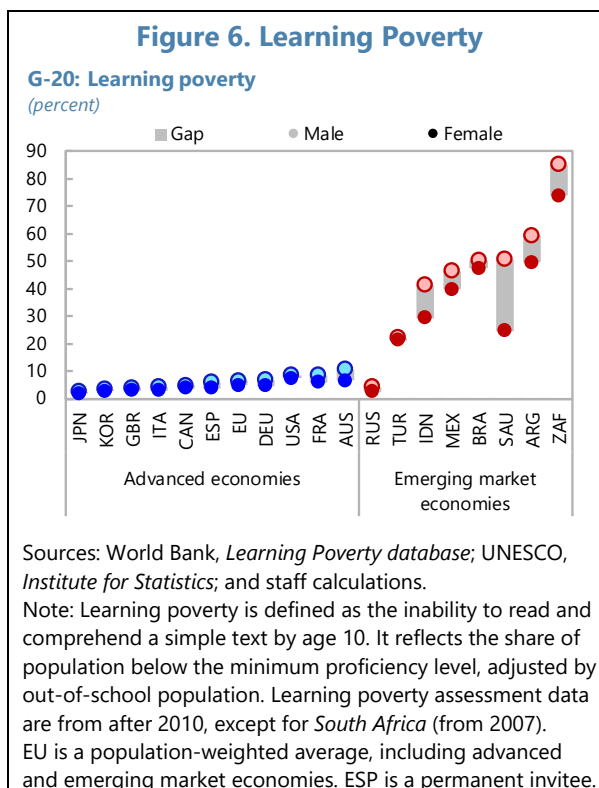
<sup>17</sup> Kumar and Quinn (2011) explore the role of these factors in determining policies to prepare for an influenza pandemic in *India*.

<sup>18</sup> UNDP (2015); Seymour (2016).

**11. While educational attainment in terms of years of schooling has improved, gaps remain.** Across the G-20, educational outcomes have generally improved, with children consistently having higher levels of schooling than their parents, and with gender gaps narrowing (Figure 5). In G-20 advanced economies, daughters have exceeded sons in terms of average years of schooling, and in G-20 emerging market economies, the gap in years of schooling between daughters and sons is almost closed. Nonetheless, resulting from a number of factors (e.g., differences in sectoral demand, capacity, and efficiency), people in advanced economies have on average between 3½ and 5½ more years of schooling than in emerging market economies, a gap that reflects differences in rates of secondary school enrollment as well as completion.



**12. A lack of basic skills acquisition, as reflected in learning poverty, also remains a challenge—in particular in emerging market and low-income countries.** Learning poverty—defined as the inability to read and comprehend a simple text by age 10—remains an acute problem among low- and middle-income countries (Figure 6).<sup>19</sup> While learning poverty is below 10 percent in many G-20 advanced economies, it is markedly higher in emerging market economies—and is higher for boys than for girls.<sup>20</sup> The prevalence of learning poverty is largely due to wide disparities in learning outcomes between children who are born with advantages and those who are not—in terms of differences such as regarding parental income and education, gender,



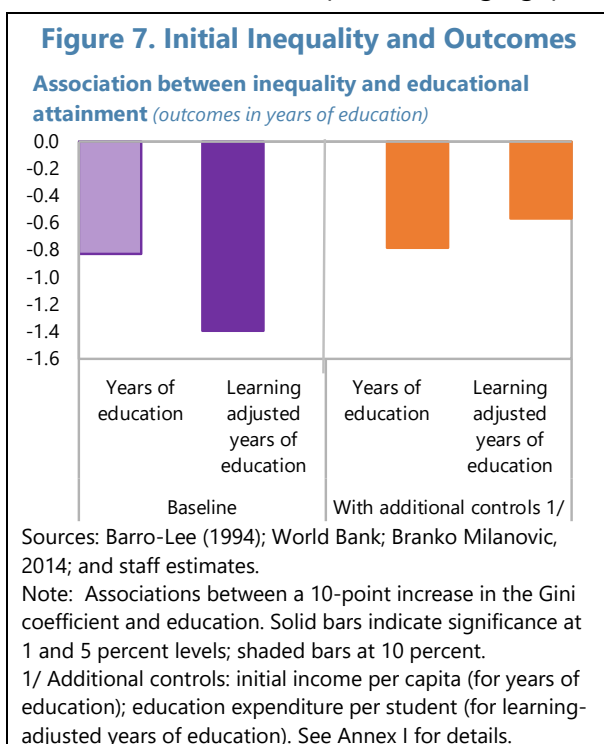
<sup>19</sup> World Bank (2019b).

<sup>20</sup> Azevedo and others (2019); Crawford and others (2019). Low- and middle-income countries are defined as IDA, Blend, and IBRD countries under the World Bank lending classification. They include six IBRD countries that now qualify as high-income countries: *Chile, Croatia, Panama, Poland, Trinidad and Tobago, and Uruguay*.

location, and race.<sup>21</sup> Moreover, as children of low socioeconomic status often grow up in challenging social environments that can limit their aspirations for the future, discourage investment in education, and feed into low educational mobility across generations, a vicious cycle can emerge.<sup>22</sup> Finally, the disruption of services and school closures due to COVID-19 can lead to an increase in care-related tasks, likely impacting girls more than boys. Among boys, pressure to contribute to family income may increase amid tightening economic conditions, leading to school dropout.

**13. High learning poverty rates and poor health ultimately translate into human capital and productivity gaps.** As part of the Human Capital Project, research at the World Bank has examined the impact of the socio-economic gradient on the Human Capital Index (HCI), which measures the amount of human capital a child born today can expect to attain by age 18, given the risks of poor health and poor education in the child’s country of residence. The evidence points to large gaps in human capital outcomes within countries, accounting for nearly one-third of the total variation in the socioeconomically disaggregated HCI index.<sup>23</sup> These gaps in human capital are particularly critical in the context of rapid technological change<sup>24</sup> and can help explain earnings differentials between people.<sup>25</sup>

**14. Consistent with these findings, an empirical analysis confirms that outcomes tend to be worse where initial inequality is higher.** Empirical associations for 59 countries show a strong link between initial inequality and low educational attainment, measured in terms of years of education and learning-adjusted years of education (Figure 7). A 10-point higher initial level of the income Gini—for example corresponding to the difference in the degree of inequality between *Russia* and *Germany*—is associated with lower



<sup>21</sup> For example, socioeconomically disadvantaged students across OECD countries are almost three times more likely than advantaged students to not attain the baseline level of proficiency in science in the relevant Program for International Student Assessment (PISA) tests among 15-year-old students (OECD, 2016a). Across nine countries in the Middle East and North Africa (MENA) region, gender, parental education, family background, and location account for a sizable share of total inequality in mathematics and science test scores (Salehi-Isfahani and others, 2014).

<sup>22</sup> World Bank (2005); Ritterman, Weintraub, and others (2015); Ross (2016).

<sup>23</sup> Avitabile et al. (2020).

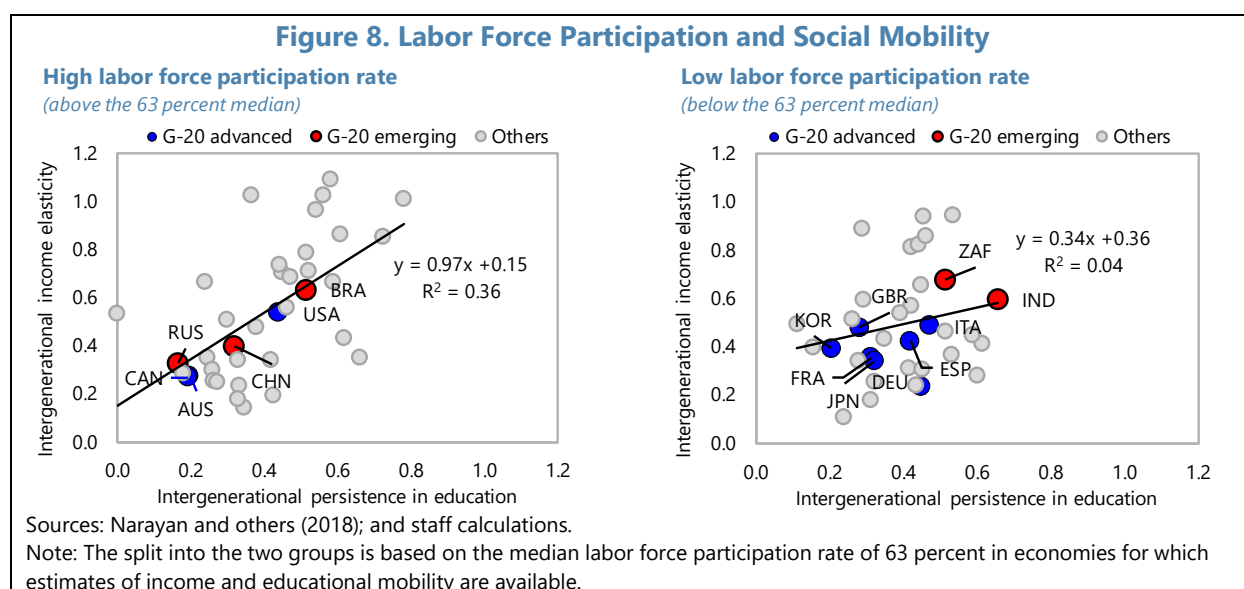
<sup>24</sup> Even as the demand for technological skills rises, and despite fairly widespread inclusion of computer skills in school curricula globally, the evidence on the effect of ICT interventions in terms of learning outcomes is mixed. See World Bank (2018a) for a brief overview of the evidence on the impact of ICT on learning and a discussion of conditions under which ICT can enhance learning.

<sup>25</sup> Hanushek and others (2015); Valerio and others (2016).

educational attainment in terms of learning-adjusted years of schooling of nearly half a year—with a bigger impact in unadjusted terms. And these results are robust to the inclusion of other controls.

## B. Gaps in the Labor Market Impact Life-Time Earnings

**15. The initial experience when entering the labor market is crucial for earnings throughout life.** Entering the labor market during recessions can have adverse long-term effects on the income of new entrants relative to older cohorts. And this effect is more acute for relatively disadvantaged entrants—highlighting the impact on an individual’s income trajectory of potential constraints to accessing high-quality education. A study in *Canada* found that the least advantaged college graduates (in terms predicted earnings based on prestige of school and course major) may suffer a cumulative earnings loss of 8 percent from joining the labor market during a recession—four times as high as the earnings loss of the top graduates.<sup>26</sup> In addition, translating human capital into income gains tends to be easier where access to the labor market is higher. Correspondingly, while higher intergenerational education mobility tends to be correlated with higher mobility in income, the correlation is stronger where the labor force participation rate is higher (Figure 8).



<sup>26</sup> Predicted earnings are estimated with a linear regression of wages on college attended, program of study, years of study, and other controls. As individuals are likely to be sorted into colleges, the predicted earnings differences thus capture variation in innate ability and college quality. See Oreopoulos, van Wachter, and Heisz (2012). Further, parental income may play an important role in college access. For example, evidence from the *United States* shows that children with parents in the top 1 percent of the income distribution are 77 times more likely to attend an Ivy League college than children of parents in the bottom quintile (Chetty and others, 2017).

## Labor Market Gaps are Particularly Wide Across Age and Gender

**16. Youth and women face sizable gaps in the labor market.** These gaps exist across the G-20 and elsewhere, and with notable challenges in the Middle East and North Africa (MENA) region (Box 1).

- **Youth are often excluded from the labor market.** While inactivity rates for youth vary across the G-20, high inactivity rates are often observed among emerging market economies (e.g., *India, South Africa*)—in particular for women—though with some advanced economies also facing challenges (e.g., *Italy, Spain, United States*) (left-hand panel of Figure 9). Within the G-20, close to 20 percent of female youth are neither in employment, education, nor training (NEET)—well above that for male youth. Moreover, while there are structural labor market factors that influence participation rates for youth, education also plays an important role, with more educated people less likely to be inactive, less likely to be involuntarily underemployed, and more likely to hold formal employment—highlighting the need for enhancing access to opportunities for all.<sup>27</sup> Similarly, learning poverty is often associated with low labor market outcomes for youth from disadvantaged backgrounds.<sup>28</sup>
- **Gender gaps in labor force participation persist.** Despite an increase in female labor force participation over the past decades across most G-20 economies, gender gaps remain, especially among low-skilled women (right-hand panel of Figure 9). In G-20 advanced economies, female labor force participation among 15–64-year-olds is on average about 11½ percentage points below that of men—with sizable gaps in particular in *Italy, Korea, and Japan*. In G-20 emerging market economies, the gap is wider at 29½ percentage points—with gaps of above 50 percentage points in *India and Saudi Arabia*. Furthermore, progress in reducing pay gaps has been slow, and in many G-20 economies, women still face the burden of unpaid work. For example, in *Mexico*, women spend on average about 7 hours per day in unpaid work, while in *Japan* they spend around 3½ hours per day.<sup>29</sup> Women are also underrepresented in leadership positions, making up less than 2 percent of financial institutions’ chief executive officers and less than a fifth of executive board members, despite a tendency for representation of women to lower bank risk.<sup>30</sup>

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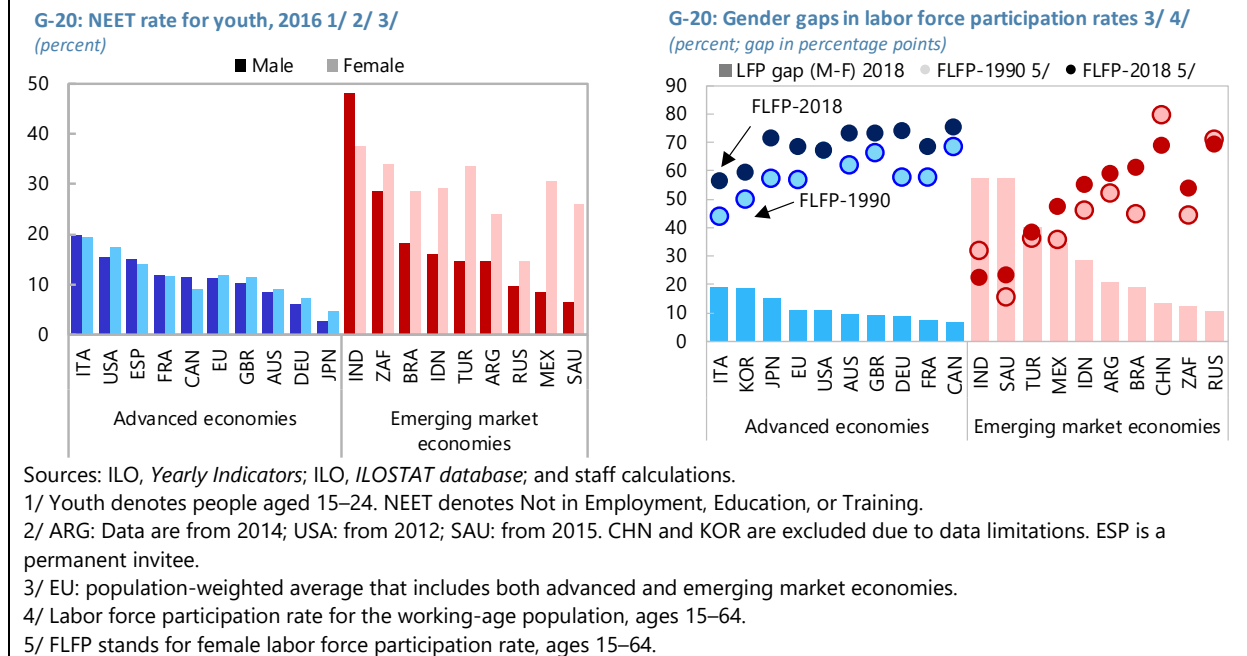
<sup>27</sup> Valetta and others (2020); Bussolo and others (2018).

<sup>28</sup> Ahn and others (2019); World Bank (2018a).

<sup>29</sup> Alonso and others (2019).

<sup>30</sup> Based on a large sample of countries across the world. See Sahay and others (2018).

**Figure 9. Youth and Gender Gaps**



**17. In some economies, legal restrictions on women amplify the impact.** Despite progress, many economies across the world still have in place at least one legal restriction on women’s economic participation. Such restrictions include limits on accessing institutions, rights to property (ownership, management, control, and inheritance), getting a job (e.g., restrictions on night shifts and on the type of jobs they can undertake), and accessing finance, as well as on the treatment in courts and protection against violence—all of which can greatly limit women’s participation in economic activity. IMF research—based on data from the Women, Business and Law database, constructed in a comparable manner for 190 economies and measuring legal differences between men and women as they transition through different stages of working life—has shown that for both advanced and emerging market economies, ensuring legal rights for women is strongly associated with a reduction in the labor force participation gender gap.<sup>31</sup> This is in addition to other factors that matter for gender gaps in labor force participation, such as demographics, education levels, and whether labor force participation policies are pro-women (e.g., tax policy disincentives for second earners, most of whom are women). Moreover, the inadequacy or lack of childcare and long-term care services impedes women’s access to jobs, as does unsafe and inaccessible transportation.<sup>32</sup>

**18. As socioeconomic disparities early in life tend to persist over the lifecycle, inequalities later in life exist across several dimensions.** For example, employment rates among OECD countries for those aged 55–64 are about 25 percentage points higher for men with high educational attainment

<sup>31</sup> Gonzales and others (2015); Hyland and others (2019); World Bank Women, Business and the Law database (<https://wbl.worldbank.org/>).

<sup>32</sup> ILO (2016).



than for those with low attainment. For women, the gap is even larger, at 29 percentage points. Among OECD countries, thirty percent of low-educated males aged 50–64 report being limited in paid work because of a health problem, while only 10 percent of men with high education levels report such concerns.<sup>33</sup>

## **Labor Market Informality and Polarization are Widespread Challenges**

**19. Despite some declines, the informal sector continues to account for a large share of activity—particularly in emerging market economies.** Informality, whether it is informal firms or informal workers, can take on different forms, and the patterns of informality can vary significantly both within and across countries. The size of the informal sector—if measured in terms of the share of informal output in official GDP—currently corresponds to one third of GDP in emerging market and developing economies, as compared to about 39 percent of GDP in 1990. Even in advanced economies, the informal economy accounts for 17 percent of GDP, down from around 21 percent in 1990.<sup>34</sup> And while the extent of informal employment in advanced economies is aligned with the share of informal output, in emerging market and developing economies, nearly 70 percent of all employment is informal.<sup>35</sup> In some countries, women are largely engaged in informal work and other vulnerable forms of employment, including self-employment in small subsistence businesses and domestic work. While informality can be the result of exclusion of employees or firms from the formal economy or from a desire to circumvent taxation, evidence suggests that the informal sector employs lower-skill workers, is less productive, and offers less safety net protection against shocks.<sup>36</sup> Informality is often also associated with lower wages, contributing to inequality. Alongside, non-traditional work contracts (e.g., in the “gig” economy) are impacting the nature of jobs, allowing for new types of work with a higher degree of self-employment.

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<sup>33</sup> OECD (2017a).

<sup>34</sup> World Bank (2019a).

<sup>35</sup> Informal output and informal employment are aligned in Europe and Central Asia, Latin America, and Caribbean and Middle East and North Africa regions, but informal employment is much more prevalent than informal output in East Asia Pacific, South Asia, and Africa regions (World Bank, 2019a).

<sup>36</sup> Messina and Silva (2018) find a wage penalty associated with informality across a sample of Latin American countries; they find that the penalty tends to be larger for low-earning workers, resulting in higher wage inequality.



### Box 1. Access to Opportunities in the MENA Region<sup>1/</sup>

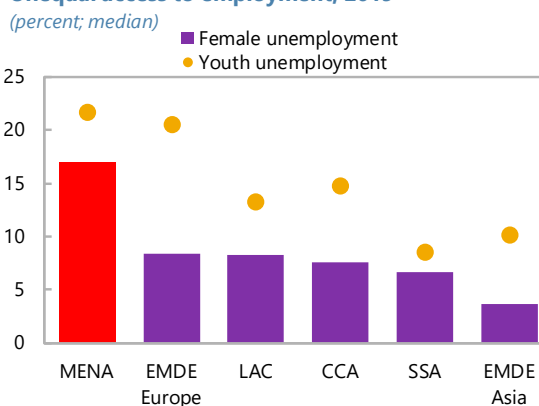
**The Middle East and North Africa region (MENA) has seen significant socioeconomic progress, though challenges to broaden opportunities for all are many.**<sup>2/</sup> Between 1990 and 2010, MENA enjoyed strong gains in per capita GDP and indices of human development increased rapidly. These gains were amongst the highest across regions worldwide. However, since then, falling oil prices, slowing structural transformation, and regional security pressures have made progress more challenging. In addition, inclusion has remained weak and poverty has stayed high, as job creation has not kept pace with the young and growing labor force.

**Mobility in income appears to have fallen behind mobility in education.** Average intergenerational mobility in education among economies in the MENA region is well above the developing economy average. However, income mobility in several countries (e.g., *Egypt, Morocco, and Tunisia*) is markedly lower than what would be expected (relative to other countries) for their educational mobility. Thus, economic opportunities in these countries may have fallen behind the rising expectations of an increasingly educated population.<sup>3/</sup>

#### Many people lack access to opportunities.

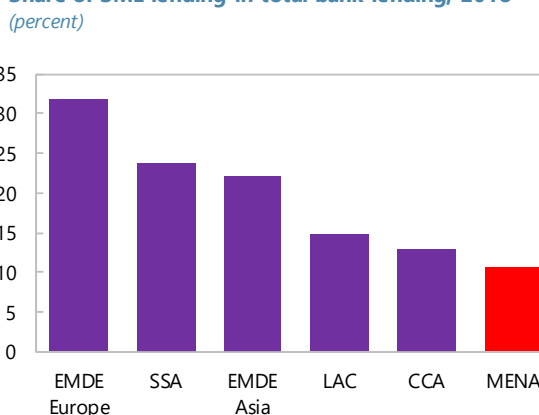
- *Access to employment.* Economic growth has been biased towards capital-intensive sectors, slowing the pace of job creation. Notably, progress in shifting to high-productivity, higher-wage sectors like banking, telecommunications, and transport has been slow. Youth and women are particularly impacted, with median unemployment rates in 2019 of 21½ and 17 percent, respectively. Women are three times less likely than men to participate in the labor force, with the female labor force participation rate the lowest of any region in the world. Moreover, displacement and insecurity resulting from conflict hinder access to jobs and can lead, over the medium-term, to de-skilling.<sup>4/</sup>
- *Access to education.* The share of people obtaining an upper secondary education degree is low relative to other emerging markets. Moreover, the efficiency of education spending leaves room for improvement in some countries where students score relatively low on standardized tests—given those countries' levels of public education spending.

**Unequal access to employment, 2019**



Sources: ILOSTAT; and staff calculations.

**Share of SME lending in total bank lending, 2018**



Sources: IMF, *Financial Access Survey*; and staff calculations.

<sup>1/</sup> This Box was prepared by Oluremi Akin-Olugbade, Lahcen Bounader, Kerstin Gerling, Galen Sher, and Vahram Stepanyan.

<sup>2/</sup> MENA includes: Afghanistan, Djibouti, Algeria, Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, United Arab Emirates, Yemen, West Bank and Gaza.

<sup>3/</sup> Narayan and others (2018). MENA here does not include Afghanistan and exclude some other countries owing to lack of data.

<sup>4/</sup> Purfield and others (2018).

### Box 1. Access to Opportunities in the MENA Region (concluded)

- *Access to finance.* Among emerging market economies in MENA, only 46 percent of adults own an account at a financial institution, compared to 60 percent of adults in emerging market economies worldwide. Moreover, the low account ownership rates reflect to a notable extent a sizable gender gap, which at 17 percentage points is larger than in any other region. Corporations also face limitations, with credit constraints arising from an underdeveloped banking system. Where credit is available, banks often direct lending to large, well-established firms. As a result, small and medium-sized enterprises (SMEs) receive only 11 percent of bank lending in MENA, compared to 22 percent in EMDE Asia.
- *Access for businesses to grow.* Across the MENA region, private sector development has been held back by the crowding-out effect of large public and informal sectors. Starting a business in the region is more costly and requires a higher minimum capital than in other emerging market and developing economies. This inhibits firm dynamism, while barriers to entry hinder competition. Furthermore, government subsidies, tax exemptions, and administered prices result in preferential treatment of some firms, which may curb incentives for enhancing productivity. More than half (55 percent) of firms in MENA cite corruption as a major constraint to doing business.
- *Access to public infrastructure and social services.* In many economies in the region, relatively high public sector spending on wages (at an average 11 percent of GDP) and non-targeted subsidies (mainly on energy and food products) coincide with relatively low levels of public investment and social spending (at an average 7.6 and 12 percent of GDP, respectively). In turn, this is reflected in weak service delivery, especially in the areas of education and health care, and—in many fragile countries in the region—drinking water and electricity. Social spending is often regressive, with the wealthiest fifth of households receiving more social protection payments than the poorest two-fifths (in all 11 MENA countries where data are available).<sup>5/</sup> Fragile and Conflict Affected Countries (FCS) oftentimes struggle with providing affordable and equitable access to psychosocial and mental health services to conflict-affected populations.

**Amid sizable gaps in access to opportunities, policy action is needed.** This would include facilitating access to finance, improving the business climate and governance, removing barriers to women's economic participation, facilitating employment through labor market reform, and increasing the level and efficiency of social and capital spending.<sup>6/</sup>

<sup>5/</sup> Those include Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Mauretania, Morocco, Saudi Arabia, Sudan, and Tunisia.

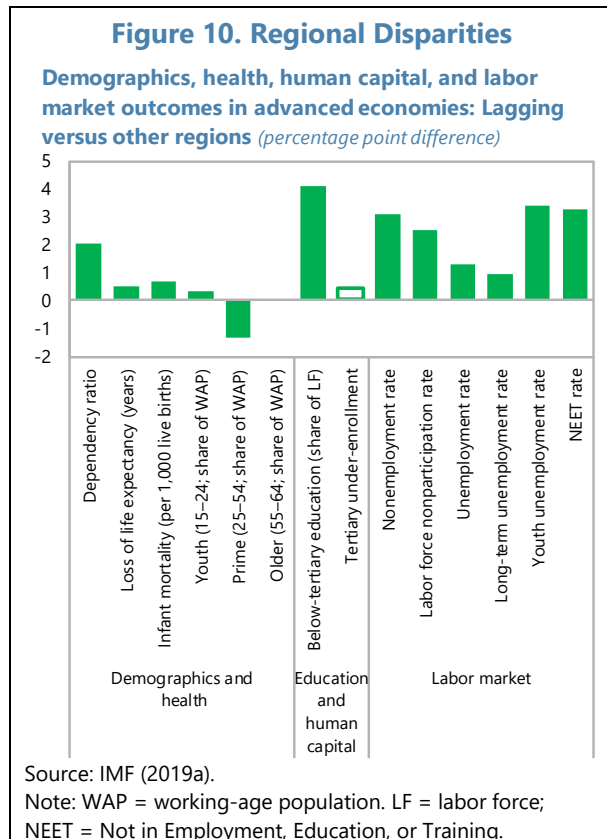
<sup>6/</sup> For further details on the MENA region, see International Monetary Fund (forthcoming).

**20. In advanced economies too, the ongoing job polarization has implications for the economic security of lower-skilled workers and younger generations.** A fall in the share of middle-skill jobs and an expansion of high-skill and low-skill jobs have displaced many workers in occupations intensive in routine tasks.<sup>37</sup> While some of these workers may benefit from increasing demand from high-skill occupations, others face a reduction in labor market earnings as they become employed in low-skill occupations. In addition, an increase in labor market duality in advanced economies implies that people become increasingly more affected by nonstandard (part-time or temporary) work contracts and shorter job tenure, leading to higher levels of inequality. Moreover,

<sup>37</sup> Autor and Dorn (2013); Goos and others (2009); Bussolo and others (2018); IMF (2018b).

occupational licensing, when it is too restrictive, may hold back job-to-job transitions as well as transitions in and out of employment.<sup>38</sup>

**21. Adding to these challenges is the fact that access to opportunities is unequally distributed across geographic regions within countries.** Spatial disparities in advanced economies are reflected in worse social outcomes in lagging versus other regions, including in terms of health, human capital, and labor market outcomes (Figure 10). In addition, a recent World Bank analysis of territorial convergence in the MENA region shows that these spatial disparities can be sizable in emerging market economies. For example, the share of population completing primary school varies by 40 percentage points or more across subnational regions in several countries.<sup>39</sup> Essential public services, such as electricity, can be an important input for home-based micro-enterprises. In this respect, large inequalities in access to such services remain



across geographic regions within countries, as close to a billion people around the world still lack electricity access in the home. Spatial disparities in access to connectivity infrastructure and services can also reduce the chance of developing agglomeration economies and, in combination with other factors, further constrain economic opportunities in lagging regions. Such disparities—as well as distortions in policies such as housing and land use—can also impose barriers to labor mobility, which affects the pace of economic transformation that is a key driver of productivity and job growth in many EMDEs.<sup>40</sup> When mobility of labor is limited, productivity shocks—such as technological change—that shift labor demand across regions can increase regional disparities within a country.<sup>41</sup>

**22. Alongside, several constraints at the firm level may be holding back firm dynamism and, hence, job creation.** For example, business dynamism has declined in the *United States* and *Canada*, with fewer young firms and less job creation by start-up companies. The performance of young firms

<sup>38</sup> Hermansen (2019).

<sup>39</sup> World Bank (2020a).

<sup>40</sup> Some estimates suggest that in low-income countries, reallocation from lower-productivity agriculture into relatively higher-productivity industry and services accounts for almost 80 percent of labor productivity growth (Merotto and others, 2018).

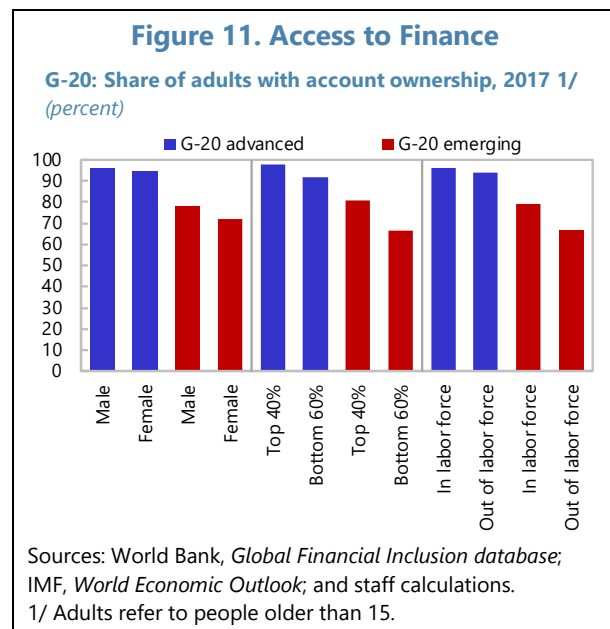
<sup>41</sup> Pritchett and others (2006).

in the rest of the OECD is more varied, but dynamism is declining in digital-intensive sectors.<sup>42</sup> Several factors may be contributing to these trends. To this end, evidence from OECD countries suggests that timely bankruptcy procedures, strong contract enforcement, and civil justice efficiency are important for dynamism. The trend of rising market power may also be partly responsible, as incumbents may effectively bar entry of new firms through price war, privileged access to partner firms, or lobbying. In addition, technological diffusion seems to be slowing, with persistent productivity gaps between leading and lagging firms, which may be contributing to weaker aggregate productivity.<sup>43</sup> In turn, these factors may hold back the expansion of innovative and profitable firms, with lost opportunities for job creation. In addition, economies with less flexible employment regulation as reflected in Doing Business Indicators tend to have larger informal sectors, which can hurt employment and productivity.<sup>44</sup>

### C. Finance and Technology is Not Equally Accessible to All

**23. Financial exclusion can occur for several reasons.** For example, people can be financially excluded if they live in regions without a physical presence of financial institutions, or if products are inappropriately designed or unaffordable. People may also exclude themselves if they mistrust the financial system, lack financial literacy, face discrimination, or lack exposure to financial services. In this respect, financial exclusion of women has been linked to legal discrimination, lack of protection from harassment, and lack of access to property (which could be used as collateral). Furthermore, people may be excluded if they are self-employed or employed through short-term contracts—a potentially increasing concern amid the rising importance of non-traditional contracts such as in the “gig” economy. Insufficient proof of identity through official identification may limit access to education, healthcare, employment, social transfers, the legal system, bank accounts, or acquiring a SIM card, especially in low-income countries. Moreover, financial exclusion can persist if the absence of credit history is seen as a sign of risk.<sup>45</sup>

**24. Despite progress, many people remain excluded from full access to financial services.** The world has made substantial advancement in



<sup>42</sup> Carey and others (2016); Decker and others (2016); Haltiwanger (2012); Calvino and Criscuolo (2019); OECD (2016b).

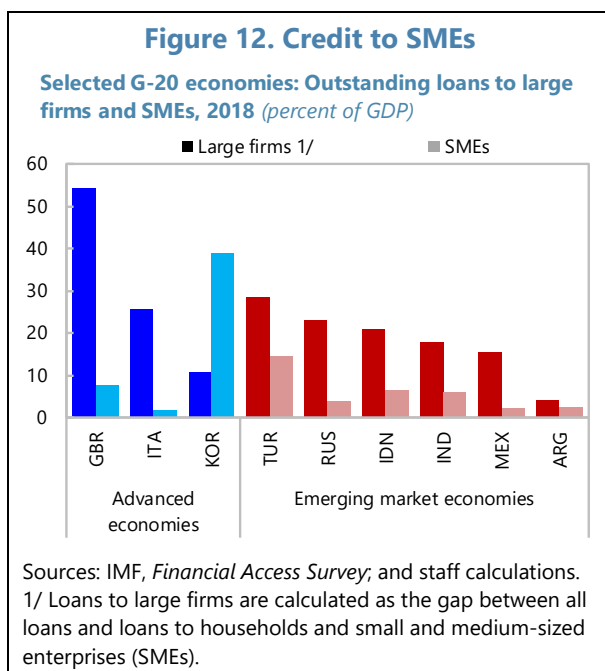
<sup>43</sup> Calvino and others (2016); De Loecker and Eeckhout (2017); Adler and others (2017).

<sup>44</sup> World Bank (2020b).

<sup>45</sup> Kempson (2000); Aslan and others (2017); Deléchat and others (2018); World Bank and Center for Global Development (2018); World Bank (2018a).

financial inclusion, with 800 million adults obtaining bank accounts worldwide between 2011 and 2017. Yet, as of 2017, 1.7 billion adults were still unbanked, and 2.9 billion adults did not borrow from a financial institution in the previous year (Figure 11). And the exclusion is not evenly distributed across the population, with the poor, the unemployed, the low-skilled, and women disproportionately more likely to be financially excluded. While low-income countries have increasingly adopted mobile money accounts, ownership of such accounts is less prevalent among the poor, the unemployed, and women.<sup>46</sup>

**25. In addition, gaps in access to finance occur among smaller enterprises.** Micro, small, and medium-sized enterprises (MSMEs) employ about half of all workers worldwide. Yet, many small businesses have difficulties obtaining credit to grow their businesses (Figure 12). Estimates suggest that some 65 million (or 40 percent of) formal MSMEs worldwide are credit constrained in the sense that they were fully or partially rejected in their loan application or were discouraged from applying for a loan, for example because of unfavorable terms and conditions.<sup>47</sup> Partly, this may reflect their risk profile relative to larger, more established firms, but unwarranted gaps in access may also be present. For example, comparing the borrowing of MSMEs in developing countries to the borrowing of firms of similar size and age in developed countries with higher access to finance, MSMEs in developing countries face a financing gap of about USD 5.2 trillion.<sup>48</sup> Among emerging and developing country regions, the MENA region has a particularly low share of SME lending in total bank lending (Box 1).



**26. To some extent, uneven access to finance relates to uneven access to technological advances.** While almost the entire world lives within reach of a mobile network, 47 percent of individuals—in particular women—do not use the internet and about 50 percent of households worldwide do not have a computer at home. And while the digital divide has narrowed in terms of the number of mobile/fixed-line telecommunication subscriptions per person, it has remained stubbornly wide in terms of internet download speeds, with speeds in emerging market economies struggling to

<sup>46</sup> Demircuc-Kunt and others (2018); Sahay and others (forthcoming).

<sup>47</sup> Bruhn and others (2017).

<sup>48</sup> Gonzales and others (2014); Bruhn and others (2017); <https://www.smefinanceforum.org/data-sites/msme-finance-gap>.

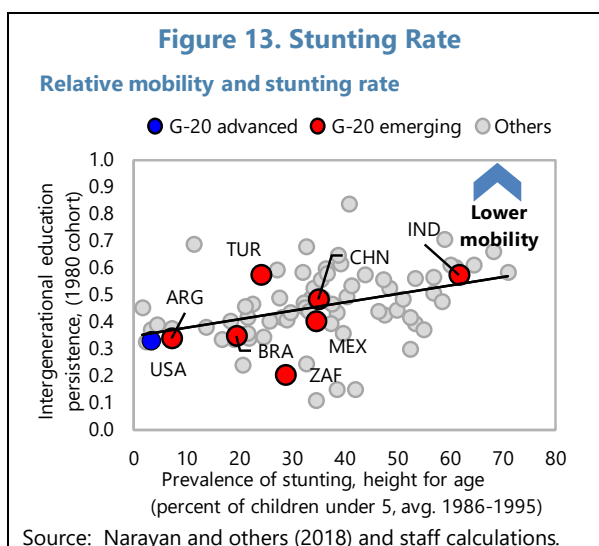
keep up with rising speeds in advanced economies.<sup>49</sup> In turn, this hinders people and firms from fully benefiting from digitization, including as it can limit the ability to use new ways of accessing finance.

**27. Furthermore, digitization is adding to challenges for older workers, hindering access to financial and other services.** Data from the Survey on Adult Skills show that, on average in OECD economies, a third of 55–65-year-olds lack computer experience or have failed core information and communication technology (ICT) tests, compared to only 5 percent of 16–24-year-olds.<sup>50</sup> Moreover, older generations may have preferences for traditional methods of transactions (e.g., cash payments, face-to-face services, paper statements), which may disadvantage them in a highly digitized environment.<sup>51</sup> There is also evidence of age discrimination in access to financial services—such as health insurance, travel insurance, mortgages, and loans—either through higher premiums or through denial of services, which can hinder access to basic services and housing and restrict mobility.<sup>52</sup> Add to this that pension systems, while generally progressive, only partially offset inequalities accumulated over the lifecycle.

## UNEVEN ACCESS TO OPPORTUNITIES HOLDS BACK INTERGENERATIONAL MOBILITY

**28. Wider disparities in child health outcomes are associated with lower intergenerational mobility.** As poor health in the early years adversely impacts lifetime outcomes, individuals are likely to stay within the same socioeconomic status as their parents, and, hence, have children that face the same challenges. For example, countries with higher prevalence of stunting among children of age five also tend to have lower rates of intergenerational mobility in education (Figure 13).

**29. In addition, access to quality education for children varies strongly by family income levels, limiting intergenerational mobility.** As the quality of education is to some extent influenced by the socioeconomic level of the neighborhood, children tend to end up with similar education levels as their parents. This has also been verified through micro-level national studies. For example, a study



<sup>49</sup> ITU (2019); Hilbert (2016).

<sup>50</sup> OECD (2017a).

<sup>51</sup> Note, however, that in an emergency context such as COVID-19, cash payments can present challenges in view of the social distancing measures that are in place.

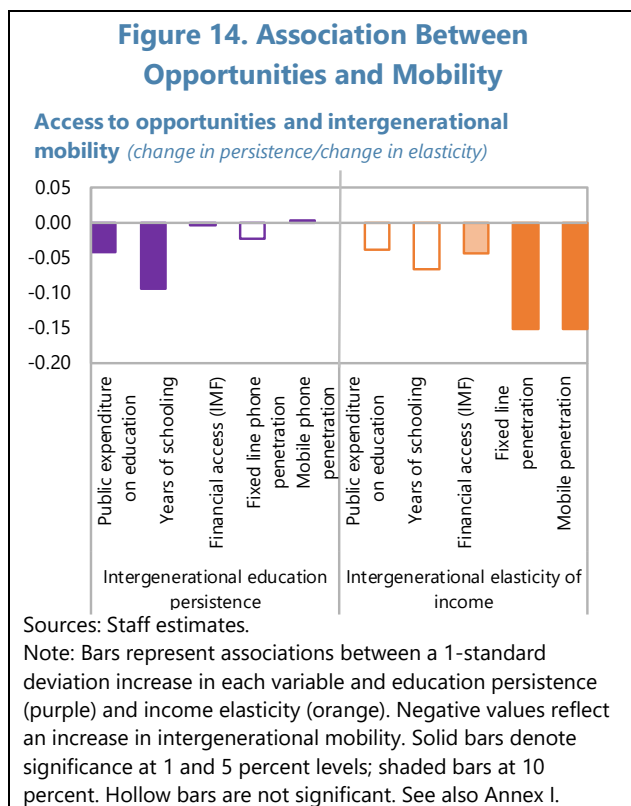
<sup>52</sup> GPFI and OECD (2019).

for the *United States* showed that areas with better school quality (measured in terms of income-adjusted test-scores and dropout rates) tend to have higher social mobility.

**30. Spatial disparities in access to opportunities within countries also constrain intergenerational mobility.** A World Bank report finds that across the world, economies with greater geographic inequality in education have lower levels of intergenerational mobility.<sup>53</sup> Notably, evidence from some countries suggests that neighborhood or community characteristics matter a lot for intergenerational mobility of residents. In the *United States*, at least half of the variance in intergenerational mobility is attributable to the causal effect of location, associated with a wide range of neighborhood characteristics such as quality of schools, concentration of poverty, income, racial segregation, and safety. In *Canada*, intergenerational mobility tends to be lower in census divisions with higher levels of poverty and income inequality and a higher share of employment in primary sectors.<sup>54</sup> In this respect, the social environment an individual is exposed to from a young age is particularly influential for long-term outcomes. The *United States* “Moving to Opportunity” experiment—in which households were randomly assigned a subsidized housing voucher with the requirement to move to a lower-poverty census tract—found that moving from high-poverty areas to more affluent neighborhoods relatively early in life improved college attendance and earnings.<sup>55</sup>

**31. Education and access to financial services and technology are key determinants of intergenerational mobility.**

- **Education.** An empirical analysis shows that intergenerational educational persistence (i.e., lower intergenerational mobility) is negatively and significantly associated with higher levels of public spending on education and more years of schooling (Figure 14, Annex I). For example, an additional 2.8 years of schooling<sup>56</sup> in a country with schooling levels as in *Mexico* (increasing the average number of school years to that in *Korea*, as measured in 1980)



<sup>53</sup> The same pattern is seen across states or provinces within several large countries (*Brazil, China, Egypt, India, Indonesia, Nigeria*) as well—greater geographic concentration by education level is associated with lower intergenerational mobility for the state or province overall (Narayan and others (2018), World Bank).

<sup>54</sup> Chetty and others (2014); Corak (2017).

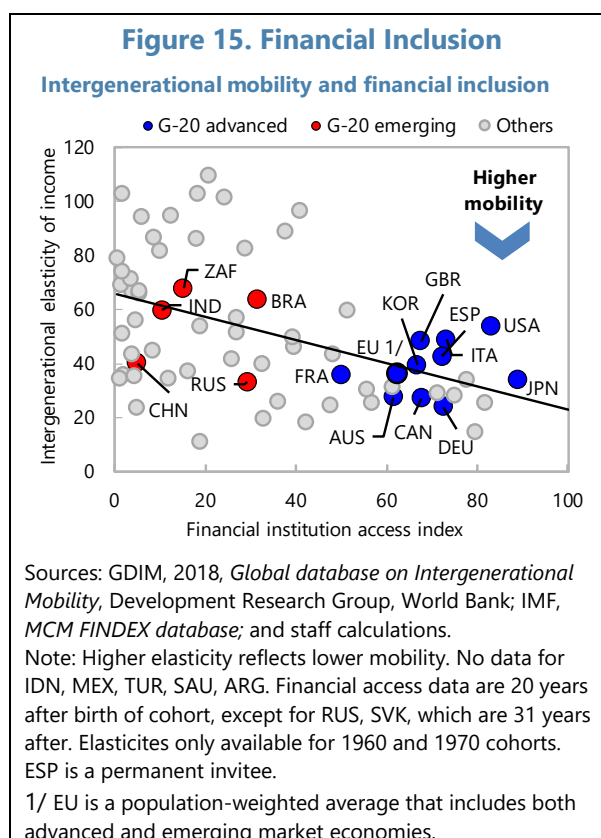
<sup>55</sup> Chetty, Hendren, and Katz (2016).

<sup>56</sup> About one standard deviation of sample educational attainment in 1980.



is associated with higher intergenerational educational mobility in the given country to a level corresponding to that observed in the *United States* (for the 1980s cohort)—that is, not only do children obtain more years of schooling in level terms, their individual educational outcomes are also less associated with the educational outcomes of their parents. This is consistent with previous findings that economies with more public investment in education often also have greater educational mobility across generations—in particular when considering the impact of primary education spending.<sup>57</sup>

- Financial services.** The analysis also confirms that countries with higher access to financial services tend to have higher intergenerational mobility in later years (Figure 15). This relationship does not seem to reflect simply the initial income per person of the country or its level of inequality (Figure 14). While in general, many factors can help explain why a society with higher levels of financial access is also one with higher intergenerational mobility (e.g., unobservable factors that may drive both greater mobility and greater financial development), a number of studies confirm the importance of financial inclusion for economic opportunities. For example, the financial system plays an important role in arbitrating who can start a business and who can pay for education. Moreover, access to finance can facilitate a reduction in inequality through benefits for the poor.<sup>58 59</sup>



- Technology.** Enhancing access to technology in terms of telecom penetration is associated with higher intergenerational income mobility. For instance, using telecom penetration rates as a proxy for access to technology, an increase in telecom penetration rates of 1 standard deviation (e.g., an increase that corresponds to lifting mobile phone penetration rates from the average rate in *Brazil* during 1990–2000 to the average rate in *Germany* over the same period) is associated with a reduction in income persistence in the given country corresponding to a reduction from the level in *Brazil* to the level observed in the *United States*.

<sup>57</sup> Corak (2013); Narayan and others (2018).

<sup>58</sup> Demirgüç-Kunt and Levine (2008).

<sup>59</sup> Empirical evidence from randomized control trials among rural households in the Philippines (Ashraf, Karlan, and Yin, 2006) and in Kenya (Dupas and Robinson, 2013) shows high savings and productive investments, particularly among women, from increased access to savings accounts.



## LOW INTERGENERATIONAL MOBILITY AND HIGH INEQUALITY HINDER GROWTH

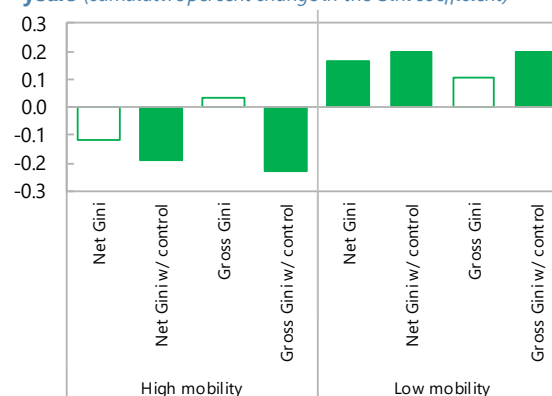
**32. Uneven access to opportunities can hamper growth.** For example, insufficient access to healthcare, with implications for human capital development from an early stage of life, would adversely impact productivity and growth. Moreover, if a sizable share of society is not getting sufficient education of adequate quality, owing to uneven access to opportunities, the productive potential of society is not realized, and productivity and growth are directly impacted. Hence, enhancing access to education can lift per-capita GDP growth, including by creating beneficial complementarities with technology and innovation.<sup>60</sup>

**33. Excessive inequality may weigh on long-term growth.** A positive link between inequality and growth may exist, for example as part of an inverted U-shaped relationship between inequality and economic development—the so-called Kuznets curve.<sup>61</sup> However, amid high inequality in many G-20 (and other) countries, some studies have emphasized negative longer-term effects of inequality through political and social instability, weaker incentives for human capital formation, and weaker institutions. For these reasons, lower net income inequality has often been associated with stronger and longer growth spells.<sup>62</sup> Moreover, the income distribution itself has been shown to matter for growth.<sup>63</sup> In contrast, where inequality is high, an adverse growth shock can have long-lasting consequences, as poorer families may find it harder to access education in downturns due to income and credit constraints—with longer-lasting consequences for human capital development and growth.<sup>64</sup>

**34. Where intergenerational mobility is low, benefits from structural reforms may also not accrue evenly across all citizens.** Growth-enhancing reforms raise income per capita and, on average, create jobs, which benefits most in

**Figure 16. Impact of Reforms on Inequality**

**Impact of structural reforms on inequality after 5 years (cumulative percent change in the Gini coefficient)**



Sources: IMF database; and staff estimates.

Note: Each bar represents the impulse response of a structural reform shock on the Gini when the intergenerational elasticity of income is high and low. An overall reform index is used, capturing an average of specific underlying reforms. Solid bars are significant at conventional levels. Some specifications control for the level of governance. See Annex II for details. Net Gini refers to inequality in household disposable income. Gross Gini refers to inequality in household market (pre-tax/transfer) income.

<sup>60</sup> See Narayan and others (2018) for a review. Also see Marrero and Rodriguez (2013); Marrero and others (2016).

<sup>61</sup> See Aghion, Caroli, and Peñalosa (1999) for a brief review of the literature.

<sup>62</sup> Ostry, Berg, and Tsangarides (2014).

<sup>63</sup> Dabla-Norris and others (2015).

<sup>64</sup> See for example Flug, Spilimbergo, and Wachtenheim (1996).

society.<sup>65</sup> However, previous IMF work on the growth-inequality tradeoffs of reforms has suggested that some growth-enhancing structural reforms, such as capital account liberalization, may be associated with a worsening income distribution over the medium term.<sup>66</sup> New empirical analysis shows that such associations may, on average, hold only when reforming countries have low intergenerational mobility and uneven access to opportunities (Figure 16, Annex II)—though further analysis is needed to understand how this may be relevant for specific types of reforms.<sup>67</sup>

## ACTION IS NEEDED TO ENHANCE ACCESS TO OPPORTUNITIES

**35. Many economies have acted to enhance access to opportunities.** Annex III, while not exhaustive, provides country examples of a variety of specific policy interventions to enhance access to opportunities. For example, *Australia* has introduced an income-contingent loan scheme to support higher education. *Brazil* has implemented a targeted financial aid program for poor families, which puts focus on ensuring children’s school attendance and vaccinations. *Japan* has taken a number of initiatives, including in public procurement, to enhance female labor market participation. *Canada* has put increased focus on gender budgeting. *India* lifted financial inclusion through technology-enabled identification systems. *Mexico* has adopted a financial inclusion strategy to enhance access to finance, which included policies to improve financial literacy and expand financial infrastructure in rural areas. But progress has also occurred elsewhere. For instance, *Saudi Arabia* has undertaken reforms to strengthen employment rights for women and has introduced schemes to subsidize transportation and childcare costs for lower-income women.

**36. However, amid persistent inequality, low intergenerational mobility, and uneven access to opportunities, further action is needed.** As constraints are present both in the early years of life as well as in productive years, policies will need to be tailored, depending on needs. The full set of policies for enhancing access to opportunities and supporting social mobility can be considered in terms of an overarching framework that aims to (i) enhance access to opportunities prior to entering the labor market (pre-market) to help prepare people for future activity; (ii) support participation in markets during the productive years, including as it impacts firm dynamism, and influence market settings and regulations (in-market); and (iii) implement enabling (post-market) fiscal and other policies that facilitate enhancing access to opportunities for all, including by supporting pre- and in-market interventions, and redistribute income to support the vulnerable. The framework is illustrated in Figure 17.

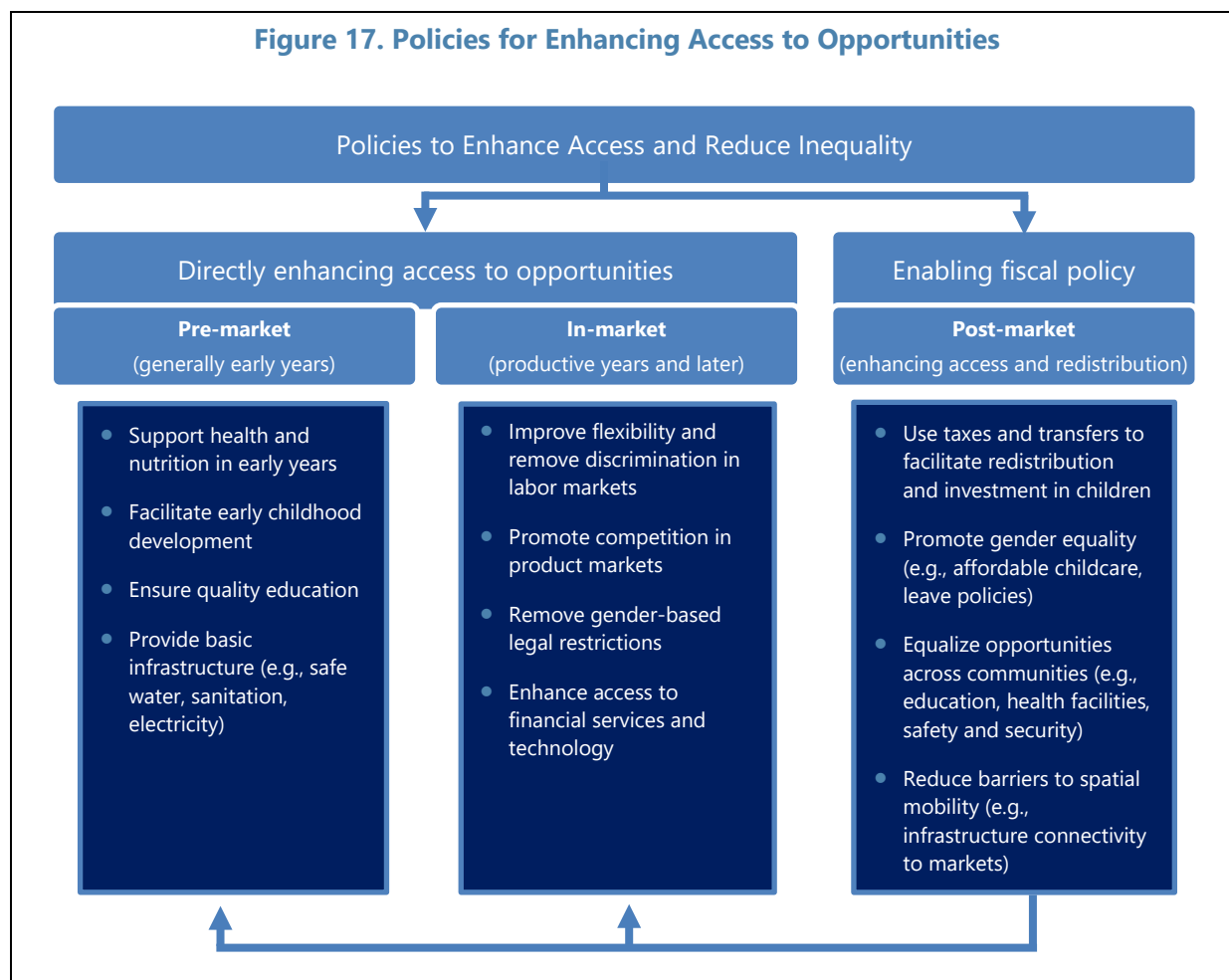
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<sup>65</sup> IMF (2016); IMF (2019b).

<sup>66</sup> Ostry and others (2018).

<sup>67</sup> See Aiyar and Ebeke (2019) for a discussion of the link between intergenerational mobility, inequality, and growth.

**Figure 17. Policies for Enhancing Access to Opportunities**



**37. Policies need to cover both systemic as well as targeted interventions.** Health care, education, programs for maternal and early childhood development, and basic infrastructure services must be provided for all citizens in the most efficient way, while ensuring that the poor and the vulnerable are able to access and afford these services. For example, there may be scope to enhance the overall efficiency of health care spending by reducing waste from inappropriate choice of care or medical expenditure or weak healthcare governance.<sup>68</sup> Similarly, structural reforms and the removal of disincentives to enter the labor market should be focused on leveling the playing field for all. However, targeted interventions may also be needed. This would, for example, be the case when there is a need to improve health and nutrition for disadvantaged groups to enhance maternal health and early childhood development, or to improve education, health, or infrastructure services in underserved communities in rural and urban areas to enhance local drivers of social mobility.

<sup>68</sup> For instance, evidence for the OECD shows that adverse events in hospitals (e.g., unintended injury or complication resulting in a disability at the time of discharge) add 13–16 percent in hospital costs, in many cases avoidable, while losses due to fraud in 7 OECD countries were estimated at 6.2 percent of total health spending. See OECD (2017b); World Bank (2019c).

**38. Moreover, in the context of severe global health events, such as the COVID-19 pandemic, preparedness is key, and multilateral cooperation is a must.** Policymakers must be willing to commit resources towards preparedness, and with broad participation of stakeholders. In responding to pandemics, coordinated multilateral action is critical for sharing knowledge, containing disease outbreaks, and ensuring the availability of financial and medical resources to combat the spread of the disease and mitigate the economic impact.<sup>69</sup>

## A. Pre-Market Interventions to Strengthen Health and Human Capital

### Enhanced Health and Early Childhood Development Would Benefit Lifetime Outcomes

**39. Enhancing access to health care and early childhood development would not only improve childhood wellbeing but also enhance individuals' chances of higher lifetime earnings.** Lost opportunities during childhood are difficult to offset through interventions later in life. To equalize opportunities early in life, investments to improve access to quality programs and services—in nutrition, health care, safe water, sanitation, and other basic infrastructure—are critical. Low quality of infrastructure and health care affect all, but they disproportionately affect children from disadvantaged backgrounds, who are more likely to be born with poorer health. In addition, interventions specific to mothers and children are particularly important to enhance opportunities in early stages of life.

- ***Interventions to support maternal health and nutrition in early childhood can enhance longer-term outcomes.*** Evidence from the *United States* shows that interventions aimed at disadvantaged women of childbearing age, including through the provision of health insurance, family planning services, and measures to curb domestic violence, are beneficial for infant health and longer-term child outcomes. In the *United States*, nutritional supplement programs, such as the Supplemental Feeding Program for Women, Infants and Children (WIC) and the Supplemental Nutritional Assistance Program (SNAP) have been shown to help reduce the proportion of low-birth-weight births among low-income mothers. In *Chile*, providing nutritional supplements to children with birthweight below 1,500 grams has been associated with subsequent improvements in mathematics test scores for children eligible to receive such supplements, compared with those just above the threshold. An evaluation of the long-term impact of the introduction of nutritious lunches in Swedish primary schools revealed that pupils exposed to the program during the entire primary school years had three percent higher lifetime earnings.<sup>70</sup>
- ***Early childhood interventions such as preschool programs can help strengthen both cognitive and noncognitive skills.*** Preschool programs and provision of center-based childcare can aid skill formation and provide a safe environment that facilitates the acquisition of skills. Such early interventions also positively impact skills acquisition at later stages in life.<sup>71</sup> For

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<sup>69</sup> Global Preparedness Monitoring Board (2019); IMF (2020b).

<sup>70</sup> Narayan and others (2018); Aizer and Currie (2014); Bharadwaj and others (2013); Alex-Petersen and others (2017).

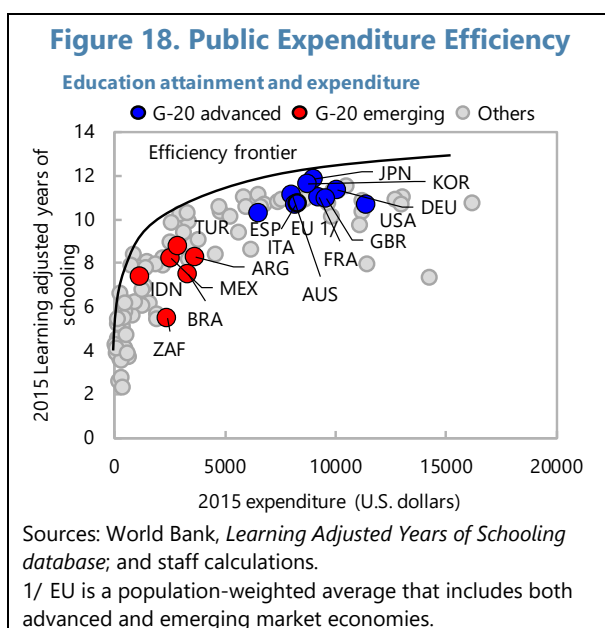
<sup>71</sup> Heckman (2006).

example, research based on randomized interventions with intensive preschool programs, such as the Perry Preschool and Abecedarian projects in the *United States*, found large long-term positive effects of such interventions on economic and social outcomes, partly because they improved noncognitive skills among children, starting at around age three. Moreover, such programs also display sizable benefit-to-cost ratios.<sup>72</sup> Head Start (a national pre-school program for low-income children in the *United States*) has been found to have beneficial effects on education and health outcomes.<sup>73</sup> In fact, positive impacts of such programs go beyond test scores; they are also visible in terms of high school graduation rates, college attendance, and health status, pointing to the fact that early interventions contribute to noncognitive development. Even before pre-school, cognitive stimulation by parents has been identified as a predictor of children’s cognitive abilities,<sup>74</sup> which underscores the importance of building awareness about parenting practices to influence long-term outcomes of children.

## Improving Educational Outcomes is Essential

### 40. Improving educational outcomes need to focus not only on the level of spending but also on the quality of education.

As noted earlier, higher education spending is associated with greater mobility in education across generations. This is particularly the case when initial education spending is relatively low, whereas benefits in terms of skills acquisition at higher levels of education spending depend crucially on the efficiency of the spending. While many factors can help explain differences in outcomes, including the extent of private education spending, amid notable cross-country differences, there may be room to strengthen the efficiency of education spending (Figure 18).<sup>75</sup> For example, while both *Italy* and *Japan* exhibit similar and relatively high spending-per-student ratios (with *Japan* spending about 10 percent more than *Italy* per student), educational outcomes are better in *Japan*, with learning-adjusted years of education exceeding that in *Italy* by more than one year on average. While education spending per student in *Indonesia* is lower than in *South Africa*, learning-adjusted years of education exceed those in *South Africa* by almost two years. Hence, when considering education spending, policy considerations would need to also put greater attention to efficiency and enhancing foundational skills (Box 2). Across the MENA region, both the level and efficiency of education spending is low, as attainment drops off



<sup>72</sup> Heckman and others (2010).

<sup>73</sup> Narayan and others (2018).

<sup>74</sup> See, for example, Tucker-Drob and Harden (2011).

<sup>75</sup> Al Samarrai and others (2019).

sharply at the upper secondary level and as standardized international test scores of students in the region tend to be relatively low.

**41. Reducing learning poverty at a rapid rate will require an integrated, multi-sectoral approach.** To ensure that all children can learn, policymakers will need to employ a whole-of-government approach, including by (i) enhancing access to clean water and better sanitation; (ii) improving health and nutrition; and (iii) ensuring sufficient social protection for disadvantaged populations. It also requires supporting the role that families and communities play in creating the right environment for learning. For example, improving access to information can increase incentives among youth and their parents to invest in education. Research in the *United States* has shown that high-achieving, low-income students do not apply often enough to selective colleges due to lack of information.<sup>76</sup> Hence, information outreach targeted to disadvantaged students and their parents could help reduce such barriers. Furthermore, interventions informed by behavioral insights to increase the growth mindset can improve beliefs and attitudes toward learning and enhance academic performance among disadvantaged students.<sup>77</sup> Teaching girls that their abilities can be developed as opposed to being static and unchangeable can help combat stereotypes and encourage girls to pursue careers in math and science.<sup>78</sup> Annex III provides evidence and examples of low-cost growth mindset interventions that have been effective in improving learning outcomes.

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<sup>76</sup> Hoxby and Avery (2013).

<sup>77</sup> The term “growth mindset,” coined by Stanford University psychologist Carol Dweck, represents the belief that one can improve one’s abilities over time, as opposed to believing that one’s abilities are fixed (“fixed mindset”).

<sup>78</sup> Boston and Cimpian (2017).

## Box 2. Accelerating the Reduction in Learning Poverty

**Forceful policy action across three overarching areas is needed to accelerate progress in reducing learning poverty.**

**(i) Greater attention to foundational skills, with a concrete target to focus the attention.**

*The World Bank recently launched a new operational global learning target: to cut the learning poverty rate by at least half before 2030. The target is ambitious but is achievable if all countries manage to improve learning to the same extent as the top performers of the 2000–15 period did. This would require, on average, nearly a tripling of the global rate of progress.*

**(ii) Specific actions focused on building foundational skills, such as the new literacy policy package.**

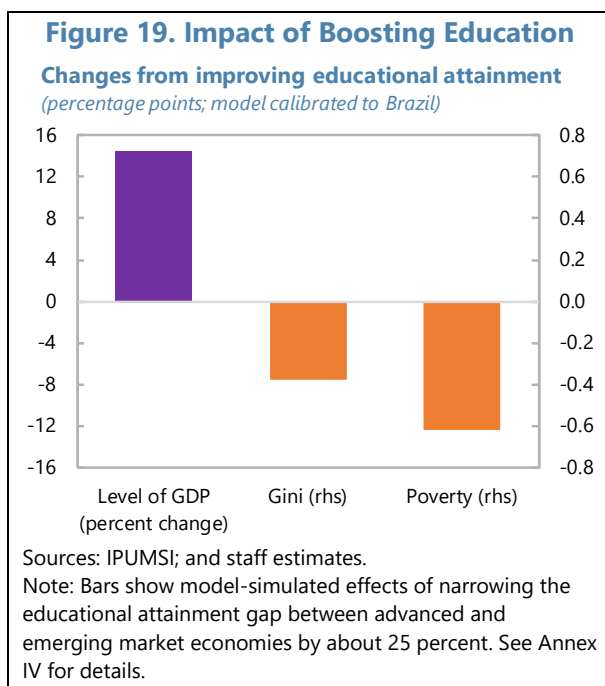
- **Component 1.** *Ensure political and technical commitment to clear goals, means, and measures for literacy.* This would include (i) clear goals (e.g., all children reading well by end of early grades); and (ii) data to inform teaching and learning.
- **Component 2.** *Ensure effective teaching for literacy.* This would include (i) teacher professional development in specific classroom skills proven to promote reading; (ii) teacher guides that promote structured pedagogy, especially where capacity is weak; and (iii) pedagogy that emphasizes “teaching at the right level.”
- **Component 3.** *Ensure timely access to more and better age- and skill-appropriate texts.* This would also require the provision of high-quality texts in the right languages.
- **Component 4.** *First teach children in the language they speak and understand.* Children should be allowed to learn to read in their home language before adding a second language (such as a national language).

**(iii) Strengthening education systems.** This would be done through the five strategic pillars shown below.

Learners are prepared and motivated to learn	Teachers at all levels are effective and valued	Classrooms are a learning space	Schools are safe and inclusive spaces	Education systems are well managed
<ul style="list-style-type: none"> <li>• Early childhood education</li> <li>• Nutrition</li> <li>• Stimulation</li> <li>• Parental involvement</li> </ul>	<ul style="list-style-type: none"> <li>• Meritocratic profession</li> <li>• Structured teacher's career</li> <li>• Continuous, school-based professional development</li> <li>• Effective teaching for literacy</li> </ul>	<ul style="list-style-type: none"> <li>• Teach at the right level</li> <li>• Effective curriculum</li> <li>• Books and supportive technology</li> <li>• Detailed guidance through structured lesson plans</li> <li>• Mother tongue instruction</li> </ul>	<ul style="list-style-type: none"> <li>• Eliminate all types of school violence and discrimination in schools</li> <li>• Students with any disability receive the right service</li> <li>• Minimum infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>• Political and technical commitment</li> <li>• Data used to inform teaching and learning</li> <li>• Clear mandates and accountability</li> <li>• Principal's career</li> <li>• Merit-based professional bureaucracy</li> </ul>

Source: World Bank (2019b).

**42. Increasing educational attainment in emerging market economies can have significant beneficial effects on growth and inequality.** A calibration based on an OLG model for *Brazil* suggests that closing about 25 percent of the educational attainment gap in *Brazil* relative to that in the average OECD country can boost economic output in *Brazil* by more than 14 percent (Figure 19, Annex IV). This impact occurs as additional education results in higher worker productivity. In addition, it reduces the skill-premium and income inequality, as the supply of high-skilled workers increases, and as more skilled workers boost demand and wages for all workers in the economy. Moreover, in the long run, this increase in education expenditure is budget neutral, as stronger economic activity generates higher government revenue.



**43. Given the importance of education and learning for life-time outcomes, policies for their enhancements are also important to close youth labor market gaps.** In addition to structural factors, education plays an important role in ensuring a successful entry to the labor market, with more educated youth less likely to be inactive and more likely to hold formal employment. This also extends to improving foundational learning through remedial efforts, which can increase the probability of holding high-skill, high-pay jobs. Furthermore, ICT interventions can help boost learning outcomes if they serve to complement teachers, are well-tailored to the country's ICT capacity, consider gender and income gaps in ICT access, and are accompanied by school management and governance reforms to support learning.<sup>79</sup>

## B. In-Market Interventions to Level the Playing Field

### Gaps Should Be Reduced in the Labor Market, Including Across Age and Gender

**44. A combination of active labor market policies and careful design of reforms can be effective in enhancing the effects of reforms on the income distribution as well as access to opportunities.**

- **Reform design.** Reforms also need to be designed in ways that enhance their distributive effects. In labor markets, for example, the challenge is not to deregulate across the board but instead to improve the design of regulations. This includes protecting workers (through extensions of the

<sup>79</sup> World Bank (2018a).



social protection systems) rather than protecting jobs (through legislation that weakens the job prospects of the disadvantaged and provides inadequate income insurance to most workers in a world where the nature of work is changing).<sup>80</sup> Easing job protection regulations can help raise labor force participation and employment while female employment also benefits from stronger legal protections for women and reforms of discriminatory laws.<sup>81</sup> Also, while adequate minimum wages play an important role in alleviating poverty at work and reducing broader inequality, if set too high, they can hinder the creation of employment opportunities for disadvantaged workers, including youth. Supplementing moderate minimum wages with in-work tax credits can help support both the employment opportunities and incomes of disadvantaged workers.<sup>82</sup>

- **Active labor market policies.** These can help limit the duration of unemployment spells while also encouraging resource reallocation and may have the potential to increase employability and productivity of workers. Active labor market policies include public employment services that support job search and job matching, training programs, and private sector wage subsidies that incentivize employers to employ disadvantaged workers (such as unemployed youth) and provide opportunities for on-the-job learning. Estimates of returns to active labor market policies vary markedly across programs and countries, emphasizing the need for careful design and regular evaluation.<sup>83</sup> A recent meta-analysis of impact estimates from over 200 econometric evaluations of ALMPs suggests that while average impacts may be small in the short run, they have more positive longer-term effects, particularly for programs that emphasize human capital accumulation and for participants who are more disadvantaged (e.g., long-term unemployed), as well as during recessions.<sup>84</sup> Wage subsidies can also play a role in protecting jobs during a crisis, such as during the financial crisis of 2008 and the current pandemic.

**45. Policies that encourage a competitive product market can help generate jobs and opportunities.** While research suggests that some reforms may entail a growth-inequality tradeoff, they can enhance access to opportunities on other grounds. For example, product market reforms can influence shared prosperity directly through several channels, including the income of producers, income of employees, prices faced by consumers, and opportunities for entrepreneurship. Higher scores in terms of Doing Business also correlate positively with greater entrepreneurial activity, which helps generate better employment opportunities and incomes.<sup>85</sup> Increased competition strengthens productivity and output, thereby raising workers' incomes. In addition, workers benefit as consumers from reforms in specific markets. For example, sectors related to food and agricultural markets, and network sectors such as transport, energy, and telecommunication often make up a large share of the consumption basket of poorer segments of the population and can also offer significant job opportunities. As barriers to competition are often stronger in these sectors than in others, there is

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<sup>80</sup> IMF (2018b).

<sup>81</sup> Ahn and others (2019); Gonzales and others (2015).

<sup>82</sup> Duval and Loungani (2019).

<sup>83</sup> Ahn and others (2019).

<sup>84</sup> Card and others (2018).

<sup>85</sup> World Bank (2020b).

scope for improving equity by enhancing competition in those areas.<sup>86</sup> Moreover, product market reforms can strengthen the output and employment gains from labor market reforms. For example, easier job protection legislation for regular workers makes formal firms want to grow and informal firms want to become formal, which can be facilitated by lower entry barriers in product markets.<sup>87</sup>

**46. In addition, alleviating structural constraints can facilitate both the domestic economy's and regions' adjustment to technology and trade shocks.** Amid technological advances and trade integration, national structural policies that encourage more open and flexible markets would also support national and regional adjustment to shocks.<sup>88</sup> This would include less stringent employment protection regulations for permanent workers, unemployment benefit systems that are not overly generous, and flexible product markets. Well-tailored active labor market policies can help ease labor markets' adjustment to shocks and lift lagging regions. More open and flexible product markets also tend to be associated with lower variability in the efficiency of capital allocation across firms, which is associated with lower regional disparities.

### **Enhancing Financial Inclusion and access to Technology Would Support Inclusive Growth**

**47. Financial inclusion is an important tool for promoting a more equitable distribution of income.** When given access to savings accounts, evidence points to a higher degree of self-insurance against health and weather risks and higher investment in education. Relative to informal methods, formal savings accounts also provide security against theft and impulse-spending and foster women's empowerment. Access to payments services lowers the cost of remittances for households and of welfare payments for governments (see Annex III for an example for Mexico).<sup>89</sup> Weather and livestock insurance are also beneficial, allowing farmers to expand their production and switch to higher-yielding crops, with benefits even to farmers that already had access to credit.

**48. Enhancing access to financial services is vital for inclusive growth.** Financial inclusion of adults and SMEs is an important tool for promoting a more equitable distribution of income and access to a range of financial services, including digital payments, savings, credit, and insurance. For example, greater financial inclusion of SMEs tends to be associated with gains in employment, labor productivity, and economic growth.<sup>90</sup> Shifting towards electronic government payments and receipts would encourage individuals and firms to obtain accounts at financial institutions. According to the Global Findex database, roughly 140 million adults opened their first account in 2017 to receive government social benefits transfers and nearly 120 million opened their first account to collect public sector pension payments. Policies should also encourage the availability of low-cost products, especially through more competition among financial institutions, while being careful of tools like

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<sup>86</sup> OECD-World Bank (2017).

<sup>87</sup> Ahn and others (2019).

<sup>88</sup> Bluedorn and others (2019).

<sup>89</sup> Demirguc-Kunt and others (2018); Sarma and Pais (2011).

<sup>90</sup> Ghassibe and others (2019).

interest rate caps.<sup>91</sup> These policies need to be complemented by stronger enforcement of consumer protection and improved financial understanding and capability. These steps could have the added benefit of narrowing gender gaps in account ownership and economically empower women. Facilitating the provision of electronic identity documents can help satisfy know-your-customer regulations.<sup>92</sup>

**49. Several actions can help level the playing field for SMEs.** Movable collateral registries would enable SMEs to borrow against their movable assets, which typically exceed their fixed assets, and may be especially important for women who may not have ownership of land or housing to use as collateral. Effective insolvency regimes can benefit financial inclusion of SMEs by reducing creditor risk and, hence, the cost of credit (e.g., allowing early restructuring for distressed firms would avoid costly bankruptcy proceedings). Allowing borrowers to obtain fresh financing during insolvency proceedings would avoid winding down some productive but liquidity-constrained firms.<sup>93</sup> In addition, fair and transparent procurement processes can provide SMEs with equal opportunities to access government contracts. While complying with environmental, social, and labor standards can improve competitiveness for SMEs in global value chains, such compliance may impose high costs. Hence, lead firms could offer preferential financing terms to suppliers in exchange for sustainability compliance.<sup>94</sup> Facilitating digital payments can have the added benefit of encouraging formalization.<sup>95</sup>

**50. Reducing information asymmetries can also provide numerous benefits.** National authorities can reduce the cost of financial reporting—which many SMEs find to be expensive, but which nonetheless can reduce information asymmetries and therefore reduce the cost of borrowing—by providing cost-efficient accounting standards, accountancy certification bodies and associations, training in simple financial management, and information on credit providers.<sup>96</sup> Credit bureaus could also help improve access to credit by reducing information asymmetries between borrowers and lenders—which tend to be greater for SMEs—and allowing better assessments of creditworthiness.

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<sup>91</sup> Maimbo and Gallegos (2014).

<sup>92</sup> Demirgüç-Kunt and Levine (2009); Čihák and Sahay (2020); Demirgüç-Kunt and others (2017); Karlan and others (2016).

<sup>93</sup> G-20 (2015).

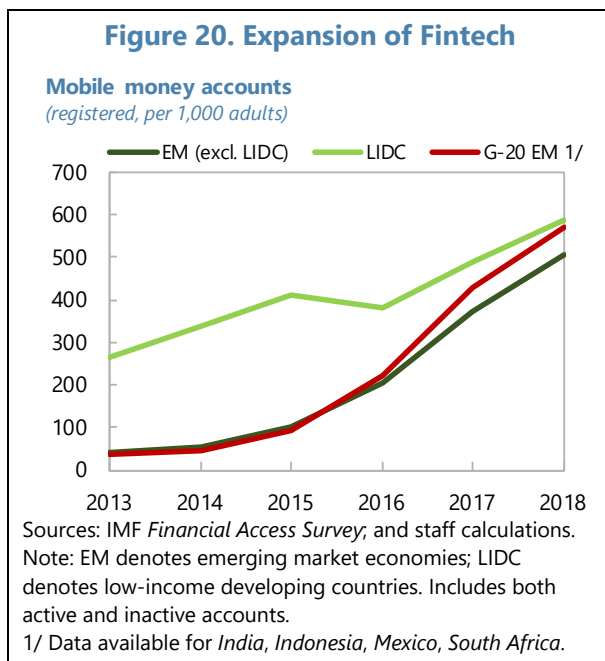
<sup>94</sup> World Bank, International Bank for Reconstruction and Development (2017).

<sup>95</sup> Klapper, Miller, and Hess (2019).

<sup>96</sup> UNCTAD (2013).

**51. While Fintech has helped expand access to finance, more can be done.**

Recent IMF work found that Fintech has been a major contributor to overall financial inclusion in recent years (Figure 20). Mobile phones have increased access to payments services for rural households; the internet has provided SMEs with access to small, short-duration loans that financial institutions could not provide; and digital identification systems have made it easier for people to open accounts—though not all accounts have been effective in starting new transactions.<sup>97</sup> In sub-Saharan Africa, mobile money ownership has nearly doubled in recent years, while that of traditional bank accounts has remained mostly flat. However, there is great potential to use technology to further financial



inclusion. For example, about two-thirds of all unbanked adults (1.1 billion people) have a mobile phone and one-quarter have access to the internet, suggesting that these people might be in a position to take up digital payments. According to the 2017 Findex Database, about 100 million unbanked adults globally receive a government wage or transfer payment and get paid exclusively in cash; nearly 7 in 10 of these wage earners have a mobile phone, which could potentially be used for digital payroll.<sup>98</sup> Furthermore, improving access to connectivity infrastructure, such as roads, telephones, and internet, could lower the cost of including people in the financial system.

**52. However, Fintech also presents risks for financial inclusion.** As Fintech continues to expand, uneven access to technological infrastructure or skills risks translating into gaps in access to financial services, which especially affects the poor, women, and the elderly.<sup>99</sup> Big data may help to extend credit scores to previously excluded people, like those without a credit history. However, these data may be biased against certain groups if they are unrepresentative of the population or if they are less accurate for those groups. When standard algorithms are naively applied to such data, they can produce models that discriminate along characteristics such as race, gender, or ideology. In addition, a perception of bias can undermine trust in the financial system and exacerbate self-exclusion from financial services. In the context of increasingly complex financial products entering the market, consumer protection is essential, not least to guard against overborrowing.

**53. Policies need to ensure that the benefits of the digital economy are shared across the population.** It is vital to ensure that women, the poor, rural residents, and other traditionally excluded groups have equal access to the digital tools needed to connect to markets and financial services. In

<sup>97</sup> Sahay and others (forthcoming); Alliance for Financial Inclusion (2018).

<sup>98</sup> Demirgüç-Kunt (2018).

<sup>99</sup> Sahay and others (forthcoming); Klapper and Hess (2019).

this respect, digital technologies can support an inclusive development path (such as by reducing search and transaction cost and connecting farmers to markets) and can help governments reach groups that are more vulnerable to shocks—including such as the current pandemic. Digital technologies can also help in job creation (including jobs that can be done remotely), distance learning, and in promoting accountability and efficiency of public service delivery. To close the digital divide, developing countries need to invest in improving internet speeds, whether through fixed-line or mobile connections. In addition, there is ample room for education to improve computer literacy in many countries.<sup>100</sup> As technology continues to evolve, models of lifelong learning are necessary to help workers transition between jobs.<sup>101</sup> Policies also need to give due consideration to the rights and obligations over data, competition in data-based economic activity, cybersecurity investment, and international fragmentation.<sup>102</sup>

### C. Post-Market Interventions to Strengthen Conditions for Greater Access to Opportunities

**54. The system of taxation can be instrumental in generating resources to enhance access to opportunities while also facilitating redistribution.** Reprioritization of spending and efficiency-enhancing measures can go a long way in enhancing access to opportunities. However, depending on circumstances, additional resources for education or healthcare (as examples) may be needed. For example, more progressive taxation by increasing tax rates on high-income earners can be helpful in this regard, having the dual impact of generating revenue to enhance access to opportunities and reducing ex-post inequality. In advanced economies with relatively low levels of progressivity in the personal income tax, there may be scope for raising the top marginal tax rates without adverse implications for growth.<sup>103</sup>

**55. Public transfers and safety nets can facilitate redistribution and families' investment in children and help them manage risk and uncertainty.** Social assistance and social insurance instruments help people pool risks, and—when they reach most people—risk-sharing policies can enhance equity and help households safeguard and invest in vital assets.<sup>104</sup> For credit-constrained poor households, transfers as well as unemployment benefits can reduce credit constraints and allow for additional education-related spending. For example, studies have found that teenagers exposed to the Earned Income Tax Credit in the *United States*—a tax benefit targeted to low-income households—tend to have higher test scores, higher likelihood of completing high school and college, and higher earnings as young adults.<sup>105</sup> In *Brazil*, Bolsa Familia provides targeted financial support to poor families, with conditions of school attendance for children. Moreover, fiscal policy in terms of

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<sup>100</sup> International Telecommunications Union (2019).

<sup>101</sup> IMF (2018c).

<sup>102</sup> Carrière-Swallow and Haksar (2019).

<sup>103</sup> IMF (2017a).

<sup>104</sup> Packard and others (2019).

<sup>105</sup> Dahl and Lochner (2012); Chetty, Friedman, and Rockoff (2011); Bastian and Michelmore (2017).

both taxation and safety nets can redistribute uneven gains from new technologies.<sup>106</sup> As the COVID-19 pandemic demonstrates, a strong safety net, which can be flexibly expanded to cover vulnerable groups in the event of a crisis, can also mitigate the impact on human capital investments by helping households cope with the shock without having to cut back on those investments.

**56. Gender budgeting can also help level the playing field.** Gender budgeting allows fiscal authorities to ensure that tax and spending policies and public financial management instruments address gender inequality and the advancement of women in areas such as education, health, and economic empowerment. Gender budgeting tools such as gender budgeting statements can also help ensure transparency.<sup>107</sup> Furthermore, impact assessments can help consider the intended or unintended impact of policy measures on gender equality. In this respect, gender budgeting has been adopted with varying levels of complexity and diversity in more than 80 economies, including in the G-20 (e.g., *Australia, Brazil, Canada, India, Italy, France, Korea, Mexico, South Africa, United Kingdom*).

**57. A number of fiscal policies have proven successful in promoting women’s economic empowerment.** These include the expansion of affordable childcare initiatives, improved infrastructure and health, more flexible work hours, enhanced labor mobility, investment in female education and training, and greater access for women to financial services. In addition, removing tax policy provisions that discriminate against—predominantly female—secondary earners by replacing family taxation with individual taxation has the potential to generate large efficiency gains and improve aggregate labor market outcomes. Parental leave policies and policies that provide and encourage greater parity between paternity and maternity leave could also support female labor force participation and help level the playing field between women and men in hiring and promotion decisions.<sup>108</sup>

**58. Improving access to affordable childcare can have a significant positive impact on female labor force participation.** Assuming fiscal space allows, the impact is illustrated for advanced economies through a model calibrated to an economy like the *United States* and for emerging market economies through a calibration to an economy like *Brazil* (Annex IV). Notably, in *Brazil*, enrollment in early childhood education and care for children under the age of three is below OECD levels and school days are shorter.<sup>109</sup> Thus, affordable childcare policies to boost female labor force participation, including among the low-skilled, can have the dual benefits of boosting economic activity and reducing poverty. Moreover, the long-run fiscal costs of these reforms are small, as higher female labor force participation boosts economic activity and, hence, government revenue.

- *Expanding access to childcare.* Expanding childcare subsidies in the *United States* via the Child Care Development Fund (CCDF) beyond poor families can increase female labor force participation across most skill levels (Figure 21). For *Brazil*, the analysis shows that free childcare

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<sup>106</sup> IMF (2018b).

<sup>107</sup> Kolovich (2018); Alonso Albarran and others (forthcoming).

<sup>108</sup> Christiansen and others (2016); Fabrizio and others (2020); Elborgh-Woytek and others (2013).

<sup>109</sup> In *Brazil*, enrollment in early childhood education and care was at around 23 percent in 2017—up from 10 percent in 2012, but still below the OECD average of 36 percent.

provision supports female labor force participation among low-skilled women that may otherwise not be able to afford the cost of childcare.

- *Extending the length of care for children.* Results from the model calibrated to *Brazil* show that increasing the length of the school day or offering free afterschool programs can promote labor force participation among low-skilled women.

### 59. Targeted policies can help strengthen opportunities at the local level.

Policies aimed at alleviating poverty and improving social outcomes, including in terms of education and training, can also help reduce regional disparities.<sup>110</sup> For example, in *Norway* the influence of childhood location on adult outcomes between the 1946–55 and 1956–65 birth cohorts

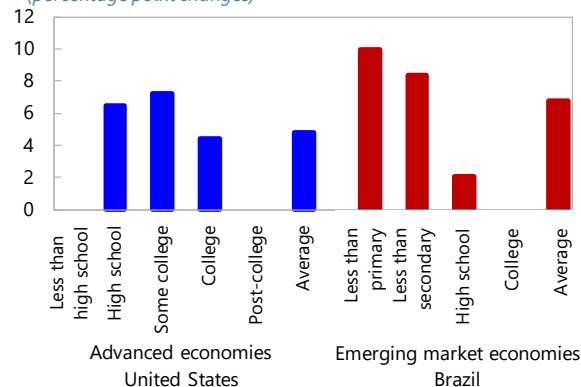
fell by half, in part on account of national school reforms, including increasing the minimum years of schooling from 7 to 9 years, introducing a common curriculum for all schools, and providing the same number of teaching hours across the country.<sup>111</sup> In addition, there is evidence that well-designed, spatially targeted, place-based fiscal policies and investments can help lagging regions and boost the success of existing fiscal policies in reducing inequality. At the level of communities or neighborhoods, improving accessibility and safety, the quality of schooling, and availability of childcare can be instrumental in alleviating the effects of differential access to resources and social capital across communities.<sup>112</sup> Location-specific investments in housing, reliable public services, and infrastructure may also be able to reduce the economic segregation of communities and improve connectivity to markets.

### 60. Reducing barriers to spatial mobility would raise overall social mobility in most economies.

Territorial integration policies to reduce constraints to spatial mobility would help people move to better jobs, opportunities, and services and, in turn, facilitate economic convergence between regions. These include policies to improve infrastructure for connectivity—ranging from transport to telecommunication—and reducing the explicit or implicit costs of internal migration, such as by making safety net programs portable across space. Policies to improve the functioning of housing markets are also important, since affordability of housing affects people’s ability to move to better opportunities.

**Figure 21. Impact of Affordable Childcare**

**Changes in FLFP by education level**  
(percentage point changes)



Sources: IPUMSI; and staff estimates.

Note: Advanced economy bars are based on a model calibration for the *United States*; emerging market economy bars reflect a model calibration for *Brazil*. Bars show model-simulated effects on female labor force participation (FLFP) of increasing childcare subsidies for middle-class families that do not benefit from the current program (CCDF) (for *United States*) and of providing free childcare and early education (for *Brazil*). See Annex III for details.

<sup>110</sup> Coady and Dizioli (2017); Narayan and others (2018); World Bank (2019b).

<sup>111</sup> Raaum and others (2006).

<sup>112</sup> IMF (2019a); IMF (2017a); Narayan and others (2018).



**61. Adopting the right policies requires further efforts to close the data gaps on access to opportunities and social mobility, particularly for marginalized groups.** While these topics have been the subject of rising attention from researchers and policymakers alike, large data gaps limit the understanding of the issues for most emerging G20 economies, and particularly for “invisible” groups like migrants and internally displaced people who tend to be under-represented in national level data.<sup>113</sup> Some of these data gaps can be addressed at relatively low cost, for example by adding questions to existing survey instruments and fielding specialized surveys for disadvantaged groups, as a part of the World Bank’s ongoing support to countries on household surveys. However, to inform policymaking, one would need to know more about the drivers of social mobility. Rapid technological advances can help close the data gap to some extent, by increasing the availability of big data from administrative records, census, and other sources, which allows for the analysis of opportunities and social mobility at more granular levels of spatial disaggregation whereby the causal effects of policies can be analyzed.<sup>114</sup>

## CONCLUDING REMARKS

**62. Increased attention to enhancing access to opportunities in an equitable way is vital for a strong, durable, and inclusive recovery from the COVID-19 crisis.** Notably, access to opportunities is uneven within and across countries, and uneven access is associated with low intergenerational mobility. Hence, as the adverse impacts of the COVID-19 pandemic are likely to be disproportionately higher among the disadvantaged, any increase in inequality from the crisis risks becoming entrenched for decades to come. As the global economy recovers, policymakers must thus pay careful attention to ensure that livelihoods are improved for everyone and that everyone has the opportunity to thrive.

**63. Gaps in access to opportunities can manifest very early in life and continue to pose hindrances throughout the lifecycle.** For example, insufficient access to pre-and post-natal health care, nutrition, and quality education can markedly reduce learning capacity and human capital formation. Indeed, learning poverty remains high in many parts of the world, and with slow progress in reducing it. Constraints in the labor market have particularly large impact on certain groups such as youth and women, who tend to participate in the labor market to a lesser extent than others. Moreover, access to finance and technology is uneven, hindering firms’ ability to innovate and grow. Uneven distribution of opportunities across space further adds to challenges. As learning poverty can have major costs for social mobility and future prosperity, enhancing learning outcomes is key for improving intergenerational mobility. In this respect, access to health, education, technology, and finance are important drivers of intergenerational mobility.

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<sup>113</sup> For example, intergenerational mobility has been measured with global coverage only recently (and that too in terms of education instead of income for a large share of countries) for a World Bank report on intergenerational mobility (Narayan and others, 2018)

<sup>114</sup> See Narayan and others (2018) for a detailed discussion.



**64. To put growth on a stronger and more inclusive path, policymakers need to consider a variety of measures, depending on initial circumstances.** Policies to level the playing field can be addressed through pre-market and in-market actions, facilitated by post-market interventions, including fiscal policy. Greater investments in maternal health, early childhood development, and high-quality education are needed to help children of disadvantaged backgrounds to succeed. Access to finance can alleviate constraints in acquiring human capital, and, together with technology, can promote wider participation in economic opportunities. Where access to labor market opportunities are limited, reforms will need to address rigidities, as more flexible labor markets would help increase access to opportunities for typically disadvantaged groups such as youth and women; at the same time, it is important to balance flexibility in hiring and dismissal with increased and more effective protections outside of the employment contract. Reforms to enhance competition, especially in sectors that matter for the poorer segments of the population, can boost inclusiveness while also promoting long-term productivity and stronger growth. Reducing barriers to spatial mobility, such as the lack of infrastructure for connectivity, would raise social mobility by helping people move to better jobs, opportunities, and services. Gender budgeting can be instrumental in leveling the playing field across gender. Alongside, reversing the decline in the progressivity of taxation can be important for creating fiscal space to alleviate income inequality and boost opportunities and socioeconomic mobility for all. To complement national level policies, targeted interventions, such as transfers and place-based policies, can improve the prospects of upward mobility for children growing up in disadvantaged households and communities.

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## Annex I. Inequality, Access to Opportunities, and Intergenerational Mobility

**1. This annex describes the empirical analyses regarding inequality, access to opportunities, and intergenerational mobility.** The analysis aims to explore two sets of links. The first analysis explores associations between inequality and educational outcomes. The second analysis examines associations between access to opportunities and intergenerational mobility in terms of intergenerational education persistence and the intergenerational elasticity of income.

**2. The data include measures of inequality and a number of indicators of access to opportunities.** Net and Gross Gini coefficients are taken from the “All the Ginis” dataset by Branko Milanovic. Measures of the intergenerational income elasticity and intergenerational education persistence are from the World Bank GDIM database.<sup>1</sup> Years of schooling and educational expenditure as a share of GDP are from Barro and Lee (1994) for 1980 and 1990. Learning-adjusted years of education and education expenditure per student for the years 2005, 2010, and 2015 are from the World Bank. Learning-adjusted years of education captures the number of years of schooling a child born today can expect to obtain by age 18, adjusted for relative learning scores based on TIMSS and PIRLS learning assessments. The aggregate IMF Financial Development Index and the Financial Access sub-index, covering 180 countries, are from the IMF’s database. Penetration of fixed-line and mobile telephone connections per 100 people are from the ITU ICT Development Index. GDP per capita in constant (2005) US dollars is from the World Bank. The time period focuses on the relevant years after birth (depending on the variable) for cohorts born in the 1960s and 1970s (for which we have intergenerational income elasticity) and in the 1980s (a larger sample for which we have data on intergenerational education persistence).

### Association Between Inequality and Educational Outcomes

**3. The tables display the regression results.** Table AI.1 and Table AI.2 show the results of separate cross-sectional OLS regressions of each of the two different educational outcome variables—average years of education and average learning-adjusted years of education—on a constant and initial income inequality, as measured by the Gini coefficient. Additionally, we also control for log expenditure per student (in the case of learning-adjusted years of education for which the data are available) and initial log per capita income as a proxy for spending on education. In both tables, sample A refers to the use of available Gini data, which is the gross Gini for some countries and net for others. Sample B restricts attention to only the net Gini.

**4. Years of education and learning-adjusted years of education are negatively associated with income inequality.** In most cases, this association is significant, including when controlling for the level of income per capita (or expenditure per student in the case of learning-adjusted years of

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<sup>1</sup> Intergenerational elasticity of income (intergenerational education persistence) is the statistical association between income (education) for a certain cohort with the income (education) of their parents. Intergenerational income (education) mobility is higher when the intergenerational elasticity of income (education persistence) is lower.

education) and when restricting inequality measures to the net Gini only, which reduces the sample size. The size of the coefficient is also typically quite large: people tend to obtain anywhere between ½ to 1½ fewer years of schooling when born in a country with a higher initial level of inequality. In learning-adjusted terms, the effect ranges from 1/3 to 2 years.

**Table A1.1. Inequality and Years of Education**

	Average years of education in: 1/			
	1980	1990	1980	1990
<i>Sample A 2/</i>				
Inequality 3/	-0.143***	-0.105***	-0.0946***	-0.0591***
Log income 4/	...	...	1.175***	1.127***
Constant	12.12***	11.15***	0.392	0.215
R-squared	0.258	0.226	0.670	0.623
No. of Obs.	54	84	54	84
<i>Sample B 2/</i>				
Inequality	-0.135	-0.0822*	-0.0932	-0.0779**
Log income	...	...	1.502***	1.009***
Constant	12.01***	10.72***	-3.008	1.873
R-squared	0.121	0.112	0.633	0.495
No. of Obs.	12	33	12	33

Sources: Barro-Lee (1994) for years of education; "All the Ginis" by Branko Milanovic for inequality; World Bank World Development Indicators for per capita income; and staff estimates.

1/ Years of education is measured by average years of schooling in 1980 and 1990.

2/ Sample A includes net or gross Gini measures, as available, for each country. Sample B only includes countries with net Gini measures.

3/ Inequality is measured as the average Gini coefficient over the 10 years before education is measured (1970–80 and 1980–90, respectively).

4/ Log income measures average per capita income over the 10 years before education is measured (1970–80 and 1980–90, respectively).

**Table A1.2. Inequality and Learning-Adjusted Years of Education**

	Average learning adjusted years of education in: 1/					
	2005	2010	2015	2005	2010	2015
<i>Sample A</i> 2/						
Inequality 3/	-0.197***	-0.115***	-0.106***	-0.149***	-0.0332	-0.0379**
Log expenditure 4/	...	...		0.692**	1.558***	1.643***
Constant	15.95***	12.25***	12.05***	8.848**	-2.614	-2.922**
R-squared	0.468	0.179	0.170	0.709	0.807	0.860
No. of Obs.	34	75	110	26	58	78
<i>Sample B</i>						
Inequality	-0.208***	-0.119	-0.139***	-0.195***	-0.141**	-0.0566**
Log expenditure 3/	...	...	...	0.481*	1.286***	1.434***
Constant	16.70***	13.26***	14.03***	12.23***	3.497	-0.340
R-squared	0.645	0.163	0.377	0.735	0.714	0.897
No. of Obs.	17	28	40	14	21	30

Sources: World Bank Human Capital Index for learning adjusted years of education; "All the Ginis" by Branko Milanovic for inequality; World Bank World Development Indicators for per capita income; and staff estimates.

1/ Learning-adjusted years of education adjust years of schooling by average test scores relative to a benchmark, measured in 2005, 2010, and 2015.

2/ Sample A includes net or gross Gini measures as available for each country. Sample B only includes countries with net Gini measures.

3/ Inequality is measured as the average Gini coefficient over the 10 years before education is measured (1970–80 and 1980–90, respectively).

4/ Log expenditure measures expenditure per student in the year in which learning-adjusted years of education is measured (2005, 2010, 2015).

## Association Between Access to Opportunities and Intergenerational Mobility

**5. Tables A1.3 and A1.4 report results from OLS regressions of intergenerational mobility on each of the variables capturing access to opportunities, entered one at a time.** Table A1.3 reports the results, where intergenerational mobility is measured as the intergenerational income elasticity (IGM), with higher values indicating a lower degree of intergenerational socio-economic mobility. Table A1.4 reports the corresponding results, where intergenerational mobility is measured as the intergenerational education persistence (IGP). Learning-adjusted years of education are not included in this analysis, as the data pertain to the 2000s—beyond the schooling years of the cohorts for which intergenerational mobility data are available. IGM data consist of a pooled set of 69 observations for cohorts born in the 1960s for 35 countries and cohorts born in the 1970s for the remaining 34 countries. Initial conditions for the sample of IGM countries is adjusted for a given cohort's peak earning years. For example, for the 1960s cohort, initial inequality and initial income per capita is based on an average over 1960–70, well before the peak earning years of this cohort. If data are not available for early years, the first available Gini coefficient and first available per capita income observation is employed, which in most cases are available for periods before peak earning years of



the 1960s birth cohort.<sup>2</sup> Financial access (IMF Index) is available from about 1980 onwards. For the 1960s cohort, we use the financial access index value in 1980 as the initial condition (and 1990 for the 1970s cohort), comfortably before the peak earning years. For technology penetration, data are relatively sparse in the 1960s. For fixed-line phone penetration (measured as the average annual rate of change in lines per 100 people), we take the average over 1970–80 as initial conditions for both the 1960s and 1970s cohort. For mobile phone penetration, measured similarly, we take the average over 1990–2000 given the relatively later introduction of this technology; this is more coincident with peak earning years of the 1960s cohorts, but before the peak earning years of the 1970s cohort.

**6. The IGP data pertain to the 1980s cohort, available for a set of 129 countries.** A person born in the first year of the cohort (1980), would theoretically complete a high-school degree in 1998 and a college degree in 2001. Initial conditions are selected to measure income and inequality well before this, taking an average over 1980–90;<sup>3</sup> the IMF financial access index is measured in 2000, fixed-line phone penetration is measured over 1980–90 and mobile phone penetration over 1990–2000.

**7. The analysis for the intergenerational income elasticity (Table AI.3) shows the following:**

- *Higher initial income inequality is typically associated with higher intergenerational elasticity of income (lower mobility).*
- *Education is particularly relevant where labor force participation is high. While years of schooling and public expenditure on education are not individually significant, they are jointly significant with log initial income and inequality at conventional levels. The lack of individual significance of education may reflect how labor market access can play an important role in translating educational achievement into income. In regressions interacting a “high labor force participation” dummy with a “high education” dummy (both using the sample median for 1980 as a threshold), years of education is negatively and significantly associated with a higher intergenerational elasticity of income. That is, high-education countries with high labor force participation tend to have a lower intergenerational income elasticity (higher mobility).<sup>4</sup>*
- *Financial development and technology penetration are both associated with higher mobility. This points to the role of access to finance and to the spread of technology (proxied here by the penetration of telecom technology) in boosting income opportunities across generations.*

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<sup>2</sup> In the IGM sample, 4 countries have first observed Gini data after 1995: Macedonia (1996), Albania (1997), Bosnia and Herzegovina (2001), and Timor Leste (2001). Assuming a cutoff age for peak earning years at 35, these observations would fall after the peak period beginning for an individual born between 1960–1966.

<sup>3</sup> In the IGP sample, 9 countries have first observed Gini data beyond 2001: Chad (2002), Comoros (2002), Bhutan (2003), Republic of Congo (2005), Togo (2006), Iraq (2007), Liberia (2007), Kosovo (2008), and Iceland (2008).

<sup>4</sup> Narayan and others (2018) show that income mobility is more closely correlated with educational mobility where labor force participation is higher.

**8. The analysis for the intergenerational educational persistence (Table AI.4) shows the following:**

- *Initial per-capita income is associated with lower intergenerational education persistence (higher mobility).*
- *More years of education and higher public expenditure on education are significantly and negatively related with intergenerational education persistence.* That is, in countries where people spend more years in school, individual education outcomes is less correlated with that of their parents.

**9. To compare the importance of the various dimensions of access to opportunity, the impact is quantified through 1-standard deviation changes in the various measures.** For example, an increase telecom penetration rates of 1 standard deviation (an average annual increase of 2 mobile phone connections per 100) is associated with a lower intergenerational income elasticity of 0.15 points. Other things equal, this is equivalent to reducing income persistence from the level in China—with a measured intergenerational income elasticity of 0.4—to that in Germany. Similarly, a 1-standard deviation increase in financial access<sup>5</sup> equivalent to a 28-point increase in the index in the year 2000 (ranging from 0 to 100), is associated with lower income persistence by 0.04 points.

**10. A similar quantification is done with intergenerational education persistence.** A 1-standard deviation increase in years of schooling (relative to the levels in 1980), which is equivalent to an additional 2.8 years of schooling, is associated with lower intergenerational educational persistence by 0.1 points. Other things equal, this corresponds to improving educational mobility across generations in Mexico (where intergenerational educational persistence at 0.44 is relatively high) to the level in the United States. In addition, a 1-standard deviation increase in public expenditure on education, equivalent to an additional 2 percent of GDP as measured in 1980,<sup>6</sup> is associated with about half the effect of years of schooling, reducing intergenerational persistence by 0.04 points.

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<sup>5</sup> The index includes measures of financial depth, access, and efficiency. See Sahay and others (2015) for details.

<sup>6</sup> About one standard deviation of sample public expenditure on education in 1980.

**Table A1.3. Access to Opportunity and Income Mobility**

<b>Intergenerational income elasticity and access to opportunity</b>					
Initial inequality 1/	0.00665**	0.00494*	0.00643***	0.00561**	0.00689***
Initial log income per capita 2/	-0.0741***	-0.0399	-0.0510**	0.00822	0.00733
Public expenditure on education 3, -2.224					
Years of schooling 4/		-0.0233			
Access to finance 5/			-0.165*		
Fixed line penetration 6/				-0.225***	
Mobile penetration 6/					-0.0763***
Constant	0.936***	0.791***	0.712***	0.380*	0.327
No of observations	45	59	67	63	65
R-squared	0.468	0.362	0.346	0.453	0.451

Sources: Barro-Lee (1994) for years of education; "All the Ginis" by Branko Milanovic for inequality; World Bank World Development Indicators for per capita income; and staff estimates.

Note: The dependent variable is the intergenerational income elasticity for cohorts born in the 1960s and 1970s. A higher value indicates lower intergenerational mobility.

1/ Measured by the Gini coefficient taking 10-year averages from the first available observation from 1960 (and 1970) onwards. The data refer to net Gini coefficients for 31 countries, and gross Gini coefficients for the remaining 38 countries in the total sample. The regression sample in each column varies by availability of other data.

2/ Measured as 10-year averages from the first available observation from 1960 (and 1970) onwards.

3/ Total public expenditure on education in percent of GDP in 1980. Similar results in other years (1960, 1965, 1970, 1975).

4/ Average years of schooling in the population, measured in 1980. Similar results in other years (1970, 1975, 1985, 1990).

5/ IMF financial access index, values for 1980 (for 1960 cohort) and 1990 (for 1970 cohort). Taking 30-year lag data for the cohorts results in an insignificant coefficient.

6/ For Fixed-line penetration: average annual change in fixed-line telephones per 100 people over a 10-year period (1980–90).

For Mobile penetration: average annual change in mobile telephones per 100 people over a 10-year period (1990–2000).

**Table A1.4. Access to Opportunity and Educational Mobility**

<b>Intergenerational educational persistence and access to opportunity</b>					
Initial inequality 1/	-0.00218	-0.00349***	-0.000615	-0.000828	-0.000391
Initial log income per capita 2/	-0.0783***	-0.0324***	-0.0788***	-0.0706***	-0.0827***
Public expenditure on education 3, -2.267*					
Years of schooling 4/		-0.0338***			
Financial access (IMF) 5/			-0.0153		
Fixed line penetration 6/				-0.0390	
Mobile penetration 6/					0.00210
Constant	1.294***	1.052***	1.131***	1.090***	1.144***
No of observations	72	99	117	113	115
R-squared	0.564	0.519	0.419	0.430	0.423

Sources: Barro-Lee (1994) for years of education; "All the Ginis" by Branko Milanovic for inequality; World Bank World Development Indicators for per capita income; and staff estimates.

Note: Dependent variable is educational persistence for cohorts born in the 1980s. A higher value indicates lower mobility.

1/ Measured by the Gini coefficient taking the 10-year average from the first available observation from 1980 onwards. The data refer to net Gini coefficients for 53 countries, and gross Gini coefficients for the remaining 103 countries in the total sample. The regression sample in each column varies by availability of other data.

2/ Measured as 10-year averages from the first available observation from 1980.

3/ Total public expenditure on education in percent of GDP in 1980.

4/ Average years of schooling in population in 1980. Coefficients are negative and insignificant in other years (1985, 1990).

5/ IMF financial access index, values for 2000.

6/ For fixed-line penetration: average annual change in fixed-line telephones per 100 people over a 10-year period (1980–90).

For mobile penetration: average annual change in mobile telephones per 100 people over a 10-year period (1990–2000).

## Annex II. Impact of Structural Reforms on Inequality

1. This annex explores the relationship between structural reforms and subsequent developments in inequality.

### Framework

2. The analysis is further described in Furceri and Rehman (forthcoming). The statistical methods adopted follow the approach proposed by Jordà (2005) to estimate impulse-response functions. In order to allow the responses to vary across countries depending on inequality of opportunity (proxied by a measure of intergenerational mobility), we augment this approach with the smooth transition regression approach of Granger and Teravistra (1993). This approach has been advocated by Auerbach and Gorodnichenko (2013) and Ramey and Zubairy (2018) among others, as a flexible alternative that does not impose the dynamic restrictions embedded in vector autoregression (autoregressive distributed-lag) specifications and is particularly suited to estimating nonlinearities in the dynamic response). Specifically, we estimate the following:

$$y_{t+k,i} - y_{t-1,i} = \alpha_i + \gamma_t + \beta_k^L F(z_i) R_{i,t} + \beta_k^H (1 - F(z_i)) R_{i,t} + \theta X_i + \varepsilon_i$$

with  $F(z) = \exp^{-\lambda z_i} / (1 + (\exp^{-\lambda z_i}))$ , in which  $z$  is an indicator of the access to opportunities normalized to have zero mean and unit variance based on the entire sample.<sup>1</sup>  $y$  is the Gini index (net and gross);  $\alpha_i$  are country fixed effects, included to take account for differences in countries' average growth rates;  $\gamma_t$  are time fixed effects, included to take account for global shocks such as shifts in oil prices or the global business cycle;  $R$  denotes the reform, which includes overall measures as well as the components (we analyze overall reforms);  $z$  represents measures of inequality and opportunity for income; and  $X$  is a set a of control variables including past economic growth and past reforms. In robustness checks, we also control for the interaction between country-specific characteristics and reforms such as the level of development and governance (the latter being depicted in the main text).

### Data

- **Structural Reforms.** We use the IMF's dataset of structural reform regulation for a large sample of 90 advanced and developing economies during 1973–2014.<sup>2</sup> This dataset is unique for not only its country-time coverage, but also its breadth of the sectoral areas covered. The indicators cover both the financial (domestic finance, financial current account, and capital) and real (trade, product, and labor) sectors. All indicators are scaled to vary between zero and one, with higher values representing greater liberalization. Differences in indicator values across countries and time provide information on the variation in the absolute degree of reform within each sector. However, indices are not strictly comparable across sectors, so a higher value of, say, the trade

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<sup>1</sup> The value for  $\lambda$  is taken to be -1.5.

<sup>2</sup> The data set includes 29 advanced economies, 50 emerging market economies, and 21 low-income countries, with a broad geographical representation. The country sample represents 96 percent of the world's 2017 nominal GDP. See Alesina and others (2020) and Furceri and others (2019) for details on the coverage and on the construction of the reform indicators.

reform index compared to domestic finance does not imply that an economy is “more liberal” with respect to international trade than domestic finance.

- *Domestic financial sector.* Covers six broad areas: interest rate controls, entry barriers, privatization, supervision and regulation, securities markets, and credit controls.
- *Current and capital account.* Cover restrictions on external payments (for imports, invisibles, capital) or receipts (exports, invisibles, capital), as well as components of the capital account in relation to foreign direct investment, portfolio investment, bonds and other debt securities, money market instruments, and financial credits.
- *Trade.* Measures trade tariffs at the product level. Product-level tariff data are aggregated by calculating simple and weighted averages, with weights given by the export share of each product.
- *Product market.* Covers liberalization in two network sectors: telecommunication and electricity. For each, three broad areas are covered: privatization, entry barriers, and supervision and regulation.
- *Labor market.* A new measure of employment protection legislation (EPL) related to termination of full-time indefinite contracts for objective reasons, in a typical firm of 250 workers. Three dimensions of EPL are considered: procedural requirement, firing costs, valid grounds for dismissal, and redress measures (in case of unfair dismissal).
- **GDP.** The output series (real GDP) used in the analysis comes from the IMF’s World Economic Outlook database.
- **Inequality.** Data for the Gini are from the Standardized World Income Inequality Database (SWIID), which combines information from the United Nations World Income Database (UNWIDER) and the Luxembourg Income Study (LIS). Here, the Net Gini index is defined as the Gini index of inequality in equivalized (square root scale) household disposable (post-tax, post-transfer) income.
- **Intergeneration Income Mobility.** We use the intergenerational elasticity of earnings as a proxy for equality of opportunity. It is taken from the World Bank’s GDIM dataset. It captures the state of opportunities afforded to a society as indicated broadly by a measure of intergenerational immobility (with higher values corresponding to less mobility). This indicator is time-invariant within countries and is treated in the model as predetermined.
- **Governance.** We include a control for the level of governance as a robustness check. Governance data are from the World Bank’s *Worldwide Governance Indicators*. These indicators capture aggregate and individual governance indicators for over 200 countries and territories over 1996–2018.

## Annex III. Lessons from Country Experiences

1. This Annex presents examples of policy interventions to enhance access to opportunities across various areas.

### Health and Early Childhood Development

#### *Brazil*

2. In 2003, **Brazil implemented Bolsa Familia**. Bolsa Familia is a large conditional cash transfer program targeted to poor families in urban and rural areas. The program at its peak covered almost one-fourth of the country's population and cost close to half a percent of GDP. The program's main objective is to reduce short-term poverty by providing direct cash transfers to the poor and to fight long-term poverty by increasing human capital. To achieve this objective, the program requires that children under the age of 17 attend school, pass-through medical examination, and receive vaccinations. In addition, the program supports women's empowerment by favoring mothers as the main beneficiaries of the program. The program has been credited to help lift 30 million Brazilians out of poverty, reduce inequality, and improve education outcomes between 2003 and 2010.<sup>1</sup> Moreover, payments are made via chip card, providing mothers with more security, privacy, and confidentiality over their money and, hence, help boost financial inclusion.

#### *Norway*

3. **Norway implemented childcare reforms that greatly expanded subsidized childcare**. In 1975, Norway passed the Kindergarten Act, assigning responsibility for childcare to local municipalities and increasing the level of federal subsidies for childcare. The Act aimed at quadrupling the number of childcare places to reach 100,000 by 1981. Childcare coverage among 3- to 6-year-olds almost tripled (from 10 percent to 28 percent) in the four years following the reform. Studies have shown a notable positive impact of the program. For example, the program has been shown to lead to an increase in educational attainment and life-cycle labor income, with the largest effects occurring among girls and children of less well-educated mothers.<sup>2</sup>

### Education

#### *Australia*

4. **Australia implemented an education loan scheme**. The Higher Education Loan Program (HELP) scheme introduced in 1989 featured income-contingent loan-repayment when income exceeded a certain threshold and an interest subsidy. This helped increase access to tertiary education.<sup>3</sup> Though *Australia* did not means-test HELP loans, lending was limited through capped

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<sup>1</sup> Soares and others (2010); de Brauw and others (2015).

<sup>2</sup> Havnes and Mogstad (2011).

<sup>3</sup> Norton (2016).

number of university seats, and access was restricted to more academically qualified students, who were likely to pursue full-time work.

**5. Loans were initially restricted to four-year degrees and advanced programs.** However, pressures mounted after 2009 when *Australia* uncapped enrollment in public universities, and opened the loan program for vocational colleges, leading to rapid escalation in HELP lending even as the new borrowers were likely to earn lower incomes in the future. To restore financial viability of HELP, Australia reduced the income exemption from AU\$55,874 to AU\$45,000 to make more borrowers liable for repayment. Upper income borrowers are required to make higher payments as well. The repayment structure was also made more progressive. In addition, the changes to the policy imposed tighter standards on vocational education providers with lower loan limits for vocational students.<sup>4</sup>

### **Norway**

**6. Access to higher education has been a cornerstone of Norway's policies to promote access to opportunities.** The education system is publicly financed, including no fees for attending colleges and universities. State grants and loans are available through the State Educational Loan Fund (SELF) to upper secondary students and to university and college students. The beneficiaries of SELF have steadily increased over the years since its introduction in 1947 and provides most Norwegian students with a source of education finance.

**7. Reforms over the past 40 years, in addition to lengthening compulsory schooling, included introduction of regional colleges and additional universities.** These helped decentralize and increase access to higher education. As a result, there were notable improvements in education attainments.<sup>5</sup> In addition, evidence suggests that increased access to education may have contributed to an increase in social mobility across cohorts, particularly at the lower end of the spectrum.<sup>6</sup>

### **Vietnam**

**8. In 1992, Vietnam agreed on the "Education For All" (EFA) 1993 to 2000 Action Plan, followed by a second EFA for 2003 to 2015.** The core of the first (1993–2000) EFA plan included quality primary education for all, gender equality across all levels of education, and appropriate education and training for all out-of-school young people and adults in need of basic education to promote adult literacy. Focus during the 2003–15 EFA has shifted to improving the quality of education, providing life-long learning, and enhancing efficiency, along with completing universal primary and universal lower secondary education.

**9. Primary school enrollment increased.** With large public investments in education and a strong focus on inclusive delivery and teacher quality, *Vietnam* has achieved near-universal primary enrollment and very high rates of literacy among children and outperforms in terms of PISA scores.

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<sup>4</sup> Delisle and Usher (2018).

<sup>5</sup> Aakvik and others (2010).

<sup>6</sup> Bratberg and others (2007).



Public expenditure on education increased dramatically in Vietnam to 20 percent of the general government budget (6 percent of GDP in 2015), up from 3.5 percent in 2000. The emphasis on teacher quality includes development of new pre- and in-service training programs at a large scale for all teachers, assessment systems, and continuous monitoring. To make education widely accessible, policies included free primary education and special focus on poor families, disadvantaged children, ethnic minorities, the 20 percent hardest to reach, and gender equality.

## Low Cost Growth Mindset Interventions to Improve Learning

**10. Experimental psychology studies have shown that small, context-sensitive psycho-social stimulations aimed at influencing students' growth mindset can positively affect educational outcomes.** This is particularly the case among vulnerable groups. Growth mindset theory predicts that by helping students shift their beliefs about learning to one where intelligence is not a fixed state but malleable to improvement and growth over time, students can become self-motivated to improve both academic effort and outcomes. Recent evidence points to the promise of low-cost growth mindset interventions.

**11. A World Bank research project on growth mindset finds encouraging results in some emerging market economies.** The project aimed at improving educational attainment among vulnerable groups by testing iterations of low-cost interventions at scale. Researchers found encouraging results, and in the case of *Peru* and *South Africa's* Western Cape province, the interventions are being scaled up nationally and regionally, respectively.

- **Peru.** Teachers and 50,000 students in 800 public schools and high schools were asked to read an essay titled "Did You Know You Can Grow Your Intelligence?", followed by a 90-minute session for students and teachers to discuss the article. Thereafter, the students were asked to write a letter to a friend, demonstrating their understanding. The intervention led to an average of 0.2 standard deviation increase in student math test scores, equivalent to having a parent with two to three more years of education.
- **South Africa.** A randomized experiment conducted with the Western Cape Government, involving a series of growth mindset sessions and videos, had a significant positive impact on math grades of high school students mediated by an improvement in attitudes toward learning (World Bank 2018b).
- **Indonesia.** Comic books were utilized in more than 1,200 schools to make Growth Mindset messages as simple and attractive as possible. The project proved most effective for vulnerable students in high-performing schools.

**12. Studies done for advanced economies find encouraging evidence.**

- **United States.** Yeagar and others (2019) have provided compelling evaluation results for a nationally representative sample of more than 12,000 ninth graders. An online, less than one-hour-long growth mindset intervention, which teaches that intellectual abilities can be

developed, improved grades among lower-achieving ninth graders and increased overall enrollment in more advanced mathematics courses in 10<sup>th</sup> grade. The school context is a key element for success—schools that saw more gains are those that foster an environment celebrating academic success and curiosity, so that peer norms are aligned more closely with the messages of the intervention.

## Female Labor Force Participation

### *Canada*

**13. *Canada has recently implemented gender budgeting.*** Despite improvements, *Canada* faces challenges regarding gender pay gap, occupational segregation, violence against women and girls, and low participation of women in key leadership positions in business. Of particular concern are Aboriginal women, immigrant women, senior women, and women with disabilities, who remain more vulnerable to poverty. In Budget 2017, the Government introduced its first Gender Statement, providing an assessment of budgetary measures from a gender perspective (gender budgeting) and an overview of gender challenges in *Canada*. The Statement includes Gender-Based Analysis (GBA), which includes a gender impact assessment to identify ways in which public policies affect women and men differently. It does so through systematic use of data to better tailor the design and delivery of government programs. Recently, GBA has evolved to include factors such as ethnicity, age, income, and sexual orientation that must be considered in public policy along with and in relation to gender.<sup>7</sup>

### *Japan*

**14. *Japan took measures targeted at enhancing female labor force participation.*** Women's economic participation in the Japanese labor market has increased, though much of the increase represents non-regular and part-time work.<sup>8</sup> *Japan* has recently implemented regulation to provide a basis for enhancing female participation in the workforce, including requiring firms with more than 300 workers to disseminate information on their track record related to (i) providing job opportunities for women or (ii) improving work-life balance. In 2016, the government also introduced a certification system (*Eruboshi*) for public procurement to incentivize documenting achievements and formulation and public dissemination of action plans pertaining to women's participation and advancement. As of June 2019, all central government agencies and local governments and nearly all firms with more than 300 employees have submitted action plans. About ¼ percent of GDP worth of public procurement has been contracted through *Eruboshi*-certified firms.<sup>9</sup> Female labor force participation increased from 68 percent to over 72 percent during 2016–19.

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<sup>7</sup> IMF (2017b)

<sup>8</sup> IMF (2018a).

<sup>9</sup> IMF (2020a).

## **United Kingdom**

**15. The United Kingdom has put increased focus on transparency regarding gender pay gaps.** In the *United Kingdom*, median hourly earnings (excluding overtime) for women in full-time employment are close to 9 percent less than for men.<sup>10</sup> This gap is even higher (17 percent) when broadened to include all employees, as women are disproportionately engaged in part-time jobs with lower pay. The gap is also wider at older ages. As the Equality Act prohibits paying women less than men for the same work, this pay gap should reflect compositional differences between male and female workers, such as seniority and roles.

**16. Large organizations must report gender pay gaps.** From 2017, organizations with at least 250 employees are required to report measures of the gender pay gap, including the gaps for the mean and median worker, gaps in bonuses, and the distribution of pay by gender. The reports must be filed as of a specific reference date each year, which facilitates comparability across organizations, and a compulsory written statement encourages organizations to review their progress and explain their strategy. While it is too early to evaluate the impact of this policy, organizations' reports have received widespread media coverage, and their potential effects on recruitment, suppliers, and customers could add pressure on organizations to close these gender gaps. That said, such policies may have limited effect if there are concrete non-discriminatory reasons for the pay gaps.<sup>11 12</sup>

## **Access to Finance**

### **India**

**17. Technology-enabled identification helped improve financial inclusion in India.** *India* launched the Aadhaar system of unique identification numbers for all residents in 2009 and integrated it with the Jan Dhan program for financial inclusion in 2014.<sup>13</sup> In turn, as Aadhaar identification uses biometric information from fingerprints, the iris, and a digital photograph, it allowed banks to satisfy "know-your-customer"-regulations when opening new accounts, supporting financial inclusion. Overall, some 380 million accounts had been opened under the Jan Dhan program by March 2020. Furthermore, the system helped narrow the gender gap in account ownership, facilitating a fall from 20 percentage points to 6 percentage points between 2014 and 2017.<sup>14</sup> While the scale and sophistication of the Aadhaar system made it expensive to establish, it likely paid off as it generated strong return-on-investment through time saving and a reduction in leakages associated with social

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<sup>10</sup> According to 2019 data released by the Office for National Statistics in the United Kingdom. <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/bulletins/genderpaygapintheuk/2019>

<sup>11</sup> Blackaby and others (2005).

<sup>12</sup> Chevalier (2007).

<sup>13</sup> <https://www.pmjdy.gov.in/account>; <https://uidai.gov.in/about-uidai/unique-identification-authority-of-india/about.html>

<sup>14</sup> Demircuc-Kunt and others, 2018.

assistance payments.<sup>15</sup> In addition, it may help improve labor mobility, government accountability, and access to social assistance programs and mobile phones.<sup>16</sup> Nonetheless, challenges remain, including to ensure that those without Aadhaar identification are not excluded, balance the need for privacy, and make authentication more effective.<sup>17</sup>

## **Kenya**

**18. Safaricom's M-Pesa mobile money service launched in 2007.** At the time, financial inclusion was limited, with only 0.2 deposit accounts per adult (IMF Financial Access Survey database). Workers in urban areas were forced to send remittances to rural areas through the postal service, bus companies, or family and friends, which was insecure and sometimes costly.<sup>18</sup> Safaricom invested in its brand reputation, recognizing the importance of trust in the adoption of the financial service. The product was made available in both English and Swahili, and training was provided, especially in areas of low literacy. A pilot project provided lessons, focusing the service on mobile money rather than microfinance loans, as originally intended. Given the need to promote financial inclusion, the central bank and communications authority ensured an enabling regulatory environment. As a result, the technology was widely adopted, reaching 96 percent of households in *Kenya*, and evaluations have found that the service lifted 2 percent of Kenyan households out of poverty and helped individuals to smooth consumption in the face of income shocks.<sup>19</sup>

## **Mexico**

**19. Mexico took a number of measures to enhance financial inclusion.** In 2011, about 71 million people in *Mexico* lacked access to formal financial services, particularly in rural areas. To address the challenge, the government adopted several policies, culminating in a national financial inclusion strategy in 2016, which included policies to improve financial literacy, provide financial infrastructure in rural areas, increase confidence through consumer protection, and compile statistics on financial inclusion. It is too soon to assess the outcomes of the strategy, but there are signs of progress. Between 2011 and 2017, 10 percent of adults acquired ownership of an account, credit increased by 5 percentage points of GDP, and some 14 percent of bank credit to businesses shifted to small and medium-sized enterprises. The results could extend beyond financial inclusion into gender equality and entrepreneurship. Evidence from *Mexico* has found that municipalities where financial inclusion increased more also saw more women entrepreneurs, holding other factors constant.<sup>20</sup>

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<sup>15</sup> Muralidharan and others (2016).

<sup>16</sup> National Institute of Public Finance and Policy (2012).

<sup>17</sup> Bhatia and Bhabha (2017); Brewer and others (2015); Gelb and Mukherjee (2019).

<sup>18</sup> Buku and Meredith (2012).

<sup>19</sup> Suri and Jack (2016); Jack and Suri (2014).

<sup>20</sup> Fareed and others (2017).

## Annex IV. Modeling the Impact of Leveling the Playing Field Across Gender

**1. This annex describes the model and calibrations for examining the impact of increasing educational outcomes in emerging markets and leveling the playing field across gender.** The model as described here is calibrated to the economy of *Brazil*. A corresponding calibration for the economy of the *United States*, using the equivalent model, is described in Fabrizio and others (2020). The main difference between these two models relate to taxes and transfers. The *United States* model replicates the Child Care Development Fund (CCDF) that provides childcare subsidies for low-income families, while the *Brazil* model replicates the conditional cash transfer program Bolsa Familia. The *United States* model also replicates the joint taxation system in the United States, while in the case of *Brazil*, the unit of taxation is the individual.

### Environment

**2. We study a stationary overlapping generations economy populated by a continuum of married males ( $m$ ) and females ( $f$ ).** Let  $j \in \{1, 2, \dots, J\}$  denote the age of each individual. We assume that the population grows at rate  $n$  and that the population structure is stationary.

**3. In the model, individuals are endowed with a given level of education and start their adult life married.** They retire at age  $Jr$  and collect pension benefits until they die at age  $J$ . We assume for simplicity that agents are married to individuals of the same age. Married individuals differ in their education and number of children, and the latter is a function of the couple's education. Children appear in the beginning of parents' lifetime and stay with them for three periods.

**4. Each period, working households decide on labor supply, consumption, and saving.** Households cannot borrow but can save. If in a family with children both heads of household work, the household pays for childcare. Households differ according to the childcare costs, which in turn depend on the household education level and the children's age. In addition, if both heads of household work, the household incurs a utility cost that is not captured in the model, such as support of relatives, heterogeneity in the preference of spending time with children, and availability of childcare. Women who decide not to work incur labor efficiency costs in the next period due to loss of experience.

**5. The government taxes households and provides transfers.** The government also administers the Bolsa Familia, which is a conditional cash-transfer program for families with children below a certain income, conditional on children's school attendance.

### Technology

**6. There is an aggregate firm that operates constant returns to scale technology.** The firm rents capital and labor services from households at rates  $R$  and  $w$ . Using  $K$  units of capital and  $L$  units of labor, the firm produces  $F(K, L) = K^\alpha L^{1-\alpha}$  units of consumption goods. Capital depreciates at rate  $\delta$ .

## Childcare and Labor

**7. Childcare services are provided using labor services only in a linear way.** Thus, the price of childcare services is wage rate  $w$ . Total labor services available are divided between childcare services and the production of goods. Households save in the form of a risk-free asset that pays the competitive rate of return  $r = R - \delta$ .

## Demographics

**8. Individuals differ in terms of their labor efficiency at the beginning of their lives.** Each individual is endowed with an exogenous type  $z$  for males and  $x$  for females. Men's productivity at age  $j$  and type  $z$  is denoted by  $h_m(z, j)$ . As opposed to for men, women's productivity evolves endogenously. Each female starts her life with productivity that depends on her education level, denoted by  $h_f(x, 1)$ . After age 1, her productivity level  $h_f'$  depends on her past level of productivity  $h_f$ , age  $j$ , education level  $x$ , and labor supply  $l_f$  and is given by

$$h_f' = \exp\left(h_f + \alpha(x, j)I(l_f > 0) - \delta(x, j)(1 - I(l_f > 0))\right)$$

Here,  $\alpha(x, j)$  is the female's productivity growth rate associated with her work experience;  $\delta(x, j)$  is her productivity depreciation rate for not working; and  $I$  is an indicator function that is equal to 1 when the woman works and zero otherwise. The growth and depreciation rates depend on her education, which captures the difference in age-earning profiles of females with different levels of education.

## Preferences, Children, and Childcare Costs

**9. If a female works, the household must pay childcare costs.** The cost depends on the husband's and wife's education, the age of the children, and the number of children. The childcare cost is paid as a fraction of household income and is denoted by  $\theta$ .

**10. At the start of their lives, married households draw a utility cost  $q$  that represents the cost of joint market work.** Following Guner, Kaygusuz, and Ventura (2012), we assume that the initial utility cost depends on the husband's education. The momentary utility function for a married household is then given by

$$u(c, l_m, l_f, q) = 2 \log(c) - \varphi (l_m)^\chi - \varphi (l_f)^\chi - q (I\{1\}(l_f > 0))$$

Here,  $c$  is consumption;  $l_f$  and  $l_m$  are the time devoted to market work;  $\varphi$  is the parameter for the disutility of work;  $\chi$  is the intertemporal elasticity of labor supply; and  $q$  is the utility cost incurred by the family when the female works ( $l_f > 0$ ).

## Government

**11. The government collects various taxes.** The taxes include value-added taxes  $\tau_c$  and progressive labor income  $\tau_i(\cdot)$ . In addition, the government collects payroll taxes  $\tau_{ss}$  and capital income taxes  $\tau_k$ . It uses tax collection to pay for government consumption, Bolsa Familia, and pension benefits.

## Income, Taxation, Transfers, and Social Security

**12. Income for tax purposes is defined as total labor and capital income.** This is equal to

$$I = ra + w \left( l_m h_m(z, j) + l_f h_f(x, j) \right).$$

**13. We assume that social security benefits are not taxed and that retired households' income for tax purposes is just  $ra$ .** The total tax income liability depends on each individual income  $\tau_i(I)$ . These functions are continuous in  $I$ , increasing, and convex. Government transfers depend on the household income and number of children  $T(I, k)$ , and we assume that this function is continuous, increasing, and convex. We assume that the social security system balances its budget every period.

**14. Retired households have access to social security benefits.** We assume that social security benefits depend on agents' education type. That is, more educated agents receive larger social security benefits. This allows us to capture in a parsimonious way the positive relationship between lifetime earnings and social security benefits. We assume that the government guarantees a minimum pension, which is equal to the minimum wage for low-income households.

## Decision Problem

**15. Households maximize the sum of the utilities of husband and wife.** Consumption is a public good. Let  $s = (z, x, q)$  be the exogenous state for married couples. Couples maximize household utility by choosing consumption, labor supply, and saving according to the following:

$$V(a, h, s, j) = \max_{\{a', l_f, l_m\}} u(c, l_m, l_f, q) + \beta V(a', h', s, j + 1)$$

subject to

$$\begin{aligned} (1 + \tau_c)c + a' \\ &= (1 - \tau_i(wl_m h_m) - \tau_{ss} - \theta(j)k(s, j)(l_f > 0) + ra)w l_m h_m \\ &+ \left(1 - \tau_i(wl_f h_f) - \tau_{ss} - \theta(j)k(s, j)(l_f > 0)\right)w l_f h_f + a(1 + r(1 - \tau_k)) + T(I) \end{aligned}$$

in which  $l_m, l_f > 0$  and  $I = w l_m h_m + w l_f h_f + ra$



## Equilibrium

**16. The equilibrium is described as follows.** The stationary equilibrium of this economy consists of a stationary distribution of types over asset and human capital space, policy functions, and value functions, such that given prices and government policies, they satisfy households' maximization problems, government budget constraints, distribution's law of motion, and labor and capital market clearing conditions.

## Calibration

**17. The model is calibrated to match data from the 2010 Brazilian census provided by IPUMS International.** A large share of the parameters is calibrated jointly, in equilibrium, allowing the model to match the moments from *Brazil's* aggregated and disaggregated characteristics in 2010. Table AIV.1 reports the results for the parameters calibrated endogenously, and Table AIV.2 reports a number of exogenous parameter values. Some of the parameters calibrated draw on Guner, Kaygusuz, and Ventura (2019). Table AIV.3 reports demographic statistics.

**Table AIV.1. Parameters Calibrated Endogenously**

Targeted Statistic	Model	Data
Average hours worked	0.40	0.40
FLFP females with less than primary education	0.53	0.51
FLFP females with less than secondary education	0.59	0.59
FLFP females with high school education	0.70	0.70
FLFP females with college education	0.86	0.86
Capital-output ratio	2.00	2.00

Note: FLFP = female labor force participation.

**Table AIV.2. Exogenous Input Parameters**

<b>Statistics</b>	<b>Value Found in Data and Added to the Model</b>
Model period	5 years
Population growth ( $n$ )	0.01
Elasticity of labor supply ( $\chi$ )	3.5
Discount factor ( $\beta$ )	0.96
Capital share ( $\alpha$ )	0.343
Depreciation of capital ( $\delta$ )	0.055
Capital taxes ( $\tau_k$ )	0.15
Value-added taxes ( $\tau_c$ )	0.17
Labor income tax function $\tau_i(I) = a + b(I/AW) + c(I/AW)^d$ <sup>1/</sup>	-0.25, 0.00, 0.26, 0.11
Social security contribution ( $\tau_{ss}$ )	0.32
Conditional Cash-Transfer (Bolsa Familia) ( $I \leq 0.25 \cdot AW$ )	0.11
Childcare cost, early education	0.02
Childcare cost, middle education	0.04
Childcare cost, high school	0.05

<sup>1/</sup> AW denotes the average income in the economy.

**Table AIV.3. Demographics**

<b>Demographics</b>				
(Men across rows and women across columns)				
Women\Men	<Primary	<Secondary	High-School	College
<Primary	21.97	4.65	2.11	0.21
<Secondary	7.01	10.48	4.89	0.55
High-School	3.09	5.07	18.19	8.38
College	0.56	2.47	6.02	4.27