

# “Do Labor Markets Limit the Inclusiveness of Growth in the Dominican Republic?”

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The strong economic growth enjoyed by the Dominican Republic following its 2003 domestic crisis was not matched by similarly substantial progress in poverty reduction. While labor productivity grew by an estimated 39 percent between 2000 and 2013, real wages fell with the crisis in 2003/04, and, in 2013, remained below their pre-crisis level. This report presents an assessment of factors related to the functioning of the labor markets that constrained more inclusive growth in the Dominican Republic. It explores several hypotheses related to labor supply factors, job creation, and global trends in returns to labor, as well as issues with statistical measurements that contribute to explain the weak relationship observed between growth and poverty reduction. The analysis finds that growth appears to have been driven by productivity increases rather than by increases in labor inputs. At the same time, low-skilled workers became increasingly concentrated in low-quality jobs and in sectors that saw low productivity growth, a trend enhanced by the loss of manufacturing jobs since 2000. Low rates of labor force participation, particularly among the poor, further limited the ability of households to benefit from growth.

Poverty Global Practice and Equity  
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# 1. Introduction

**The Dominican Republic has sustained remarkable growth over the past decade, becoming one of the most rapidly-growing economies in Latin America and closing the per capita income gap with the rest of the region.** Between 2000 and 2014, growth in the country averaged 4.6 percent a year, significantly above the Latin America and the Caribbean (LAC) regional mean (3.1 percent).<sup>1</sup> During the same period, GDP per capita in the Dominican Republic (DR) grew at 3.4 percent per year, above the region's annual average of 1.8 percent. This faster pace of growth had led to converging incomes: while the regional average income was 46 percent higher than the Dominican Republic's in 1990, by 2014 it had narrowed to only 15 percent. In fact, estimates show that if the paces of growth observed during the past five years continue, the gap would disappear by 2020 (World Bank, 2014). The robust growth trend has been driven by large flows of foreign direct investment, domestic consumption—boosted by remittances—and, to a lesser extent, by exports, mainly tourism. Economic reforms introduced in the early nineties contributed to ensure macroeconomic stability, attracting foreign capital and instituting sound economic policies.

**After enduring a severe domestic crisis in the middle of the 2000s, the Dominican Republic continued its positive growth trajectory—largely unfazed by the global financial crisis of 2008-09.** During the nineties and the beginning of the 2000s, the country experienced rapid and stable economic growth. Then, following a bank collapse in 2003, rapid currency depreciation and inflation hastened a domestic crisis, which caused the economy to contract. However, growth recovered quickly and by 2005 the economy was growing at higher rates than in previous years. The country was more resilient during the recent international financial crisis. While the downturn seriously affected several countries in the region resulting in negative growth at the regional level in 2009, growth slowed but remained positive and relatively strong in the DR in both 2008 and 2009 (at 5.3 and 3.5 percent, respectively), and averaged annual growth rates of 5.0 percent afterwards.<sup>2</sup> This resilience was largely the result of the government's anti-crisis expansionary fiscal policy, implemented as a response to cushion the shock.

**However, this remarkable and sustained economic growth did not result in significant poverty reduction during the decade following the crisis, suggesting it was less inclusive than the growth of the region.** At 41.8 percent, official poverty in 2013 remained above the level recorded in the year 2000 (32.6 percent)—largely explained by the domestic crisis that hit the DR in 2003-04, which pushed poverty up to 49.9 percent.<sup>3</sup> Similarly, harmonized data for 17 LAC countries—not comparable to official numbers—shows that poverty remains high by regional standards.<sup>4</sup> In 2013 poverty in the country (33 percent) was eight percentage points higher than the LAC average (25 percent). The reduction in poverty in the DR was also lower than that of Panama, a neighboring country that, like the DR, experienced strong and stable economic growth during these years.

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<sup>1</sup> Unless otherwise noted, macroeconomic growth estimates used in this analysis are from indicators published prior to 2015. In mid-2015, the Central Bank of the Dominican Republic published a new updated series that uses a different methodology. See Section 3.1 for more information regarding the implications of this new methodology.

<sup>2</sup> These estimates are based on an older methodology for national accounts estimates. Note that new national account estimates suggest that growth in 2009 fell to 0.9 percent.

<sup>3</sup> While the Dominican Republic publishes official poverty rates twice per year, based on March and September data, in this report we only report September poverty rates so as to avoid issues related to seasonality.

<sup>4</sup> These results are based on tabulations of SEDLAC (CEDLAS and the World Bank, 2010). This database is a regional data harmonization effort that increases cross-country comparability. To increase comparability, indicators attributed to SEDLAC throughout this document may differ from official statistics reported by governments and national statistical offices. The LAC aggregate is based on 17 countries in the region for which micro-data are available.

**Poverty has fallen substantially since 2013.** After remaining above 40 percent since the crisis, poverty calculations for 2014 point to a sizeable one-year reduction; data from 2015 suggests a continued reduction in poverty. This report, however, focuses on the slow gains in poverty through 2013 and the possible explanations for why the country's high growth failed to translate into significant reductions in poverty during this period.

**A central factor underlying the lack of inclusive growth through 2013 is an apparent disconnect between labor productivity and labor market earnings.** In line with its very strong output growth, the DR recorded high rates of labor productivity between 2000 and 2013. Commonly cited estimates indicate that productivity increased by 39 percent during this period. However, real wages followed an opposite trend, falling between the late 1990s and 2004—a trend that was intensified by the banking crisis—and largely stagnating through 2013. As a result, per hour real earnings for both wage workers and for self-employed wage workers were about 26 percent lower in 2013 than in 2000.

**Another element behind the observed lack of inclusive growth is the relatively low and unresponsive level of participation of adult Dominicans in the labor market.**<sup>5</sup> Labor markets are the most prominent mechanism channeling the benefits of growth to the population. As such, labor force participation and employment status are often strong predictors of poverty and differences in income. Data for the DR show that the engagement of working-age people in labor markets is relatively low, especially among the poor. At 67 percent, the labor force participation in the DR was among the lowest of 17 countries in LAC in 2013—and this proportion remained more or less unchanged, even in periods of strong economic growth. The low participation rate is even more critical among the poor, among whom only half (55 percent) were either working or actively looking for a job in 2013.

**The main objective of this study is to disentangle some of the factors related to the functioning of labor markets that impeded the gains from growth for the first decade after the 2003-04 crisis from being more inclusive.** To this end, this report investigates the two puzzles suggested above: 1) why did wages and labor productivity trends differ?, and 2) why was the labor force not more responsive to growth? Underlying these two puzzles are several hypotheses—ranging from labor supply factors, to job creation, to international trends in labor and capital remuneration, to economic statistical measurement. The assessment of the functioning of labor markets in the DR with a focus on equity can contribute to inform the ongoing policy debate about the necessary reforms to enhance the linkages between economic growth, labor incomes and poverty reduction. A well-functioning labor market can play a key role in transforming human capital into earnings, providing income-generating opportunities for households. Improving the quality of labor market engagement, where low-income and low-skilled individuals can participate actively and productively, can have a significant impact on living standards and poverty reduction in the DR.

**This analysis identifies a number of factors that limited the ability of labor markets to accelerate poverty reduction in the DR.** First, issues of statistical measurement appear to have led to an overestimation of the labor productivity-earnings gap. However, after accounting for measurement error, the gap remains substantial and real. Second, the labor share of income—the share

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<sup>5</sup> Unless otherwise noted, labor force participation rates and unemployment rates included in this report are based on the open unemployment definition (i.e. individuals actively searching for employment).

of output allocated to compensate labor—in the DR remained low by international comparison though similar to other developing Latin American economies. The analysis also finds falling labor share in the sectors largely driving economic growth, possibly due to “biased” technical change that increases productivity while lowering demand for labor. Moreover, economic growth did not lead to sizeable job creation. Behind the austere creation of jobs was a relatively low elasticity of employment to growth. Growth appears to have been driven much more by productivity increases than by labor inputs. A critical factor that affects the ability of markets to accelerate poverty reduction is the fact that low-skilled workers became increasingly concentrated in low-quality jobs and in sectors that saw low productivity growth, a trend enhanced by the loss of manufacturing jobs since 2000. Low rates of labor force participation, particularly among the poor, limited the ability of households to benefit from growth. Finally, the analysis does not find evidence of an effect of Haitian immigrant labor on local wages. This is due to this group’s significantly lower levels of schooling and high concentration in few economic activities, which limits their ability to directly compete with local workers.

**This report puts forward a set of guiding principles for setting policy priorities for jobs with an equity lens in the DR.** The results of the analysis define four broad areas for policy to remove or mitigate the constraints that prevent job creation and discourage increased labor force participation. The first has to do with *increasing both the supply and intensity of use of human capital*, in particular increasing the relevance and quality of schooling and access to other basic services; implementing sound youth training and employment programs; offering childcare and pre-school access; and putting in place interventions to reduce teenage pregnancy. It is also important to *set labor policies that both incentivize job creation and reduce inefficiencies*, such as simplifying labor legislation to reduce distortions and transactions costs without sacrificing basic social standards. A third area is to *increase productivity in all sectors and improve the business climate* to boost job creation through investing in productivity growth in sectors where the poor are concentrated; improving service delivery and quality; enhancing the business climate; and improving infrastructure to decrease transaction costs and improve connectivity. Finally, strong evidence-based labor market policy further requires *advancing statistical capacity and the labor markets knowledge agenda* to understand the weak linkages between growth and employment.

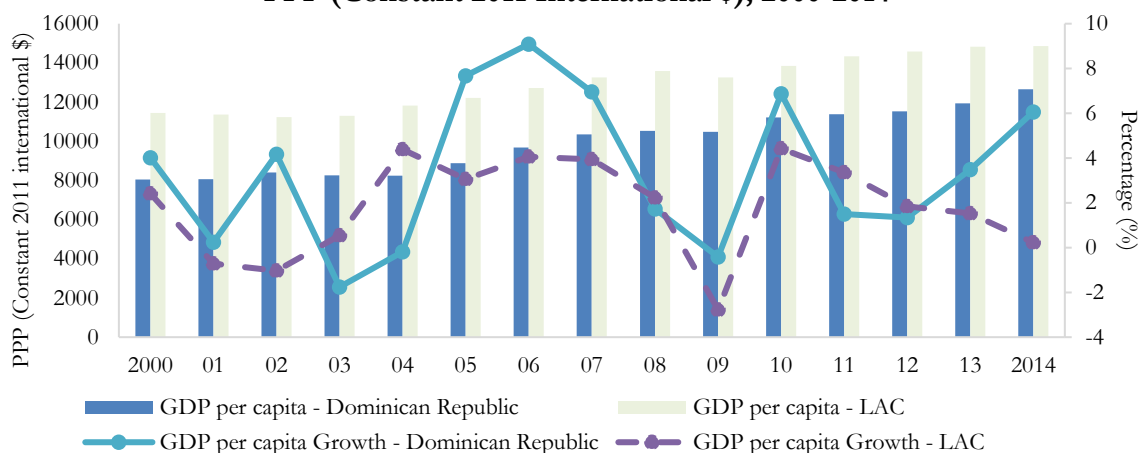
The rest of the report is structured as follows. Section 2 presents an overview of growth and poverty trends in the DR through 2013. Section 3 explores the question of why growth was not more inclusive in the country. If labor markets are the reason behind the lack of inclusive growth in the DR during this period, then what was behind their underperformance: why was labor supply low and unresponsive, why were wages and productivity disconnected? The rest of the section explores six hypotheses linked to these questions. These include low labor force participation and increased immigration; the lack of demand for labor despite robust growth; the allocation of labor between economic sectors and levels of skill; issues of measurement; and the global and national decline in the labor share of income. Section 4 presents some principles that could guide policy efforts aimed at enhancing the functioning of labor markets. Section 5 presents conclusions.

## **2. The Lack of Inclusive Growth in the Dominican Republic**

**The Dominican economy expanded at a yearly average pace of 4.6 percent between 2000 and 2014, considerably higher than the LAC mean (3.1 percent).** In addition, GDP per capita in the country grew at 3.4 percent annually over the same period, well above than the region’s average of 1.8 percent (Figure 2.1). The difference in these growth rates has led to an income convergence between

the DR and the LAC regional average: in 2014 the regional average income was 15 percent higher than the country's, a substantial decline from the situation in 1990, when it was 46 percent higher. Similarly, the average income per capita of Dominicans in 2014 was 24 percent of that in the United States, up from 14 in 1990.

**Figure 2.1. The Dominican Republic has seen stronger growth than the regional average since 2000**  
**PPP (Constant 2011 International \$), 2000-2014**



Source: World Development Indicators, World Bank.

**The rapid growth process in the country was temporarily halted by a domestic financial crisis in the early 2000s but less so by the 2009 Global Financial Crisis.** After enjoying rapid economic growth during the 1990s, the Dominican economy entered a downward spiral in 2003. The aftermath of the domestic crisis saw several macroeconomic fundamentals deteriorate: the economy shrank by 0.3 percent, the first contraction since 1990; inflation underwent a fourfold increase; the Dominican peso collapsed; interest rates soared; and public debt more than doubled. And yet, even though growth remained slow in 2004, the following year marked the beginning of the economic recovery process. Growth reached rates on the order of 10 percent in 2005 and 2006. Four years later, the economy was one of the least affected in the region by the Global Financial Crisis. Although growth slowed following the international economic downturn, it remained positive (at 5.3 and 3.5 percent, in 2008 and 2009, respectively), as the economy managed to weather the negative consequences of the crisis.<sup>6</sup>

**The sectoral composition of the economy has changed over time, slowly transitioning towards services, which are becoming more important vis-à-vis other sectors.** In terms of value added, the share contributed by the service sector grew from 52.3 percent in 2000 to 61 percent in 2013. In fact, services contributed 71.3 percent of the total annual average value-added growth along this period.<sup>7</sup> On the other hand, the proportion of value added driven by manufacturing dropped by 6.8 percentage points over the 2000s. As noted by Carneiro et al. (2015), the destruction of manufacturing jobs, particularly in textiles, resulted from a combination of the 2003/04 crisis and the phasing out of preferential quotas in the US market completed in 2005. Within the services sector, communications have grown substantially—from 9.8 percent of total services value added in 2000 to almost 31 percent

<sup>6</sup> Unless otherwise noted, macroeconomic growth estimates used in this analysis are from indicators published prior to 2015. In mid-2015, the Central Bank of the Dominican Republic published a new updated series that uses a different methodology. See Section 3.1 for more information regarding the implications of this new methodology. Note that new national account estimates suggest that growth in 2009 fell to 0.9 percent.

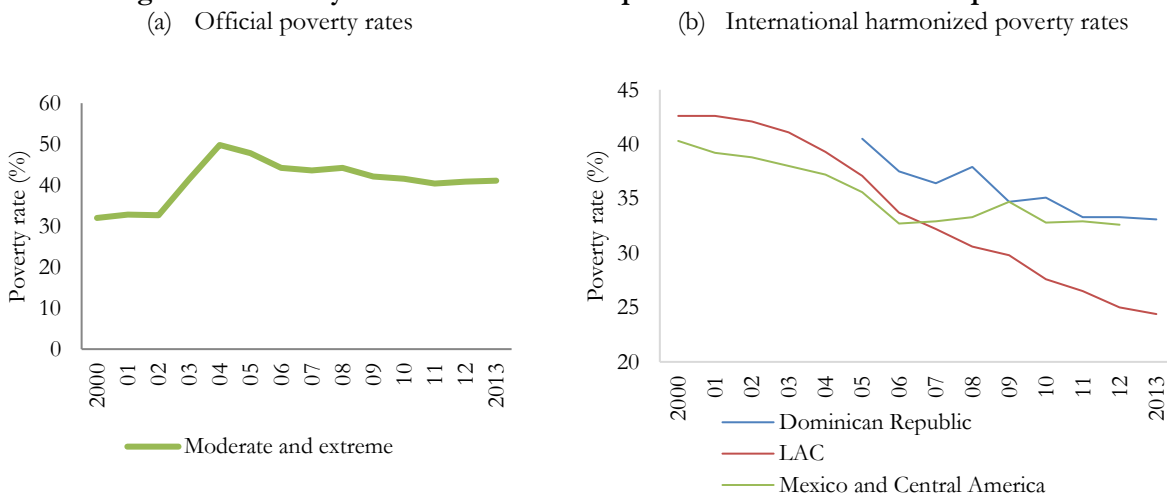
<sup>7</sup> Considering the simple average of the contribution to value added growth, services contributed 3.2 points out of the total annual average growth of 4.4 points between 2000 and 2011.



in 2011—while all other subsectors, particularly trade and transportation, have contracted. Other sectors such as agriculture and construction are losing ground in the structure of the Dominican economy. For instance, the share of agriculture in the total GDP fell from 8.5 to 7.6 percent during the 2000-2013 period. Similarly, construction contracted in five years between 2000 and 2013, while the services sector grew every year over the same period.

**While fast-growing labor productivity has contributed to the rapid pace of GDP growth, such labor productivity dynamism has not been matched by an equivalent contribution in terms of job creation.** More than a shift in employment to higher productivity sectors, it appears then that rising labor productivity is what has been leading GDP growth. The sectors contributing the most to economic growth so far—transportation, communications, financial services, and manufacturing—have not created a significant number of net new jobs. Indeed, the findings of Abdullaev and Esteveao (2013) suggest that the share of total employment of these sectors has either declined or stayed constant. This is particularly the case in manufacturing. Although this sector has lost some terrain to services, manufacturing still had the second-highest annual average contribution to value added growth from 2001–2011. Yet, it was also the sector that lost the most jobs, reducing its total employment share by 6 percentage points between 1996 and 2011. On the contrary, the majority of job growth has been in low-productivity sectors, such as community, social and private household services, and in occupations that require low-skilled workers.

**Figure 2.2. Poverty has fallen less than expected in the Dominican Republic**



Source: Official estimates.

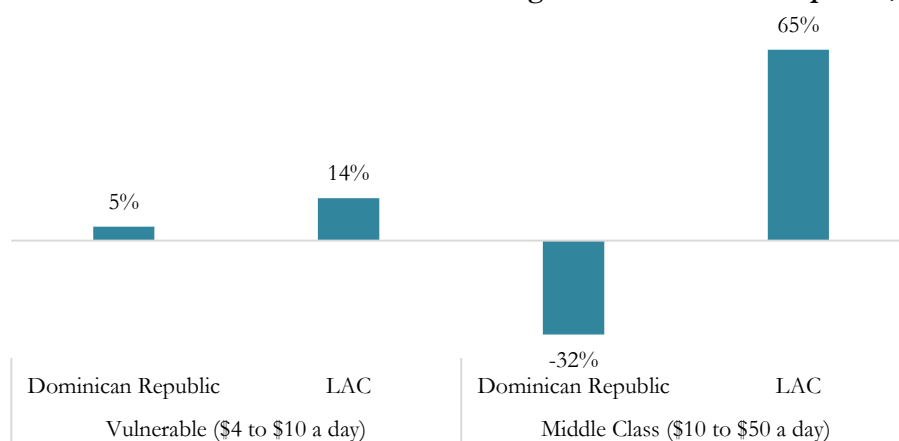
Source: LAC Equity Lab tabulations of SEDLAC (CEDLAS and the World Bank).

**While the impact of economic growth on poverty has been satisfactory at times, by 2013 poverty had fallen less than expected.** Poverty in the DR as of 2013 was higher than it had been in the early 2000s. The DR began the 2000s with a poverty rate of 30 percent (based on the official poverty line) (Figure 2.2a). The domestic financial crisis of 2003-04 caused a spike in poverty, with poverty increasing to almost 50 percent. By 2013, poverty stood at 41.2 percent having fallen by only 8.6 percentage points, a positive but modest amount in light of the robust growth that characterized the Dominican economy during this period. The extreme poverty rate followed a similar path. It nearly

doubled from 8.1 percent in 2000 to 15.5 percent in 2004, after which it gradually decreased to reach 10.1 percent in 2013.<sup>8</sup>

**The limited impact of growth on poverty reduction in the DR is clear when compared to the evolution of poverty in LAC.** Harmonized household survey data for a group of 17 countries in LAC allows comparable measurement of poverty and other related indicators. In 2005, 37.4 percent of the people in LAC were living below the poverty line (US\$4 PPP), that is, just 3 percentage points lower than the fraction of Dominicans that were considered poor (40.5 percent). However, over the next years, poverty fell faster in LAC than in the DR. By 2013, poverty had fallen by 35 percent to 24.4 percent in LAC and by 18 percent to 33.1 percent in the DR, so that the proportion of the poor in the country is over 8 percentage points above the regional average (Figure 2.2b). The fast pace of poverty reduction in LAC pulled over 65 million people out of poverty in the region. This stands in stark contrast with the modest poverty reduction recorded in the DR. Instead, the DR’s experience is more in line with that of Central America and Mexico, where poverty reduction was not as high or robust as in the region at large.

**Figure 2.3. The size of the middle class has been shrinking in the Dominican Republic, 2000-2013**



Source: Based on official tabulations by Dominican authorities (MEPyD, 2015); LAC Equity Lab tabulations of SEDLAC (CEDLAS and the World Bank) for LAC indicators.

**A shrinking middle class also points to the limited inclusiveness of growth in the DR.** Alongside the poverty reduction experienced by LAC, economic mobility has improved remarkably in the region. The size of the middle class in LAC—defined as those living with US\$10-50 PPP per capita per day—increased by 65 percent between 2000 to 2013 (Figure 2.3). The middle class in LAC in 2013 accounted for a third of the population, exceeding the number of people living in poverty in the region. On the other hand, the group of “vulnerable”—those individuals living above the US\$4/day poverty line but who still have a sizable risk of falling back into poverty should they suffer a negative shock—also increased in the region by 14 percent. The DR also saw an increase in the size of the “vulnerable” group, but contrary to the upward mobility trend in LAC, the middle class was 32 percent smaller in 2013 than what it was in the early 2000s.

<sup>8</sup> As noted above, poverty fell significantly between 2013 and 2014, but this report focuses on the factors contributing to the lack of poverty reduction through 2013. Note that the SEDLAC poverty estimates for the DR are not comparable before and after 2005.

### 3. Why was Growth not more Pro-Poor? A Labor Market Assessment

At the bottom of this robust but only modestly pro-poor growth process was a continued increase in labor productivity and persistently low labor force participation. The strong output growth of the DR was largely fueled by fast-growing labor productivity, which grew by 39 percent between 2000 and 2013.<sup>9</sup> On the other hand, the specific key drivers of productivity growth in the country (firm-specific factors such as physical or human capital, innovation and technological change; business and policy environment factors; or the dynamics of the global economy) remain to be diagnosed. In addition, why did increased productivity not lead to increased job creation? Even if increased productivity resulted from increased technology adoption and innovation, how come increased outputs did not translate into increased demand for labor?

In tandem with the increase in labor productivity and low labor force participation, the Dominican economy experienced a puzzling wage stagnation following the recovery from the 2003-04 crisis. Real wages remained significantly lower in 2013 than they were prior to the domestic financial crisis. Average real hourly wages suffered a major downward adjustment between 2003 and 2004, at the peak of the crisis, when inflation soared. In these years, average hourly wages fell by nearly 32 percent compared with the levels recorded at the beginning of the decade. By 2013, wages had bounced back but, at 78.6 percent of the level recorded in 2000, they remained below pre-crisis level (Figure 3.1).



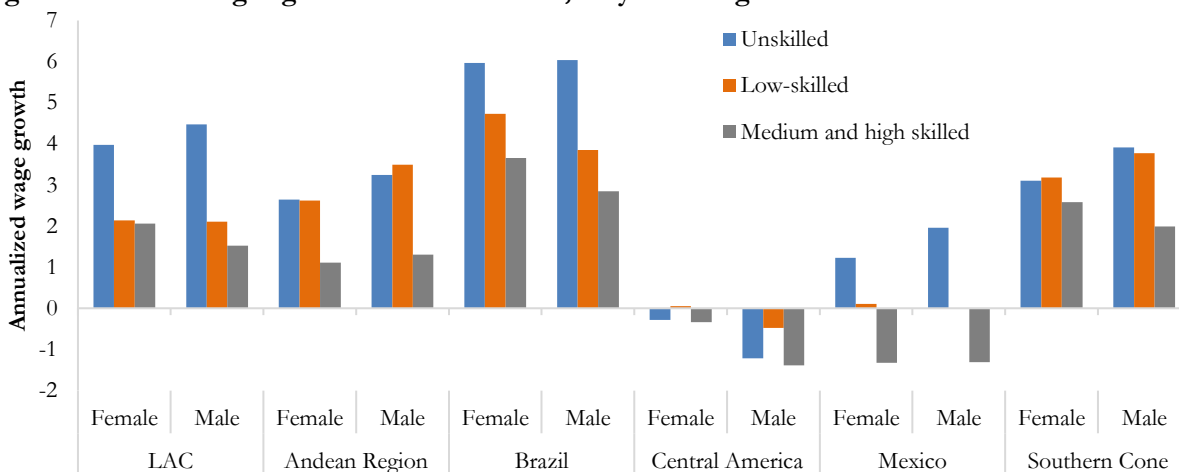
Source: Own estimates based on ENFT (2000-2013) and the Central Bank of the Dominican Republic.

**The stagnant wages phenomenon is not limited to the Dominican Republic but is in fact a worrying trend in both developed economies and among DR's neighbors in Central America and Mexico.** Despite the across-the-board gains experienced in the LAC region as a whole, the Dominican Republic and the countries of Central America did not experience real wage gains between

<sup>9</sup> Unless otherwise noted, macroeconomic growth estimates used in this analysis are from indicators published prior to 2015. In mid-2015, the Central Bank of the Dominican Republic published a new updated series that uses a different methodology. See Section 3.1 for more information regarding the implications of this new methodology.

2003 and 2013 (World Bank, 2015). Instead, while the average worker who did not finish primary school (the unskilled) had annualized wage growth on the order of 4-4.5 percent per year in the LAC region, workers in Central America saw their wages fall, especially among men (Figure 3.2).<sup>10</sup> Similarly, a recent report notes that real wages were stagnant between 2010 and 2013 across OECD countries (OECD, 2014). Wages fell in Japan, Britain and the euro zone, and barely grew in the United States.

**Figure 3.2. While wages grew in South America, they did not grow in Central America and Mexico**



Source: World Bank, 2015. Note: Annualized growth of hourly wages by skill level and gender between 2003 and 2013. The sample is limited to workers between the ages of 18 and 65 years old who received wages. For the purposes of the cited study, the Dominican Republic is included in the category of Central America.

**Wages in the DR were lower across the board in 2013 than in 2000; this drop in wages was more pronounced for some groups of workers than for others, especially women and urban workers.** For all groups of workers, hourly wages in 2013 were below the levels in 2000 and had not recovered in real term from the wage level in 2004 following the crisis. In terms of the magnitude of the change, the remuneration of all types of workers fell by a similar amount: skilled workers (30.4 percent), low-skilled (31.8 percent) and unskilled workers (29.7 percent). Lower real wages are also widespread across different types of workers, including self-employed (24.3 percent), salaried (21.4 percent), private (23.9 percent), public (27.1 percent), male (23.7 percent), female (28.8 percent), urban (27.3 percent) and rural (19.1 percent), among others.

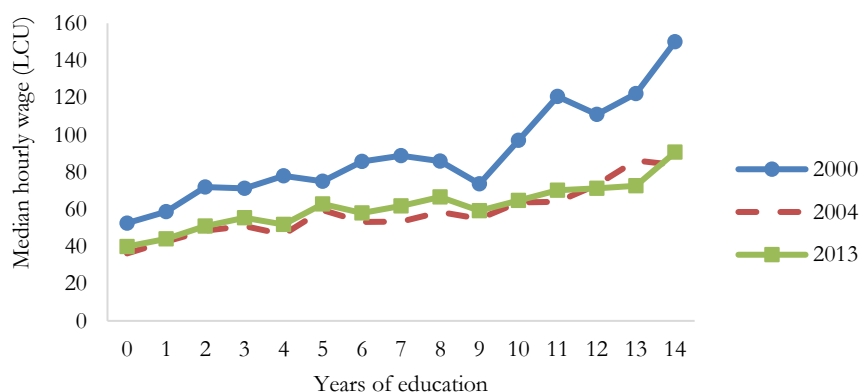
**Regardless of the number of years of education accumulated, workers earned lower wages in 2013, in real terms, than they did in the past, undermining the expected positive effect of additional schooling on the economy.** For instance, while a typical worker with only eight years of elementary education (compulsory education in the DR) earned about 85.9 pesos/hour in 2000, her remuneration fell to 58.6 pesos/hour in 2004 at the peak of the crisis and had increased only slightly to 66.6 pesos/hour by 2013 (Figure 3.3).<sup>11</sup> The same pattern applies across all years of school attainment. In 2013, a worker with 14 or more years of education (equivalent to college degree or more) earned roughly the same hourly wage as a worker with 10 years of education (equivalent to

<sup>10</sup> Throughout this analysis, the terms unskilled, low-skilled and skilled refer to the educational attainment of workers as follows: unskilled workers are those who did not complete primary school; low-skilled workers are those who completed primary school but did not complete secondary; and skilled workers are those who completed secondary school, including those with tertiary education.

<sup>11</sup> Based on 2007 constant Dominican pesos.

elementary school plus two out of four years of high school) earned in 2000. Compared to their level in 2000, wages for workers with one or more years of education were on average 34 percent lower during the time of domestic crisis. The rapid post-crisis growth period did not do much to return wages to their baseline. As of 2013, real wages remained 31 percent below the level observed in 2000.

**Figure 3.3. Median hourly wages for all education levels have not recovered since 2004**



Source: Own estimates based on ENFT. Note: Considers prime age workers (25-65 years)

**The grim evolution of real wages and low labor force participation in the face of output and productivity growth points to the underperformance of labor markets as one of the root causes of the DR’s lack of inclusive growth.** Labor markets provide the main channel through which the benefits of economic growth can trickle down to individuals in a society. For those with few capital assets—including the poorest—access to sufficient earnings opportunities through employment constitute crucial determinants of poverty reduction. By the same token, job creation and innovation is a major channel through which individuals contribute to and sustain economic growth. Notwithstanding the intuitive relationship between growth and employment, this study argues that the functioning of labor markets in the DR constrains the ability of jobs to reduce poverty through two significant dimensions. First, labor appears to be under-utilized in the economy. Employment rates are low, especially among those with lower educational attainment, undermining the connection of the poor to economic growth. Second, labor productivity and wages appear to be largely detached, limiting the linkages between jobs and economic mobility among those who decide to participate in the labor market. Finally, this study also considers the role of mismeasurement – both of productivity and wages, suggesting that, while the gap between the two is overstated, it is significant and has grown over the past decade.

**In what follows, this study postulates six hypotheses that could have influenced the weak relationship between economic growth and poverty reduction between 2004 and 2013.** The broad areas discussed through these hypotheses include 1) statistical measurement issues that tend to overestimate the labor productivity-earnings gap; 2) labor supply factors, particularly labor force participation and migration; 3) job creation and employment; 4) allocation of labor factors across sectors; and 5) global and national trends of the labor share of income. Due to limited firm-level data availability and accessibility, issues of labor demand and more precise measurements of labor productivity are not examined in this report. The table below summarizes the hypotheses examined and the main results.

**Table 3.1. Overview of hypotheses**

<i>Hypothesis</i>	<i>Main results</i>
1. Statistical mismeasurement does not explain the gap between the productivity of labor and wages.	<ul style="list-style-type: none"> <li>• Earlier estimates overestimated labor productivity and underestimated labor costs.</li> <li>• Even after improving these two measures, the gap between labor productivity and labor costs is real and has been growing.</li> </ul>
2. The labor share in the DR fell as a result of the 2003/04 crisis but appears to have recovered.	<ul style="list-style-type: none"> <li>• Following the 2003 crisis, the labor share fell dramatically in the DR, but recent data suggests that it has recovered to pre-crisis levels.</li> <li>• The labor share in the DR is similar to other countries in LAC but lower than in high income economies.</li> <li>• Changes in sectoral composition suggest the presence of capital biased technical change as sectors contributing more to growth have seen larger falls in labor shares.</li> </ul>
3. Economic growth has not resulted in increased job creation.	<ul style="list-style-type: none"> <li>• Employment rates have stayed flat for the most part of the 2000s, even during business cycle peaks, and are low compared to other LAC economies.</li> <li>• Unemployment has also remained largely flat, unresponsive in periods of economic growth, pointing to the inability of a growing economy to link the labor force to more and better jobs.</li> <li>• The elevated unemployment among the higher-skilled suggests underutilized human capital, and skills-mismatch.</li> </ul>
4. The quality of jobs has not improved and the poor are concentrated in sectors of low labor productivity growth.	<ul style="list-style-type: none"> <li>• Self-employment and employment in microenterprises continue to account for a majority of jobs in the DR.</li> <li>• Workers in the bottom 40 percent are concentrated in low-quality jobs, and in low productivity sectors, with high shares of informality.</li> <li>• Destruction of manufacturing jobs has resulted in a shift in the sectors that employ workers in poverty towards services, commerce and construction.</li> <li>• Although labor productivity has increased overall, sectors with large shares of the poor have lower or even stagnant labor productivity growth.</li> </ul>
5. Low labor force participation rates limit the extent to which households benefit from economic growth.	<ul style="list-style-type: none"> <li>• Less than two-thirds of adults participate in the labor market in the DR, with just over half of the poor either working or actively looking for a job in 2013.</li> <li>• Female labor force participation is low, though recent trends suggest it has been increasing. Workers with low schooling also have lower rates of participation.</li> <li>• High rates of local unemployment as well as the receipt of remittances may be associated with lower labor force participation, especially for women.</li> </ul>
6. Available evidence suggests that Haitian immigration has little or no effect on wages received by local labor.	<ul style="list-style-type: none"> <li>• Due to lower educational attainment and language barriers, Haitian immigrants are unable to substitute for Dominican labor in most sectors.</li> <li>• Haitian-born workers are concentrated in few sectors: Haitian immigrant men are largely limited to jobs in agriculture and construction, while relatively few Haitian immigrant women are employed.</li> <li>• Evidence suggests that wages of Dominican workers, even unskilled men – the group most likely to compete directly with Haitian immigrants - are not negatively correlated with potential immigrant competition for jobs.</li> </ul>

### 3.1 Statistical Measurement Error

#### **Hypothesis 1: Statistical mismeasurement does not explain the gap between the productivity of labor and wages.**

*The gap between the productivity of labor and wages is real and substantial, though it has been overestimated. While productivity has in fact been rising, data from the recently updated national accounts system shows that its growth is considerably lower—nearly half—than the one found with the previous system. This overstated productivity growth amplifies the disconnection between productivity and wages. The gap also narrows when considering, not only wages, but rather total labor costs. A simulation exercise of these non-wage costs shows that total compensation only marginally closes the gap with labor productivity.*

**Measuring productivity accurately is critical to gauge changes in the efficiency of the economy—i.e., the ability to produce more goods and services at the same cost.** Increases in productivity are an important source of economic growth, and can lead to economic development. Productivity is defined as the ratio of the good and services produced to the inputs used in the production process (typically, labor and capital). Labor productivity is commonly measured by output per hours worked. Traditionally, two primary sources of data are used to estimate productivity: i) aggregate national and industry output data from national accounts, and ii) data on total employment and work hours from labor force surveys.

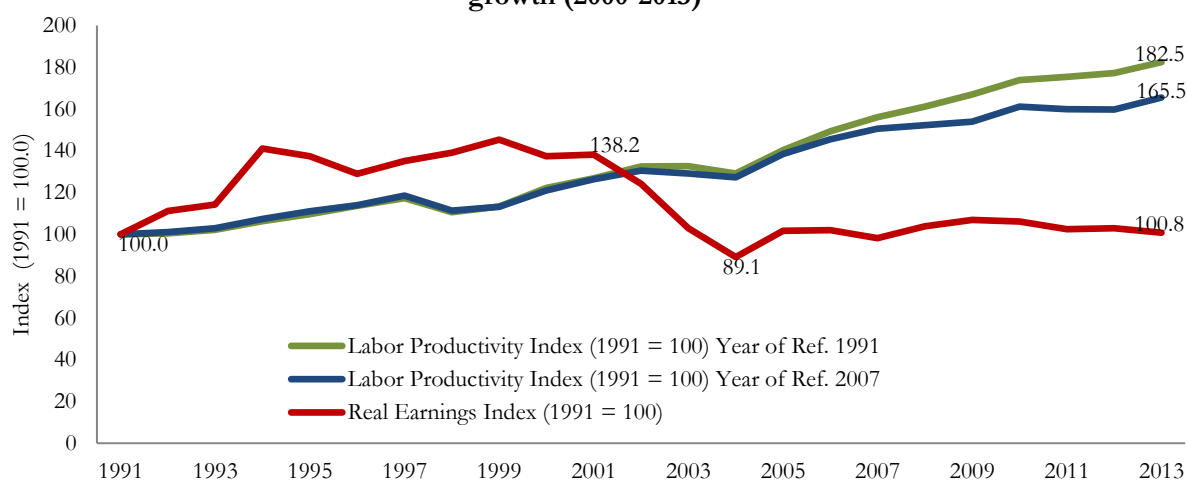
**Updated national accounts suggest that the previous methodology somewhat overestimated labor productivity, magnifying its apparent disconnect from real earnings.** The Central Bank of the Dominican Republic has recently updated its national account system to improve statistical coverage, change the base year of the national account series (from 1991 to 2007), and to adopt a new producer price index.<sup>12</sup> According to the new national accounts data, while labor productivity has been rising, this growth is lower (almost half) than argued with the previous national accounts system. Estimates using the new national accounts methodology show that labor productivity increased by 11.7 percent between 2007 and 2013, nearly half the figure obtained from the previous methodology (22 percent) (Figure 3.4).<sup>13</sup> While the updated methodology shows a smaller gap between labor productivity and earnings, it supports the finding that such a gap has indeed been growing in the Dominican Republic over the past decade.

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<sup>12</sup> Updates to national account methodologies are standard practice allowing countries to improve their growth measurements taking into account changes in the industrial composition of the economy and improvements in data collection.

<sup>13</sup> Discrepancies between the two series are due to improvements in data collection and changes in international statistical standards arising from the adoption of the *2008 System of National Accounts*.

**Figure 3.4. New national accounts methodology results in lower estimates of labor productivity growth (2000-2013)**



Source: Central Bank of the Dominican Republic

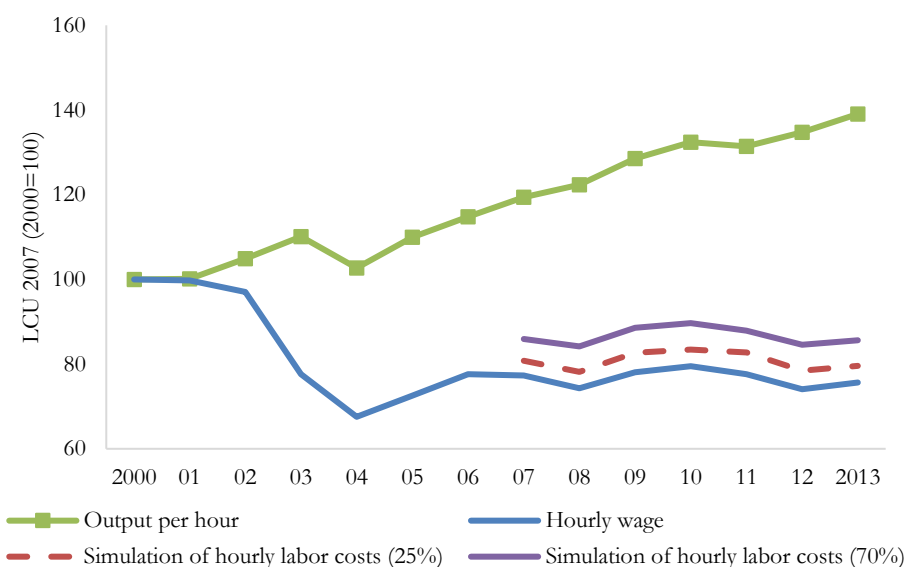
**In addition, taking into account the total labor costs of output—rather than just wages—provides a more accurate picture of how labor productivity and compensation are linked to each other.** Measures of earnings, which are drawn exclusively from data on wages received by workers, provide only a partial estimate of the total cost of labor per unit of output as it excludes other labor costs paid by the employer.

**Analogous to the analysis above based on the new system of national accounts, the gap between labor productivity and compensation also narrows when total labor costs are taken into account.** Between 2003 and 2007, the DR enacted and implemented policies establishing old-age, disability, health insurance, work injury, worker’s medical benefits and other mandatory contributions. The system covers all formal public- and private-sector workers and employers. Even though non-wage social security costs vary considerably from firm to firm—depending on specific labor risks, medical leaves, workers’ turnover, etc.—the standard mandatory contributions (pensions, health, payment bonus and other payments) are estimated to reach an average of 31 percent of the nominal wage, of which the employer is responsible for 25 percentage points and the employee contributes the remaining 6 percentage points.<sup>14</sup> A simulation exercise of the non-wage social security costs paid by the employer (approximately 25 percent extra to wages) in the formal sector for the 2007-2013 period shows that total hourly labor compensation across all employment (both informal and formal) is 6 percent higher than real hourly wages, further closing the gap with labor productivity (Figure 3.5). In fact, even if one were to assume that non-wage labor costs paid by employers in the formal sector amount to 70 percent of wage expenses, a value far exceeding those implied by DR’s legislation, the gap between productivity and labor costs remains significant and total hourly compensation.

<sup>14</sup> These are illustrative estimates as the contributions also vary by worker and employer characteristics. The standard mandatory contribution is comprised of contributions to pensions (7.12 percent, employer; 2.88 percent, employee), medical benefits (7 percent, employer; 3 percent, employee), worker’s compensation for injuries (1.2 percent, employer), payment bonus (10 percent contingent payment, employer), cross-subsidies (0.4 percent, employer) and contribution to the national institute of technical training (INFOTEP: 1 percent, employer).



**Figure 3.5. Considering labor costs instead of wages closes the gap only minimally**



Source: Central Bank and own estimates based on ENFT. Labor costs are simulated by augmenting the labor income of workers with access to social security.

## 3.2 Weak job creation and labor demand

**Hypothesis 2: The labor share in the DR fell as a result of the 2003/04 crisis but appears to have recovered.<sup>15</sup>**

The labor share of income declined during the first decade of 2000, both in the DR and globally, suggesting a trend towards a reduction in the part of total output allocated to compensate labor vis-à-vis capital. Adjusted national accounts data suggests that the labor share in the DR fell in the first half of the 2000s, a drop attributable to the 2003/04 crisis. New data suggest that by 2007, it had recovered to pre-crisis levels. However, the labor share in the DR and many LAC countries remains lower than in countries like the US and Germany. The sectors driving economic growth in the DR have experienced important decreases in their labor income share: sectors with stronger growth have seen a fall in the share of output that is used to compensate labor. This pattern may be due to larger investments in capital—technical change—which could lead to higher productivity and growth, and to a lower demand for labor.

**The labor share is a measure that describes the distribution of total income between the productive factors of production: labor and capital.** In other words, it corresponds to the part of the total output allocated to compensate labor. A standard feature of macroeconomic models in the economic literature is to assume that the labor share is stable. Such an assumption has broad implications for the shape of the aggregate technology (for instance, in the use of the Cobb-Douglas production function), macroeconomic dynamics (for instance, to gauge business cycles) and as a proxy for inequality. The assumption, for example, has important implications for how total factor productivity (TFP) is measured for growth accounting purposes.

**While for many years, the constancy of the labor share was a reasonable approximation to the data, at a global level this indicator shows a steady decline over the last three decades.** Recent

<sup>15</sup> This hypothesis is explored in greater detail in Baez, Garcia-Suaza, and Sousa (2017).

research estimates a 5 percentage point decline in the share of global corporate gross value added paid to labor (from 65 to 59 percent) in a sample of 59 countries, with at least 15 years of data during the period 1975-2012 (Karabarbounis and Neiman 2013). The authors report that this decline is found in the large majority of countries and industries. Factors attributed to this trend include the lower price of investment goods—driving close to half of the decline of the labor share, increasing profits, capital-augmenting growth, and changes in the skill composition of the labor force.

### **Box 3.1: Measuring labor shares in the Dominican Republic**

Currently, there are two series of utilization matrices for the national accounts (SNA) for the DR: one spans from 1991 to 2005 whereas the other, which reflects a new methodology, covers the period 2007-2010.<sup>16</sup> The newer SNA series (SNA-2007) includes a residual amount named Gross Mixed Income (GMI) composed of self-employment income and income from unincorporated enterprises. This is an income category that does not easily fit into either labor or capital returns. On the other hand, the SNA-1991 series makes no distinction between capital income and GMI. This resulting measurement difficulty is a particular challenge in countries where self-employment plays an important role in the workforce; in the case of the Dominican Republic, self-employment rates are above 40 percent for the period 1991-2010.

Given that GMI is not observable in SNA-1991, we construct an adjustment factor to estimate labor share measures for the period 1991-2005 using information from the SNA-2007. Previous studies have proposed to impute the GMI as a proportion of the value added equivalent to the ratio of self-employment to employment. Nevertheless, analysis of the SNA-2007 reveals that this results in an overestimate of the GMI share since the self-employed tend to earn less than larger producers. Instead, we take advantage of sectoral-level data to impute the GMI share as the average for each sector during the period 2007-2010. The GMI across years of the NSA-2007 and sectors is fairly consistent, with a correlation of 0.84. Using sector-level estimates takes into account the significant differences between sectors: for instance, in sectors of high self-employment, such as transport and communication and agriculture, the GMI share is above 59 percent of the value added; in sectors of low self-employment, such as hotels, bars and restaurants (HBR) and manufacturing, this share is around 13.2 percent and 5.7 percent, respectively.

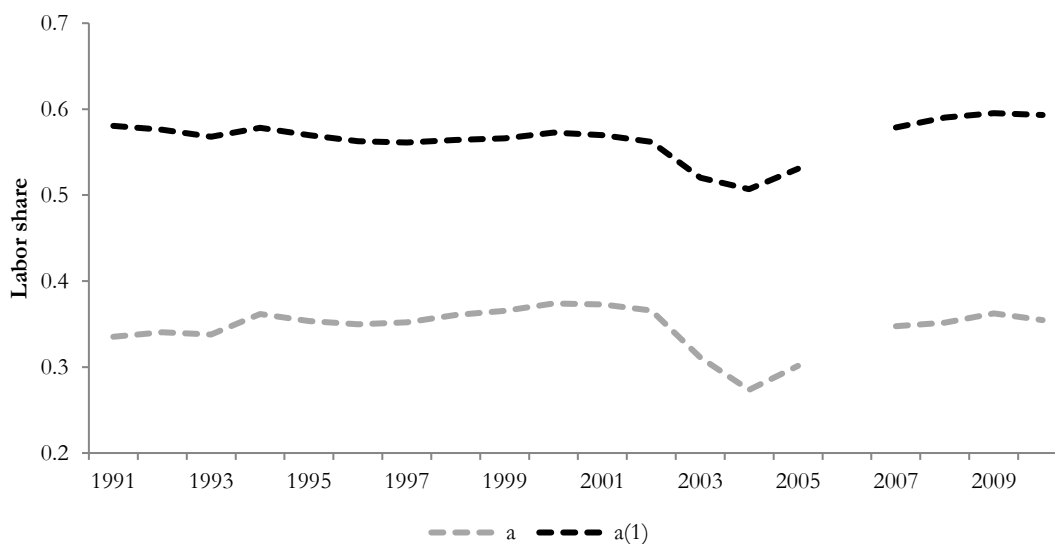
This adjustment results in estimated labor shares in the DR in line with international estimates. While the unadjusted older series was in the range of 0.27-0.37, far below most international estimates, the adjusted series gives estimates in the range of 0.51-0.60, more in line with other international estimates. Even so, these estimates suggest that the DR's labor share is among the lowest labor shares of the sample of countries analyzed.

**The labor share in the DR fell significantly due to the 2003/04 crisis but seems to have recovered.** Using adjusted national accounts data, the calculations show that it remained at approximately 0.57-0.58 throughout the 1990s, but it fell sharply between 2002 and 2004 to approximately 0.51. The decline coincided with the crisis period when prices, particularly wages, underwent a severe correction. Since the labor income share is not affected by nominal price changes (the same deflator is used for both the numerator and the denominator), the fall was more likely related to a reduction in the employed labor force and the resulting reduction in the total wage bill. In fact, the labor share in the DR shows some association with the evolution of the unemployment rate, falling when the fraction of unemployed individuals goes up (Figure 3.6). As the labor market recovered following the crisis, as shown by falling unemployment, so did the labor share. Indeed, while real wages have not recovered to pre-crisis levels, labor supply (measured in total hours worked) has

<sup>16</sup> The Central Bank of the Dominican Republic is updating the 1991-2005 series with the new methodology to match it with the 2007-2010 series.

increased by almost as much. While the SNA series comparability ends in 2005, this year already recorded the beginning of a recovery, as the labor share climbed to 0.53. While the 2007-2010 series is not strictly comparable, it suggests that the DR's labor share may have reverted to its pre-crisis level.

**Figure 3.6. Labor share and unemployment rate in the Dominican Republic (1991-2010)**



Source: World Bank calculations using data from the Central Bank and the World Development Indicators. Labor share is graphed on the left axis and unemployment rate on the right axis. The trend line labeled *a* reflects the unadjusted series (excluding the GMI); the trend line labeled *a(1)* includes the GMI adjustment.

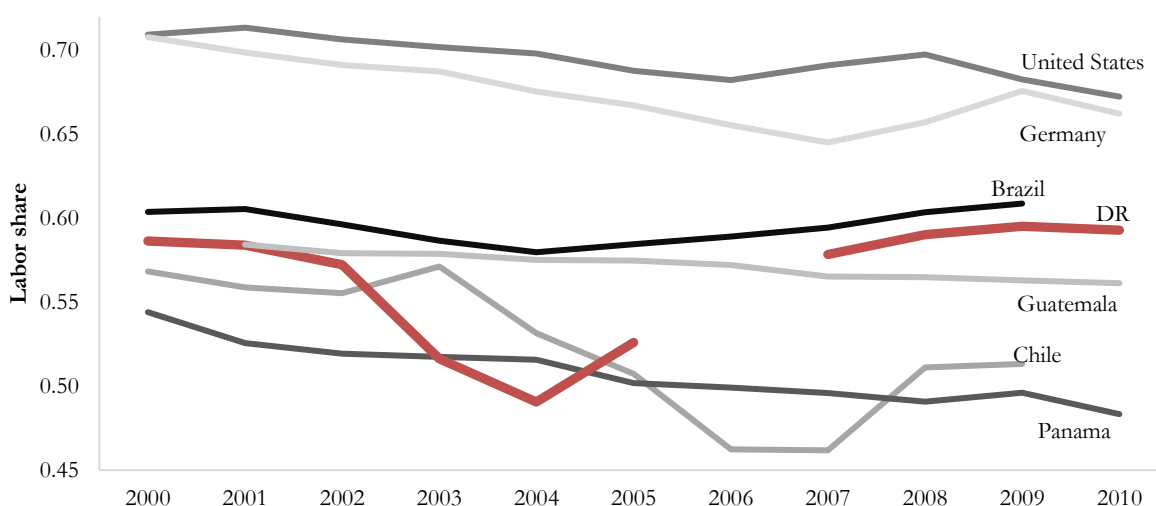
**Internationally, DR's labor share is similar to other LAC countries, which trail wealthier economies like Germany and the US.** Comparison of labor shares across countries in the region is difficult due to limited comparability and coverage of the national accounts. However, standardized national accounts<sup>17</sup> time series shows that the labor share in the DR is in line with that of other countries in the region, though the 2003 crisis resulted in relatively high volatility (Figure 3.7). The labor shares of the Latin American countries included in this analysis are significantly lower than those of Germany and the US, countries with higher shares of skilled workers and lower rates of informality. This implies that between 50 and 60 percent of output in the LAC countries included remunerates labor, compared to about two-thirds in the US and Germany. Interestingly, most of the countries considered, including the US and Germany, saw a reduction in their labor share between 2000 and 2010. While the labor share in the DR fell during the 2003 crisis, the new SNA series suggests that it has recovered to pre-crisis levels, bucking the trends in the other countries.

**During the first decade of the 2000s, the sectors underlying much of the economic growth of the DR saw reductions in their labor income share, possibly reflecting technical change that has led to lower demand for labor.** During this decade, there was an inverse relationship between changes in the labor income share in the sector and the sector's share of value added (i.e., the sector's contribution to economic growth). This relationship is not only seen around the 2003 crisis, which included a severe wage correction, but also seen in the second half of the decade (Figure 3.8). Between 2000 and 2005, the only sector which saw an increase in both labor income share and value added

<sup>17</sup> National Accounts Statistics (UNSTATS)

share was agriculture; besides Transportation and communications, where the labor share did not change, all other sectors that increased in importance in terms of output reduced their labor share. This is particularly notable in two sectors important for low-skill workers: Commerce and HBR. Workers in hotels, bars and restaurants, for example, saw their labor share fall by an average of 5.1 percent per year during this period. During the second period, workers in this same sector saw an increase in the labor share, equivalent to 6 percent per year – however, HBR’s contribution to economic growth fell by 3 percent per year. Between 2007 and 2010, the sectors with the largest growth in labor share were sectors whose share of value-added fell. However, three sectors saw both an increase in labor share and value-added share – these include Commerce and Transportation, two sectors employing many low-skilled workers. A plausible interpretation for the negative relationship between value added share and labor income share is that the sectors that have grown more have seen larger investments in capital-biased technical change, which can in turn result in higher productivity and output growth even as labor costs fall. For example, investment in telecommunications and information technology can reduce the demand for reservation specialists in hotels.

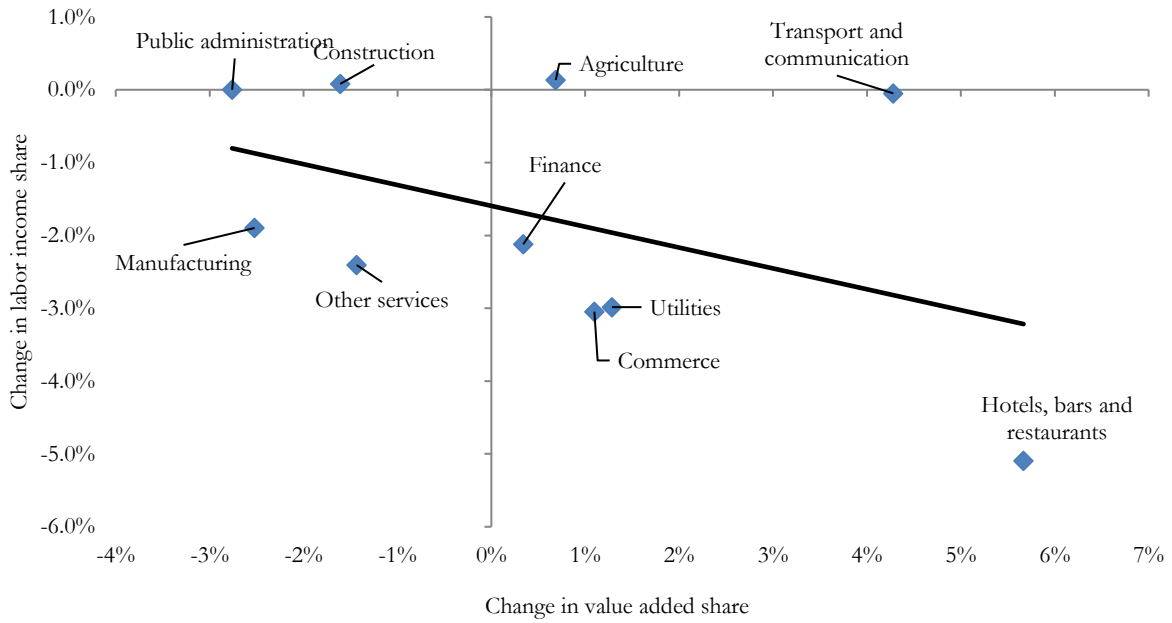
**Figure 3.7. Trend in labor share across countries, 2000-2010**



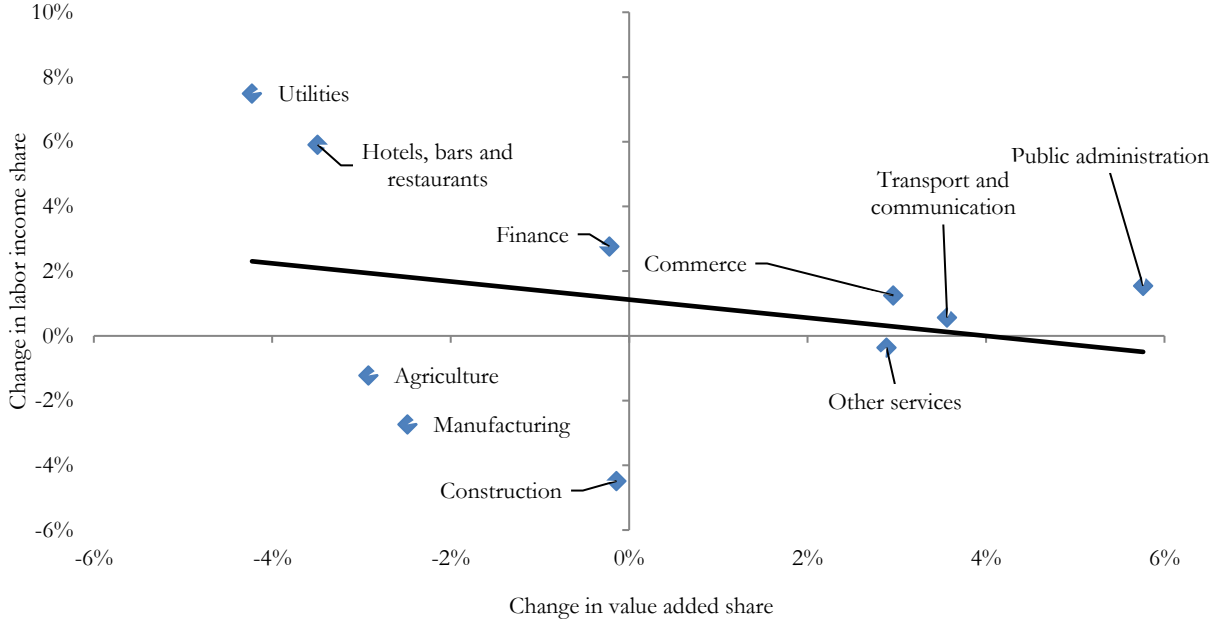
Source: Own tabulations using National Accounts Statistics (UNSTATS).

**The evidence suggests a shift towards capital intensive technologies in line with that seen in other countries.** Falls in labor share are notable in the sectors largely driving economic growth, possibly due to “biased” technical change that increases productivity while lowering demand for labor and hence weakening workers’ bargaining power. Specifically, there is a negative relationship between sectoral changes in labor shares and in growth both before and after the crisis. Furthermore, a decomposition analysis finds that, in most years, it has been a decrease in labor share *within* sectors that is driving the decrease in labor shares, rather than a change in the composition of output (Baez, Garcia-Suaza, and Sousa, 2017). That is, changes in production within sectors (as opposed to changes in sectoral composition) may explain the wage dynamics observed in the DR over the past 15 years.

**Figure 3.8. The labor income share correlates with value added across sectors**  
Annualized change, 2000-2005



Annualized change, 2007-2010



Source: Own tabulations using utilization matrices, Central Bank of the Dominican Republic.

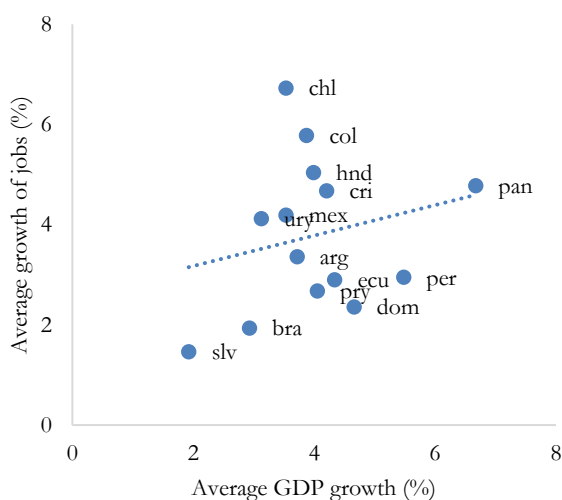
### **Hypothesis 3: Economic growth has not resulted in increased job creation.**

Robust and sustained economic growth in the DR has not led to a stronger demand for labor. The number of jobs created between 2000 and 2013 (about a million) is lower than expected from one of the fastest-growing economies in the region. Employment rates have stayed flat for the most part during the 2000s, even during business cycle peaks, and are low compared to other LAC economies. Underlying the modest creation of jobs is a relatively low elasticity of employment to growth, among the lowest in the region. Indeed, previous research shows that increased productivity has been the main driver behind the growth performance, compared to a much smaller role played by increased labor inputs. Over a long-term perspective, unemployment has also remained largely flat, unresponsive in periods of economic growth. This also points to the limited ability of the growing economy to link the labor force to more and better jobs. The elevated unemployment among the higher-skilled suggests underutilized human capital, and a skills-mismatch—a notion further supported by firms reporting inadequate education of the workforce as a main business constraint.

**While the DR has generated around a million new jobs between 2000 and 2013, this progress falls short of the employment growth expectations of one of the fastest-growing economies in LAC.** The total number of jobs in 2013 was around 34 percent larger than in 2000, implying an average growth rate of 2.4 percent. This sum, while non-trivial, is lower than what is expected from a country expanding at one of the fastest rates in the region—the size of the economy nearly doubled and GDP per capita increased by 50 percent over the same period. Indeed, the DR underperforms in terms of job creation compared to countries in LAC with similar—or even lower—levels of growth, such as Costa Rica (where jobs grew by 4.7 percent per year) and Colombia (5.8 percent) (Figure 3.9).

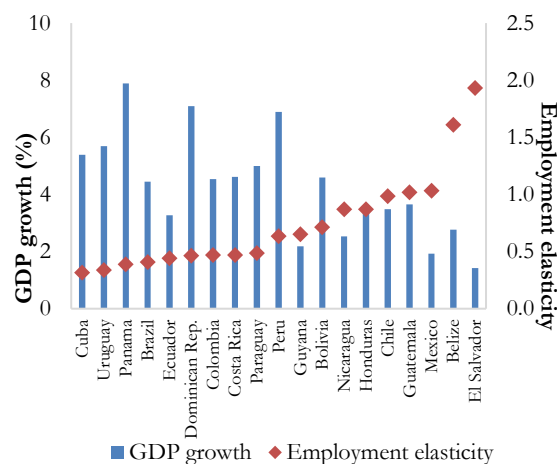
**A relatively low elasticity of employment to growth appears to underpin the timid performance in the creation of jobs.** The growth elasticity of employment—measured as the change in the number of employed workers versus the change in economic output—provides valuable insights on the ability of an economy to create sufficient employment opportunities for its population. The value of such elasticity suggests that the employment intensity of output growth in the DR is low at the regional level. Estimations for a sample of 18 countries in LAC for the period 2005-2010 show that a one-percentage point of GDP growth in the DR is associated with an employment growth of 0.47 percentage points. This is the fifth lowest elasticity in the set of countries analyzed (Figure 3.10). While similar to those of Panama, Brazil, Ecuador or Colombia, it is lower than that of most countries in Central America, Chile and Mexico, among others. One possible explanation for this trend is that growth has been mostly associated with capital-intensive activities, thus generating little in the way of job creation. However, as reported above, capital-intensive activities like manufacturing have seen their value-added shares fall in recent years as services have grown in importance.

**Figure 3.9. The Dominican Republic is below average in terms of job growth...**



Source: Own tabulations using SEDLAC (CEDLAS and the World Bank). Average growth of jobs is calculated as the average annual job growth between 2000 and 2013.

**Figure 3.10. ... and in growth elasticity of employment**



Source: World Development Indicators, World Bank. Note: Elasticity calculated for the period 2005-2010

**Reflecting the moderate pace of job creation, labor inputs in the DR play a modest role in contributing to GDP per capita growth—vis-à-vis the role of productivity.**

Indeed, growth accounting shows that changes in the employment rate (measured by the ratio of total employment to working-age population) and in the working-age population (as a fraction of the total population) had a positive yet modest impact on GDP per capita growth over the last two decades (Abdullaev and Estevão, 2013). In contrast, fast growth in labor productivity, particularly during the post-crisis period, is the main driver behind strong growth performance. This productivity growth is particularly notable in manufacturing, transportation and communications, and construction, where changes in employment reduced or accounted for little of each sector’s contribution to growth (Figure 3.11). In the case of manufacturing, the shift of labor away from this sector and the fall in employment within the sector both had negative effects on the country’s growth even as productivity increases resulted in a net positive effect on output. It is worth noting that the relatively smaller role that labor inputs play in pushing growth forward is a common feature for many countries in LAC. Still, even by these regional standards, the DR constitutes an outlier (Loayza et al. 2005).

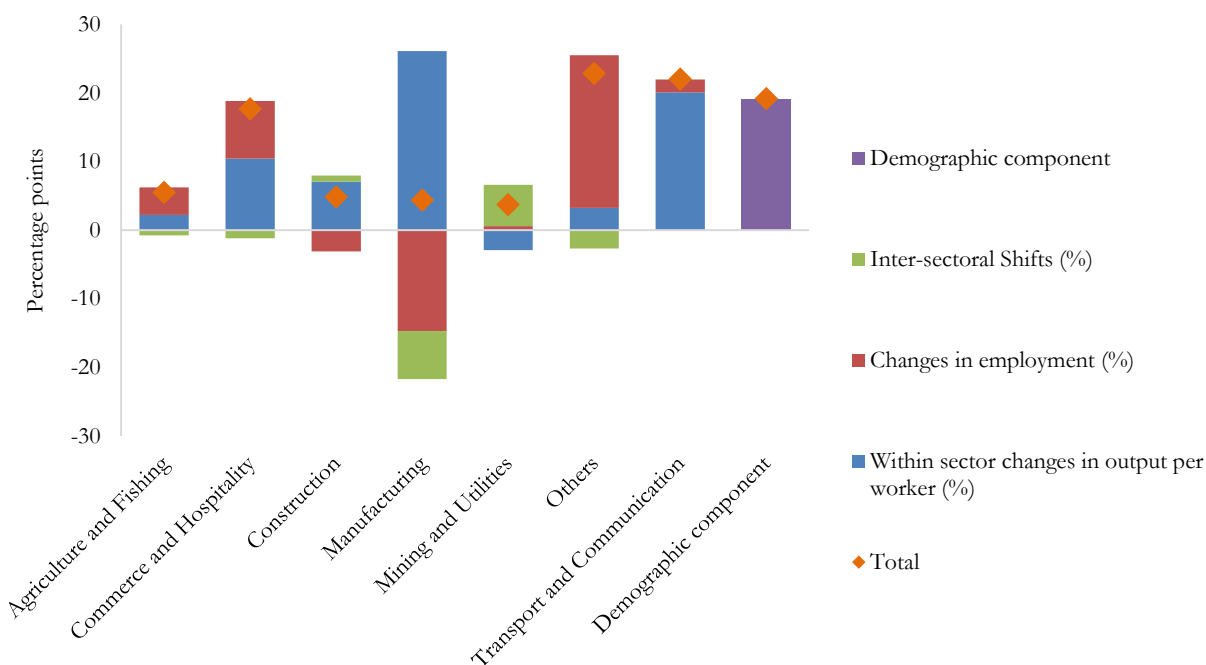
**As expected of modest job creation, employment rates have stayed flat for the most part over the 2000s, even during business cycle peaks, and are low compared to other economies in LAC.**

Employment rates for adults between the ages of 18 and 65 have converged to around 63 percent.<sup>18</sup> Employment did not react very dynamically in the periods that followed the crises—neither after the domestic one of 2003-04 nor the 2009 global financial one—when growth picked up substantially. From the peak of the domestic crisis in 2004, at 60 percent, the employment rate grew to 62 percent in 2008, then fell back again to 60 percent in 2009, alongside the global economic slowdown. Interestingly, while employment rates remained overall constant during the domestic financial crisis (at 60 percent), GDP shrank by 0.3 percent and poverty rates increased by 18

<sup>18</sup> Employment rates reported in this paragraph are based on own tabulations of SEDLAC (CEDLAS and the World Bank) for the population age 18-65.

percentages points reaching 50 percent, suggesting that the crisis affected individuals primarily through reduced labor earnings, not through reduced employment. Furthermore, employment rates are low relative to other countries in the region (see Section 3.4).

**Figure 3.11. Labor inputs in the Dominican Republic play a modest role in contributing to value - added growth (2003-2013)**



Source: Own tabulations using the World Bank’s JoGGs decomposition tool, value-added data from UN Stats, and employment data from SEDLAC (CEDLAS and the World Bank).

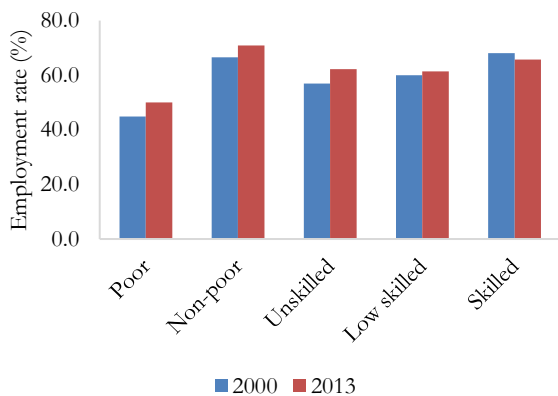
**There are also disparities in employment across income groups, whereby the poor and the unskilled are less likely to be employed in comparison to the better-off.** While employment among the poor has increased by five percentage points compared to the levels seen at the beginning of the 2000s, the gap in employment compared to the better off remains (Figure 3.12). Employment is only somewhat lower for adults who are unskilled or low-skilled (based on their schooling attainment) than for skilled workers, with the latter exhibiting employment rates of 66 percent compared to rates in the order of 61-62 percent for the less qualified workers.

**As a result of low employment growth, unemployment has not fallen in years of rapid economic growth, signaling the limited ability of the economy to link the labor force to more and better jobs and of the population to convert their labor and skills into income.** In the short-term, unemployment in DR has followed business cycle volatility to some extent—an empirical regularity for many countries, rising and falling with the contraction and expansion of economic activity. The domestic crisis of 2003-04 led to increased broad unemployment. The strong growth in the post-crisis period brought unemployment down. A similar behavior was observed with the global financial crisis of 2008-09. Nevertheless, taking a longer-term perspective, unemployment (broad definition) has remained largely flat after 2007, oscillating around 14-15 percent (Figure 3.13). This contrasts with the downward long-term trend recorded for other countries such as Colombia, Peru



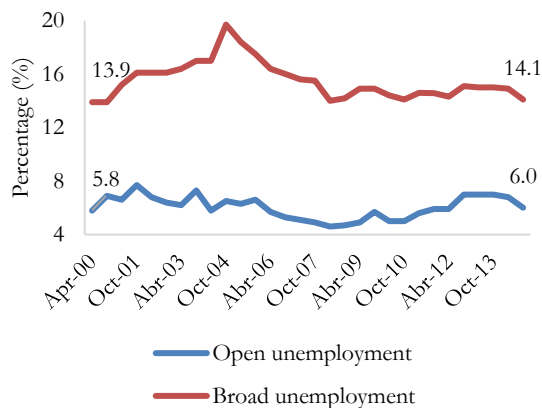
and Panama, where unemployment dropped, especially during and after the second half of the 2000s that saw strong economic growth and rapid poverty reduction.<sup>19</sup>

**Figure 3.12. Employment rates are lower for the poor (2000-2013)**



Source: Own estimates based on ENFT calculated for the population age 18-65

**Figure 3.13. Broad unemployment has remained nearly constant in years of strong and sustained economic growth**



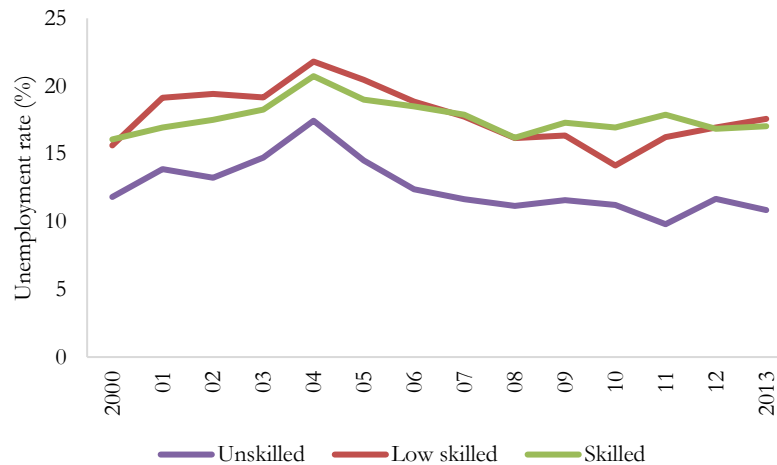
Source: Central Bank of the Dominican Republic

**Unemployment has significant implications for household income and poverty rates.** The bottom 40 percent of the income distribution, which correspond to the poor, are more likely to be unemployed. The unemployment rates for the bottom 40 are more than twice those for the top 60 percent: 12 percent versus 5 percent (in terms of open unemployment); and 25 percent versus 10 percent (regarding broad unemployment), respectively. A serious concern regards vulnerability, where non-poor individuals close to the poverty line are highly vulnerable to falling back into poverty if unemployment rates increase. The correlation between the unemployment rate for the bottom 40 and poverty rates for the period 2000-2013 (0.59) suggests a strong association between the two variables.

**Unemployment remains high among the skilled and low-skilled** (Figure 3.14). All skill groups experienced an increase in unemployment during the domestic crisis, which was reversed in the post-crisis period. Current broad unemployment rates are similar to those seen in the early 2000s and are above 10 percent for unskilled, low-skilled and skilled workers. Unemployment for the latter two groups is well above the unemployment rate of the unskilled. This is in line with findings in other countries in the region: individuals with low assets simply cannot afford unemployment—not working while seeking a job. Instead, they take low paying work or engage in subsistence self-employment. In economic terms, their reservation wage, the minimum compensation which they will accept for their work, is very low. On the other hand, the unemployed with more schooling have higher reservation wages, implying that they are able and willing to bear the costs of a longer search that could result in a better opportunity.

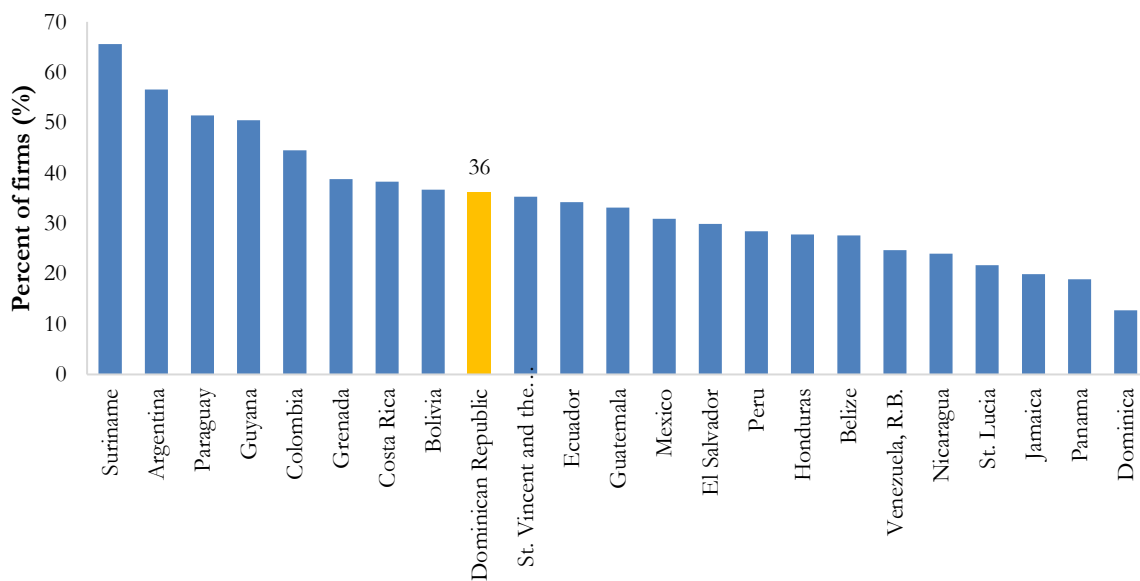
<sup>19</sup> Based on official definitions of unemployment for each country, which are not comparable across countries: Colombia’s unemployment rate fell by 5 percentage points between April 2001 and 2015 (DANE); Panama’s unemployment rate fell by 10 percentage points between January 2000 and 2014 (Central Bank of Panama); and Peru’s unemployment rate fell by 4 percentage points between March 2002 and 2015 (Central Bank of Peru).

**Figure 3.14. Broad unemployment is higher among those with more schooling**



Source: Own estimates based on ENFT.

**Figure 3.15. A large fraction of Dominican firms identify an inadequately educated workforce as a major constraint for business (2010)**



Source: Enterprise Surveys (<http://www.enterprisesurveys.org>), The World Bank.

**The high unemployment and emigration rates of workers with more schooling imply insufficient demand for skilled labor; firm surveys suggest this is due to skills-mismatch.** As of 2012, 62 percent of Dominican immigrants in the US had at completed secondary school, including 14 percent who had a college degree; this compares favorably with those still living in the DR in 2013, where only 40 percent of adults between the ages of 18 and 65 had finished secondary school and 10 percent had a tertiary school degree.<sup>20</sup> Along with high unemployment rates for skilled labor, the relatively high emigration of skilled labor further supports the possibility that the local labor market has insufficient demand for skilled labor. At the same time, in 2010 over a third (36 percent) of firms

<sup>20</sup> Migration Policy Institute tabulation of data from U.S. Census Bureau pooled 2008-12 ACS for indicators about immigrants in the US.

reported that the main constraint for business in Dominican Republic is the inadequate education of the workforce (Figure 3.15). This rate is relatively high when compared with peer countries, in terms of growth rates, such as Panama (18.9 percent) and Peru (28.4 percent). This suggests the presence of skills-mismatch, with educated workers not possessing the skills that firms need.

### 3.3 Quality of employment

#### **Hypothesis 4: The quality of jobs has not improved and the poor are concentrated in sectors of low labor productivity growth.**

*A key trend behind the weak link of growth to poverty reduction in the DR is the fact that low-skilled workers are concentrated in low-quality jobs, and in low productivity sectors. While, overall, more workers hold formal jobs today, the poor are still more likely to work in informal jobs, where earnings are lower, constraining their ability to benefit from growth. Self-employment and employment in microenterprises continues to account for a majority of jobs for the poor. On the other hand, there has been a shift in the sectors that employ the poor, away from manufacturing towards services, commerce and construction. Worryingly, these sectors and agriculture (still an important sector of employment of the poor) have slower or even stagnant labor productivity growth. The reallocation away from manufacturing to low productivity growth activities has slowed poverty reduction. Indeed, a decomposition analysis shows that, between 2003 and 2013, the net effect of sectoral shifts of the low and unskilled has been poverty-increasing.*

**A positive labor market outcome of recent years is that more workers hold formal jobs than in the past.** Labor force data can be used to measure labor informality in the country, by looking at the affiliation to social security or at the share of workers with a legal contract. Based on rates of access to social security, there has been a notable decrease in informality for both poor and non-poor wage and salary workers. Around 71 percent of wage and salary workers in 2013 had a job affiliated with the social security system, a significant increase from 56 percent in 2005. This includes almost 60 percent of wage workers who live in poverty. However, wage workers account for only 55 percent of employment, implying that only about forty percent of workers in the DR are in the formal sector.

**Accounting for 40 percent of jobs, self-employment rates in the DR are among the highest in the region. Another 31 percent of workers are wage or salary jobs in microenterprises, firms of fewer than five employees** (Figure 3.16). Both self-employment and employment in microenterprises are associated with informality and low-productivity. Combined, these two types of employment account for more than 70 percent of employment in the DR – about the same as they did in 2003. Among the countries in LAC with this information, only Colombia had higher rates of self-employment and employment in microenterprises. The bottom 40 percent remain more likely to be employed in jobs that are of lower productivity, including in microenterprises and unskilled self-employment. Half of the jobs held by those in the bottom 40 percent were self-employment while another 33 percent were in small firms.

**Figure 3.16. The Dominican Republic has high shares of self-employment and jobs in small firms**

a) Share of primary jobs that are self-employment or in small firms, 2013



b) Share of primary jobs among workers in the bottom 40 percent that are self-employment or in small firms, 2013



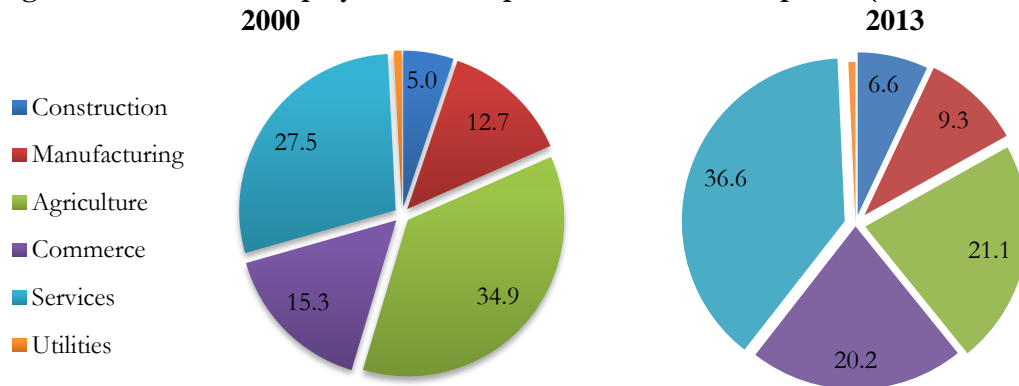
Source: LAC Equity Lab tabulations using SEDLAC (CEDLAS and the World Bank). Small firms are defined as those employing fewer than five workers.

**Of the new jobs created between 2000 and 2013, only 36 percent were in firms with five or more employees.** Almost 8 out of 10 of these new jobs employed individuals in the top 60 percent, typically those with the highest level of school attainment. This labor market fragmentation constraints the ability of low-income and unskilled workers to benefit from growth and implies unfulfilled potential to make it more inclusive. For instance, as of 2013, the real earnings of an average informal worker are 62 percent that of an average worker in the formal economy.

**Over time, there has also been a notable shift in the sectors that employ the poor.** Largely as a result of the urbanization of the Dominican society and of the declining importance of agriculture in the overall economy, the share of the poor working in this sector fell from nearly 35 percent to 21 percent between 2000 and 2013 (Figure 3.17). Also driven by the lower weight of the manufacturing industry in the economy (both in terms of output and employment), the employment share of this sector has declined for the poor (and also for the non-poor). In contrast, the poor are more likely to work in the services and commerce sectors. In 2013, both sectors combined accounted for more than half (56.8 percent) of the jobs held by the poor, that is 14 percentage points more than in 2000. There

has also been a modest increase in the share of workers who live below the poverty line and work in construction (from 4.9 percent to 6.4 percent between 2000 and 2013).

**Figure 3.17. Sector of employment of the poor in Dominican Republic (2000 and 2013)**

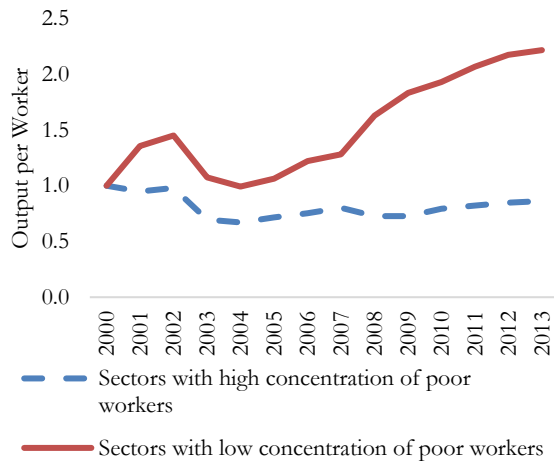


Source: ENFT and World Bank calculations

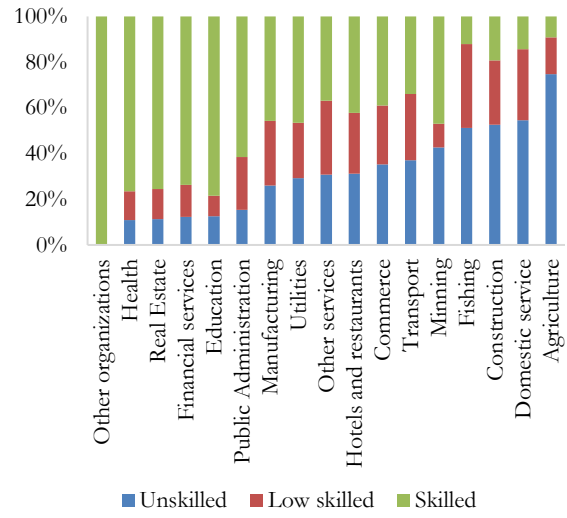
**The sectors that are more likely to employ the poor have slower or even stagnant labor productivity growth in spite of the positive trend of the labor productivity of the economy as a whole.** As noted before, the overall labor productivity (measured by output per hour of labor) increased, on average, by 39 percent between 2000 and 2013. Yet, this average masks significant variation across economic activities. Labor productivity in the sectors that employ most of the poor either grew at a relatively slower pace (for instance, commerce at 37 percent) or have even fallen (by as much as 4 to 11 percent for construction and some of the service sub-sectors such as hotels, restaurants, transport and personal services). Additionally, labor productivity in agriculture, a sector that still employs over 20 percent of the poor, fell by 15 percent between 2000 and 2013. In contrast, sectors with relatively fewer workers from the bottom of the distribution or those that have come to rely less on their labor (for example, manufacturing) recorded the largest productivity gains (at 10 percent in financial services, 9 percent in manufacturing or 6 percent in real estate services).

**The composition of skills across sectors also shows that labor productivity has grown less in sectors with higher concentration of unskilled workers.** The large majority (over 60 or 70 percent) of the labor force engaged in these sectors, which include agriculture, domestic service, construction, transport and commerce, is either unskilled or low-skilled (Figure 3.18 and Figure 3.19). Consequently, these sectors are also the ones that employ the largest share of low-income workers. Labor productivity growth in most of these sectors has been less dynamic than in the rest of the economy, confirming that poor workers are relatively more clustered in low-skilled, lower productivity economic activities.

**Figure 3.18. Labor productivity has not grown in sectors that employ the poor**



**Figure 3.19. Labor productivity has grown less in sectors with more unskilled workers**



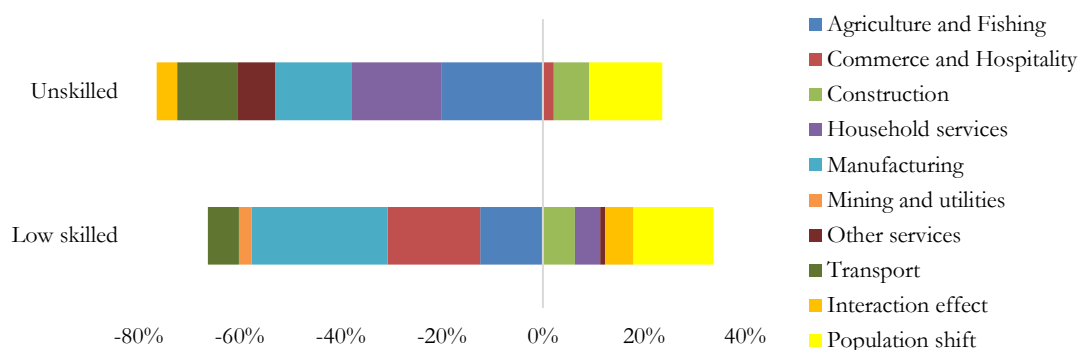
Source: Own estimates based on ENFT. Note: Sectors with high concentration of poor workers are: Agriculture, Construction, Commerce, Hotels and Restaurants, Transport and other services. Weights are assigned to each sector based on its share of GDP.

**Sectors with the largest increase in the share of employment among the poor also exhibit a significant reduction in average and median hourly wages for the period 2000-2013.** For example, wages fell by 29.6 percent, 34.2 percent and 8.0 percent in construction, hotels/restaurants and transportation services, respectively, which together employ close to 20 percent of the poor. Along the same lines, wages in commerce, a sector that employs one out of five poor individuals, declined by almost 10 percent.

**Consequently, the shifts in sector of employment of the unskilled and low-skilled—comprised mostly of low-income individuals—have been poverty increasing.** The Ravallion and Huppi decomposition (1991) allows unpacking the changes observed in poverty into an intra-sectoral effect (changes in poverty levels within each sector) and a population shift effect (changes in sector of employment of the population). This decomposition is performed for the 2003-2013 household survey series using labor income poverty.<sup>21</sup> The sector of employment considered is that of the main earner in the household. This analysis shows that the sectoral shifts of the unskilled and the low-skilled workers (the “population shift” effect) have been poverty-increasing—that is, the movements have been to sectors with lower earnings (Figure 3.20). For both unskilled and low-skilled workers, working in construction has been increasingly associated with being in poverty. On the other hand, unskilled workers in agriculture, domestic services, manufacturing, and transportation saw a poverty decline; the sectors of biggest poverty reduction for the low-skilled were manufacturing, and commerce and hospitality. This is in line with regional analysis indicating a poverty-increasing population shift for unskilled workers (World Bank 2015).

<sup>21</sup> Labor income poverty measures the share of households that receive enough labor income to maintain them above the US\$4/day PPP poverty line.

**Figure 3.20. Inter-sectoral shifts of employment have been poverty increasing in the Dominican Republic (2000-2013)**



Source: Own tabulations using SEDLAC (CEDLAS and the World Bank). The figure reports the results of the Huppi and Ravallion decomposition of labor income poverty for households in which the main earner is unskilled or low-skilled (see World Bank 2015). The decomposition calculates the change in poverty in these sets of households that is due strictly to changes in labor income. This approach abstracts from the effects of changes in non-labor income, such as public transfers or pensions. To accomplish this, changes in poverty are calculated using labor income poverty rates—the proportion of households with labor income of less than \$4 per day per capita. The intra-sectoral component refers to the sector of employment of the main earner in the household.

### 3.4 Labor Supply

#### **Hypothesis 5: Low labor force participation rates limit the extent to which households benefit from economic growth.**

The low participation of workers in the labor market is hindering the ability of households to benefit from growth. Only two-thirds of adults participate in the labor market in the DR; this is even more critical among the poor—of whom just over half (53 percent) were either working or actively looking for a job in 2013. The increase in human capital in the country, which has made the current level of educational attainment comparable to other LAC countries, has not led to increases in labor force participation. The supply of workers is fairly unresponsive to economic growth. While women’s participation has increased by nearly 10 percent since 2000, female labor force participation remains low relative to other countries in the region. Two possible contributors to the country’s low and unresponsive labor force participation may be a lack of employment opportunities leading to discouraged workers and the receipt of remittances, particularly in the case of women and those in the poorest 40 percent.

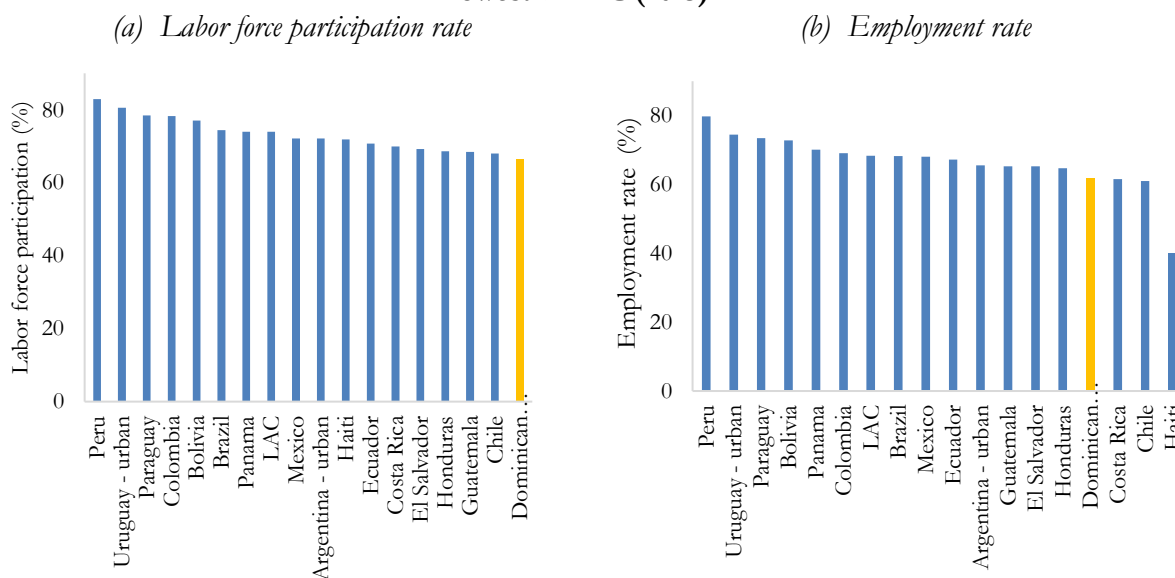
**The DR’s labor force is growing and increasingly urban.** According to data from the latest census, the total population in the country reached 9.45 million people in 2010, including 6.09 million people between the ages of 15 and 65, the result of a 1.23 annualized growth rate from the 2002 census and a fertility rate of 2.52, higher than the replacement rate. The current pace of population growth is modest by regional standards; for instance, vis-à-vis the population growth of similarly-sized countries in Central American and South America (1.61 percent in Panama; 2.52 in Guatemala; 1.65 in Bolivia; or 1.57 in Ecuador). At the same time, a growing fraction of Dominicans are settling down in metropolitan areas, and the country is becoming increasingly more urban. Currently, 75 percent of the population lives in urban centers compared to 62 percent in 2002.

**While still below optimal levels, the DR has seen a significant increase in its human capital stock as a result of widespread increase in access to schooling.** The prime-age adult (25 to 65

years) in 2013 has 9.2 years of education, around 1.2 years more than the school attainment in the early 2000s. This increased access has helped close the gap with the rest of the region. Indeed, unlike the situation of two decades ago, in 2013, the level of school attainment of the Dominican Republic was comparable to other LAC countries (for instance, 8.2 years in Colombia, 8.7 in Ecuador, 8.8 in Peru and 9.8 in Panama). These gains have benefited all income groups, including the bottom of the distribution. Even so, in 2013, more than half (53 percent) of prime-age adults (25 to 65 years old) in the bottom 40 percent (B40) had no schooling or only an incomplete primary education, although this was down from 68 percent in 2000. Analogously, the proportion of the B40 who have completed at least secondary school nearly doubled from 10.4 to 20.6 percent. As a result of these positive trends, the average years of schooling of the B40 increased from 5.6 to 7.1 years over the period.

**In spite of increases in human capital, its intensity of use remains low: labor force participation and employment rates remain among the lowest in the region, limiting the share of the population that is directly able to contribute to and benefit from economic growth.** A regional compilation of harmonized data from 2013 for a subset of countries in LAC, including the Dominican Republic, allows comparing labor force participation and employment rates internationally. These data show that only two-thirds of adults ages 18 to 65 in the DR participate in the labor market, either working or actively searching for a job. Labor participation in the DR is the lowest in the regional sample and around seven percentage points lower than the rate seen for the region as a whole (74 percent) (Figure 3.21). Similarly, the share of adults who report being employed is also lower in DR than the regional average (61.7 percent versus 68.4 percent).

**Figure 3.21. Labor participation and employment rates in the Dominican Republic are among the lowest in LAC (2013)**



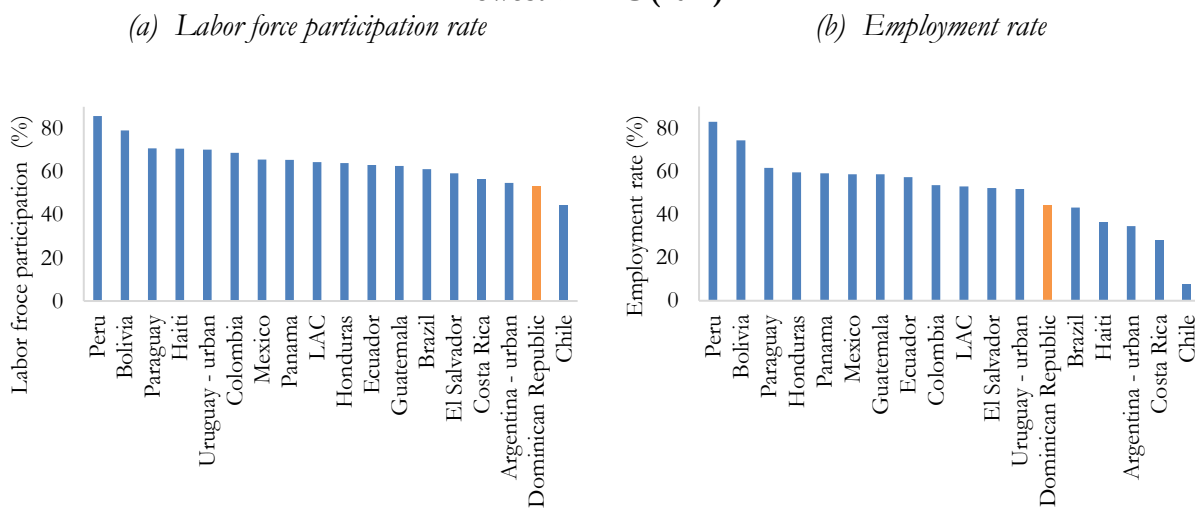
Source: SEDLAC (CEDLAS and the World Bank). Note: Labor force participation is calculated as the sum of employment and open unemployment for adults aged 18-65. Since unemployment definitions vary across country, labor force participation rates may not be strictly comparable even using harmonized data.

**Low employment and labor force participation is more acute among the poor, hindering the poverty reduction effects of growth.** Just over half of working-age adults living below the official poverty line is in the labor force. As of 2013, 55 percent of those individuals, ages 18-65, are either working or actively seeking work. This is an increase from the level recorded in 2000 (49 percent).



Yet, at around 18 percentage points (73 percent compared to 55 percent), the gap with respect to working-age adults from the upper segment of the income distribution (the top 60 percent) remains large. A benchmark against other countries in LAC, based on harmonized data, confirms the low engagement of the poor (based on \$4 per day poverty line) in labor markets in the DR. As of 2013, there is a difference of 11 percentage points with respect to the average rate of labor force participation of the poor in LAC (53.3 percent and 64.4 percent, respectively) (Figure 3.22).

**Figure 3.22. Labor force participation among the poor in the Dominican Republic is also among the lowest in LAC (2012)**



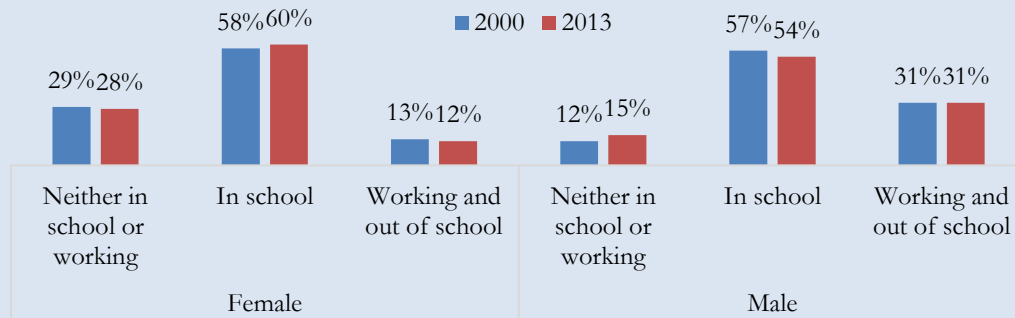
Source: SEDLAC (CEDLAS and the World Bank). Note: See notes to Figure 3.21 for more details on the sample.

**Labor supply has been unresponsive to fluctuations in growth, including high and prolonged periods of economic expansion.** This is clear when looking at the fairly unvarying labor participation trends over the last decade. Based on the official data, the share of Dominicans in the labor force (people working or looking for work) averaged 57.3 percent between 2000 and 2013. During this whole period, the proportion remained more or less flat, trending up slightly after 2010 to reach 59 percent in 2013. Between 2004 and 2008, when the economy grew at fast rates, labor participation remained largely unchanged at around 57 percent. While the “broad” measure of labor force participation (including “discouraged” workers and those ready to work but not actively looking for a job) is higher and has also increased somewhat in recent years, it did not vary much between the early 2000s and 2013, averaging 64 percent.

**Box 3.2: The *ninis***

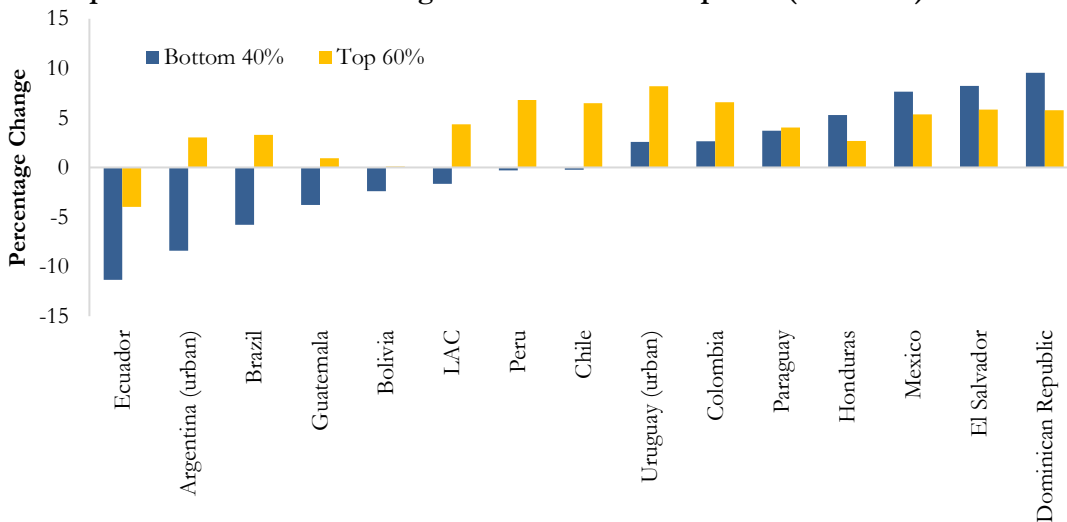
**Thirty percent of young Dominican women and 15 percent of young men neither work nor go to school (Figure 3.23).** A phenomenon common to other countries in the region, there is a large number of youth (ages 15 to 24) in DR who is out of school and out of work, the so-called “*ninis*” (from the Spanish “*ni estudia, ni trabaja*”—individuals who neither study, nor work). High rates of youth non-participation represent a significant lost opportunity for building the nation’s human capital stock—as both work experience and formal schooling contribute to earnings and productivity.

**Figure 3.23. Nearly 30 percent of young Dominican women are neither working nor in school, along with 15 percent of young men (2013)**



Source: LAC Equity Lab tabulations of SEDLAC (CEDLAS and the World Bank), based on the methodology of “Out of School and Out of Work: A Diagnostic of Ninis in Latin America”, work in progress by De Hoyos, Popova, and Rogers (World Bank). The population of analysis is age 15-24.

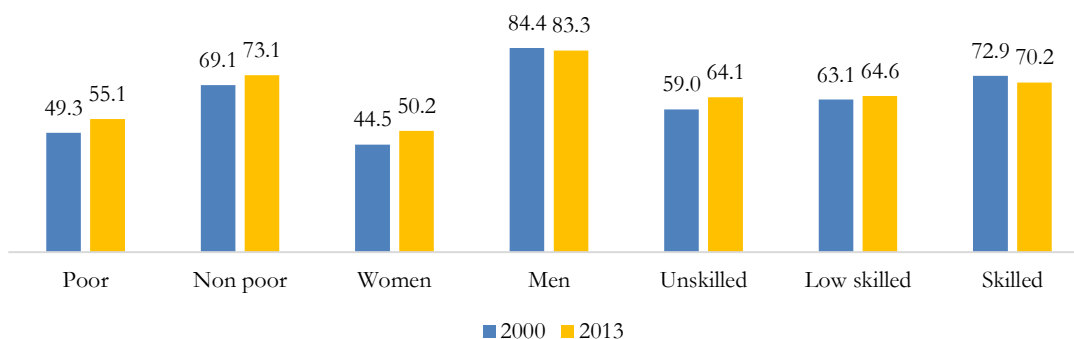
**Figure 3.24. The gap in the prime-age labor force participation between the bottom 40 and top 60 percent has been narrowing in the Dominican Republic (2003-2013).**



Source: World Bank (2015). Note: Figure is based on regionally harmonized household survey data from the SEDLAC database (CEDLAS and the World Bank). This figure is limited to adults ages 25 to 65.

**At the same time, there is encouraging news as the DR is bucking regional trends by narrowing the gap between the labor force participation rates of prime-age adults of the bottom 40 and top 60.** Out of 15 countries in the LAC region with sufficient data for this analysis, at a 9.5 percent increase, the DR saw the largest gains in the labor force participation rate of the bottom 40 percent between 2003 and 2013 (Figure 3.24). By 2013, 62.4 percent of 25-65 year olds in the bottom 40 were actively engaged in the labor force. During this period, the top 60 also increased their participation rates, though by a lower rate of 5.8 percent. This resulted in a participation rate of 77.5 percent. While this is good news, the DR still trails the LAC labor force participation rates for both the bottom 40 percent (the LAC rate is 70.2 percent) and the top 60 percent (80.8 percent). Currently, the DR’s rates are approximately the same as some of its neighbors in Central America—particularly, Guatemala, Honduras, and Mexico.

**Figure 3.25. Labor force participation rates in Dominican Republic (2000 and 2013)**



Source: Own estimates based on ENFT. Note: This figure is limited to adults ages 18 to 65.

**More women are participating in the labor market, which explains much of the modest growth in the labor supply of the latest years.** Disaggregating the open labor supply by gender, that is – the employed and those actively seeking employment – for 2000 and 2013 period reveals two opposing patterns (Figure 3.25). On one hand, the male labor participation rates for those 18 to 65 fell from 84.4 to 83.3 percent. On the other, women are more likely to join the labor markets today than they were in 2000. In fact, female labor force increased by 9.7 percent during this period, from 44.5 to almost 50.2 percent. This is in tandem with the trend for LAC as a whole, where female participation rates grew by 15 percent between 2000 and 2010 (World Bank, 2012). An important characteristic of this development is the timing of the increase in the female labor force. Whereas the female labor force remained constant between 2000 and 2009, it began to rise at the time of the global financial crisis, contributing to increase—or at least shield—household incomes during the crisis. Indeed, there is evidence that growth in women’s labor market earnings and higher participation rates have partly driven the reduction in poverty in LAC (Box 3.3).

**Box 3.3: Increased female employment and earnings have helped to reduce poverty in the DR**

**A decomposition of poverty changes shows that increased female employment and earnings have been key to poverty reduction in the DR since 2008.** Between 2008 and 2013, 41.1 percent was attributable to factors outside of the labor market (11.1 percent due to increased non-labor income, including remittances and cash transfers, and 30 percent due to changes in the demographic composition of households). Increased female employment and earnings accounted for 58 percent of observed poverty reduction. As a benchmark, at the regional level, increased female employment and earnings only accounted for 20 percent of poverty reduction.

**Male labor income has fallen in real terms, and this drop has, in fact, contributed to an increase in poverty.** The fall in labor income for male workers offset the positive (poverty reduction) effects of increased employment rate of men.

**Figure 3.26. Labor income played a modest role in the reduction of poverty in the Dominican Republic compared to the LAC region**



Source: LAC Equity Lab tabulations of SEDLAC (CEDLAS and the World Bank). Poverty based on \$4PPP. Age composition reflects the change in poverty that is attributable to the change in the share of household members who are of working age (15-65).

**What are some potential reasons for the country’s low labor force participation? Female labor force participation is sensitive to local labor conditions, suggesting that discouraged worker effect may be contributing to lower labor force participation rates of women.**<sup>22</sup> Local unemployment rates were not correlated with male labor force participation rates, neither for men in the top 60 percent nor for those in the bottom 40. However, the regression analysis reveals that women, particularly those in the top 60 percent, were less likely to be in the labor force in areas of high unemployment than in areas of low unemployment. The regression suggests that a one percentage point increase in local unemployment rate in 2012 was associated with a reduction of half a percentage point (0.48) in female labor force participation for women in the top 60. This suggests that women living in non-poor households are more likely to stop searching for work and exit the labor force in times of higher job scarcity.

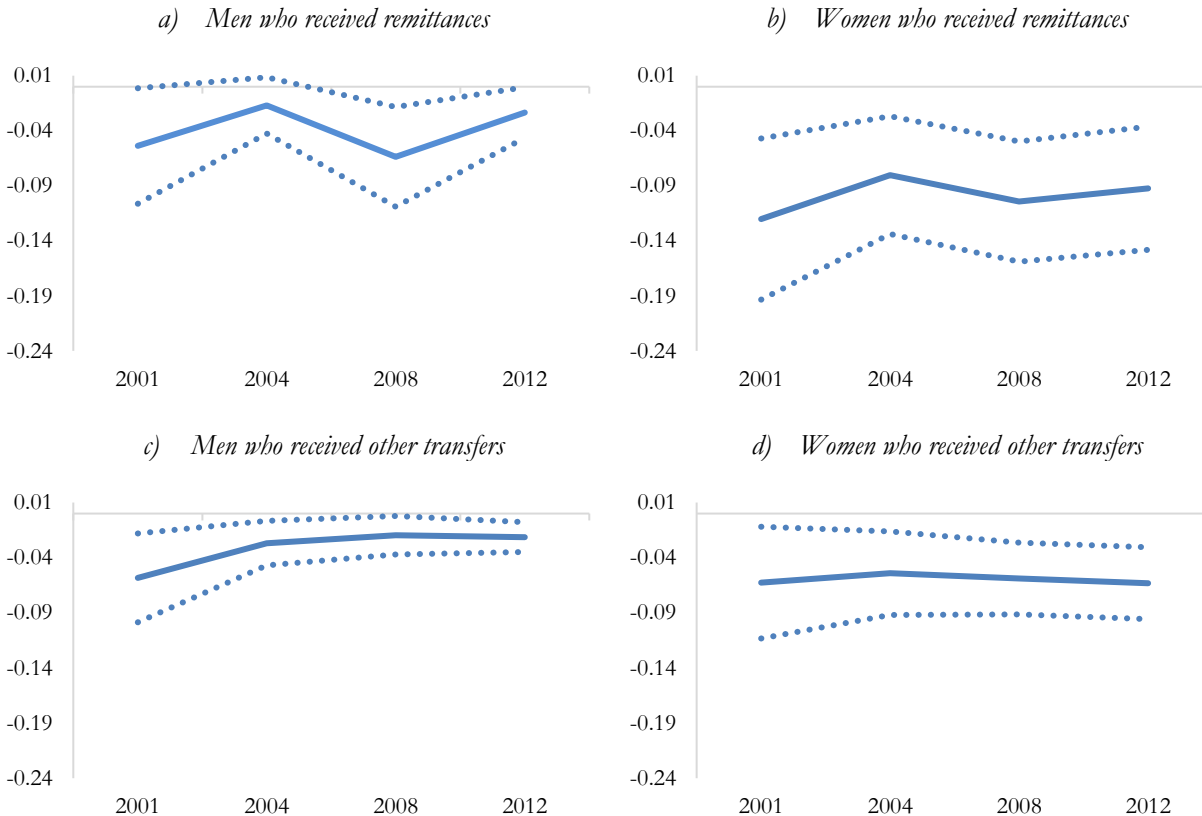
**Another possible explanation for lower female labor force participation is the receipt of non-labor income, particularly remittances.** As of 2012, about 960,000 Dominicans lived in the United States, including a net migration of over a quarter million since the year 2000.<sup>23</sup> This diaspora has provided the country and many of its residents with access to a significant income source – international remittances, which, in 2013, accounted for 7.3 percent of GDP. Access to alternative sources of income, such as remittances, can have the effect of decreasing labor force participation by increasing reservation wages. That is, a worker who would otherwise accept a lower wage may no longer be willing to work at the same wage level if he or she has other income sources. Through this channel, non-labor income sources can have the unintended consequence of reducing labor force participation among recipients. At the same time, households that receive remittances differ in other ways – working age household members have migrated. This change in household composition may

<sup>22</sup> Own estimates based on ENFT. Whether an individual was in the labor force was regressed using a logit model and the following individual and local characteristics: individual’s potential work experience and its quadratic, current school enrolment, head of household status, marital status, urban indicator, household dependency ratio, indicator for household receipt of remittances, indicator for household receipt of other transfers, regional unemployment rate at for individual’s skill-gender group, and regional fixed effects.

<sup>23</sup> Migration Policy Institute tabulation of data from U.S. Census Bureau pooled 2008-12 ACS.

have been planned around the labor supply decisions of non-migrating household members – for example, it may be that emigration was undertaken to compensate for other household members not being able to work – or may have a direct effect on other members’ decision to work. Hence the effect of receipt of remittances on labor supply is not simple to measure.

**Figure 3.27. Receipt of remittances and other transfers are associated with lower labor force participation in the Dominican Republic (Bottom 40 by gender, 2012)**



Source: Own estimates based on ENFT. Note: Solid line reports the estimated marginal effects of household receipt of remittances and household receipt of other transfers on labor force participation of men and women in the bottom 40 percent. The marginal effects are estimated assuming the same average individual characteristics across specifications and years, with only gender varying. The dotted lines represent the 95 percent confidence interval. The logit regressions control for individual’s potential work experience and its quadratic, current school enrolment, head of household status, marital status, urban indicator, household dependency ratio, indicator for household receipt of remittances, indicator for household receipt of other transfers, regional unemployment rate at for individual’s skill-gender group, and regional fixed effects.

**On average, adults in households that received remittances in 2012 were 6 percentage points less likely to be in the labor force than similar adults without remittances.<sup>24</sup>** The relationship between remittances and participation is about the same in households in the bottom 40 percent as

<sup>24</sup> While these results do not address the potential endogeneity of receipt of remittances and the labor supply of households, the results are in line with other research in this area. Amuedo-Dorantes and Pozo (2006) use information on location of Western Unions to address the endogeneity of receipt of remittances and labor supply in Mexico, finding different effects for rural and urban men and women. They find that remittances do not decrease male labor supply (though remittances are related with a switch to informal employment for urban men), but reduce rural female labor supply, particularly through decreased participation in informal work.

for those in the top 60 percent. However, it is significantly greater for women than for men (7.5 percentage points for women and 1.3 for men) and particularly strong for adults with less schooling. Among adults who did not complete primary school, participation is 7.3 percentage points lower if remittances are received, 2.5 percentage points for adults who finished secondary school and for those with tertiary schooling, and 2 percentage points for adults with tertiary education. Among the bottom 40, women's labor supply is more correlated with the receipt of remittances and transfers than men's (Figure 3.27). While receipt of other transfers (including public transfers) is also associated with lower participation, this effect is smaller than that associated with remittances. This difference may be due to how the receipt of remittances and public transfers are allocated across households: while public transfers are targeted at poor households, typically with children or retirees, remittances are often the result of joint household decisions wherein a household member migrates specifically to increase household income, and, at times, to decrease the need for other members to work. Together, this evidence suggests that remittances, more than other types of transfers, may be raising reservation wages, especially of low skilled adults and women.

**Hypothesis 6: Available evidence suggests that Haitian immigration has little or no effect on wages received by local labor.**<sup>25</sup>

Evidence does not suggest that Haitian immigration to the DR has had a crowding-out effect on the local workforce or has pushed wages down. With their significantly lower educational attainment, Haitian-born workers are not a good substitute for local labor. Instead, the majority of working-age Haitian men who have migrated to the DR are employed in only two sectors - agriculture and construction. There is also no evidence that immigration is pushing unskilled Dominican-born labor into other parts of the DR. Based on patterns of immigration, an analysis finds no negative correlation between the wages of local workers and the share of Haitian-born workers in the local labor force. Even unskilled Dominican men—who would be facing the most direct competition from Haitian labor—are not found to be negatively affected through wages.

**There are concerns that immigration into the DR over the past decade may be leading to decreased employment opportunities for nationals—and thus contributing to the stagnant wages and low poverty reduction.**<sup>26</sup> The DR has experienced significant immigration over the 2000s; Most of these immigrants are from neighboring Haiti, accounting for 64 percent of immigrants in 2002, and 80 percent in 2010.<sup>27</sup> Estimates based on a 2012 immigrant survey show that over half a million immigrants live in the DR, 87 percent of whom are from Haiti (Box 3.4). Historically, Haitian migration was largely rural workers migrating to work in agriculture in the DR, particularly sugar cane. Duarte and Hasburn (2008) document a significant change in the Haitian migration stream after the year 2000: as the DR has economically changed in the last decade and a half, migrants have become more likely to be from urban areas in Haiti and work in construction.

**Box 3.4. Measuring the immigrant population in the Dominican Republic**

In 2012, the Dominican Republic collected the Encuesta Nacional de Inmigrantes de la Republica Dominicana (ENI), a national survey focused exclusively on the country's immigrant population. This survey

<sup>25</sup> This hypothesis is explored in greater detail in Sousa, Sanchez and Baez (2017).

<sup>26</sup> Due to data limitations in the 2010 census, only individuals born outside of the Dominican Republic are considered immigrants for the purpose of this report.

<sup>27</sup> Based on tabulations from the IPUMS 2002 and 2010 censuses. It is generally believed that the census undercounts the foreign-born population.

estimated a total immigrant population of just under 525,000, implying that 5.4 percent of the country's population is foreign born. Of these, 87 percent are from Haiti. The survey also identified 240,000 individuals (2.5 percent of the total population) with at least one foreign-born parent.

Most Haitian immigrants are undocumented: only 7 percent have a Dominican identification card and, even among the Dominican-born of Haitian descent, only 53 percent possess a Dominican identification card.<sup>28</sup> Due to the largely undocumented status of Haitian immigrants in the DR, it is believed that their population is not well measured in official statistics, including the 2010 census.

The ENI, carried out two years after the census, is believed to better measure the Haitian-born population. The 2010 census counted nearly 312,000 Haitian-born in the country while the ENI counted approximately 460,000 in 2012. However, the survey also found that a quarter of these immigrants, over 116,000, had only arrived in the DR in the past two years, that is, after the census was collected. Despite the relative ease of border crossing between the two countries, 76 percent of surveyed Haitian migrants had only migrated to the DR once suggesting that circular migration may not be very common. This implies that a significant share of the Haitian-born population in the DR in 2012 are recently arrived migrants. Even as the census undercounts immigrants, it remains a valuable data source as it is the only source that allows for disaggregated geographical information about immigration in the DR. The ENI only provides information for five groups of provinces.<sup>29</sup>

**The Haitian-born population is primarily of working age and mostly male, with women from Haiti experiencing high levels of unemployment and low levels of labor force participation.**

The 2012 ENI shows that Haitian immigrants are mostly working age (80 percent) and male (65 percent). Over half (53 percent) of Haitian immigrants are between the ages of 25 and 44, while another 29 percent are between 15 and 24. The gender bias is most pronounced in parts of the country that receive fewer immigrants: men represent more than 70 percent of the Haitian-born in the province group known for production of rice and plantains and the group of provinces with lower immigration.<sup>30</sup> At the same time, there is lower labor demand for female Haitian immigrants than for male immigrants, as suggested by their high rates of unemployment and low labor force participation rates. Only half of these women over the age of 15 are in the labor force, and 26.3 percent are unemployed. On the other hand, 89 percent of Haitian male migrants are in the labor force and they have an unemployment rate of 8.3 percent.

**Haitian immigrants are highly clustered in the DR.** According to the 2012 ENI, nearly half of Haitian immigrants are concentrated in the large urban provinces of Santo Domingo, the Federal District, and Santiago (47 percent), while 15 percent live in provinces where sugar cane is grown and 14 percent in provinces close to the Haitian border. The 2010 census yields a slightly different picture of the geographic distribution of the Haitian-born population, finding that the two largest urban centers are home to only about a third of all Haitian migrants. It also reports that the Haitian-born represent a higher share of the local population in more sparsely populated parts of the country (Figure

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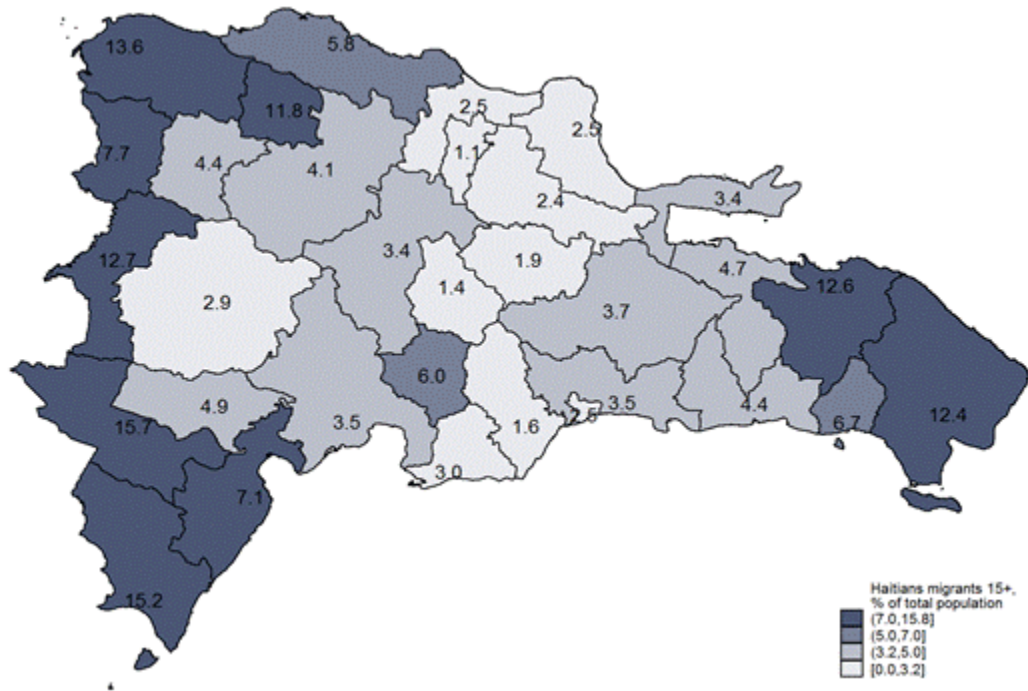
<sup>28</sup> In 2014, the DR began implementing its National Plan of Regularization, including the passage of Law 169-14 with the purpose of registering individuals without documentation.

<sup>29</sup> Specifically, the ENI includes the following five groups of provinces: 1) the large urban centers include the Federal district, Santiago and Santo Domingo; 2) provinces near the border include Baoruco, Barahona, Dejobón, Elías Piña, Independencia, Monte Cristi, Pedernales and San Juan; 3) provinces where sugar cane is grown include El Seibo, La Altagracia, La Romana, Puerto Plata and San Pedro de Macorís; 4) provinces where rice and plantains are produced include Azua, Duarte, María Trinidad Sánchez, Sánchez Ramírez, Valverde and Monseñor Nouel; 5) provinces with low immigration include Espaillat, La Vega, Peravia, Hermanas Mirabal, Samaná, San Cristóbal, Santiago Rodríguez, Monte Plata, Hato Mayor and San José.

<sup>30</sup> See footnote 29 for list of provinces by group.

3.28). Notably, in provinces along the border with Haiti and in the Eastern end of the DR, provinces that are home to significant tourism (Altagracia) and agriculture (El Seibo) sectors as well as where sugar cane is grown, the Haitian-born represent more than 7 percent of the population.<sup>31</sup>

**Figure 3.28. Haitian immigrants in the Dominican Republic are geographically clustered**



Source: Own estimates based on 2010 Census. Note: Haitian immigrants as a share of the total population

**Economic theory provides some explanations for how immigration could lead to less inclusive growth, but most empirical analysis has not found support for this hypothesis in the DR.** Based on a classical model of a closed economy, an increase in the labor supply, for instance due to immigration, can lead to a reduction in wages if immigrants are substitutes for the local labor supply. Under the assumption that immigrant and local labor are imperfect substitutes, increased migration can cause a reduction in the cost of immigrant labor. This can result in two opposing effects: on one hand, as the cost of immigrant labor falls, firms will substitute immigrant labor for native labor (the substitution effect); on the other hand, for a given wage level, firms will employ more native workers as output grows (the scale effect). How do these effects play out in the Dominican economy? As shown below, there is evidence that Haitian immigrants do not represent a good substitute for local labor as these workers have significantly lower educational attainment than their Dominican counterparts and face linguistic barriers. According to the ENI, only 9.8 percent of Haitian immigrants reported speaking Spanish very well, with another 25.3 percent reporting speaking Spanish well. Nevertheless, immigration could result in more competition for unskilled jobs, reducing job growth for the least skilled domestic labor while, simultaneously, increasing returns to capital (to the degree that capital is complemented by unskilled labor). International research on migration and local labor

<sup>31</sup> Between 2002 and 2010, the regions that oversaw the highest growth in local Haitian population were those along the border with Haiti



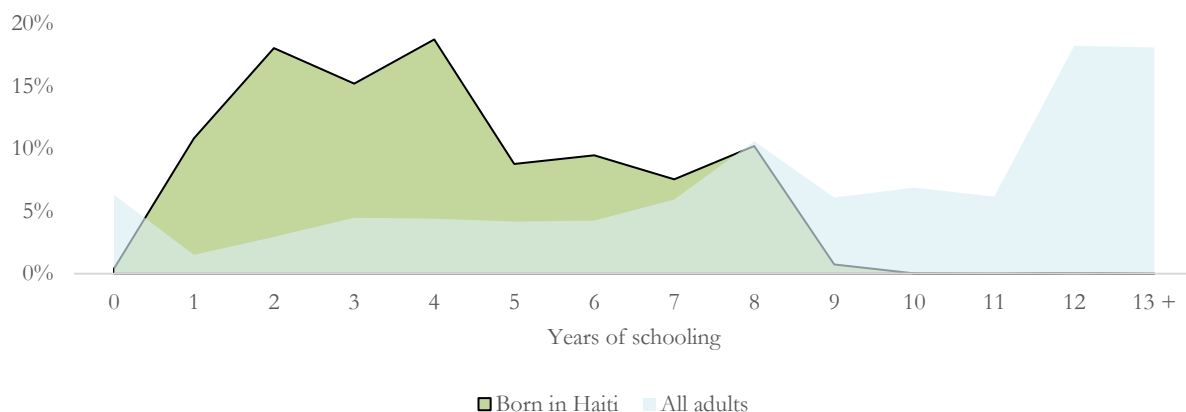
markets has found limited effects of immigration on wages, even for the least skilled local labor (Box 3.5).

**Box 3.5. Most international studies find limited effects of immigration on local wages**

Most international studies have found little or no effects of immigration on native wages, as recounted in Peri (2014). Card (2009) finds that immigrant and native workers in the U.S. of similar skill-level are imperfect substitutes and, instead, additional immigration flows have stronger effects on earlier waves of immigrants than on native workers. Ottavio and Peri (2011) also find evidence of imperfect substitutability between native workers and immigrants in the US. They estimate that, in the period from 1990 to 2006, immigration had a small effect on the wages of unskilled native workers (those with no high school degree), resulting in an increase of between 0.6 percent and 1.7 percent. That is, immigrants were complements for low-skilled native labor. On the other hand, immigration had a large negative effect (-6.7 percent) on the wages of previous immigrants. Some studies, on the other hand, have found negative wage effects on low-skilled native labor resulting from the increase in low-skill labor supply. For example, Borjas (2006) estimates that a 10 percent increase in the skill group’s labor supply (from immigration) reduces earnings by close to 4 percent.

However, most of these studies are from high income economies and thus may not capture well the impacts of migration in middle income countries. Looking at the South-South migration flow between Nicaragua and Costa Rica, Ginding (2009) concludes that, on average, there is no statistically significant relationship between earnings and the share of Nicaraguan immigrants. The study disaggregates by skill-level and gender, finding no statistically significant relationship between immigrant and the earnings of local men, including unskilled workers most likely to compete with immigrant labor. It finds a negative effect on wages of low-skilled women and a positive effect for women with more schooling, suggesting that Nicaraguan immigrants are substitutes for low-skilled Costa Rican women, and complements for more-educated women. A potential interpretation offered in the study is that both of these effects are driven by domestic workers, the sector of employment for a significant share of Nicaraguan female immigrants. While immigrant domestic workers replace unskilled local workers, lower costs of domestic workers may allow more women to work outside of the home. Instrumenting for changes in immigration flows into Malaysia using population changes in the source countries, Del Carpio et al. (2013) find evidence that international immigration leads to in-migration of natives and better employment outcomes for native labor. Their analysis suggests that the scale effect, increased demand for local labor as output increases, dominates the substitution effect of immigrant labor in the Malaysian labor market.

**Figure 3.29. Haitian immigrants have significantly lower educational attainment**



Source: Own estimates based on 2012 ENI (for Haitian immigrants) and 2012 ENFT for all adults.

**The impact of migration on native wages depends on the extent to which immigrant and native labor are substitutes or complements.** Importantly, the Haitian-born are overrepresented among the least-skilled: the average years of schooling of a working age Haitian immigrant was 4.1 compared to about 9 years for those born in the DR (Figure 3.29).<sup>32</sup> In some provinces with high immigration rates, the 2010 census suggests that Haitian immigrants represent over 20 percent of adults who did not complete primary school. Given the significantly lower educational attainment of Haitian immigrants than most Dominican-born workers, the group that would be expected to be most adversely affected by the migration stream through competition for jobs would be the lowest-skilled native laborers. To the extent that these workers can be substituted by cheaper migrant labor, this could drive down wages and employment among the least-skilled. At the same time, if unskilled and skilled workers are complements, an increase in unskilled labor could lead to improved employment outcomes for skilled labor—and to an increase in the returns to capital.

**Previous research has found some evidence to support the hypothesis that unskilled Haitian migration to the DR has negative but small effects on the labor market outcomes of Dominican workers and capital owners.** Notably, Aristy-Escuder (2008) finds evidence that Haitian migrant labor receives lower wages than similarly-qualified Dominican labor, substituting local low-skilled labor while complementing capital and high-skilled native labor. He estimates a negative but relatively modest native-wage elasticity of -0.37 in the construction sector: that is, a 10 percent increase in the population resulting from immigration reduces the average Dominican wages in the construction sector by 3.7 percent. World Bank (2012) finds that the gap in earnings between Dominican and Haitian-born labor in the DR is fully explained by education and other characteristics.

**Haitian-born workers are highly concentrated in the labor force: two sectors—agriculture and construction—account for most Haitian migrant employment in the DR.** While 55 percent of Haitian migrants work in agriculture and construction, these two sectors employ only 7 percent of the Dominican-born workers.<sup>33</sup> Conversely, despite accounting for only 7.5 percent of the total labor force 15 years of age and older, the Haitian-born make up 21 percent of all agricultural workers and 16 percent of all construction workers in the DR. These shares vary significantly across the country—for example, Haitian-born workers make up half of the agricultural labor force in Valverde and about a third in El Seibo, San Pedro de Macoris and La Romana. In La Altagracia and Puerto Plata, 40 and 30 percent, respectively, of construction workers were of Haitian birth in 2010. While construction and agriculture are important for unskilled and low-skilled native labor in the DR, together accounting for 29 percent of unskilled and 13 percent of low-skilled jobs, wholesale and retail trade (commerce) is their main sector of employment, accounting for half of the jobs held by these workers.

**In both agriculture and construction, Haitian immigrants earn significantly less than their Dominican-born counterparts.** The earnings gap between the Haitian-born and the Dominican-born in construction work is fully explained by differences in skills, suggesting labor complementarity between the two groups. The analysis, based on the 2012 ENFT, indicates that Haitian workers earn about 25 percent less than native workers in the construction sector, when adjusting only for region and urban status. However, the wage gap is fully explained by differences in the educational attainment between the two types of workers. This suggests that differences in wages between Dominican and

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<sup>32</sup> Educational attainment is from the ENI for the Haitian-born population and from the 2010 Census for the Dominican-born population.

<sup>33</sup> These estimates are based on the 2010 census. The 2012 ENI finds that 62 percent of jobs of Haitian-born labor in DR are in these two sectors.

Haitian-born labor in the construction sector may be related to differences in occupations and tasks, with the higher-skilled Dominicans performing higher productivity tasks. This is in line with earlier analyses of the sector using 2002 data, which find that Haitians earn significantly lower wages and perform very low-skilled jobs (Cuello and Santos, 2008). Interestingly, the analysis finds no estimated returns to experience in the sector, suggesting a lack of sector-specific human capital accumulation; i.e., construction work in the DR does not reward experience as it does skills and education. In agriculture, on the other hand, the native-immigrant wage gap of 28 percent (adjusting only for region and urban status) is not fully explained either by worker characteristics (such as education) or by type of employment (wage versus self-employment). Among wage workers, the wage gap is 23 percent while among the self-employed it is 20 percent. As the gap remains for the self-employed, this may suggest that Haitian agricultural labor is lower-productivity, perhaps due to lower access to capital and land.

**The sectors in which Haitian-born immigrants are most likely to work have not shown different wage trends from other low-skilled sectors.** Contrary to the case of construction and agriculture, Haitians represent a small share of overall workers in commerce and transportation. While construction wages were higher in 2000 than wages in commerce and transportation, following the crisis in 2003-04, they have been in line with these other low-skilled sectors despite the increase in immigrant labor during this period (Figure 3.30). The potential wage effects of immigrant labor would not necessarily be limited to the sectors where immigrants are employed. Specifically, one would expect that, as competition for jobs in construction and agriculture builds, Dominican-born workers, who may have more labor mobility, would move towards other sectors. This movement would, in effect, increase competition across other sectors, resulting in lower wages across unskilled sectors. While this is a possibility, real wages in these low-skilled sectors have remained flat following 2004 despite an increase in Haitian migration.

**Figure 3.30. Wage trends for unskilled labor are similar across low-skilled sectors**



Source: Own estimates based on ENFT. Note: Wages reported are for workers who did not finish primary school.

**The evidence does not suggest that competition with Haitian labor is pushing unskilled Dominican-born labor into other parts of the country through indirect adjustments of the**

**labor market.** Even as Haitian unskilled labor is clustered in specific parts of the country, the effect on native wages and employment could be dispersed throughout other regions due to internal migration and labor market adjustments. For instance, if Haitian labor displaces unskilled native labor closer to the border, it could push it into other parts of the country, thus reducing wages across the DR. However, data from 2002 and 2010 suggests a positive correlation between Haitian migration and the share of the native population that is unskilled. Provinces with more unskilled Dominican workers had a higher proportion of Haitian population. This may suggest more competition for unskilled jobs in these areas—or, conversely, more demand for unskilled labor in these areas. The correlation has risen from 0.30 in 2002 to 0.39 in 2010 as immigration rates increased, suggesting a greater concentration of Haitian immigrants in provinces with lower human capital.

**The degree to which Haitian immigrants are concentrated in few types of employment and their relatively low educational attainment suggests that they have limited potential to substitute for local labor.** Exploiting the geographical dispersion patterns of Haitian immigrants across the country, a wage regression analysis finds no negative correlation between wages of nationals and the share of the local labor force that is Haitian-born.<sup>34</sup> As discussed above, even as Haitian labor is clustered in two sectors, it could potentially lead to wage falls across other sectors in labor markets with more immigrant competition. However, the analysis finds no evidence that unskilled Dominican men, those who are the most likely to compete directly with Haitian labor, are adversely affected through wages.

**The empirical analysis does not find evidence supporting the hypothesis that Haitian labor in the Dominican Republic has led to stagnating wages for local workers.** While data quality limitations reduce the extent to which this question can be fully explored, the available data suggest relatively few work opportunities for Haitian-born labor in the Dominican Republic. This is also supported by the finding that a significant majority of Haitian workers in the DR are employed in unskilled and informal employment in agriculture, commerce, and construction, suggesting a limited role of immigrant labor in Dominican employment. This suggests that competition with Haitian labor cannot explain why wages fell for unskilled as well as high skilled workers in the DR by similar margins.

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<sup>34</sup> See Appendix 1 for details on the methodology and the regression results.

#### 4. What does this mean for the Jobs and Equity Agendas in the Dominican Republic?

While growth does not automatically deliver employment, the modest performance of the labor market in the DR during the sustained economic progress between 2005 and 2013, exemplified by its relatively low elasticity of employment to growth, calls for a debate on the policy reforms necessary to enable job creation and labor force participation. Like most traditional analyses, this study focuses largely on labor supply and labor demand factors to explain why there is not enough employment to further support poverty reduction in the DR. However, disentangling the constraints to creating more and better jobs is not simple. Often, the most relevant obstacles to labor participation and job creation lie beyond the labor market and labor policies - for instance, product market imperfections, rule of law, technology adoption and innovation.

Having that in mind, this section outlines a set of principles for setting policy priorities for jobs with an equity lens in the DR. The results of the analysis define four broad areas for policy to remove or mitigate the constraints that prevent job creation and discourage more people from seeking employment: i) on the labor supply front, increasing both the supply and intensity of use of human capital; ii) on the labor demand front, setting labor policies that incentivize creation of more and better quality employment while reducing inefficiencies; iii) increasing productivity in all sectors and improving the business climate; and iv) further advancing statistical capacity and the labor markets knowledge agenda. It is important to recognize that the Dominican Republic has been making reforms aligned with these principles.

**i) Increasing the supply, quality and intensity of use of human capital.** Positive outcomes in education, health and nutrition equip people with the set of skills to take up economic opportunities and engage in productive employment. While the DR is moving in the right direction in terms of increasing educational attainment, moderately improving health and nutrition indicators, skilled workers face higher rates of unemployment even as firms report a lack of skilled labor. Female labor force participation is relatively low and women also face higher unemployment rates. Policies designed to reduce the barriers to joining the labor force and access higher productivity jobs should be strengthened.

- *Increasing the relevance and quality of schooling:* quality of schooling remains relatively low in the DR, particularly among low-income individuals, contributing to high rates of drop-outs, lower employability and workers who lack the skills necessary to perform better in the labor market. A third of firms in the DR reported that the main constraint for business was the inadequate education of the workforce. Addressing this lack of relevant skills will require improvements in the quality of basic education, which has important implications for future skills acquisition. Additionally, directly connecting employers to schools so that relevant skills are included in the curriculum and students receive better information about which skills are in demand and which positions are open can be a valuable tool in generating a better-prepared workforce.
- *Youth training and employment programs:* The DR, and the LAC region, is facing a challenge of “youth idleness.” Increasing access to job training, internships and job fairs can facilitate the transition from school to the labor force and improve the quality of job matching for many young people. Such programs can also address the gap in skills caused by underinvestment in

formal education and training. As young women are particularly likely to be both out of school and not working, a focus on integrating young women into the labor force is warranted.

- *Childcare and pre-school access:* Increasing access to affordable childcare and pre-school can help increase female labor force participation by reducing the barriers to entry faced by mothers, who are often the primary caregivers.
- *Policies to reduce teenage pregnancy:* The DR has very high rates of teenage pregnancy, which lead young women to drop out of school and limit their ability to enter the labor force. Policy options include increasing access to healthcare, teaching teens about the opportunity costs of teenage pregnancy, and increasing access to contraception.

**ii) Setting labor policies that incentivize job creation while reducing inefficiencies.** The DR underperforms in terms of job creation compared to countries in LAC with similar and even lower levels of growth. The following labor policies should be considered in DR to at least partially mitigate labor market imperfections without increasing inefficiencies:

- *Simplifying and improving enforcement of labor legislation:* The labor code in the DR is complex, which makes both compliance and enforcement difficult and costly. This can have the unintended consequence of incentivizing informality. Improved and even enforcement of the labor code could be key in reducing informality. Enforcement of labor laws across all sectors could also reduce the difference in labor costs between local and immigrant workers. A simplified labor code that includes protection of labor rights and enhanced social protection can protect workers while reducing barriers facing potential employers in creating formal employment.

**iii) Increasing productivity in all sectors and improving the business climate.** Strong economic fundamentals such as macroeconomic stability, efficient and equitable fiscal policy, an enabling business and competition environment, and the rule of law are conducive to growth and, thus, a prerequisite for job creation. Over time, the DR has achieved substantial progress in ensuring macroeconomic stability, especially after the 2003-04 domestic financial crisis. The country has successfully employed cautionary policies and stimulus packages to contain external and internal sources of volatility that would have otherwise further discouraged labor participation. DR has also been able to ensure exchange rate stability and avoid major misalignment of relative prices. However, Dominican workers continue to rely largely on self-employment and microenterprises for employment, two types of employment that yield less reliable streams of income than formal employment in large firms. At the same time, employment has moved away from manufacturing to services and commerce – sectors of lower labor productivity and hence lower wages. There is a need to improve key areas associated with firm growth and productivity gains:

- *Investing in productivity growth in sectors of high concentration of unskilled workers.* Sectors like agriculture, construction, commerce and domestic services have lagged in productivity growth. Investing in productivity-enhancing technologies and improved logistical support and financial access for small farms and microenterprises could increase output and lead to higher wages in these sectors essential for low-income workers.
- *Improving service delivery and quality:* The quality of public services is low and, despite significant improvement, inequities in access to some basic public services remain, particularly for the poor. In addition to increasing expenditure in the social sectors, it is necessary to continue

strengthening mechanisms to monitor the quality and provision of public goods and services with a goal of increasing accountability. While improved over time, access to other basic services such as healthcare remains patchy and half of the poor remain uninsured, constraining their labor supply and productivity. Low quality public services, such as public provision of electricity and water, also imply higher business costs with direct implications for job creation both through increased barriers to entry for new firms and barriers for expansion in existing firms due to relatively high operating costs. The country's energy sector continues to be a bottleneck for firm growth and job creation, as costs remain high and service unreliable. In fact, the DR ranked 149 out of 189 countries in the barriers imposed on firms in trying to access electricity.<sup>35</sup>

- *Enhancing the business climate:* A competitive business climate is a key ingredient for the labor agenda considering that the vast majority of jobs are generated by the private sector. According to the *Doing Business* indicators 2016, in spite of progress in recent years in the DR, the business environment remains undermined, especially in difficulty of starting a business, enforcing contracts, and resolving insolvency.
- *Improving infrastructure to decrease transaction costs and to improve connectivity:* Accessible and affordable quality infrastructure is a precondition for firms to operate competitively and for individuals to be linked to markets. While the country has invested in new roads, the western part of the country, which is poorer, remains less connected to the rest of the country. Land transportation remains costly and pricing policies are likely to amplify the gap in infrastructure and the connectivity of some groups. Decreasing transportation costs and time between poor neighborhoods and the city centers or between rural areas and nearby towns can increase the labor supply both through bringing more people to job centers and also through reducing costs of bringing goods to population centers (for example, to sell agricultural products).

**iv) Further advancing statistical capacity and the labor markets knowledge agenda.** As this report has made evident, an ambitious data and research agenda lies ahead to better identify the obstacles to labor participation and job creation in the DR, and to set policy priorities for jobs right. On the statistical side, the newly adapted national accounts estimates reveal that earlier data was over reporting labor productivity and underreporting the labor share of income. Additionally, the DR recently collected a well-regarded survey on migrants in the country, revealing important details on the country's immigrant population. Even so, some areas in need of further development remain and additional research is necessary to better understand the weak linkages between growth and employment.

- *Obtaining detailed productivity estimates:* Estimates of productivity could be greatly improved with more enterprise data, including information on technical change. The country collects firm-level data, but only since recently, limiting the ability to study productivity advancements over time. Additionally, estimates of per worker output and other key indicators of firms and employment growth and productivity are rough as the existing surveys still lack more detailed information. For instance, the enterprise surveys report firm size in intervals rather than by actual number of workers, constraining the calculation of accurate measures of labor demand, costs and productivity.

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<sup>35</sup> Doing Business 2016, The World Bank.

- *Improving data on immigrants:* Estimates of the immigrant population in the DR vary significantly across sources due to the high rates of undocumented Haitian migration. The recent migrant survey revealed a larger immigrant population than that suggested by the 2010 census and that a larger proportion of immigrants are of Haitian descent than in the Census. However, some estimates suggest that the immigration survey may also suffer from undercounting.
- *Improving estimates of non-wage labor costs:* More employer-side and administrative data could be developed to reveal the true costs of the country's labor regulations and payroll costs. This has important implications for both firms and workers as these costs may be passed-through to workers through reduced wages.
- *Generating new data and advancing additional research:* Many questions that are central for the jobs and equity agenda in DR remain unanswered. For instance, what factors drive low labor force participation among Dominicans living in poverty? What is the relationship between employment and the type of jobs with movements in and out of poverty? What other factors keep wages from growing? Which types of firms create more jobs? What constrains business growth and formalization? What factors limit productivity-enhancing labor reallocation among unskilled and low-skilled workers?

## 5. Conclusions

**The strong economic growth enjoyed by the Dominican Republic following its 2003 domestic crisis was not matched by similarly substantial progress in poverty reduction.** Growth in the country has been high by regional standards, averaging 5.1 percent a year between 2000 and 2013. Still, poverty in 2013 was higher than in 2000—partly as a result of its rise alongside the 2003 domestic crisis. While growth resumed after the crisis, poverty reduction remained modest through 2013. It was not until 2014 that larger poverty reduction gains began to materialize. This report presents an assessment of factors related to the functioning of the labor markets that constrained more inclusive growth in the Dominican Republic.

**What stood in the way of more inclusive growth?** The answer lies, to a great extent, in the labor market. Labor force participation remained low, particularly for the poor, and unreactive even as economic activity took off. On the other hand, while the strong growth in the country was accompanied by an increase in labor productivity, wages remained stagnant between 2005 and 2013. These two factors affect the critical role that the labor market can play to channel the benefits of growth to the population. This report explores several hypotheses related to labor supply factors, job creation, and global trends in returns to labor, as well as issues with statistical measurements that contribute to explain the weak relationship observed between growth and poverty reduction.

**The fast-growing labor productivity in the DR, supporting the robust economic growth, was not matched by growing wages.** While labor productivity grew by an estimated 39 percent between 2000 and 2013, real wages fell with the crisis in 2003/04, and largely stagnated since. In 2013, they remained below their pre-crisis level. All groups of workers, regardless of their skill level or years of education, experienced a worsening in labor remuneration, undermining the expected positive effect of other progress, such as additional schooling and improved healthcare, on the economy.



**Improved statistical measurement confirms that the gap between the productivity of labor and wages is real and substantial.** A key puzzle from this period of high growth is the growing gap between real wages and productivity. While productivity was in fact rising, data from the recently updated national accounts system shows that its growth was considerably lower than the one found with the previous system. This overstated productivity growth amplified the disconnect between productivity and wages. The gap also narrows when considering total labor costs, not only wages. Even after these adjustments, the gap remains significant.

**Sectors that contributed the most to growth in the DR were those in which the labor share of income was declining, pointing to a reduction in the part of total output allocated to compensate labor vis-à-vis capital.** Recent research shows that the labor share has steadily declined over the past decades in many countries and industries. National accounts data suggests that the labor share in the DR does not follow this pattern; instead, it fell in the first half of the 2000s due to the 2003-2004 crisis but new data suggest that it had recovered to pre-crisis levels by 2010. Importantly, the sectors driving most of the economic growth in the country experienced important decreases in their labor income share. A negative association is found with value added, meaning that sectors with stronger growth saw a reduction in the share of output being allocated to compensate labor, possibly due to larger investments in capital which may have led to higher productivity and growth without increases in labor.

**Robust and sustained economic growth in the DR did not lead to stronger demand for labor.** The number of jobs created between 2000 and 2013 (about a million) is lower than expected from one of the fastest-growing countries in the region. Employment rates stayed flat after the crisis, even during business cycle peaks, and are low compared to other LAC economies. Underlying the modest creation of jobs was a relatively low elasticity of employment to growth, among the lowest in the region. Indeed, as suggested by the labor share analysis at the sector level and by previous research, increased productivity has been the main driver behind the growth performance, compared to a much smaller role played by labor inputs. Over a long-term perspective, unemployment remained largely flat, unresponsive in periods of economic growth. This points to the inability of a growing economy to link the labor force to more and better jobs. Elevated unemployment among the higher-skilled suggests a skills-mismatch—a notion supported by firms reporting inadequate training of the workforce as a main business constraint.

**A key trend behind the weak link of growth to poverty reduction in the DR is the fact that low-skilled workers were concentrated in low-quality jobs, and in sectors with low productivity growth.** While a higher share of workers held formal jobs in 2013 than in earlier years, the poor were still more likely to work in informal jobs where real earnings are lower. Self-employment and employment in microenterprises accounted for the vast majority of jobs among the bottom 40 percent. At the same time, there was a shift in the sectors that employ the poor, away from manufacturing towards services, commerce and construction. Worryingly, although labor productivity increased overall, these sectors and agriculture (still a sector with a high share of the poor) have slower or even stagnant labor productivity growth. The concentration of poor workers in low productivity growth activities lowered poverty reduction.

**On the other hand, low labor force participation hindered the ability of households to benefit from growth.** Only two-thirds of adults participated in the labor market in 2013, while this is even more critical among the poor—of whom just over half were either working or actively looking for a job. An important improvement during this period was the increase in labor force participation among

women and the bottom 40. The growth in female employment contributed to more than half of the observed poverty decrease between 2008 and 2013. Two possible reasons behind the country's low and unresponsive labor force participation may be high rates of discouraged workers due to a lack of employment opportunities and the receipt of remittances from the Dominican diaspora, particularly in the case of women and those in the bottom 40.

**The available evidence suggests that increased immigration from Haiti does not explain the wage trends in the DR.** While information on Haitian migrants is incomplete, there was significant immigration from Haiti since the early 2000s. Census and survey data show that most male working-age Haitian migrants are employed in agriculture and construction, while Haitian female immigrants are largely unemployed or not in the labor force. With their significantly lower educational attainment and limited Spanish-language skills, Haitian workers do not appear to be substituting local labor, with some evidence suggesting Haitian-born labor in construction may be complementing Dominican-born labor. Based on the geographical patterns of immigration, a regression analysis does not find evidence that a greater proportion of Haitian labor leads to wage decreases for Dominican workers. Even unskilled Dominican men—who would be facing the most direct competition from Haitian labor—do not appear to receive lower wages in areas where they face more competition from Haitian workers.

**While generally speaking growth does not automatically deliver employment, this report argues that the functioning of labor markets in the DR limited the ability of households to contribute to and benefit from growth through two dimensions.** On one hand, labor inputs appear to have been underused in the economy. Low labor force participation, particularly among women and low-skilled individuals, weakens the connection of households to economic growth. On the other hand, productivity and wages appear to be largely disconnected, inhibiting linkages between jobs and economic mobility. The study also looked at measurement issues in both productivity and wages, which suggest that, while the gap was overstated, it was substantial and grew over the past decade.

## References

- Abdullaev, U. and M. Estevão (2013). “Growth and Employment in the Dominican Republic: Options for a Job-Rich Growth.” International Monetary Fund Working Paper WP/1340. Washington D.C.
- Altonji, J. G. and D. Card (1991). “The Effects of Immigration on the Labor Market Outcomes of Less-Skilled Natives.” *Immigration, Trade and Labor*, ed. J. M. Abowd and R. B. Freedman. Chicago, University of Chicago Press.
- Amuedo-Dorantes, C. and S. Pozo (2006). “Migration, Remittances, and Male and Female Employment Patterns.” *AEA Papers and Proceedings*, 96(2). 222-226.
- Aristy-Escuder, J. 2008. “Impacto de la inmigración haitiana sobre el mercado laboral y las finanzas públicas de la República Dominicana.” Pontificia Universidad Católica Madre y Maestra Working Paper Series.
- Baez, J., A Garcia-Suaza, and L Sousa. 2017. “Labor Income Share and Biased Technical Change: the case of the Dominican Republic.” In *When Growth is Not Enough: Explaining the Rigidity of Poverty and Inequality in the Dominican Republic*. World Bank, Washington, DC.
- Banco Central de la Republica Dominicana. 2007. *La Informalidad en el Mercado Laboral Urbano de la Republica Dominicana*. Secretaria de Estado de Economía, Planificación y Desarrollo, Banco Central de la República Dominicana y Banco Mundial.
- Borjas, G. 2006. “Native Internal Migration and the Labor Market Impact of Immigration.” *The Journal of Human Resources*, 41(2). 221-258.
- Card, D. 2009. “Immigration and Inequality.” *American Economic Review: Papers & Proceedings*, 99(2). 1-21.
- Carneiro, F. G., A. Iwulska, J.D. Reyes, and M.E. Sanchez-Martin. 2015. “Resilient Growth, Persisting Inequality: Identifying Potential Factors Limiting Shared Prosperity in the Dominican Republic.” *Caribbean Knowledge Series*, CARO1/15.
- CEDLAS and the World Bank. 2010. “A Guide to the SEDLAC Socio-Economic Database for Latin America and the Caribbean.” <http://sedlac.econo.unlp.edu.ar/eng/methodology.php>
- Cuello, M. and F. Santos. 2008. “Costos y Beneficios de la Mano de Obra Haitiana en el Sector Construcción.” Santo Domingo: Report prepared for Servicio Jesuita a Refugiados/as y Migrantes.
- Del Carpio, X., C. Ozden, M. Testaverde, and M. Wagner. 2013. “Local Labor Supply Responses to Immigration.” *The Scandinavian Journal of Economics*, 117(2). 493-521.
- Duarte T., I. and J. Hasbún. 2008. “La Mano de Obra Haitiana en la Construcción: Características, Valoraciones y Prácticas” Santo Domingo: Report prepared for the Fondo Para el Fomento de la Investigacion Economica y Social (FIES).

Elsby M., B. Hobijn and A. Sahin. 2013. “The Decline of the U.S. Labor Share”, Brookings Papers on Economic Activity, Fall 2013, Washington D.C.

Gidding, T. H. 2009. “South-South Migration: The Impact of Nicaraguan Immigrants on Earnings, Inequality and Poverty in Costa Rica.” *World Development*, 37(1). 116-126.

Guzman, R. and C. Cruz. 2010. *Estudio, Salario y Seguridad Social. En el Transito de la Crisis a la Recuperacion*. Observatorio del Mercado Laboral Dominicano.

Karabarbounis, L., and Neiman B. 2013. The Global Decline of the Labor Share. NBER Working Paper No. 19136.

Loayza N., P. Fajnzylber and C. Calderon (2004). “Economic Growth in Latin America and the Caribbean: Stylized Facts, Explanations, and Forecasts”, Central Bank of Chile, Working Papers, N. 265.

MEPyD (2015). “Actualización de las Estimaciones Oficiales de Pobreza Monetaria en la República Dominicana.” Ministerio de Economía, Planificación Y Desarrollo. February 2015. <http://economia.gob.do/mepyd/wp-content/uploads/archivos/uaaes/evolucion-pobreza-monetaria/informe-evolucion-pobreza-2014-final-rev2.pdf>

OECD (2014). OECD Employment Outlook 2014, OECD Publishing, Paris. DOI: [http://dx.doi.org/10.1787/empl\\_outlook-2014-en](http://dx.doi.org/10.1787/empl_outlook-2014-en)

Ottaviano, G. I., and G. Peri. 2011. “Rethinking the Effect of Immigration on Wages.” *Journal of the European Economic Association*, 10(1). 152-197.

Peri, G. 2014. “Do immigrant workers depress the wages of native workers?” IZA World of Labor; DOI: 10.15185/izawol.42

Sousa, L., D. Sanchez and J. Baez. 2017. “Wage effects of Haitian migration in the Dominican Republic.” In *When Growth is Not Enough: Explaining the Rigidity of Poverty and Inequality in the Dominican Republic*. World Bank, Washington, DC.

World Bank. 2012. “Opportunities for growth and poverty reduction in Haiti and the Dominican Republic.” Washington, DC.

World Bank. 2015. “Working to end poverty in Latin America and the Caribbean: Workers, Jobs, and Wages.” Washington, DC: Poverty and Labor Brief, No. 7.

World Bank 2014. *When Prosperity is not Shared. The Weak Links between Growth and Equity in the Dominican Republic*. World Bank Latin American and Caribbean Region, Washington, DC.

World Bank 2013. *Economic Mobility and the Rise of the Latin American Middle Class*. World Bank Latin American and Caribbean Studies. Washington D.C.

World Bank. 2012. *World Development Report 2013 Overview: Jobs*. Washington, DC: World Bank

Zuleta, H., Garcia-Suaza, A., Young, A. 2009. "Factor Shares at the Sector Level, Colombia 1990-2005." Documento de Trabajo 76. Universidad del Rosario.

## Appendix I: Wages and immigration regression results

To estimate the local labor market effects of inflows of migration, previous research in labor economics has exploited differences in the geographical distribution of migrants to assess their impact on the employment outcomes, including wages, of the local population. One of the challenges associated with this strategy is the possibility that differences between local economic conditions will both affect wages of local workers as well as affect the flow of migrant labor. Beginning with Altonji and Card (1991), an empirical approach often undertaken in the literature is to use information about earlier distribution of immigrants as an instrument to predict future flows of immigrants. The theory behind this instrument is two-fold: 1) due to the importance of networks, immigrants tend to migrate to areas where immigrants from the same country have migrated before, hence the earlier distribution of immigrants is a predictor for future flows, independent of local labor conditions; and 2) local labor markets adjust to labor inflows after some years, hence earlier flows of immigrants would not directly affect the current labor market conditions.

Applying this same approach to the case of the DR, this study uses census data merged with the 2010 ENFT labor force survey. The log of wages of Dominican-born workers was regressed on the log of the share of municipality-level adults who were born in Haiti, controlling for standard variables associated with earnings (educational attainment, gender, potential experience and its quadratic, sector of employment, type of employment, region and urban status). Specifications were run for all DR-born wage earners and separately by skill group (Table A1). The full set of specifications was also run measuring the potential Haitian labor force competition as the share of all local adults born in Haiti in the same skill-gender cell (Table A2). That is, the wages of a man who did not complete primary school were regressed on the proportion of local similar workers (men with incomplete primary school) who were born in Haiti. These regressions addressed the possibility that it is the competition from similar foreign-born labor that affects wages of a specific type of worker, rather than the overall proportion of immigrants in the local labor force. Due to the potential endogeneity between local labor market conditions and the location choice of migrants (for example, an area of higher wages may also attract more migration), all regressions were also run using an instrumental variable (IV) approach predicting migration rates in 2010 based on the distribution of migrants in the DR in 2002. Results were in line with those of the OLS specification and are reported as the IV specification in Tables A1 and A2. The IV regressions found statistically significant positive wage correlation suggesting that the presence of more Haitian migrants is associated with higher wages for DR-born workers who did not complete primary school.

A note of caution: in interpreting these results, it is important to note that the census data is believed to undercount the immigrant population. If the undercount is not evenly distributed throughout the country, it may reduce the statistical value of this analysis.

**Table A1: Log of share of local working age population who are from Haiti**

DR-born workers by educational attainment:	OLS			Instrumental variable		
	All	Incomplete primary	Primary complete	All	Incomplete primary	Primary complete
Haitian share (municipality)	0.0234 (0.0157)	0.0231 (0.0212)	0.0150 (0.0346)	0.0188 (0.0204)	0.0487* (0.0272)	-0.00140 (0.0453)
Male	0.173*** (0.0202)	0.113*** (0.0366)	0.278*** (0.0425)	0.173*** (0.0202)	0.113*** (0.0364)	0.278*** (0.0422)
Experience	0.0256*** (0.00155)	0.0230*** (0.00266)	0.0219*** (0.00394)	0.0257*** (0.00155)	0.0231*** (0.00266)	0.0219*** (0.00391)
Wage worker	-0.809*** (0.0454)	-0.981*** (0.0951)	-0.569*** (0.0997)	-0.809*** (0.0453)	-0.984*** (0.0947)	-0.570*** (0.0990)
Self-employed	-0.751*** (0.0454)	-0.902*** (0.0918)	-0.456*** (0.0987)	-0.751*** (0.0453)	-0.903*** (0.0914)	-0.457*** (0.0980)
Urban	-0.115*** (0.0191)	-0.149*** (0.0269)	-0.230*** (0.0373)	-0.115*** (0.0191)	-0.150*** (0.0268)	-0.231*** (0.0371)
Education Controls	X			X		
Region Controls	X	X	X	X	X	X
Sector Controls	X	X	X	X	X	X
Constant	0.669*** (0.0663)	0.794*** (0.124)	0.500*** (0.139)	0.673*** (0.0685)	0.760*** (0.125)	0.525*** (0.145)
First stage F-test				727.41	355.95	206.69
First stage T-test				102.01	70.09	49.34
Observations	7,367	3,257	1,820	7,363	3,256	1,818
R-squared	0.285	0.182	0.159	0.285	0.182	0.159

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Source: Own estimates based on 2010 ENFT. Share of local population who is of Haitian birth is reported in logs and is estimated at the municipal level using 2010 census tabulations and is instrumented using 2002 census tabulations. Dependent variable is log hourly wage of DR-born workers.

**Table A2. Share of local working age population in the same gender-education group who are from Haiti**

DR-born workers by educational attainment:	OLS			Instrumental variable		
	All	Incomplete primary	Primary complete	All	Incomplete primary	Primary complete
Haitian share (municipality)	0.0469*** (0.0133)	0.0155 (0.0231)	0.00442 (0.0335)	0.0586** (0.0230)	0.0752** (0.0315)	-0.0286 (0.0575)
Male	0.145*** (0.0218)	0.105*** (0.0382)	0.276*** (0.0458)	0.141*** (0.0244)	0.0783** (0.0392)	0.292*** (0.0518)
Experience	0.0256*** (0.00156)	0.0230*** (0.00266)	0.0219*** (0.00394)	0.0252*** (0.00161)	0.0233*** (0.00266)	0.0210*** (0.00400)
Wage worker	-0.806*** (0.0454)	-0.980*** (0.0951)	-0.570*** (0.0998)	-0.828*** (0.0469)	-0.983*** (0.0946)	-0.571*** (0.0999)
Self-employed	-0.745*** (0.0455)	-0.901*** (0.0918)	-0.457*** (0.0988)	-0.758*** (0.0469)	-0.899*** (0.0913)	-0.456*** (0.0989)
Urban	-0.118*** (0.0192)	-0.150*** (0.0269)	-0.231*** (0.0373)	-0.124*** (0.0200)	-0.157*** (0.0268)	-0.229*** (0.0378)
Education Controls	X			X		
Region Controls	X	X	X	X	X	X
Sector Controls	X	X	X	X	X	X
Constant	0.598*** (0.0693)	0.794*** (0.128)	0.517*** (0.135)	0.585*** (0.0814)	0.680*** (0.134)	0.564*** (0.144)
First stage F-test				1285.94	349.99	132.96
First stage T-test				67.64	62.61	31.82
Observations	7,341	3,257	1,820	6,831	3,246	1,756
R-squared	0.286	0.182	0.159	0.287	0.183	0.155

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Source: Own estimates based on 2010 ENFT. Share of local population who is of Haitian birth is reported in logs and is estimated at the municipal level using 2010 census tabulations and is instrumented using 2002 census tabulations. Dependent variable is log hourly wage of DR-born workers.