

Sifting through the Data

Labor Markets in Haiti through a Turbulent Decade (2001–2012)

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Abstract

In Latin America, labor markets have been the main channel through which growth has reduced poverty, with higher labor income accounting for 49 percent of the reduction in poverty in 2008–13. Understanding labor markets is critical to designing policies and programs aimed at reducing poverty. With close to 70 percent of the population under age 30 years, labor markets are bound to be central to defining Haiti's future. Yet, labor analysis in Haiti has been constrained by the dearth of data and the focus on measuring the impact of the 2010 earthquake. This present paper contributes to filling this gap by providing an overview of Haiti's labor markets and the determinants of labor income over a decade, focusing on growing urban

areas. The paper also contributes to the research on Haiti in general, as well as labor markets in fragile countries such as Haiti, in particular through an unprecedented effort to harmonize three household surveys conducted between 2001 and 2012. Building on this exercise, the study provides new insights into the development of labor markets in a particularly turbulent decade for Haiti, one that was marked by the political crisis of 2004 and the earthquake of 2010. In spite of the earthquake, the analysis shows that Haiti's labor markets are characterized by continuity over the period. Somewhat surprisingly, the defining features remain overall unchanged in spite of the shock, pointing to heavy forces shaping economic and labor dynamics.

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Sifting through the Data:
Labor Markets in Haiti through a Turbulent Decade (2001-2012)

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Working Paper¹

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Summary

Labor markets are key drivers of poverty reduction. In Latin America, labor markets have been the main channel through which growth reduced poverty with higher labor income accounting for 49 percent of the reduction in poverty in the region in 2008-2013. Incidentally, understanding labor markets is critical to designing policies and programs aimed at reducing poverty. This is particularly true in a low-income fragile country such as Haiti. With close to 70 percent of the population under age 30 years, labor markets are bound to be central to defining Haiti's future. Yet, labor analysis in Haiti has been constrained by the dearth of data and the focus on measuring the impact of the 2010 earthquake. However, while measuring the impact of the earthquake matters, over five years on, this question may be one more interesting to researchers than to inform policies and programs beyond the reconstruction.

The present paper contributes to answering this need by providing an overview of Haiti's labor markets and the determinants of labor income over a decade, focusing on growing urban areas. The paper also contributes to the research on Haiti in general, as well as labor markets in fragile countries such as Haiti in particular through an unprecedented effort by the authors to harmonize three household surveys conducted between 2001 and 2012. Building on this exercise this paper provides new insights into the development of labor markets in a particularly turbulent decade for Haiti, one that was marked by the political crisis of 2004 and the earthquake of 2010.

In spite of the earthquake, the analysis shows that Haiti's labor markets are characterized by continuity over the period. Somewhat surprisingly, its defining features remain overall unchanged in spite of the shock – pointing to heavy forces shaping economic and labor dynamics. Self-employment in low-productivity sectors such as commerce and construction remains the norm outside the farm sector. In a rapidly urbanizing Haiti, analysis of the determinants of labor income in urban settings echoes those findings, showing only modest improvement in workers' endowments (such as education) or employment in more productive sectors. Additional analysis flags the important role of both the public and NGO sectors in the income increase, particularly for the lower end of the wage distribution.

The paper also finds a stable premium on education and an overall reduction of the gender wage gap, except in low productivity sectors, where this gap increased over the period to 60 percent. It also points to the persisting gender inequities – showing that on average, women in urban areas earned 23 percent less than men in 2012, a situation that had not changed since 2007.

Changes observed over the period are limited and those that stand out most carry no perspective for better labor market outcomes in the medium term. On the rural side, the significant rise in employment rates observed was due mainly to young people becoming unpaid workers in family businesses. On the urban side, income gains in the metropolitan area were driven mainly by the influx of foreign aid, raising questions of sustainability going forward in an environment where aid is already waning.

Overall, the analysis in this paper offers a new evidence-based analysis for the situation and highlights the remaining challenges and the fragility of the limited gains that Haiti has achieved. As such, the authors hope the paper will help in the crafting of policies that can directly address the country's urgent difficulties and take advantage of its assets – and particularly its demographic dividend.

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Introduction

Though it endured traumatic economic, political, and natural shocks during the first decade of the century, Haiti managed to achieve modest success in poverty reduction: extreme poverty fell from 31 percent to 23.8 percent at the national level between 2000 and 2012.² Nonetheless, the country remains deeply impoverished, with an overall poverty headcount of 58.5 percent, the highest in the Latin America and Caribbean region. Though extreme poverty is found mainly in rural areas, where 80 percent of the extreme poor reside, more than 40 percent of urban dwellers are below the moderate poverty line.

Preliminary evidence suggests that the country's small gains in poverty reduction in urban areas were linked to higher non-farm labor income, which rose in share of total income for all households except those in the poorest quintile. By contrast, households in rural areas saw income increases mainly from agricultural work and production for home consumption, reflecting a growing reliance on the historically low-performing agricultural sector (World Bank, 2014a).

Human capital is typically the most abundant asset of poor households and labor income their main source of income (Attanasio and Székely, 1999, and Bussolo and Lopez-Calva, 2014). Furthermore, mounting empirical evidence suggests that the main driver of poverty and inequality reduction in the world during the last decade was rising labor income, with more and better-paying jobs explaining most of the gains achieved across the developing world, particularly in Latin America and the Caribbean (Azevedo et al., 2013a, Azevedo et al., 2013b, and World Bank, 2014b). Labor markets have been the main channel through which growth reduced poverty in LAC since 2003. Higher labor income accounted for 58 percent of the overall LAC reduction in poverty in 2003-2008 and 49 percent in 2008-2013.³ For that reason, if Haiti is to reach its goal of becoming an emerging country by 2030, it would do well to work toward significant improvements in its labor market and income generation for its citizens.

In Haiti today, jobs are both scarce and of low quality. Unemployment is high across the country. Having a job, however, is no guarantee of escaping poverty: even though the majority of the poor work, their earnings are insufficient to lift them out of poverty, particularly if they are working in the primary sector. Almost 70 percent of the heads of poor households have jobs (compared to 73 percent of the non-poor). Opportunities and outcomes are unequally distributed: unemployment is particularly high among women and young people, and women earn over 30 percent less than men even after controlling for observable characteristics (World Bank, 2014a) such as educational attainment and sector of employment.

While an important amount of the research on Haiti since 2010 has focused on the impact of the earthquake, five years on this question may be one more interesting to researchers than to inform policies and programs beyond the reconstruction. Attempting to contribute to the latter, the paper takes a longer term perspective

² Poverty numbers for 2012 are based on per capita consumption and were calculated using the 2012 official moderate and extreme poverty lines of HTG 81.7 per capita per day (\$2.41 PPP of 2005) and HTG 41.6 per capita per day (\$1.23 PPP of 2005), respectively. The 2000 poverty rates are from the Fafu Institute for Applied International Studies (2001), based on the IHSI *Enquête Budget et Consommation des Ménages* 1999/2000 (EBCM 1999/2000). For details on methodology and comparability of estimates, see World Bank (2014a).

³ Using SEDLAC. The estimation uses the methodology introduced by Barros et al. (2006) and Azevedo, Sanfelice, and Cong Nguyen (2012), it is possible to isolate the role played by different income sources in reducing poverty

to better understand the characteristics of Haiti's labor markets from the household and individual perspective, a current gap in the literature.

This paper has two main sections. First, it provides an overview of labor market development in Haiti during the last decade thanks to an unprecedented harmonization of three different surveys, including the latest 2012 ECVMAS household survey. This first section presents the main trends in employment and participation in Haiti and explores more in-depth the characteristics of non-farm jobs in Haiti. In the paper's second part, the analysis focuses on the determinants of labor income in the country.

Box 1: Of data and surveys in Haiti

This paper relies on data from three surveys conducted in Haiti between 2001 and 2012: the 2001 *Enquête des Conditions de Vie des Ménages (ECVH)*, or Survey on Households' Living Conditions; the 2007 *Enquête sur L'Emploi et l'Economie Informelle (EEEI)*, or Survey on Employment and Informal Economy; and the most recent *Enquête sur les conditions de Vie des Ménages Après Seisme (ECVMAS)*, or Survey on Households' Living Conditions after the Earthquake.

The 2001 ECVH is a household survey covering 7,186 households and including modules on health, mortality, migration, education, labor, and income. ECVH income data have been previously used to estimate poverty rates in Haiti (Sletten and Egset, 2004) and are, to some degree, comparable to ECVMAS' income data. The 2007 EEEI is a labor survey comprising 6,620 households with some information at the household level and more detailed data on labor relations, as well as labor and non-labor income. Finally, the 2012 ECVMAS is a household survey including both income and expenditure information for 4,930 households, detailed data at the household and individual level, and a labor module that encompasses separate sections on agriculture and non-agriculture enterprises for company owners and self-employed workers.

It should be noted that the three surveys do not use an exactly similar questionnaire, and therefore are not perfectly comparable. Annex 1 discusses the harmonization effort undertaken to render the interest variables as comparable as possible.

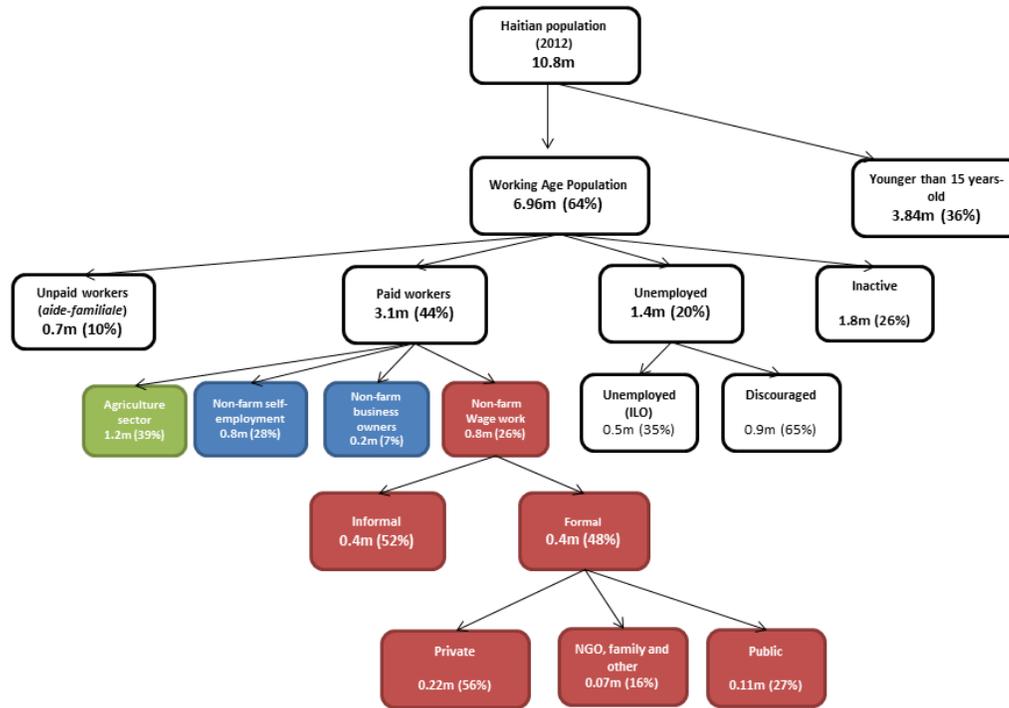
I. Overview of Haiti's Labor Market Trends from 2001 to 2012

As of 2012, Haiti's population was estimated at 10.8 million people,⁴ 7 million of whom were of working age (Figure 1). Among those, 74 percent were active in the labor market, meaning that they were either employed or willing to start a job on short notice if offered one.⁵ Two-thirds of the 1.4 million people defined as unemployed were discouraged by the tough labor conditions and were not actually searching for work, while the remaining 0.5 million were actively looking. Unemployment as defined by the International Labour Organization, which considers only people looking for a job, stood at 12 percent, high for Latin America, but in line with other countries in the Caribbean.

⁴ Haiti's last Census dates to 2003. Total population for 2012 refers to estimates from the 2012 household survey, based on projections by Haiti's statistical office, the *Institut Haïtien de Statistiques et Informatique (IHSI)*.

⁵ This number refers to an extended definition of unemployment, which considers not only those currently looking for a job (the ILO's definition), but also those who are not looking due to discouragement by labor market conditions but who would be willing to take a job if offered one. For more details on definitions used in this paper, see Box 2.

Figure 1 – Structure of Haiti’s Population and Workforce (2012)



Source: ECVMAS 2012, authors’ calculations.

This section of the paper discusses the evolution of the main indicators of the labor markets in Haiti, presenting the results of conditional probit models. The objective is to understand how labor market conditions have evolved, focusing on changes in the characteristics of individuals (such as age structure, gender, and educational attainment) and of households. It does so by comparing labor market outcomes in 2012 and 2007 against the baseline indicators for 2001. This section does not focus on measuring the impact of the 2010 earthquake on Haiti Labor Markets, an issue covered in other papers (See. World Bank 2015; World Bank, 2014a; Zanuso et al. 2014). Rather, its objective is to provide a factual diagnostic of the state of Haiti’s Labor Markets before (2001 ECVH and 2007 EEI) and after the 2010 earthquake (2012 ECVMAS), to better understand key labor indicators from a longer-term perspective.

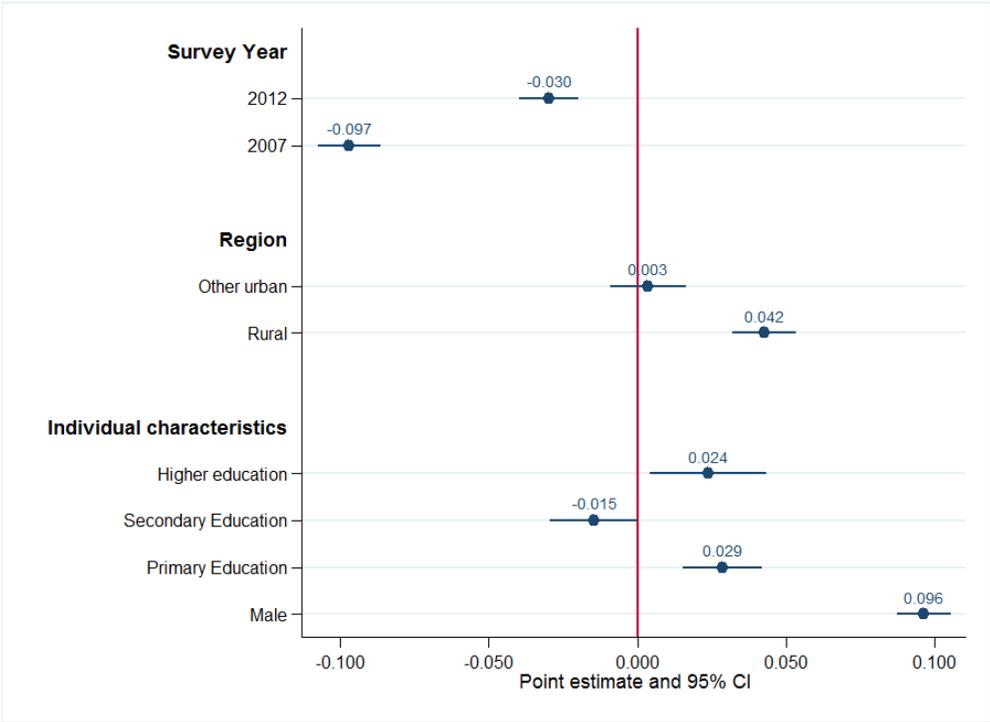
A. Labor Force Participation

The probability of being active in the labor market decreased by almost 10 percentage points from 2001 to 2007, rebounding to a slightly lower level in 2012, at 78 percent. The Metropolitan area saw the biggest variation over the period and remains with lower indicators in terms of active population, employment and unemployment rates compared to rural and non-metropolitan areas. The high level of participation in 2001

partially reflects the very high levels of unemployment registered for that year when compared to 2007 and 2012: unemployment declined ten percentage points from 2001 to 2007, and retracted even further to 27 percent by 2012. The initial decline was not accompanied by a significant rise in employment rates, explaining the initial fall in participation; since 2007 the employment rate has risen more significantly, reaching 54 percent of the working age population in 2012 (Table A.1 in Annex 4).

Gender has a more important influence on labor participation than education. Figure 2 also highlights other variations in labor market participation. Men are, on average, 9.6 percentage points more likely to be active in the labor market than women, and participation is 4 p.p. higher in rural settings than in urban ones (see discussion below). The effect of higher levels of education on participation, on the other hand, is considerably smaller: compared to having no education, having some primary school or higher education increases the probability of participation by 2-3 p.p., while the effect for only secondary education is insignificant.

Figure 2: Correlates of the Probability of Participation in the Labor Force (LFP)

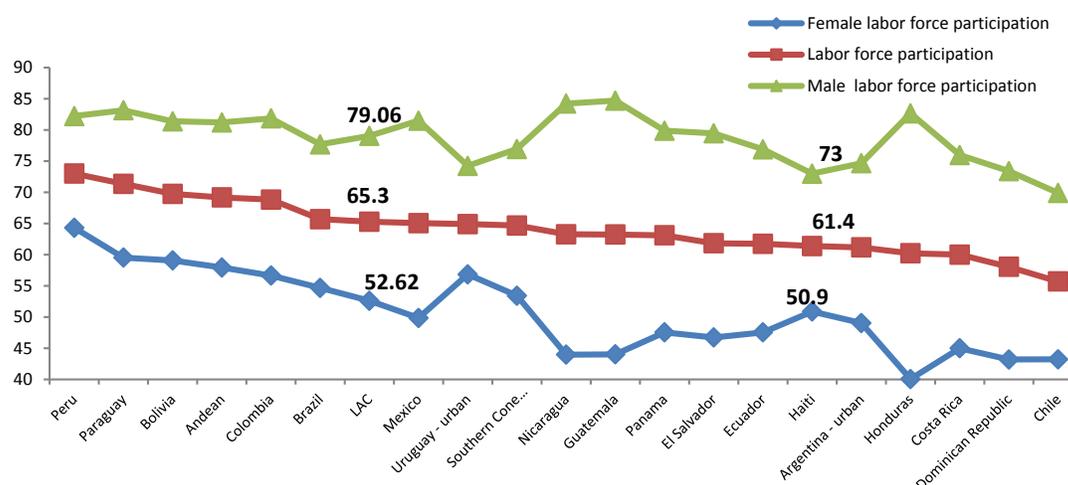


Source: ECVH (2001), EEEI (2007) and ECVMAS (2012) – authors’ calculations. Note: The graph presents the marginal effects (point estimate and 95 percent confidence interval) of a probit model with labor market participation as dependent variable. Regression also controls for age (quadratic form) and household size.

Participation rates are low when compared to the regional average, particularly for men, but are closer to the regional average for women. When using the ILO definition of unemployment, labor force participation stands at 61.4 percent, significantly below the Latin American and Caribbean average of 65 percent (Figure 3). While this rate is comparable with several other Central America and Caribbean countries (Panama, El Salvador, Honduras, Costa Rica, Dominican Republic), activity rates among men are particularly low: only 73 percent in 2012 (in the region, only Chile had a lower rate). On the other hand, female participation was

close to the regional level (51 vs. 52.6 percent in LAC) and significantly above those of other countries with similar overall participation rates.

Figure 3 – Labor Force Participation (%) in LAC



Source: ECVMAS 2012 and LAC Equity Lab.

Box 2 : Jobs and Labor Market Definition

As highlighted by the World Development Report on Jobs (World Bank, 2013), the definition of a “job” can vary greatly across countries and regions. Globally, almost half of the workforce does not work for a salary, and this share is even higher in developing countries. A job, therefore, should be understood as a broad concept of “activities that generate actual or imputed income, monetary or in kind, formal or informal” (World Bank, 2013). This box defines some of the labor market concepts discussed in this paper (for a detailed version see Annex 2).

Working-age population: Population 15 years of age or older.

Employed or occupied: People in the working-age population who worked for at least an hour in the week before the survey or who did not work that week but have a job that will resume in less than a month.

Unemployed: Definition of the International Labour Organization (ILO): People in the working-age population who do not have a job but are looking for one and are immediately available to work if they find one; Extended: Contains all unemployed people under the ILO definition, plus those individuals who have stopped looking for a job due to discouragement but are willing to work if offered one.

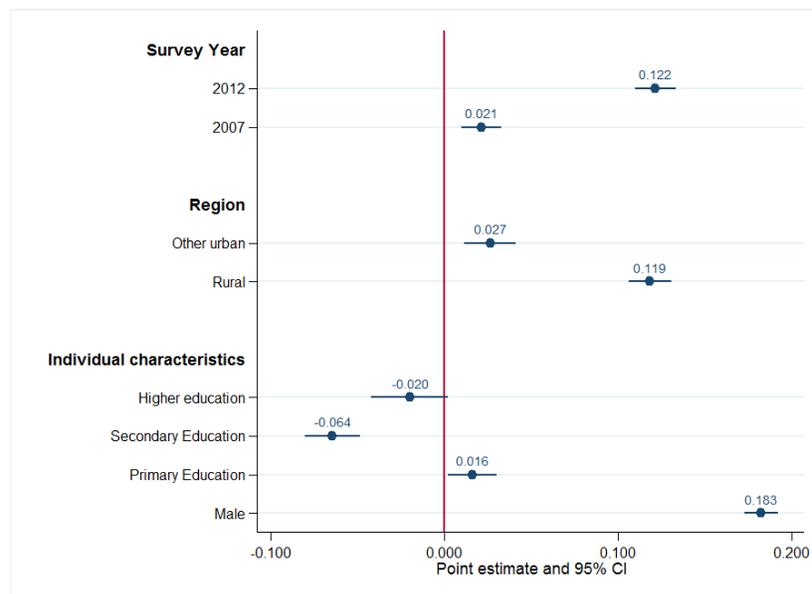
Informal sector: Unincorporated enterprises (household businesses) that are not registered or do not keep formal accounts and are not in the primary sector (agriculture).

Informal employment: All contributing family workers, all independent workers in the informal sector, and all employees without written contracts and not benefiting from social protection. These jobs are not in the primary sector (agriculture).

B. Employment Rates

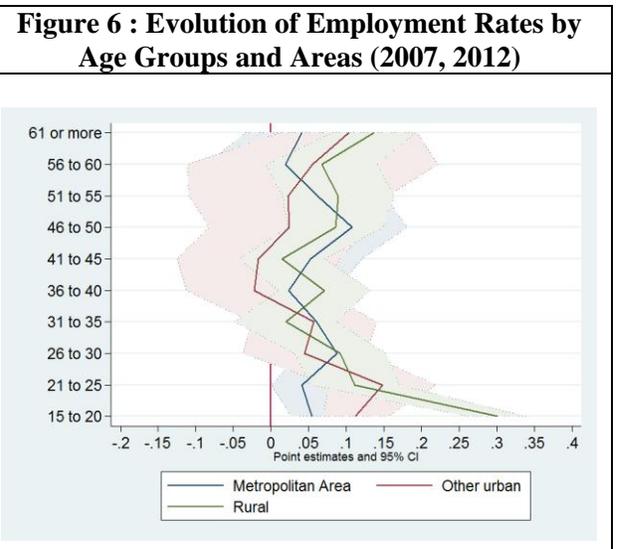
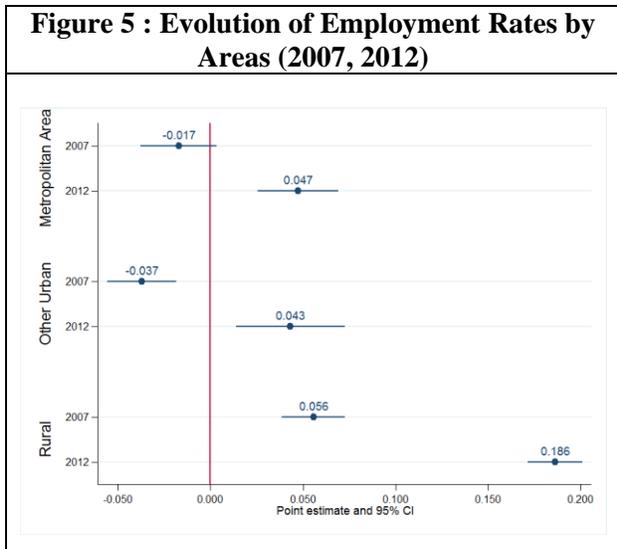
A shift in the urban/rural employment profile crystallized in 2012, favoring rural areas. Overall, the conditional probability of being employed increased by 2 p.p. in 2007 in relation to 2001, and an additional 10 p.p. in 2012—54 percent of the total population was employed that year. But in both periods, the largest contribution came from the rural areas where 64 percent of the population was employed (Table A.1 in Annex 4 and Figure 4). In 2007 the probability of being employed actually decreased in urban settings while expanding by about 6 p.p. in rural areas. The trend continued in subsequent years: By 2012 the rural probability of employment was almost 20 p.p. greater than it had been in 2001, but with much smaller increases (4-5 p.p.) in urban areas. This suggests a significant change in the profile of employment across the rural/urban divide: while in 2001 employment rates were only slightly higher in rural areas compared to urban, by 2012 the difference was larger than 20 p.p.

Figure 4: Correlates of the Probability of Employment



Source: ECVH (2001), EEEI (2007) and ECVMAS (2012)—authors' calculations. Note: The graph presents the marginal effects (point estimate and 95 percent confidence interval) of a probit model with employment as dependent variable. Regression also controls for age (quadratic form) and household size.

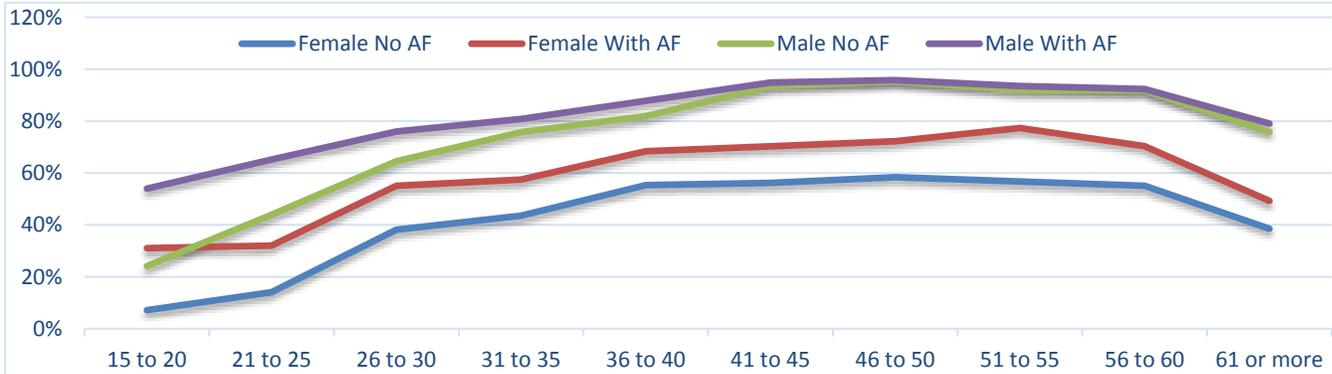
The trend of increasing rural employment can be traced to a few specific phenomena related to age groups and gender. First, the employment increase was very pronounced among the younger cohort of rural individuals: the conditional probability of employment for people aged 15-20 years increased a full 30 p.p. in 2012 in comparison with 2007. Employment rates among 21-25 year-olds in rural and non-Metropolitan urban areas increased by more than 10 p.p. By comparison, in the Metropolitan area employment increased rather similarly across age groups but at lower rates—for instance, only by 5 p.p. for 15-20 year-olds (Figure 6). Furthermore, this increase varied for men and women. Female employment rates in rural areas increased across all age groups, with particularly large expansions for women aged 15-20 (+21 p.p.) and 51-55 (+17 p.p.). Male employment, on the other hand, showed remarkable increases for young men aged 15-20 (+36 p.p.) and 21-25 (+20 p.p.), but with a much less pronounced rise for older men and actual decreases among prime-aged men (31-40) (see Table A.2 in Annex 4).



Source: ECVH (2001), EEEI (2007) and ECVMAS (2012)—authors’ calculations. Note: The graphs present the marginal effects (point estimate and 95 percent confidence interval) of a probit model with employment as dependent variable. Regression also controls for age (quadratic form) and household size. Figure 5 includes an interaction term between years and region, while Figure 6 includes a triple interaction between year, region and age-group.

The expansion in employment rates among young men and women, and for women of all ages, is almost entirely explained by an increase in individuals reporting being unpaid family workers (*aide familiale*) working few hours a week – toning down the message of increase rural employment. As previously noted, employment rates for men and women aged 15-20 in rural areas increased at the substantial rates of 36 p.p. and 21 p.p., respectively. But these gains rely heavily on an increase in unpaid workers, specifically family workers (individuals working in family businesses for no compensation). If one excludes all family workers from the employed population, employment rates are a full 24 p.p. smaller among women aged 15-20 in rural areas and 30 p.p. smaller for men of the same group compared to figures including family workers (Figure 7). This change cancels out the increase in employment for women and most of it for men. Impact is greater on women because, as shown in Figure 7 below, the share of family aids is 11-24 percent of the working-age population for women in all age groups, but for men is significant only for the younger ages, decreasing to 6 percent or less for all male age groups above 31 years old.

Figure 7 - Employment in Rural Areas Including and Excluding Family Workers (percent)



Source: ECVMAS 2012 – authors ‘calculations

Yet, despite the large increase in employment rates for young people in rural areas, there is no evidence that school enrollment rates have decreased—although the “double burden” of work and school can lower the amount of learning. Overall enrollment rates among people aged 15-20 did not change from 2007 to 2012, including for groups where the employment expansion was most significant: both men and women aged 15-20 years-old in rural areas maintained stable enrollment rates in the period. Furthermore, family workers are much more similar to the not employed than to those in paid jobs when it comes to school enrollment: 71 percent of young family workers in rural areas are enrolled in school vs. 76 percent for people not employed and only 31 percent of those employed in paid professions (Figure A.1). This suggests that young people are not dropping out of school to enter the labor market, but are helping in their family business while in school. Of course, this “double burden” can affect the quality of education, such as reducing time devoted to studying or the amount actually learnt while in class (Heady, 2000, Emerson, Ponczek, and Portela Souza, 2013, Bezerra, Kassoufm and Arends-Kuenning, 2009). There is some evidence that people engaged in helping their families are less committed to school. In 2012, for example, only 23 percent of family aids aged 15-20 in rural areas reported spending any time studying vs. 45 percent of those not employed. In a more general way, a much smaller share of people aged 15-20 in rural areas report having spent time studying in 2012 as compared to 2007, be they working as family aids or not. On the upside, conditional on spending any time studying, young people in rural areas actually reported a higher number of hours in 2012 compared to 2007.

C. Unemployment Rates

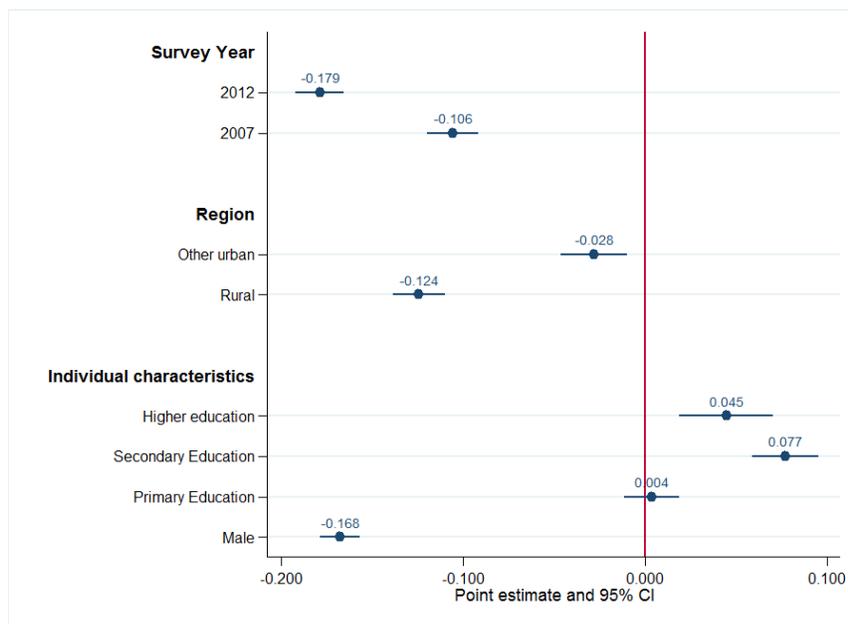
National unemployment rates have declined steadily since 2001, falling from 43 percent to 27 percent in 2012, but remain higher than the LAC average (Table A.1 in Annex 4). A large part of this remarkable decrease is explained by an even faster fall in rural areas, from 41 to 18 percent between 2001 and 2012. The rise in numbers of unpaid workers observed in 2012 also played a role; nonetheless, the largest reduction in the unemployment rate actually dates to 2007, and is thus unrelated to the unpaid workers phenomenon. In the Metropolitan area, the reduction was smoother, falling from 51 percent in 2001 to 45 percent in 2007 and 38 percent in 2012. Rates held fairly stable at around 40 percent in other urban areas. The trends are similar when using other measures of unemployment. Considering only the ILO’s stricter definition of unemployment, national unemployment fell from 27 percent in 2001 to 12 percent in 2012, again with important reductions in rural parts of the country and the Metropolitan area but very little change in other urban areas. At present levels, unemployment in Haiti is much higher than LAC’s average of 6 percent, but comparable to other nations in the Caribbean region (Bahamas: 14 percent; Belize: 14 percent; Barbados: 12 percent).⁶

Women continue to face special barriers to employment in Haiti. At 36 percent at the national level, the female unemployment rate is 17 p.p. higher than the male rate, highlighting gender differences in endowments and use of assets in the labor market (World Bank, 2014). This gap has remained unchanged across the decade (see Figure A.2 in Annex 4). Women face particularly challenging labor markets in urban areas, where their unemployment rate is close to 50 percent against about 30 percent for men. In rural areas, overall unemployment rates are much lower, at 27 percent, but the gender gap is as high as in urban areas

⁶ All unemployment rates for LAC and other countries are from the World Development Indicators (WDI).

and a vast number of employed women, whatever their age, are unpaid workers in family firms, as discussed above.

Figure 8: Correlates of the Probability of Extended Unemployment



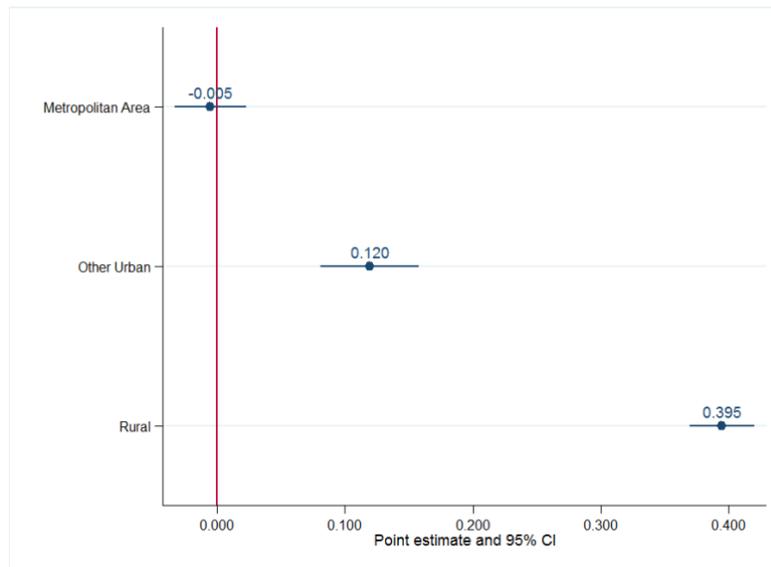
Source: ECVH (2001), EEEI (2007) and ECVMAS (2012—authors' calculations. Note: The graph presents the marginal effects (point estimate and 95 percent confidence interval) of a probit model with unemployment as dependent variable. Regression also controls for age (quadratic form) and household size.

D. Quality of Jobs

Underemployment has increased since 2007. Despite a significant fall in unemployment rates and increases in employment, quality of jobs clearly remains a very important issue in Haiti. In 2012, eight out of ten workers in the country earned less than the official minimum wage of 250 HTG/day (Figure A.3). At the national level, the number of underemployed people has actually increased since 2007:⁷ despite a fall in the share of people receiving less than the minimum wage in the Metropolitan area, the share increased in other urban and, particularly, rural areas. The same trend holds if we consider only those workers with positive reported income: at the national level, the share of underemployment would have increased from 58 to 78 percent. Evidence of limited economic opportunities for the employed also arises when analyzing those working few hours and expressing desire to work more. In 2012, 15 percent of workers had worked fewer than 15 hours the previous week and expressed willingness to work more.

⁷ The underemployment rate is defined as the share of workers receiving less than the minimum wage. For 2007, wages are considered at prices of October 2012, and the minimum wage is considered as 250 HTG/day. If we consider the effective minimum wage in 2007 (70 HTG/day), the increase in underemployment is even higher, rising from 60 to 80 percent.

Figure 9: Probability of Underemployment by Area



Source: ECVH (2001), EEEI (2007) and ECVMAS (2012)—authors' calculations. Note: The graph presents the marginal changes (point estimate and 95 percent confidence interval) in underemployment in 2012, using 2007 as a baseline, on a probit model. Regression also controls for age (quadratic form) and household size.

The primary sector continues to employ the majority of workers, reflecting Haiti's agricultural identity as well as an increase in the share of workers in primary activities in rural areas. With over half of the country's 10.8 million inhabitants living in rural areas, it is not surprising that a vast amount of the Haitian workforce is employed in the primary sector: 45 percent of workers in 2012, a number that increases to almost 70 percent in rural parts of the country. Despite urbanization that is underway in the country, the share of this sector's workers has actually increased since 2007 due to a rise in primary's share in rural areas (from 54 percent in 2007 to 68 percent in 2012⁸). This trend is only partially explained by the increased rates of people working for family enterprises in the countryside. Even excluding those, the primary sector share increases to 64 percent in 2012. As discussed in World Bank (2014), working in non-farm activities in the countryside is correlated with significantly lower probability of being poor, highlighting the importance of fostering non-primary jobs in rural areas.

Within the primary sector, the structure of employment has barely changed since 2007, apart from the increase in family workers working low numbers of hours. Family workers and self-employed workers account for a little less than 60 percent of total primary workers, and owners for the other 40 percent. Salaried work, on the other hand, remains extremely limited at only 4 percent of people in the primary sector, a share that has remained almost unchanged since 2007.

Outside the primary sector, self-employment and informality are also the rule: 44 percent of people work in the private informal sector. But the share of people working non-farm jobs in the informal sector has

⁸ For family workers, the 2012 survey does not provide sector of work. So we impute according to the following rule: if the head of household is owner/self-employed, we impute his sector to the family workers. If not, we check each other member to see if anyone is owner/self-employed and impute their sector to the family worker. If still there are unclassified family workers, we repeat the same procedure but now considering any other labor relation (wage-employed, family worker working more than 15 hours).

actually been edging downward, though not due to gains in the private formal sector –it has been stagnant.⁹ Conditional on several individual and household characteristics, the probability of workers being employed in the private informal sector decreased by 8-10 percent in 2012 in comparison to 2007 (Figure 11), as the public sector and NGOs increased their shares, particularly in the Metropolitan area and other urban settings. Taken together, these figures indicate that over 90% of workers are outside the modern formal sector, be it private, public or NGOs.

Non-farm workers are also increasingly reliant on low-productivity activities such as trade and construction. Not only has the private formal sector failed to expand, but non-farm workers are increasingly trapped in sectors traditionally associated with low productivity. Across the country, workers were 2-3 p.p. more likely in 2012 to work in construction and 4-13 p.p. more likely to work in trade or other low-productivity services. The flipside of this trend is a decrease in employment in sectors associated with faster gains in productivity, such as manufacturing (Rodrik, 2011, Busso, Madrigal, and Pages-Serra, 2012), and in more highly skilled service sectors such as education and health.

Figure 10 : Sectoral repartition of employment (2012)

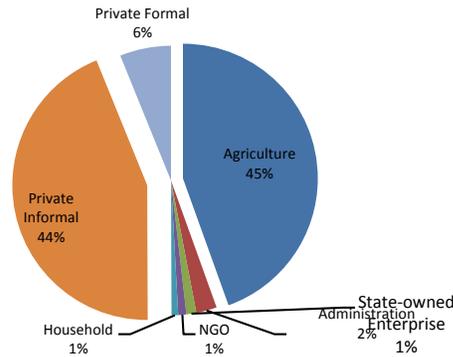
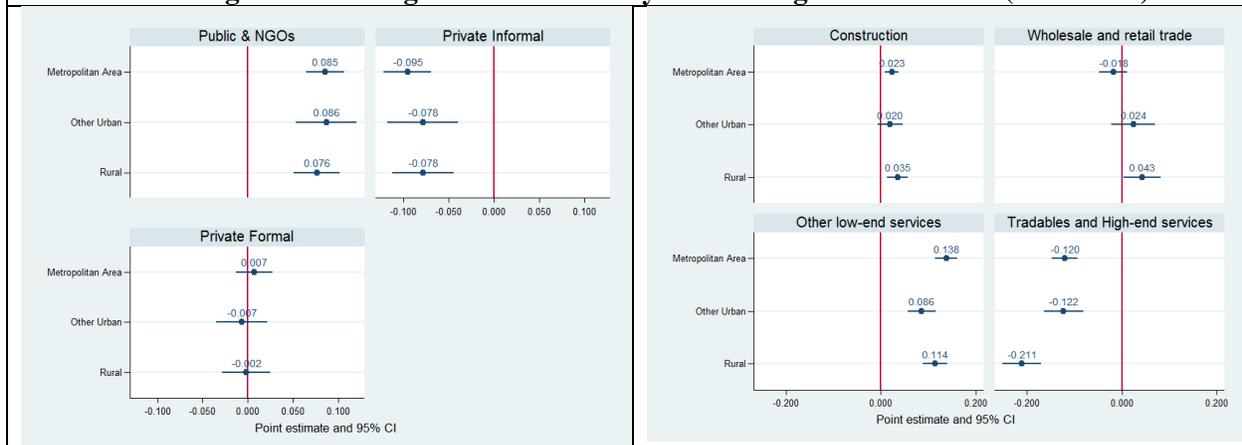


Figure 11: Change in the Probability of Working in Each Sector (2007-2012)



⁹ A separate draft, “Making Self-Employment Work for Haiti,” October 2014, prepared by the authors for the Haiti SCD, looks into the different types of self-employment (one-person firm, family firm, and micro-enterprise) more specifically to provide a finer lens on the difference between survival and growth entrepreneurs. The authors note that the dominance of survival entrepreneurs puts limits on the analysis of growth entrepreneurs.

Source: ECVH (2001), EEEI (2007) and ECVMAS (2012) – authors’ calculations. Note: The graph presents the marginal changes (point estimate and 95 percent confidence interval) in underemployment in 2012, using 2007 as a baseline, on a probit model. Regression also controls for age (quadratic form) and household size.

Ultimately, and in spite of the cataclysmic shock experienced in 2010, the analysis of the evolution of labor markets in Haiti finds few changes. Those changes are primarily due to the dynamics of the post-earthquake reconstruction, such as a temporary expansion of the labor demand in the construction and NGO sectors. Overall, Haitian labor markets are characterized by long-term stagnation. Acute challenges continue to impede Haitian labor markets’ ability to improve the welfare of the country’s people. With labor income a key vector of poverty reduction, the next section investigates its determinants in urban settings.

II. Shining Light on the Determinants of Labor Income in Urban Areas (2007-2012)

While the definition of urban areas can be hard to reconcile, there is little denying that Haiti is rapidly urbanizing.¹⁰ The World Bank’s World Development Indicators (WDI) for Haiti, show an urbanization rate of over 57 percent by 2014 (World Bank, 2015) and the UN demographic forecasts that Haiti’s urbanization rate will expand to 76 percent by 2050, when cities will host nearly 11 of the 14.3 million inhabitants (United Nations, 2014). While rural areas continue to remain important – especially for poverty reduction – urban areas are sure to play a critical role in Haiti’s future and its capacity to cash in on its demographic dividend given that almost 70 percent of Haiti population is less than 30 years old. The following section focuses on the labor income determinants in urban areas in 2007 and 2012; data limitations prevent the extension of the analysis to 2001.¹¹

A. Labor Income Increased between 2007 and 2012, but with Important Sectoral Disparities.

Both monthly and hourly labor income increased by about 11 percent annually between 2007 and 2012 in urban areas. Monthly income in the Metropolitan area grew at an annualized rate of 11 percent while other urban areas saw an increase of 7 percent. A more uniform increase of 11 to 13 percent occurred across other urban areas in the case of hourly incomes. In those areas, this increase was most notable in the private informal sector, where 50 percent of the workforce is employed. In Metropolitan areas, a wage expansion of close to 60 percent hints at the role played by labor dynamics linked to the reconstruction.

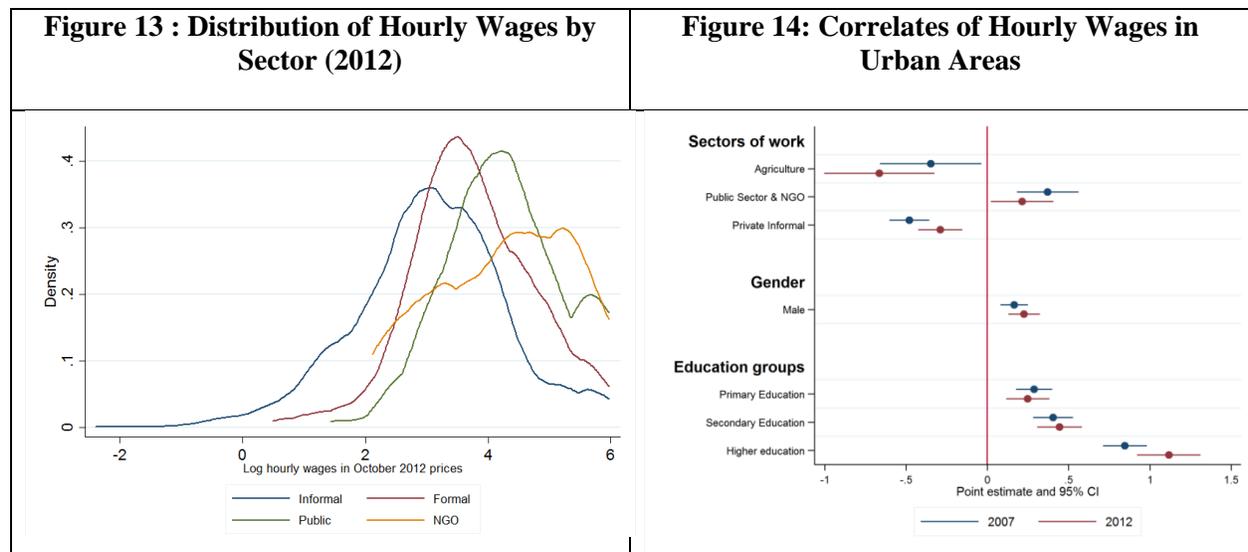
Hourly wages in the public and NGO sectors are higher than those in the private formal sector. The wage distribution in 2012 shows that average wages in the public and NGO sectors are significantly higher than

¹⁰ The *Haiti Poverty Assessment* (World Bank, 2014a) found that 52 percent of Haitians lived in a rural setting in 2012, while UN data used by Glaeser (2013) refer to a 53 percent of the population as urban in 2011, with urban areas overtaking rural ones around 2008/9.

¹¹ In addition to the *Haiti Poverty Assessment* (World Bank, 2014a), analysis focused on rural areas can be found in Coello, Oseni, Savrimootoo and Weiss, 2014.

those in the private formal sector, and all the more so compared to the informal sector. Such realities raise fundamental questions about the determinants of wages in Haiti.

Correlates of hourly income show that both the public and NGO sectors commanded significantly higher premiums between 2007 and 2012, while gender and education played typical roles with limited changes. Compared to the formal sector, the public and NGO sectors commanded high premiums (20-40 percent), conditional on several observable characteristics of workers.¹² Both in primary activities and informal sectors, hourly wages were 40-50 percent lower than in the private formal, with no significant changes between 2007 and 2012. The effects of gender and education (primary and secondary) remained relatively stable through the period. On average, women in urban areas earned 23 percent less than men in 2012, a situation that had not changed since 2007. Similarly, the premium for primary and secondary education (compared to no education) remained unchanged at around 30-40 percent, whereas a much larger premium for higher education (85 percent in 2007) became even higher (110 percent) in 2012.



Source: EEEI (2007) and ECVMAS (2012)—authors’ calculations. Note: Figure 14 presents the point estimates and 95 percent CI of coefficients on a Mincer equation with hourly wages as dependent variable (estimated separately for 2007 and 2012). Regression also controls for age groups, region, economic sector, and household size.

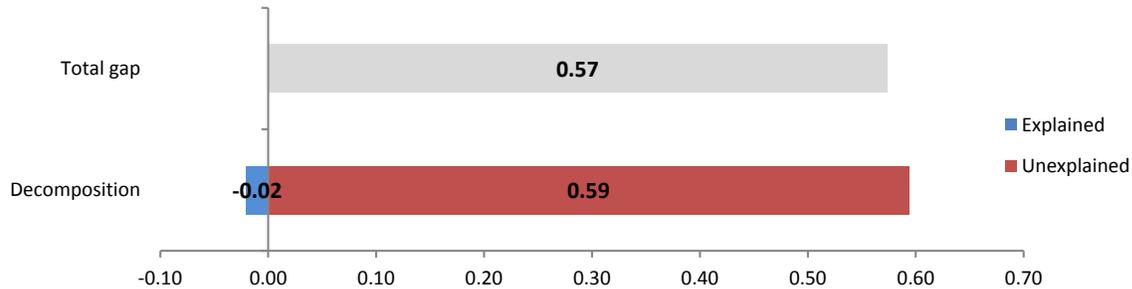
B. Returns to Endowment Drove the Rise in Wages between 2007 and 2012.

Basic Oaxaca-Blinder decomposition of the increase in average wages over 2007-12 shows that returns to endowment are fully responsible for the changes. Standard Oaxaca-Blinder decomposition allow us to separate changes in wages into two components: an explained part, reflecting changes in endowments (i.e. observable characteristics) of workers, and an unexplained part that incorporates both changes in returns to endowments and changes in non-observable characteristics. Figure 15 presents the results of the decomposition. As can be seen, changes in endowments have practically no effect on average wage increases: the totality of the gap between average wages in 2007 and 2012 comes from the unexplained

¹² Given the limited number of individuals working in the NGO sector in 2007, we estimate all Mincer equations with public sector and NGO workers pooled. Separating the sectors still shows large but statistically insignificant premiums for NGO workers.

component, suggesting either changes in unobservable characteristics or increases in returns to endowments.

Figure 15 - Oaxaca-Blinder Decomposition of Change in Average Wages (2007-2012)



Source: EEEI (2007) and ECVMAS (2012) – authors’ calculations. Note: Total gap refers to the total difference in mean real log wages between 2007 and 2012. The decomposition bar presents the results of a two-fold decomposition using a pooled model for the reference coefficients. The estimated model includes explanatory variables dummies for region of residence, type of work (agriculture, public sector and NGO, private informal, and private formal), household size, gender, age group, level of education, and 10 economic sectors of employment.

Understanding how the increase in labor income played out across the income distribution requires looking beyond the mean. Using the simple OB decomposition allows one to decompose the gap between two groups on a specific parameter of the distribution, i.e. the mean. This imposes a slight limitation to the interpretation of results since one cannot make any inference about quantiles or other distributional parameters.¹³ There are several reasons why going beyond the mean may help the analysis. The main one is that there may be significant differences in the composition of the wage increase between the rich and poor. This is an important consideration because these differences may lead to different policy decisions.

Based on the recentered influence function (RIF) methodology proposed by Firpo et al. (2009) and Fortin et al. (2011), RIF regressions are used to extend the analysis beyond the mean. This methodology allows measurement of the contribution of each factor to changes in labor income, and also decomposition of whether the effect of each factor is due to changes in endowments (“composition effect”) or changes in returns (“pay structure effect”). Furthermore, one can analyze changes for each quantile of the labor income distribution. The changes in hourly labor income between 2007 and 2012 are thus decomposed along three dimensions: factors, endowment versus returns, and quantiles.¹⁴

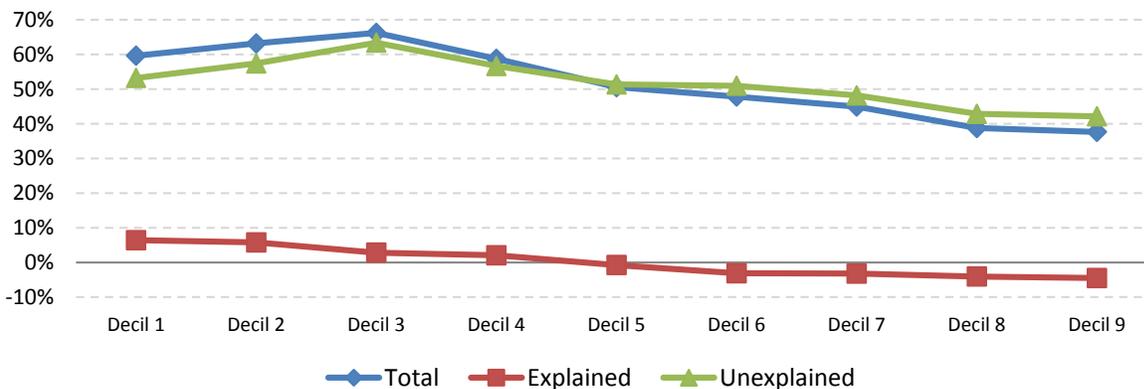
Looking across the distribution shows that hourly wages grew faster for lower income individuals, with returns to observable characteristics explaining almost all of this wage increase between 2007 and 2012. Quantile decomposition of change in hourly income shown in Figure 16 shows the predominant role played by returns to observable (i.e. endowment or explained effects) and unobservable characteristics of workers. Changes in observable characteristics did play a small part (10 percent) for individuals at the lower end of

¹³ As detailed in Firpo et al. (2010), going beyond the mean for the detailed decomposition is not as straightforward: while the mean can be decomposed using standard regressions, one cannot decompose quantiles using simple quantile regressions. See Annex 4 for further details on the RIF methodology.

¹⁴ When reading the results of RIF decompositions, it is important to keep in mind that changes in coefficient interpreted as *returns* may also be picking up changes in omitted variables rather than solely changes in the returns to endowments.

the wage distribution, but this part was null for most workers and even negative for workers at the top of the distribution.

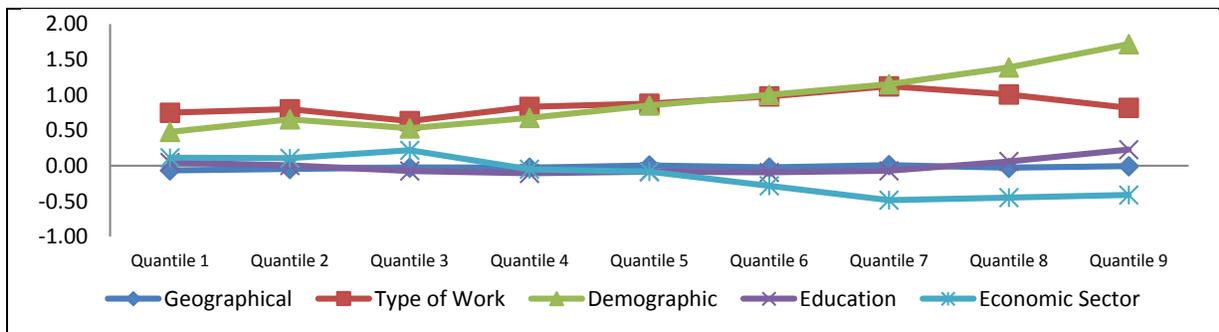
Figure 16: Quantile Decomposition of Change in Hourly Income between 2007 and 2012



Source: EEEI (2007) and ECVMAS (2012)—authors’ calculations. Note: Total gap refers to the total difference in mean real log wages between 2007 and 2012. The OB decomposition is performed for each quantile using RIF-regressions. The estimated model includes explanatory variables dummies for region of residence, type of work (agriculture, public sector and NGOs, private informal, and private formal), household size, gender, age group, level of education, and 10 economic sectors of employment.

Higher returns for individuals in their prime working age and for informal workers were the main drivers of labor income increase in the period. Figure 17 provides a more detailed breakdown of the unexplained or returns component. Across the distribution, the two driving forces of higher income are the demographic component, which reflects higher returns for individuals in their prime age (especially in their 30s), and the type of work, with sizeable increase in returns of individuals working informally. The returns to specific economic sectors/industries are smaller on average, but reinforce the message of a reconstruction-driven labor market: the small gains observed in the lower end of the distribution are associated with increasing returns in the construction and hotels/restaurants sectors. The negative effects for the higher end, on the other hand, relate to decreases in returns for the wholesale/retail trade and education/health sectors. As presented above, the effects of changes in endowments are very small—a detailed breakdown of sectors for the explained component is presented at Table A.3 in Annex 4.

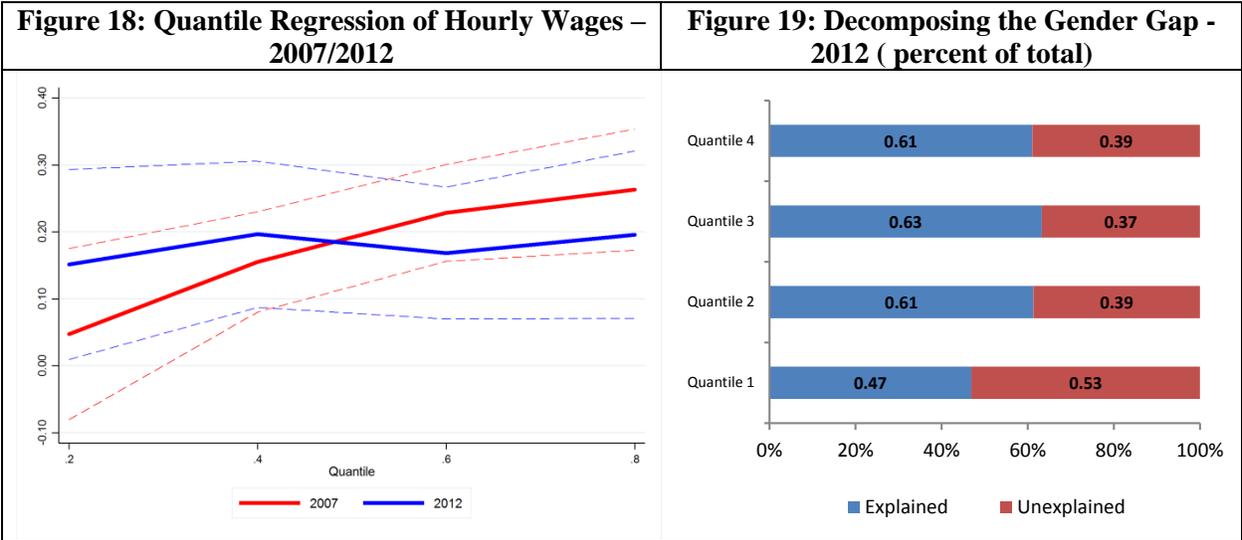
Figure 17: Decomposition of Changes in Hourly Income (2007-2012)—Unexplained Components



Source: EEEI (2007) and ECVMAS (2012) – authors’ calculations. Note: Total gap refers to the total difference in mean real log wages between 2007 and 2012. The OB decomposition is performed by each quantile using RIF-regressions. The estimated model includes explanatory variables dummies for region of residence, type of work (agriculture, public sector and NGOs, private informal, and private formal), household size, gender, age group, level of education, and 10 economic sectors of employment.

The analysis also shows that the gender gap increased for the lower end of the income distribution and decreased for top quintiles, stabilizing at around 15-20 percent by 2012. As seen in Figure 18, quantile regressions show that while the wage gap is insignificant for the bottom of the distribution, it increases to about 30 percent for the top quintile in 2007. In 2012, on the other hand, the gap is broadly stable across the entire distribution, at around 15-20 percent.

Decomposing the gender wage-gap suggests that about 40 percent remains unexplained by observable characteristics, with an even larger portion unexplained for the bottom of the distribution. Observable characteristics including type of work, age, education composition, and sector of employment explain around 60 percent of the gender wage gap for the quartiles 2-4, with a remaining 40 percent left unexplained. For the bottom 20 percent of the wage distribution, more than half of the wage gap is unexplained, suggesting particular hardships faced by the poorest women in using their assets in the labor market.



Source: EEEI (2007) and ECVMAS (2012)—authors’ calculations. Note: In Figure 18 the graph reports the point estimate and 95 percent CI of the coefficient for males. The estimated model includes explanatory variables dummies for region of residence, type of work (agriculture, public sector and NGOs, private informal and private formal), household size, age group, level of education, and 10 economic sectors of employment. In Figure 19, the graph presents O-RIF decomposition. The estimated model includes explanatory variables dummies for region of residence, type of work (agriculture, public sector and NGOs, private informal, and private formal), household size, age group, level of education, and 10 economic sectors of employment.

C. Drawing Lessons from Lower-Productivity Sector Analysis

Over two-third of workers are employed in “low-productivity” sectors—warranting an in-depth look at the determinants of labor income in those sectors. As discussed in Atuesta, Cuevas, and Rodella (2014), the trade and commerce sector dominates in urban settings (over 50 percent of total employment).¹⁵ To better understand the situation of workers in those sectors, the construction, trade, other services, and “private households” service sectors are grouped in the subsequent analysis.

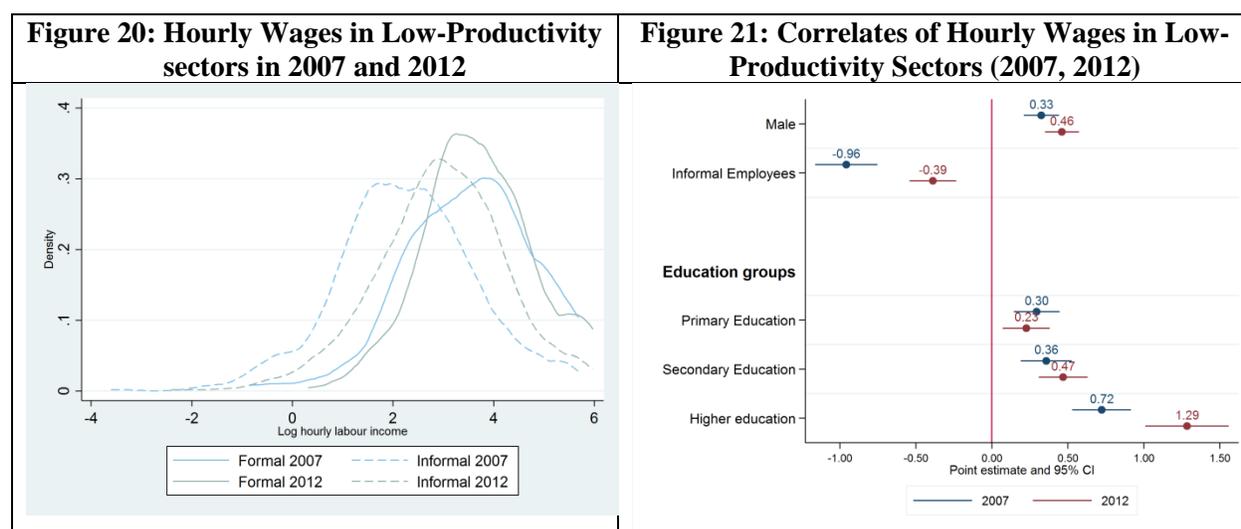
¹⁵ 40 percent of workers are employed in wholesale and retail trade—a large part of them in “petty trade”—while another 14 percent are employed in “other non-classified” services.

Table 1: Share of Workers by Sectors in Urban Areas

	2007	2012
Agriculture, fishing and forestry	7.3%	10.3%
Mining and quarrying	0.2%	0.5%
Manufacturing	11.9%	2.5%
Electricity, gas and water supply	0.2%	0.9%
Construction	5.8%	8.3%
Wholesale and retail trade	40.1%	39.7%
Hotels, restaurants and transport	10.6%	7.1%
Financial, real estate	3.6%	3.4%
Public administration	2.6%	2.6%
Education and Health	10.3%	8.0%
Other	4.4%	14.3%
Private households	3.0%	2.4%

Source: EEEI (2007) and ECVMAS (2012—authors’ calculations.

Analysis of this low-productivity sector shows that formality is closely correlated with higher incomes but the wage gap between formal and informal decreased between 2007 and 2012. The density of wages by sectors confirms not only that the low-productivity services sector presents the lowest average wages (together with agriculture) but also that the dispersion of wages is very high, indicating a broad range of labor outcomes within the sector itself (Figure A.5). Within this low-productivity sector, as expected, formality commanded higher wages in both 2007 and 2012 but an increase in hourly wages in the informal sector has reduced the gap (Figure 20). An analysis of the correlates of hourly wages (Figure 21) further confirms this fact: conditional on several observable characteristics, informal workers earned on average 40 percent less than formal ones in 2012 but the gap between those two groups also decreased between 2007 and 2012. As was also expected, education was an important determinant of wages—even in the informal portion of this low-productivity sector. The results of quantile regressions on the effects of education for this sector are similar to those for the general economy. The premium on education has not changed significantly across the period and is also stable across the distribution (Annex A.6).



Source: EEEI 2007, ECVMAS 2012 – authors’ calculations

On the other hand, for this sub-sectoral group, the gender wage gap markedly increased, particularly for female workers at the lower end of the distribution. As seen in Figure A.7, the gender gap is actually larger within the low-productivity service sector than in the economy as a whole. Men earn on average 35-45 percent more than women, whereas the gap is 25 percent when looking at the entire economy. Estimating the gender gap across the distribution for this sector shows that women in the lower quantiles received particularly less than their male counterparts in 2012, with a 60 percent wage gap compared to 2007.

The realities of this sector point to the larger issues of Haiti's labor market and its challenges to become more inclusive and productive. While informality continues to define the lower-productivity jobs, a reduction in the gaps between formal and informal could be encouraging. However, the growing gender gap for poor female workers of this sub-sector testifies to the persisting hurdles that the poor and vulnerable face in getting returns to their labor that will allow them to exit poverty within a reasonable horizon.

Box 3 - Making the Most of Existing Data in Haiti: The Way Forward

Analyzing labor markets in Haiti has obvious limitations due to the paucity of data. The release of the 2012 ECVMAS considerably improved this situation and enabled the definition of a new baseline analysis of labor markets (and poverty) following the 2010 earthquake, and five years after the 2007 EEEI survey.

The recent release of the 2012 survey of Haitian firms opens further possibilities to refine the analysis, particularly through the use of a spatial lens. Both the ECVMAS and the firm census are geo-referenced, which enables expansion of the analysis to take into account the economic and labor context—both formal and informal.¹⁶ This analysis could further be enhanced by including infrastructure data to identify patterns of firm locations, typologies, and synergies (such as sectors, size, status, and agglomeration effect).

Such analysis could also improve understanding of both job creation and self-employment. Regarding the latter, a separate draft (Cuevas and Rodella, 2014) that the authors prepared for the Haiti Systematic Country Diagnostic (SCD) looks into the different types of self-employment (one-person firm, family firm, and micro-enterprise). The draft's goal is to provide a finer lens on the differences between survival and growth entrepreneurs.

With the caveat that correlations rather than causal relations are being found, the analysis of correlates of successful self-employment uses three measures: revenues per worker (in log), revenues per worker that are in the top 30 of the distribution, and profits per worker that are in the top 30 of the distribution. These help identify the characteristics and inputs that are significantly more relevant for entrepreneurial success. This type of study, combined with evidence-based analysis like the one conducted for the present paper, can help improve understanding of what it will take to elevate productivity and generate jobs in the self-employed and small business sector. The five main findings of the draft's analysis are:

¹⁶ Although the coordinates have not been shared at this point and remain with the respective national agencies (IHSI, ONPES, MCI and MEF).

Experience: More experienced entrepreneurs obtain higher returns. Every additional year of experience (proxy by age) increases the probability of the firm being in the top performance distribution.

Skills: Educational attainment of the entrepreneur is the single most important characteristic for revenue and profit maximization. Returns to education are high and increase with each additional level. Completing the basic level is associated with 40 percent higher revenues, while completing the highest level is linked to 67 percent higher revenues per worker.

Inputs: Availability of electricity and, to a lesser extent, water is important for better firm performance. Access to power is associated with higher revenues per capita of about 27 percent, and a higher chance of being among the top performers.

Finance: In the absence of information on access to finance or credit by firms, the analysis uses access to domestic and foreign private transfers as a proxy. There is no clear or significant association between revenues or profits with being the recipient of private transfers.

Gender: Although the self-employed are mostly women, firms run by men perform better in terms of revenues and profits per worker. The correlation remains when controlling for type of firm, being household head, and sector of focus. Men attain 40 percent higher revenues and are 13 percent more likely to make it to the top 30 performing businesses.

The authors also note that the dominance of survival entrepreneurs puts a limit on the analysis of growth entrepreneurs.¹⁷

¹⁷ Another challenge to the analysis is the presence of outliers among the “growth entrepreneurs.” Given the small sample of this category of highly performing entrepreneurs, their exclusion (the option elected by the team) further reduces the sample while their inclusion leads to results highly biased by those few outliers. This issue further speaks to the difficulty of labor surveys capturing the full spectrum of employers in settings such as Haiti.

Conclusion

This analysis makes possible an evidence-based discussion of labor markets and jobs in Haiti. Using three harmonized household surveys from 2001 to 2012, the paper provides insights into the evolution of labor markets in a particularly turbulent decade for Haiti marked by the political crisis of 2004 and the earthquake of 2010. The focus is the determinants of labor income, providing a household-level perspective on the larger dynamics of labor markets.

The main message of the analysis is that in spite of the shocks of the period, labor markets in Haiti presented more continuity than change. Self-employment in low-productivity sectors remains the norm outside of the farm sector, a cause for worry. While the share of workers in non-primary informal activities has decreased, this has not translated into an expansion of the formal private sector, but into the swelling of the public sector and NGOs. This puts in question the sustainability of poverty reduction in urban areas, especially in the Metropolitan area, in an environment of decreasing aid. Furthermore, the significant rise in employment rates in recent years was driven mainly by young people taking unpaid work in family businesses.

The analysis of the determinants of labor income in urban areas further echoes those results, showing no signs of sustained structural transformations in the endowments of the labor force or the quality of jobs. Additional analysis details the role of the public and NGO sectors in the wage increase observed, particularly for the lower end of the wage distribution. The analysis also found a stable premium on education and an overall reduction of the wage gap, except in low-productivity sectors where this gap increased over the period to 60 percent.

Generating more and better jobs largely depends on macro-economic factors that are largely outside of households' control. But the analysis points to persisting structural challenges weighing down the returns workers get from their labor. For that reason, the obvious role that the private sector will have to play in generating growth and employment will need important help from the Haitian state in helping households improve their assets and use them in the labor markets (World Bank, 2015). It is the authors' hope that this paper will provide a data-informed basis for discussion among policy makers and stakeholders who all acknowledge the critical role of labor markets and jobs to reduce poverty and foster shared prosperity in Haiti.

Bibliography

- Attanasio, O., Székely, M. 1999. "An Asset-based Approach to the Analysis of Poverty in Latin America", IADB, World Paper, R-376
- Attanasio, O., M. Székely, eds. 2001. *A Portrait of the poor: An Asset Based Approach*", Washington, DC: Inter-American Development Bank; Baltimore: Johns Hopkins University Press.
- Atuesta, B., Cuevas, F., Rodella, A.S. 2014. "Labor Markets and Income Generation in Haiti: A New Post-Earthquake Baseline". Background paper for the Haiti Poverty Assessment (2015)
- Azevedo, J.P., G. Inchauste, and V. Sanfelice. 2013a. "Decomposing the Recent Inequality Decline in Latin America." Policy Research Working Papers. The World Bank.
- Azevedo, J.P., M.E. Dávalos, C. Diaz-Bonilla, B Atuesta, and R.A. Castañeda. 2013b. "Fifteen Years of Inequality in Latin America: How Have Labor Markets Helped?" Policy Research Working Paper 6384, World Bank, Washington, DC.
- Barros, R.P., M. Carvalho, S. Franco, and R. Mendonça. 2006. "*Uma Análise das Principais Causas da Queda Recente na Desigualdade de Renda Brasileira.*" *Revista Económica*, vol. 8(1), pp 117-147.
- Bezerra, M., A.L. Kassouf, and M. Arends-Kuenning. 2009. "The Impact of Child Labor and School Quality on Academic Achievement in Brazil." Discussion Paper Series Iza DP No. 4062.
- Blinder, A.S. 1973. "Wage Discrimination: Reduced Form and Structural Variables." *Journal of Human Resources*, 8, 436-455.
- Busso, M., L. Madrigal, and C. Pages-Serra. 2012. "Productivity and Resource Misallocation in Latin America," Research Department Publications 4753, Inter-American Development Bank, Research Department. Washington, DC
- Bussolo, M., L.F. Lopez-Calva. 2014. *Shared Prosperity: Paving the Way in Europe and Central Asia*, World Bank.
- Coello, B., G. Oseni, T. Savrimootoo and E. Weiss, 2014. *Rural Development in Haiti: Challenges and Opportunities*, World Bank, September
- Cuevas, F. and A.S. Rodella. 2014. "Making Self-Employment Work for Haiti." Background note for the Haiti Systematic Diagnostic (SCD).
- Emerson, P., V. Ponczek, and A. Portela Souza. 2013. "Child Labor and Learning." IZA DP No. 7578 August 2013.
- Fortin, N., T. Lemieux, and S. Firpo. 2010. "Decomposition in Economics." NBER Paper N.16045.
- Glaeser, E. 2013 "A World of Cities: The Causes and Consequences of Urbanization in Poorer Countries", *National Bureau of Economic Research, Working Paper 19745*.

Heady, C. 2000. "What is the Effect of Child Labour on Learning Achievement? Evidence from Ghana." Innocenti Working Paper No. 79. Florence: UNICEF Innocenti Research Centre.

IHSI. 2010. « Enquete sur l'Emploi et l'Economie Informelle (EEEI) : Premiers Resultats de l'Enquete » (Phase I). Port-au-Prince: IHSI.

ILO. 2013. Measuring informality: A Statistical Manual on the Informal Sector and Informal Employment. Geneva.

Oaxaca, R. 1973. "Male-Female Wage Differentials in Urban Labor Markets." *International Economic Review*, 14 (October), 693-709.

Rodrik, D. 2011. "Unconditional Convergence." NBER Working Paper No. 17546, 2011a.

Saint-Macary, C. and C. Zanuso. 2015. "Building Back Better? Long-Lasting Impact of the 2010 Earthquake in Haiti, DIAL/IRD Working Paper 2015-15

Sletten, Pal; Egset, Willy. 2004. "Poverty in Haiti". FAFO Paper 2004-31, Fafu Institute for Applied International Studies, Oslo.

World Bank. 2013. "World Development Report : *Jobs*". World Bank.

World Bank and *Observatoire National de la Pauvreté et de l'Exclusion Sociale (ONPES)*. 2014. "Investing in People to Fight Poverty in Haiti, Reflections for Evidence-Based Policy Making." Washington, DC: World Bank.

World Bank. 2015. "Haiti: Towards a New Narrative Systematic Country Diagnostic." Washington, DC: World Bank.

Zanuso C., C. Torelli, and F. Roubaud, 2014. "Le Marché du Travail en Haiti après le Séisme : Quelle Place pour les Jeunes ? *Autrepart* 71, 135-156

ANNEXES

Annex 1: In-depth description of datasets

	ECVH 2001	EEEEI 2007	ECVMAS 2012
Working-age population (WAP)	Individuals older than 15 years	Individuals older than 15 years	Individuals older than 15 years
Employed individuals	Individual belongs to WAP AND hours worked (total of <i>lf13</i> and <i>lf14</i>) is positive	Individual belongs to WAP AND 1) worked previous week (<i>ea2</i>), OR 2) performed any activity as described in <i>ea3</i> , OR 3) has a work/enterprise (<i>ea4</i>) AND was out on any reason (except end of contract) (<i>ea5</i>) AND will restart in less than one month (<i>ea6b</i>)	Individual belongs to WAP AND 1) worked previous week (<i>I2</i>), OR 2) performed any activity as described in <i>I3a</i> , OR 3) performed some other activity (<i>I3b</i>), OR 4) will return to work soon (<i>I4</i>) AND was out on vacation or health/maternity leave (<i>I5a</i>), OR 5) will return soon (<i>I4</i>) AND was out for any other reason (except end of contract) (<i>I5a</i>) AND will restart in less than one month (<i>I5b</i>)
Unemployed (ILO definition)	Individual belongs to WAP AND 1) wanted to work in the previous week (<i>lf5</i>) AND tried to find a job in the last four weeks (<i>lf7</i>)	Individual belongs to WAP AND 1) tried to find a job in the previous week (<i>any answer in ea7a</i>) AND is willing to start immediately (<i>ea7d</i>)	Individual belongs to WAP AND 1) tried to find a job in the previous week (<i>N1a</i>) AND is willing to start immediately (<i>N4</i>)
Unemployed (extended definition)	Individual belongs to WAP AND 1) is unemployed (ILO) OR 2) Did not want to work (<i>lf5</i>) AND was discouraged (<i>lf9 = [1,5] or [11,12]</i>), OR 3) Did want to work (<i>lf5</i>) AND Did not look for work (<i>lf7</i>) AND was discouraged	Individual belongs to WAP AND 1) is unemployed (ILO) OR 2) Did not try to find a job (<i>ea7a</i>) AND is discouraged (<i>ea7b, except doesn't want to work</i>) AND is willing to start immediately (<i>ea7d</i>)	Individual belongs to WAP AND 1) is unemployed (ILO) OR 2) Did not try to find a job (<i>N1a</i>) AND is discouraged (<i>N2 = [1,10]</i>) AND is willing to start immediately (<i>N4</i>)
Informal employment	[1]	Individual is employed outside the primary sector AND 2) works as unpaid worker (<i>ap6</i>) OR works in someone's household (<i>ap13</i>); OR 3) is self-employed (<i>ap3</i>) and has no registration (<i>ap20</i>) or no accounting (<i>ap21</i>) OR 4) is wage worker (<i>ap7</i>) and has no written contract (<i>ap8c</i>) and has no insurance (<i>ap9a4/ap25</i>) [2]	Individual is employed outside the primary sector AND 2) works as unpaid worker (<i>I_J02</i>); OR 3) is self-employed or owner (<i>I_J02</i>) in private sector (<i>I_J04</i>) and has no registration (<i>I_J05</i>) or no accounting (<i>I_J06</i>) OR 4) is wage worker (<i>I_J02</i>) and has no written contract (<i>I_J11</i>) and has no insurance (<i>I_J13</i>) [2]

Notes: [1] For ECVH 2001 there is no information available to determine status of informality; [2] The status of informality is only defined for workers outside the primary sector

Annex 2: Labor Market Definitions Used throughout the Paper

Working-age population: Population of 15 years of age or older. While labor questions are being asked to all household members above age 10, the age of 15 is deemed more appropriate in the urban context, notably to avoid capturing child labor in employment indicators. Haiti's Labor Code (Article 335) states that the minimum employment age in all sectors is 15 years, except in the case of children working in domestic service. Article 341 of the code sets the minimum employment age for domestic work at 12 years.

Employed or occupied: People in the working-age population who worked for at least an hour the week before the survey or who did not work that week but have a job that will resume in less than a month. It includes unpaid individuals working less than 15 hours per week in family firms.

Unemployed:

Definition of the International Labour Organisation (ILO)—People in the working-age population who do not have a job but are looking for one and are immediately available to work if they find one.

Extended Unemployed—All unemployed people under the ILO definition, plus those individuals who are not actively looking for a job either because they have become discouraged after searching for work and not finding one, are waiting for a job application answer, or are in retirement or sick, but are available to work immediately if they are offered a job.

Active population (or labor force): People in employment or unemployment.

Labor force participation rate (or economic activity rate): Percentage of the working age population who are in the labor force.

Employment rate: Percentage of employed people in the working-age population.

Unemployment rate: Percentage of unemployed people in the labor force (for both the ILO definition and extended unemployment).

Underemployment:

Time-related underemployment—Employed people who work less than 35 hours per week, would like to work more hours and are willing and available to do so if they get a job offer.

Invisible underemployment—Employed individuals who earn less than the minimum wage. In this analysis, that pay level is HTG 250 per day or HTG 7,500 monthly, the Haitian minimum wage before October 2012.

Informal sector: Unincorporated enterprises (household businesses) that are not registered or do not keep formal accounts and are not in the primary sector (agriculture).

Informal employment: All contributing family workers, all independent workers in the non-primary informal sector, and all employees who lack written contracts and are not benefiting from social protection.

Annex 3: Detailed discussion of labor income difference 2007/2012

Measured labor incomes grew strongly between 2007 and 2012, at 11 percent annually in the Metropolitan Area. That finding is somewhat surprising given the large negative effects due to the 2010 earthquake and a meagre GDP growth in the same period. The analysis of data, nonetheless, suggests that the underlying data is consistent and the increase in incomes is robust to a series of consistency checks. Figures A3.1 and A3.2 present the distribution of hours worked and monthly labor income, used to obtain estimates of hourly wages. There are no significant changes in the distribution of hours worked, but the distribution of monthly income clearly shifts to the right, indicating an increase of labor income across the board.

As Table A3.1 suggests, furthermore, the increase is not driven by a few outliers: median incomes also grew strongly in the Metropolitan Area (though less so in other urban). Table A3.1 also presents any finding that suggests increases in labor incomes are not a “data-glitch”: median incomes in rural areas actually decreased strongly. This is consistent with the effect that 2012 was a very poor year for Haitian agriculture, with several shocks (including droughts and the hurricane Isaac) that seriously affected agricultural production and incomes at the rural areas.

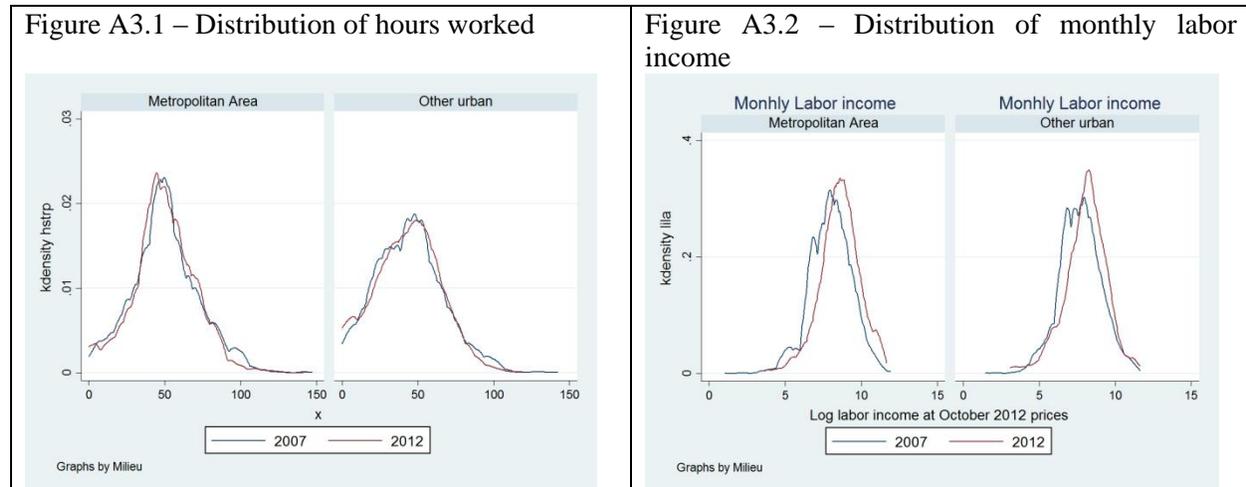


Table A3.1 – Median Labor Income by Region and Sector (HTG/month)

	Metropolitan area		Other urban		Rural	
	2007	2012	2007	2012	2007	2012
Agriculture	2,108	-	703	513	422	454
Administration	8,785	15,000	8,434	6,100	-	6,100
State-owned enterprise	11,245	8,433	8,434	10,254	7,028	5,591
NGO	10,542	19,843	14,056	5,183	3,514	7,781
Household	2,108	5,833	281	3,774	1,406	3,073
Private informal	3,163	3,000	2,811	2,542	2,108	1,510
Private formal	5,622	7,301	4,217	5,191	2,811	4,473
Total	3,514	4,911	2,811	2,899	1,406	980

Annex 3. Oaxaca-Blinder Recentered Regression (RIF)

Let's consider two groups: A and B. The overall change in the distributional statistic v of per capita income Y overtime can be defined as:

$$\Delta_o^v = v(F_{Y_B|D_B=1}) - v(F_{Y_A|D_B=0})$$

Where F is the cumulative distribution. Following Firpo, Fortin and Lemieux (2007, 2009) we can add and subtract the counterfactual distribution statistic $v(F_{Y_A|D_B=1})$ for obtaining the Oaxaca-Blinder distribution

$$\Delta_o^v = [v(F_{Y_B|D_B=1}) - v(F_{Y_A|D_B=1})] + [v(F_{Y_A|D_B=1}) - v(F_{Y_A|D_B=0})]$$

where $[v(F_{Y_B|D_B=1}) - v(F_{Y_A|D_B=1})]$ is the structure effect or the difference due to changes in coefficients and $[v(F_{Y_A|D_B=1}) - v(F_{Y_A|D_B=0})]$ is the composition effect or the difference explained by changes in characteristics between the two groups.

The standard Oaxaca-Blinder method (Oaxaca, 1973; Blinder, 1973) is a particular case of the above equation where we decompose the difference in mean wages. Typically applied to analyze difference in wages (for instance, between men and women), it can be interpreted as follows: if the wage structure of the reference group was held constant, how much of the gap could be explained by the differences in characteristics?

However, the traditional OB method presents limitations. Indeed, while decomposing the mean is fairly straightforward, thanks to the statistical properties of the expected value, decomposing quantiles is not. In the former, thanks to the law of iterated expectations (an extension of the law of total expectations—LTE), the estimated coefficient of a simple OLS regression can be interpreted as the effect of a change on the mean value of the covariate on the unconditional mean value of the dependent variable. On the other hand, the coefficient in the conditional quantile regression can only be interpreted as the effect of a change in the mean value of the covariates on the τ th conditional quantile of the dependent variable, as the law of iterated expectation does not hold.

Instead, the two-step method introduced by Firpo, Fortin and Lemieux (2007, 2009) replaces the dependent variable Y by the recentered influence function $RIF(y;v)$ of the statistic v . The recentering consists of adding back the distributional statistic v to the influence function $IF(y;v)$: $RIF(y;v) = v + IF(y;v)$.¹⁸ Hence we can apply OLS to obtain regression coefficients from RIF transformed variables and go back to the standard Oaxaca-Blinder decompositions. This allows generating counterfactuals for any distributional statistic like quantiles and Gini.

¹⁸ For a more extensive description of the respective methods see N. Fortin, T. Lemieux, and S. Firpo (2010): Decomposition in Economics, NBER Paper N.16045

Annex 4 - Figures and Tables

Table A.1 - Main Labor Market variables

	Survey	Active Population (extended)	Employment Rate	Unemployment rate (extended)	Unemployment rate (ILO)	Informal Employment
National	2001	78.10%	44.20%	43.40%	26.70%	
	2007	68.70%	45.80%	33.30%	15.60%	84.90%
	2012	74.20%	54.10%	27.20%	12.10%	80.40%
Metropolitan Area	2001	77.20%	37.50%	51.40%	44.70%	
	2007	65.80%	36.20%	45.00%	30.70%	75.20%
	2012	69.90%	43.30%	38.00%	22.20%	70.70%
Other Urban areas	2001	75.00%	44.00%	41.40%	21.90%	
	2007	64.60%	38.80%	39.90%	19.60%	83.00%
	2012	70.70%	44.90%	36.50%	17.60%	81.80%
Rural Areas	2001	79.40%	47.10%	40.70%	19.00%	
	2007	71.40%	52.30%	26.70%	8.70%	92.00%
	2012	78.20%	64.10%	18.10%	5.70%	88.90%

Source: ECVH (2001), EEEI (2007) and ECVMAS (2012). Authors' calculations

Table A.2 – Employment rates in rural areas (2007/2012)

	Female			Male		
	2007	2012	Change (p.p.)	2007	2012	Change (p.p.)
15 to 20	10%	31%	21%	18%	54%	36%
21 to 25	32%	32%	0%	47%	66%	20%
26 to 30	44%	56%	12%	73%	76%	3%
31 to 35	50%	57%	8%	87%	81%	-6%
36 to 40	57%	68%	11%	89%	88%	-1%
41 to 45	70%	70%	0%	93%	95%	2%
46 to 50	65%	72%	7%	89%	96%	7%
51 to 55	64%	77%	13%	90%	93%	4%
56 to 60	66%	70%	4%	85%	92%	8%
61 or more	35%	49%	14%	68%	79%	11%

Source: EEEI (2007) and ECVMAS (2012). Authors' calculations

Figure A.1 – School Enrollment among 15-20 Year-Olds (%)

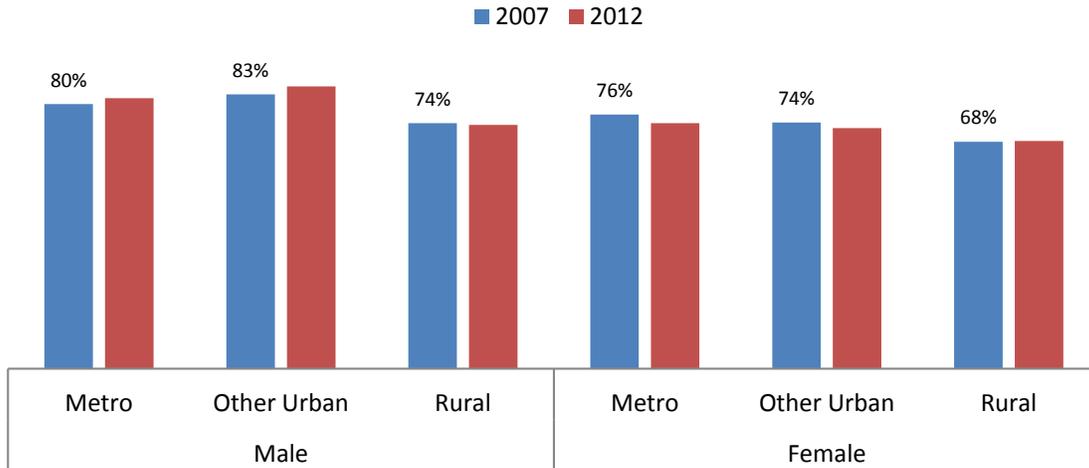
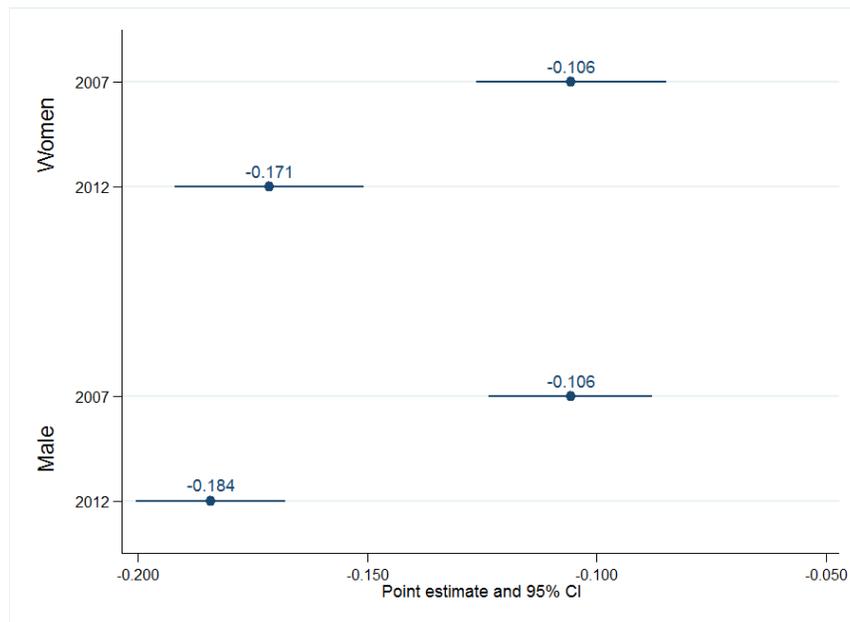


Figure A.2 - Changes in Unemployment by Gender



Source: ECVH (2001), EEEI (2007) and ECVMAS (2012) – authors’ calculations. Note: The graph presents the marginal effects (point estimate and 95 percent confidence interval) of a probit model with unemployment as a dependent variable. Regression also controls for age (quadratic form), education, region, and household size.

Figure A.3 – Wage Underemployment Rates (%)

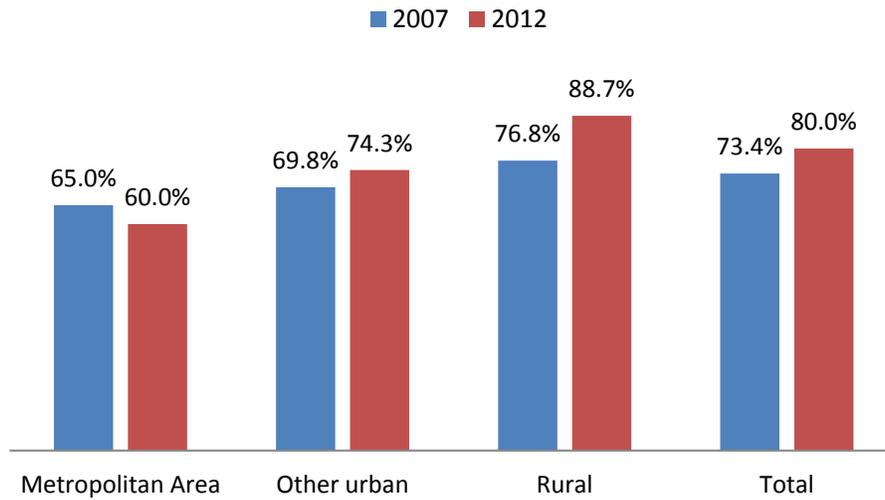


Figure A.4 – Female Employment Rates in Rural Areas (%)

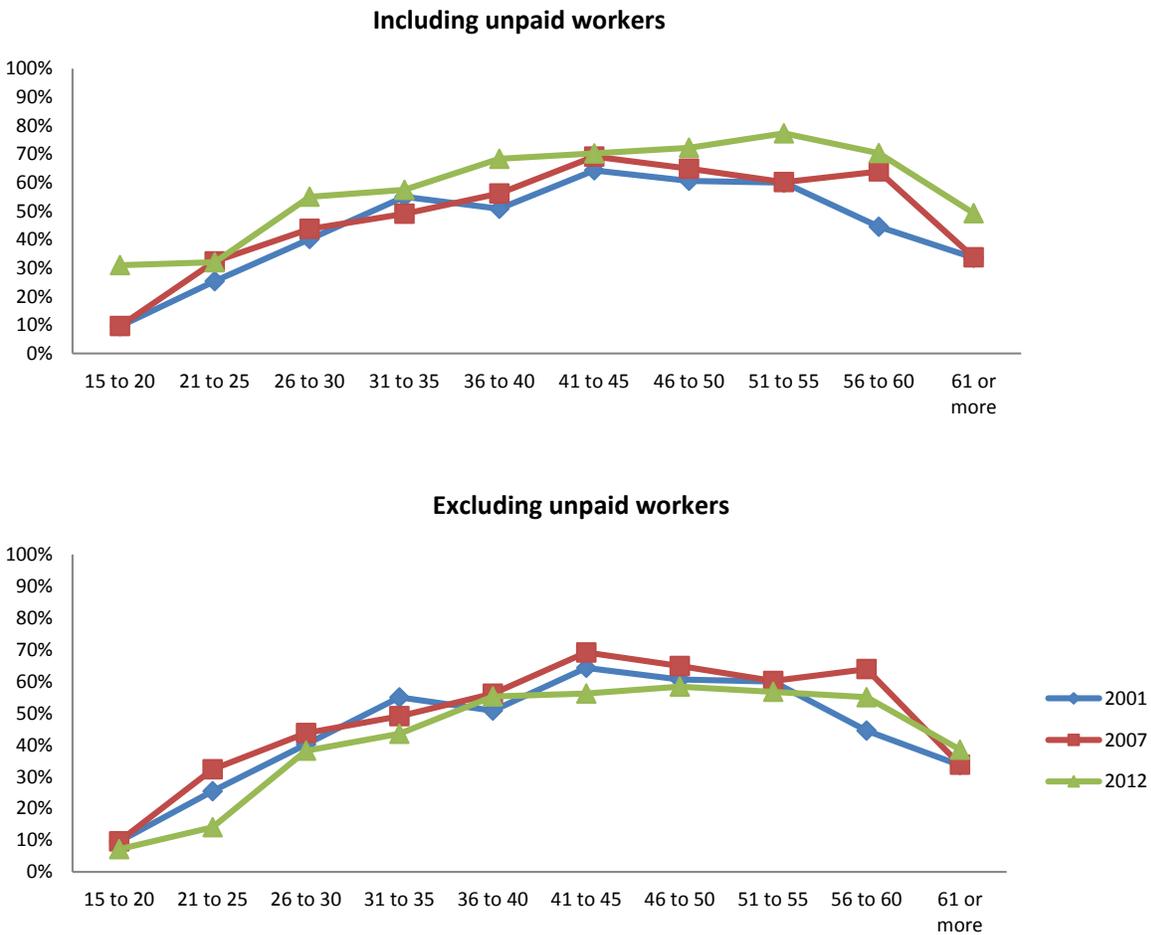


Table A.3 – Oaxaca-Blinder Recentered Regressions Results

	Explained					
	Total explained	Geographical	Type of Work	Demographic	Education	Economic Sector
Quantile 1	0.05	0.00	0.02	-0.01	0.04	0.00
Quantile 2	0.04	0.00	0.02	-0.02	0.03	0.00
Quantile 3	0.01	0.01	0.02	-0.02	0.01	-0.01
Quantile 4	0.01	0.02	0.02	-0.03	-0.00	-0.01
Quantile 5	-0.02	0.02	0.02	-0.03	-0.02	-0.01
Quantile 6	-0.04	0.02	0.03	-0.04	-0.04	-0.00
Quantile 7	-0.04	0.01	0.03	-0.04	-0.06	0.01
Quantile 8	-0.06	0.01	0.04	-0.04	-0.08	0.01
Quantile 9	-0.08	0.02	0.04	-0.05	-0.12	0.03

	Unexplained						
	Total Unexplained	Geographical	Type of Work	Demographic	Education	Economic Sector	Constant
Quantile 1	1.32	-0.07	0.75	0.48	0.05	0.11	-0.811
Quantile 2	1.52	-0.05	0.80	0.66	0.01	0.11	-0.964
Quantile 3	1.28	-0.03	0.63	0.53	-0.08	0.22	-0.662
Quantile 4	1.32	-0.03	0.83	0.68	-0.11	-0.05	-0.772
Quantile 5	1.56	0.00	0.88	0.85	-0.08	-0.08	-1.070
Quantile 6	1.58	-0.02	0.98	1.00	-0.09	-0.28	-1.097
Quantile 7	1.72	0.01	1.12	1.15	-0.07	-0.49	-1.259
Quantile 8	1.97	-0.03	1.01	1.39	0.06	-0.45	-1.565
Quantile 9	2.34	-0.01	0.82	1.72	0.23	-0.41	-1.930

Source: EEEI (2007) and ECVMAS (2012) – authors’ calculations. Note: The OB decomposition is performed by each quantile using RIF-regressions. The estimated model includes explanatory variables dummies for region of residence, type of work (agriculture, public sector and NGOs, private informal, and private formal), household size, gender, age group, level of education, and 10 economic sectors of employment.

Figure A.5 - Distribution of hourly wages in low-productivity services

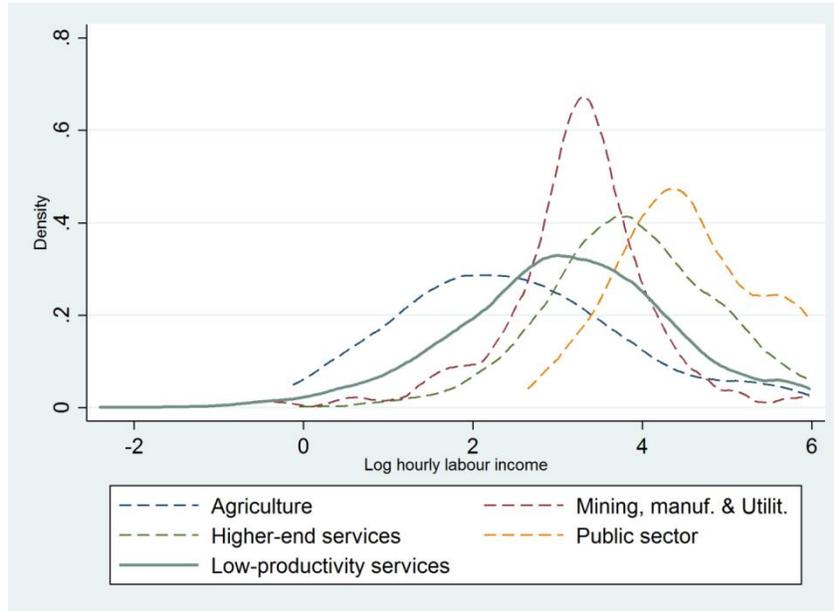
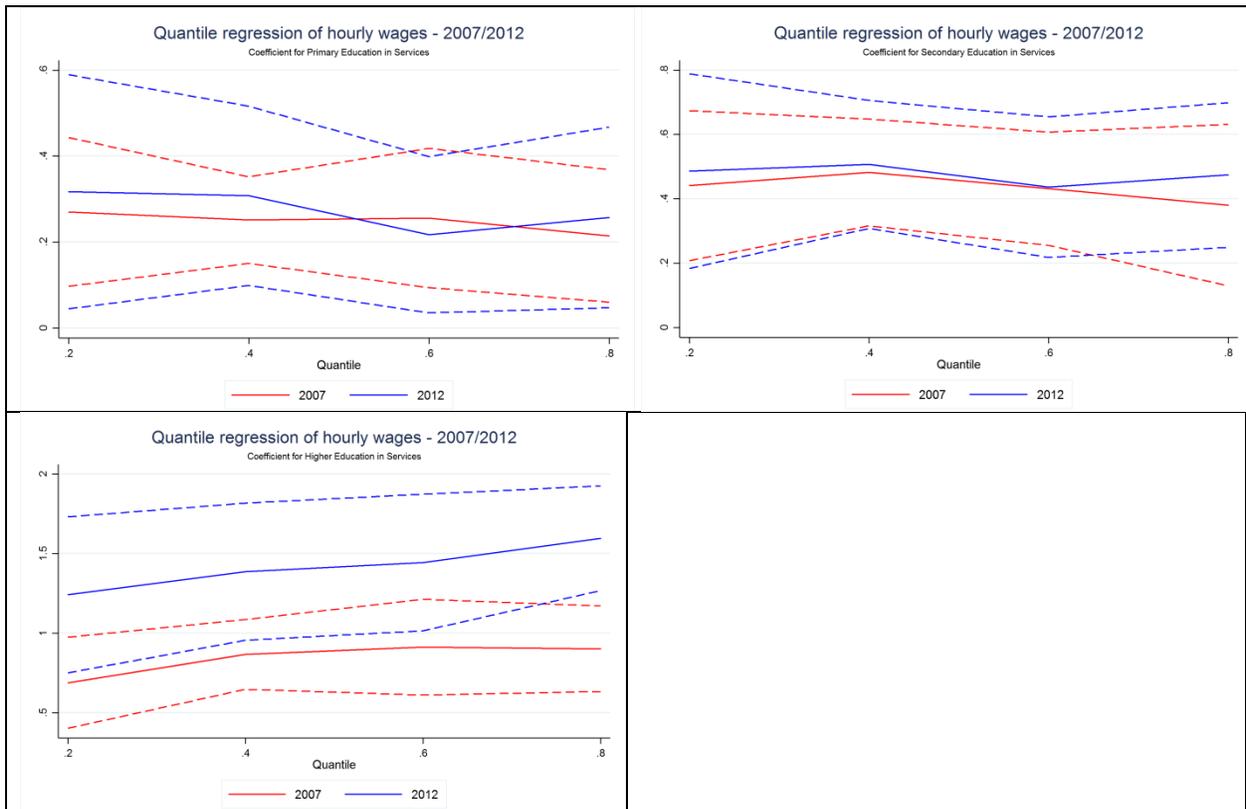
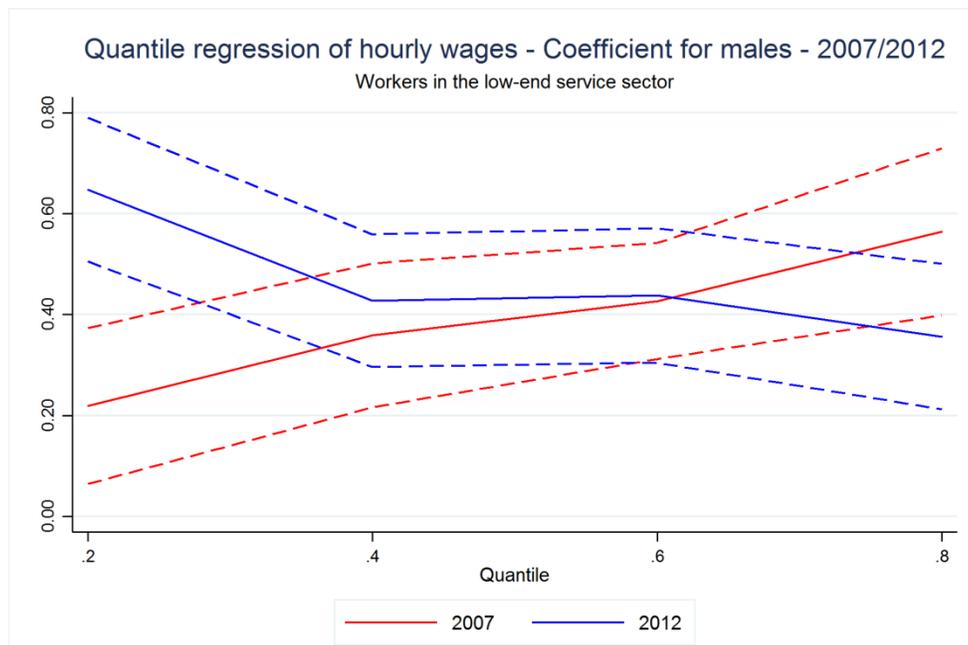


Figure A.6 – Coefficients on education levels for quantile regressions in the low-productivity service sector



Note: The graphs report the point estimate and 95% CI of the coefficient for different education levels. Regression also controls for type of industry, age groups, Other urban areas, informality and size of household

Figure A.7 – Coefficients on gender for quantile regressions in the low-productivity service sector



Note: The graphs report the point estimate and 95% CI of the coefficient for gender. Regression also controls for type of industry, age groups, other urban areas, informality and size of household

Table A.4 – Regression coefficients for labor force participation, employment and unemployment status

	Dependent variables		
	Labor Force participation Dummy	Employment dummy	Unemployment dummy
Other urban dummy	0.00345 (0.00651)	0.0265*** (0.00755)	-0.0279*** (0.00923)
Rural area dummy	0.0425*** (0.00545)	0.119*** (0.00617)	-0.124*** (0.00731)
Age	0.0387*** (0.000886)	0.0459*** (0.00123)	-0.0302*** (0.00119)
Age (squared)	0.000392*** (1.09e-05)	-0.000463*** (1.56e-05)	0.000291*** (1.42e-05)
Male dummy	0.0962*** (0.00462)	0.183*** (0.00493)	-0.168*** (0.00566)
Household size	-0.00587*** (0.000835)	-0.00675*** (0.000962)	0.00405*** (0.00108)
Primary education dummy	0.0285*** (0.00677)	0.0165** (0.00720)	0.00380 (0.00780)
Secondary education dummy	-0.0148** (0.00752)	-0.0641*** (0.00817)	0.0773*** (0.00920)
Higher education dummy	0.0237** (0.00996)	-0.0198* (0.0114)	0.0449*** (0.0132)
2007 survey dummy	-0.0969*** (0.00544)	0.0214*** (0.00587)	-0.106*** (0.00708)
2012 survey dummy	-0.0299*** (0.00511)	0.122*** (0.00594)	-0.179*** (0.00673)
Observations	54,427	54,427	39,557

All coefficients presented are the marginal effects of a probit model. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A.5 – Regression coefficients for sectors of employment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Public & NGO sector	Private Informal Sector	Private Formal Sector	Construction Sector	Wholesale and Retail trade	Other low- end service sector	Tradables and high- end service sector
2012 {at = Metropolitan area}	0.0852*** (0.0107)	-0.0953*** (0.0133)	0.00692 (0.0103)	0.0234*** (0.00738)	-0.0181 (0.0149)	0.138*** (0.0118)	-0.120*** (0.0135)
2012 {at = other urban area}	0.0864*** (0.0170)	-0.0784*** (0.0198)	-0.00652 (0.0144)	0.0198 (0.0135)	0.0242 (0.0236)	0.0862*** (0.0148)	-0.122*** (0.0215)
2012 {at = Rural area}	0.0759*** (0.0130)	-0.0780*** (0.0171)	-0.00182 (0.0137)	0.0350*** (0.0114)	0.0426** (0.0202)	0.114*** (0.0131)	-0.211*** (0.0207)
Observations	10,926	10,926	10,926	10,926	10,926	10,926	10,926

All coefficients presented are the marginal effects of a dummy indicating the observation belongs to the 2012 survey, evaluated at each one of the different regions. Probit regression also controls for age (quadratic form) and household size. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A.6 – Mincer equations

	(1)	(2)	(3)	(4)
	Wages in 2007	Wages in 2012	Wages in low-productivity sectors (2007)	Wages in low-productivity sectors (2012)
Male gender dummy	0.165*** (0.0431)	0.227*** (0.0498)	0.327*** (0.0590)	0.463*** (0.0569)
Household size	-0.00651 (0.00739)	0.0174** (0.00827)	-0.00278 (0.0107)	0.0150 (0.0105)
Primary Education dummy	0.288*** (0.0568)	0.249*** (0.0677)	0.296*** (0.0765)	0.228*** (0.0790)
Secondary Education dummy	0.405*** (0.0624)	0.445*** (0.0702)	0.360*** (0.0856)	0.471*** (0.0822)
Higher education dummy	0.847*** (0.0686)	1.117*** (0.0998)	0.724*** (0.0987)	1.285*** (0.140)
Other urban area dummy	-0.00730 (0.0404)	-0.0507 (0.0441)	0.0534 (0.0565)	-0.0142 (0.0535)
Agriculture sector	-0.347** (0.159)	-0.664*** (0.173)		
Public Sector and NGO sector	0.372*** (0.0965)	0.214** (0.0982)		
Private informal sector	-0.480*** (0.0626)	-0.289*** (0.0691)		
Informal Employee dummy			-0.956*** (0.105)	-0.387*** (0.0786)
Constant	2.140*** (0.163)	2.518*** (0.194)	2.261*** (0.185)	2.597*** (0.175)
Observations	4,308	2,995	2,257	2,037
R-squared	0.242	0.221	0.119	0.143

All regressions also control for age-groups (coefficients not reported). Equations (1) and (2) additionally control for sectors of employment. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1