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GUATEMALA

Andreas Eberhard-Ruiz



DIAGNOSTIC **GUATEMALA**

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Page x, *Maquila*, Guatemala

Page 2, Cheese production in Guatemala

Page 20, Food industry in Guatemala

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ABBREVIATIONS

DINEL	Guatemala national directory of enterprises
ENEI	national labor force survey (Encuesta Nacional de Empleo e Ingresos)
FDI	foreign direct investment
FUNDESA	Fundación para el Desarrollo de Guatemala
GDP	gross domestic product
GNI	gross national income
LIC	low-income countries
LMIC	low- and middle-income countries
OECD	Organisation for Economic Co-operation and Development
PISA-D	Programme for International Student Assessment for Developing Economies
PPP	purchasing power parity
SCD	Systematic Country Diagnostic
USAID	United States Agency for International Development
WDI	World Development Indicators





PREFACE

Among Guatemala’s development challenges, limited access to quality, good-paying jobs lies at the core. The World Bank’s 2015 Systematic Country Diagnostic (SCD) for Guatemala described a series of key development challenges, including persistently high levels of poverty, some of the worst human development outcomes in the Latin America and the Caribbean region, large regional disparities, and high levels of inequality. Two overarching obstacles were found to be key contributors to these negative outcomes: (a) an inability of large swaths of the population to effectively participate in the economic growth process in the form of better-paying jobs and (b) a limited ability to generate quality jobs to accompany the economic transformation process.

The *Guatemala Jobs Diagnostic* analyzes the Guatemalan labor market between 2004 and 2018 to identify the constraints that hinder how many people are employed with better-paying jobs in the economy. The analysis is part of a wider, multipronged effort to review the continued relevance of the 2015 SCD’s findings, to deepen the identification of policies that can help Guatemala accelerate its development, and to inform the preparation of an SCD update.

This report follows the World Bank’s jobs diagnostics methodology. It starts by reviewing a series of symptoms or anomalies that are apparent challenges to job creation in Guatemala. The review begins with a standardized inquiry that documents, analyzes, and benchmarks trends in labor market outcomes at both macro and micro levels. This sequence is followed by a deeper examination of possible causes to explain the prevailing clinical picture. The last chapter then synthesizes causes into a series of priority reform areas to unleash Guatemala’s jobs potential.

This report was prepared using data collected before the COVID-19 shock, so short- to medium-term effects of the crisis are not analyzed. Early World Bank estimates of the impact of the crisis suggest that effects on jobs, incomes, and welfare were particularly large in Latin America.¹ However, data constraints and the uniqueness and scale of the pandemic mean that an assessment of the short- to medium-term effects in Guatemala are beyond the scope of this study. Instead, the report highlights the longer-term structural constraints on Guatemala’s labor market that preceded the crisis. As the country begins to move from crisis mitigation into economic recovery, addressing these structural constraints will be as important as ever to ensure growth and poverty reduction in Guatemala.

¹ Poverty projections for 2020 in the Latin America and the Caribbean region suggest a setback in poverty reduction of 8 to 10 years of recent achievements (Díaz Bonilla 2020).





1. INTRODUCTION

The COVID-19 pandemic hit Guatemala’s economy at a time of low growth, stagnant productivity, high levels of informality, and declining labor earnings. Over the past decade Guatemala’s economy has suffered from lackluster growth and stagnating productivity improvements. This lack of growth has exacerbated the shortage of quality jobs on the labor market and has led to acute labor force underutilization in the economy. As of 2018, only one-quarter of Guatemalan workers were employed in the formal sector, where jobs tend to be more productive and better paid. Instead, most hiring of workers took place in the informal sector in predominantly low-productivity activities. With a swelling labor force that is increasingly better educated but for which good, well-paying jobs are increasingly scarce, workers have faced protracted declines in average labor earnings and education premiums over time. In Guatemala, the labor market had been under intense pressure before the COVID-19 crisis compounded the country’s jobs challenges.

The structural weaknesses in Guatemala’s labor market left the country particularly vulnerable to the COVID-19 shock. As the world continues to grapple with the COVID-19 pandemic, evidence is mounting that certain groups of people are more vulnerable to the economic effects of the crisis than others. Workers with jobs in the services sectors that require face-to-face interaction are more affected than those that can be performed remotely. Wage employees with formal contracts are more protected from short-term adjustments than informal employees. Informal businesses, including the numerous own-account workers in low- and middle-income countries, are more difficult to reach through policies aimed at helping firms survive the crisis. Workers with low-paying jobs who rely on other sources of income, such as remittances, are particularly affected if these sources of income dry up.² As a country with high levels of informality, large shares of people who are self-employed or employed in services, and a heavy reliance on remittances, Guatemala is heavily exposed to the COVID-19 crisis.

As the focus of the policy dialogue starts to shift from mitigation to recovery and to how to build back better, Guatemala needs a new jobs compact that should not only minimize the lasting effects of the crisis but also accelerate the creation of higher-productivity jobs by addressing key structural bottlenecks in the economy. In the short term, policies were needed to absorb the most baneful effects of the crisis through an expansion of social safety nets and targeted interventions that protect valuable employer-employee matches. For a successful recovery in the medium term, however, a return to a business-as-usual scenario will be insufficient. What is needed is a new compact that focuses on efforts to address the structural bottlenecks that prevent more Guatemalans from being employed in more productive, better-paying jobs.³

The demographic transition that is now under way offers Guatemala a once-only opportunity to accelerate economic growth, transform the economy, and improve worker earnings before the population

² High frequency time-series data on trade, remittances, and international finance suggest that the impact of the COVID-19 crisis on these flows was less severe than initially feared. Given the unprecedented nature of the crisis, however, it may take a long time for the full picture to become clear (World Bank 2020).

³ Such a compact is also needed to ensure that efforts are revamped toward meeting Guatemala’s commitments under Sustainable Development Goal 8, which promotes sustained, inclusive, and sustainable economic growth; full and productive employment; and decent work for all.

starts to age and dependency begins to rise again. Absent robust productivity growth that leads to more and better jobs, however, the prospects for such a transformational breakthrough are dire. The 2018 population census showed that Guatemala's number of dependents relative to the working-age population is declining at a faster rate than previously thought. When the number of dependents per working person falls, economies can reap a demographic dividend. This dividend can come in the form of direct benefits, as fewer nonworking people allow average per capita income levels to rise, and in the form of indirect benefits, as lower fertility and lower dependency rates free up economic and fiscal resources. Those resources, if used wisely, can kick-start a virtuous circle of increased investment in physical and human capital, boosting economic growth through rising productivity. At the same time, however, the working-age population is projected to grow at an average annual rate of close to 2 percent a year over the next decade, requiring a net increase of at least 132,000 jobs each year. The goal to ensure that the new jobs are mostly quality jobs will be a formidable challenge, given that before the pandemic Guatemala was creating less than 1,000 formal sector jobs a year.

This report identifies key challenges that prevent Guatemala from realizing its full jobs potential. By applying the World Bank's jobs diagnostics methodology and drawing on both micro- and macro-level data covering the period 2004–18, it casts light on Guatemala's most pressing structural jobs challenges, which prevailed well before the COVID-19 pandemic (see box 1). These challenges include the following:

- **Limited growth and structural change.** Per capita income growth has been slow, averaging 1.7 percent per year since 2004, with declining labor productivity since 2014. Most Guatemalans are stuck with agriculture and low-quality, low-productivity services sector jobs, while good jobs in larger and better-capitalized businesses remain scarce.
- **High levels of informality, and almost no net formal job creation.** Three-quarters of Guatemala's workers have jobs in the informal sector, either as informal wage employees, self-employed, or unpaid family workers. Only one-quarter of workers have jobs in the formal sector, and growth in demand for workers from formal firms has almost stopped.
- **Low quality of education, particularly in rural areas and in the north of the country.** The labor market discriminates against school graduates who completed their education in the departments to the north of the country, a finding that suggests that there are large spatial differences in education quality across Guatemala's geography.
- **A lack of dynamism in the formal sector.** Guatemala has one of the world's oldest firm-age structures in the formal sector, with firms significantly less likely to grow their workforce when they experience a positive sales shock than similar firms in other countries of the Latin America and the Caribbean region. Formal sector demand thus appears constrained by an economy-wide contestability deficit that gives incumbent firms an advantage over new entrants.

As a consequence, Guatemala's labor market is performing poorly in the following ways:

- **A large share of population with insufficient labor earnings to make a decent living.** In 2018, labor incomes of over 40 percent of households were lower than required to meet the World Bank's international poverty line for lower-middle-income countries (US\$3.20 in purchasing power parity terms, 2011 constant prices). Many households therefore rely on other sources of income, such as remittances, to prop up their incomes.
- **Falling average labor earnings that have brought declining returns to education.** Guatemalans have experienced a downward slide in average hourly labor earnings of 21 percent over the 2004–18 period. Declines were generalized across all sectors but were stronger for workers with higher levels of education (secondary and above), thus reducing the education premium. The overall decline in earnings results from a deficit in labor demand in Guatemala that contrasts with a growing workforce. Falling education premiums across all levels of education could also suggest deterioration in education quality and misalignment with labor market needs.

- **Low levels of female labor force participation.** Faced with a lack of opportunities, Guatemalan households' supply of labor is constrained, disproportionately affecting the supply of work by female members. Female labor force participation of 43 percent is significantly lower than what would be expected at Guatemala's level of income (52 percent).
- **Rising levels of international outmigration but low internal labor mobility despite marked regional disparities in income.** With so few opportunities for a growing number of increasingly better-educated young people, international migrant outflows are rising. Yet internal migration between poor and rich municipalities is surprisingly low. Municipalities that exhibit lower rates of domestic outmigration tend to have higher rates of international outmigration. This suggests that the opportunities for internal migration are not equally distributed across regions or departments.

The remainder of this report is structured as follows. Chapter 2 discusses the broad trends in the economy that affect the performance of the labor market and establishes a series of labor market symptoms that define Guatemala's overarching jobs challenges. Chapter 3 provides an in-depth analysis of the underlying causes that drive the various labor market anomalies identified in Chapter 2. Chapter 4 concludes by proposing a set of key strategic priorities to unleash Guatemala's jobs potential.

BOX 1.1 METHODOLOGY, TIME FRAME, AND DATA IN THIS REPORT

Methodology and time frame

This report was prepared following the World Bank's Jobs Diagnostics methodology, which seeks to identify symptoms or anomalies that are apparent challenges to creating and sustaining job creation. This work is achieved through a standardized inquiry that documents, analyzes, and benchmarks trends and macrodrivers of economic transformation, labor market outcomes, and the sources of jobs creation. The methodology uses both a supply- and demand-side perspective, drawing on household data, labor force data, firm-level data, and national accounts data. A detailed description of the World Bank's Jobs Diagnostics approach, including a rich set of tools and techniques to assess jobs outcomes over time and across countries, can be accessed at <http://datatopics.worldbank.org/JobsDiagnostics/jobs-tools.html>.

The labor market outcomes analyzed in this report covered the period from 2004 to 2018, with a focus on the evolution of medium-term trends in four- to six-year intervals. Short-term fluctuations over the business cycle, which result in annual or quarterly changes in labor market outcomes, were not considered part of the diagnostic.

Furthermore, to assist in the identification of anomalies in Guatemala's labor market performance, the analysis identified five comparator countries. The comparator countries included immediate neighboring peers as well as other peers from the wider Latin America and the Caribbean region whose economies (a) have had above-average growth over the past 15 years, (b) are broadly similar in size, and (c) share similar levels of development with Guatemala. The five comparator countries are Bolivia, El Salvador, Honduras, Nicaragua, and Paraguay.

Data

The Guatemala Jobs Diagnostic is based on the following datasets:

- **Labor force data:** Guatemala's job market performance over time was analyzed using four rounds of the national labor force survey, Encuesta Nacional de Empleo e Ingresos (ENEI), corresponding to the years 2004, 2010, 2014, and 2018. Years were selected on the basis of data quality, availability, and periodicity considerations. In both 2004 and 2010, the ENEI was administered only

once, during the fourth quarter (October to December). In the years 2014 and 2018, the ENEI was implemented twice within the same year: during the second quarter (April to June) and during the fourth quarter (October to December). To ensure comparability across years, the analysis used the survey rounds administered during the fourth quarter only. All survey rounds are representative at the national and subnational levels across three geographic domains: Guatemala City metropolitan area, other urban areas outside Guatemala City, and rural areas. The respective sampling frames of all survey rounds are based on population projections from the 2002 population census, which has now become outdated following the new 2018 census. ENEI survey weights were thus adjusted to reflect the population projections for each of the three geographic domains according to the 2018 population census. To compare earnings over time, nominal figures were converted to 2010 prices using the official consumer price index.

- **Population data:** Data from the last two available population censuses, in 2002 and 2018, were used with the following objectives. First, combining both censuses allowed the establishment of actual population levels in each of the selected years of analysis (2004, 2010, 2014, and 2018) and for different geographic domains. This information was necessary to calibrate population weights in ENEI surveys (see preceding). Second, population projections from the 2018 census were required to project labor market indicators into the future and estimate required rates of net job creation under different scenarios. Third, micro-level data from the migration module of the 2018 population census allowed the establishment of outward and inward migration data at the municipal level, which were used to study the determinants of internal and international migratory flows.
- **Firm-level data:** Guatemala does not collect comprehensive firm-level data. The analysis hence relied on a series of data sources that, in combination, allowed for the approximation of the sources of job creation at the firm level. Data on firm size, reported by employees in the labor force survey, were used to infer the size distribution of firms. This distribution of firms was then compared with the Banco de Guatemala (Guatemala's central bank) 2013 national directory of enterprises (DINEL), which captures firms with formal bookkeeping records operating in Guatemala. Data from DINEL were available in fairly aggregate form, which permitted the establishment of employment figures by sectors and firm size only. A deeper insight into formal sector firm characteristics was attained using the World Bank Enterprise Survey for Guatemala. Although the sample size of World Bank Enterprise Surveys tends to be small—hence complicating within-sector comparisons—the surveys provide a good snapshot of key firm-level characteristics in the formal sector. In Guatemala, the Enterprise Survey has been conducted in 2006, 2010, and 2017, each round drawing a representative sample of firms from the most recent update to the DINEL directory preceding the respective year of each survey (updates to the DINEL were performed in 2002, 2007, and 2013).
- **National accounts data:** National accounts data from the Banco de Guatemala were used for value added and productivity analysis by subsector of economic activity. Since 2013, the Banco de Guatemala also has released detailed national accounts data for the informal sector. This set of data was used to disaggregate the value added and productivity analysis further by type of economic activity (that is, formal versus informal).
- **Other ancillary datasets:** Several additional ancillary datasets were used for the analysis. First, the World Bank's World Development Indicators (WDI) database, which consolidates data from national governments, the International Monetary Fund, the United Nations, and the International Labour Organization, among others, was used to establish internationally comparable labor market indicators for comparator countries (see the labor force data description). Second, data on the evolution of Guatemala's minimum wage were compiled from data of the labor ministry (Ministerio de Trabajo y Provisión Social). Third, a 2017 dataset on per capita incomes at the municipal level, from the policy think tank Fundación para el Desarrollo de Guatemala (FUNDESA), was used to study spatial differences in income across Guatemala's geography. Fourth, the World Bank's Doing Business Index was used to benchmark Guatemala's business environment against comparator countries.

2. GUATEMALA'S LABOR MARKET IN PERSPECTIVE: IDENTIFYING SYMPTOMS, DEFINING CHALLENGES

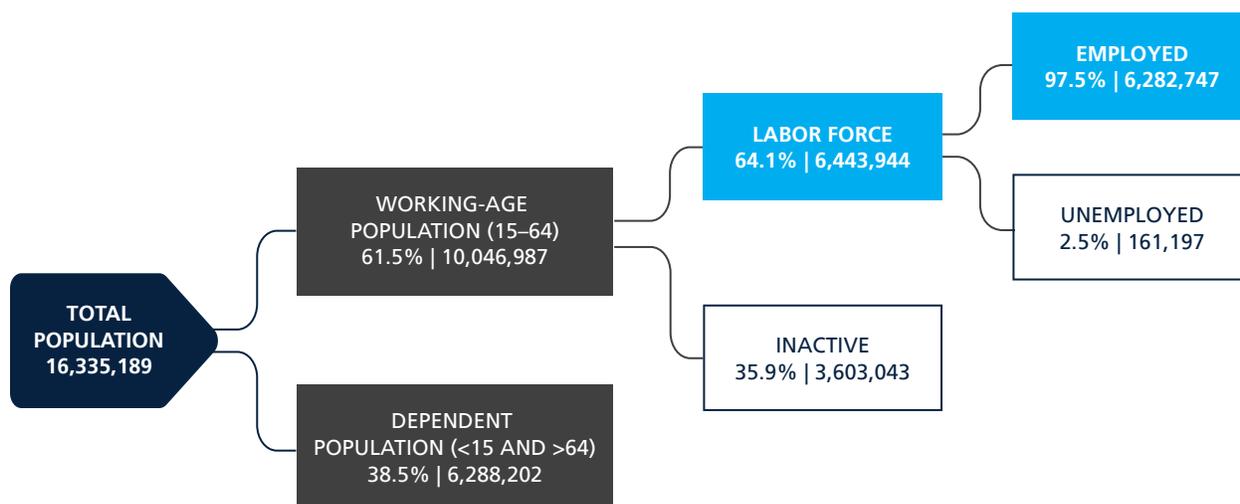
The 2018 census confirmed a total population of 16.3 million, of which 10 million were of working age (15–64 years). This chapter studies the performance of the Guatemalan labor market by comparing the evolution of key indicators and benchmarking them against the indicator outcomes attained in other countries at similar stages of development. The key labor market symptoms emerging from this analysis are summarized first, followed by a series of labor market projections that illustrate the magnitude of the overall jobs challenge in Guatemala. Figure 2.1 provides a snapshot of the labor market as of 2018.

2.1 LABOR MARKET SYMPTOMS

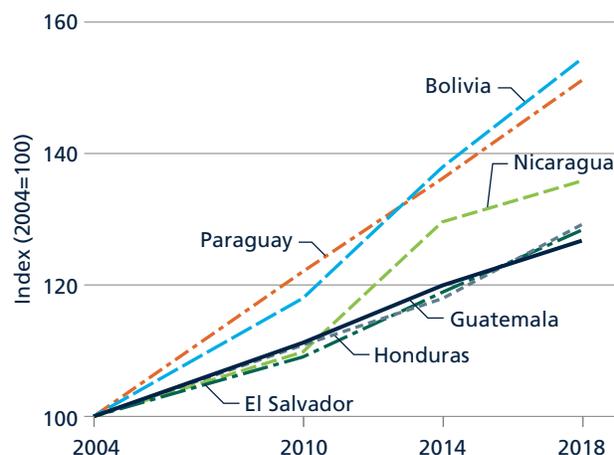
Guatemala's growth performance over the past 1.5 decades was underwhelming, driven mostly by demographic factors rather than by improvements in labor productivity. Between 2004 and 2018, Guatemala's per capita gross domestic product (GDP) grew by an average of 1.7 percent per year (see figure 2.2).

FIGURE 2.1

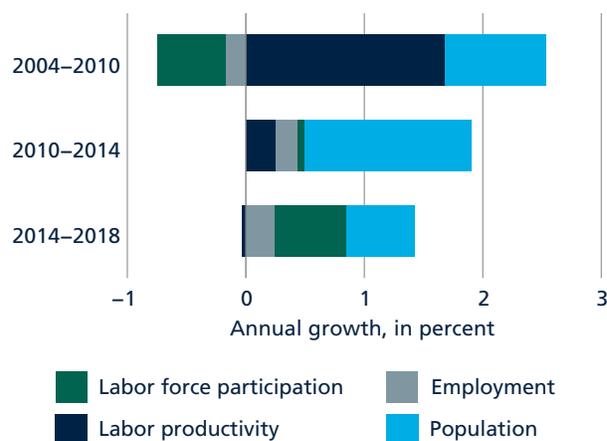
Guatemala's labor market at a glance, 2018



Source: 2018 figures based on World Bank calculations using ENEI and 2002/2018 census data.

FIGURE 2.2**Growth of per capita GDP of Guatemala versus peers, 2004–18**

Source: Authors' calculations on the basis of WDI, ENEI, and 2002/2018 Census data.

FIGURE 2.3**Per capita growth decompositions, 2004–18**

Source: Authors' calculations on the basis of WDI, ENEI, and 2002/2018 Census data.

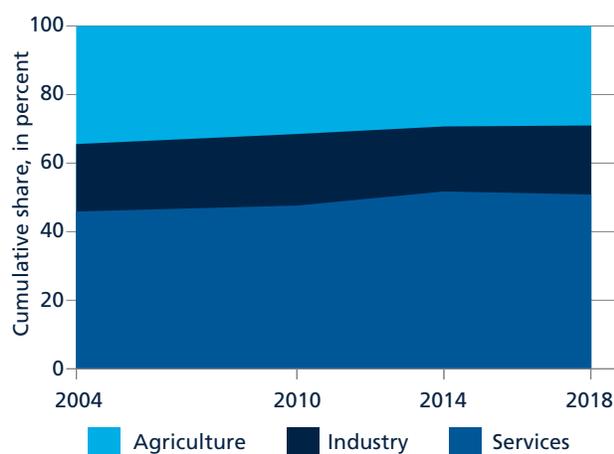
Albeit similar to growth of neighboring Honduras and El Salvador, this rate contrasts with the stronger performances achieved in other countries of Latin America and the Caribbean (Nicaragua, 2.2 percent; Paraguay, 3.0 percent; and Bolivia, 3.2 percent). What makes Guatemala's low per capita growth performance particularly worrisome is that it was achieved largely through favorable demographics, while increases in labor productivity played a much smaller and diminishing role. A growth decomposition shows that labor productivity contributed significantly to per capita growth only between 2004 and 2010, but its contribution was small between 2010 and 2014 and even negative between 2014 and 2018 (see figure 2.3).⁴

The structure of the economy hardly changed over two decades; the distributions of workers and value added across the three main economic sectors remained the same and gaps between agricultural and nonagricultural productivity remained wide. In 2018, 29 percent of workers were active in the agriculture sector, whereas the sector contributed only 10 percent of total value added in the economy. This gap contrasts with the services and industry sectors, which had employment shares and value-added shares more in line with each other: 51 percent of workers were active in services and 20 percent were active in industry, contributing 65 percent and 25 percent, respectively, of total value added in the economy (see values for 2018 in figures 2.4 and 2.5). Value added per worker—a widely used measure of productivity—was therefore three times lower in agriculture than in services and industry (see figure 2.6). Moreover, a comparison of the distributions of employment and value added across sectors, as well as the evolution of productivity differentials, show that the structure of the economy has remained rather static (compare figures 2.4 to 2.6).

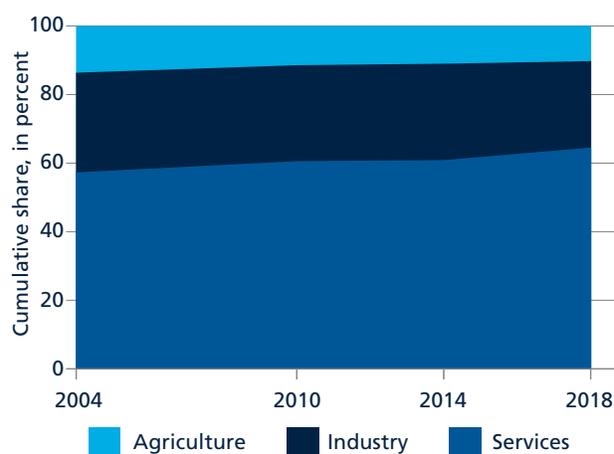
Lackluster growth and diminishing improvements to labor productivity at the macro level are mirrored by a shortage of quality jobs and increasing labor force underutilization at the micro level.

Under-employment, not un-employment, is a problem, meaning that Guatemalans who look for work typically find it, but they often work few hours and for low pay. Unemployment is low, yet unemployment rates, in isolation, do not adequately capture whether good jobs are available and whether the labor force is being well used. Only 2.5 percent of Guatemalan workers who actively sought work in 2018 were unable to find a job. Thus, once Guatemalans decide to participate in the labor market, they are typically able to find

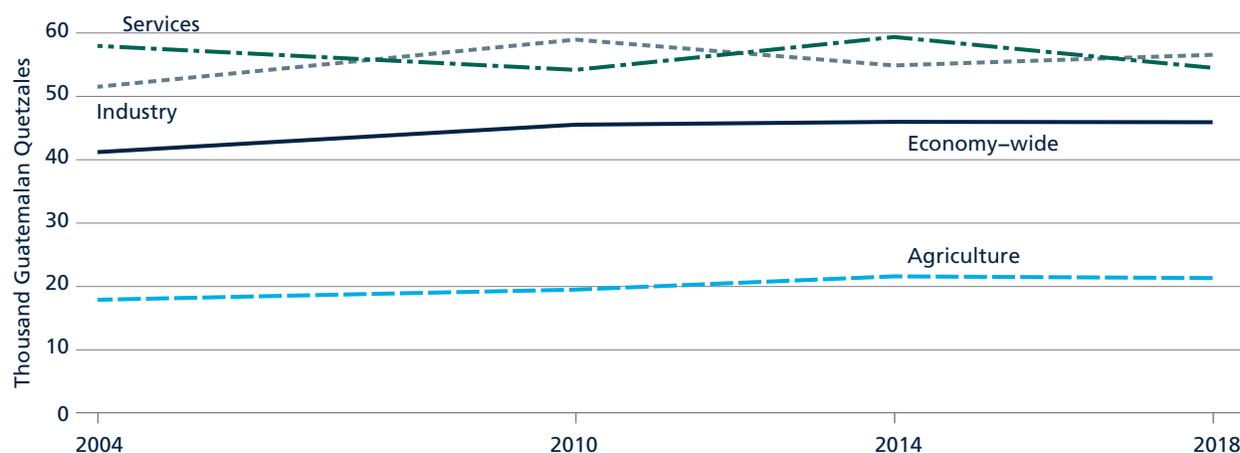
⁴ This was determined with a Shapley decomposition, applying the technique used in the World Bank's Jobs Group's Job Structures tool: <http://datatopics.worldbank.org/JobsDiagnostics/jobs-tools.html>.

FIGURE 2.4**Sectoral employment shares, 2004–18**

Source: Authors' calculations on the basis of WDI, ENEI, and 2002/2018 Census data.

FIGURE 2.5**Sectoral value-added shares, 2004–18**

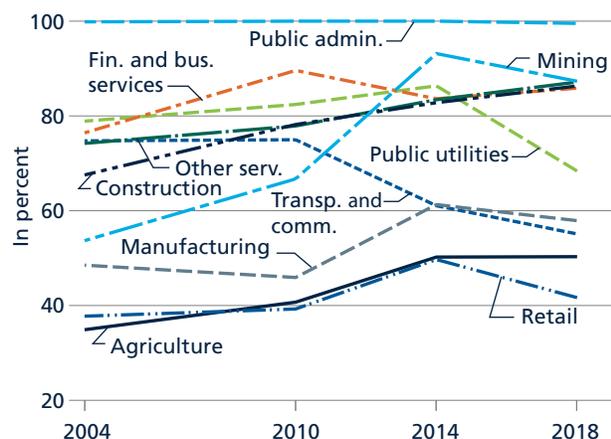
Source: Authors' calculations on the basis of WDI data.

FIGURE 2.6**Sectoral productivity differentials, 2004–18**

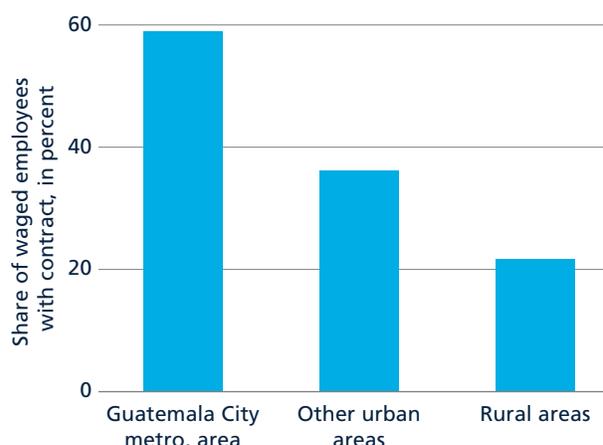
Source: 2018 figures based on World Bank calculations using ENEI and 2002/2018 census data.

work. Although low unemployment rates are a common feature of labor markets in low-income countries (LIC) and low- and middle-income countries (LMIC), they often conceal the fact that workers work fewer hours, earn lower incomes, use their skills less, and work less productively than they would like to.

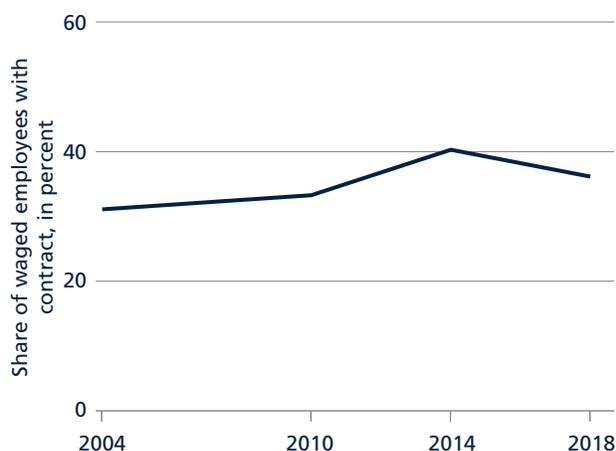
Although wage employment has risen considerably across the majority of sectors over the past 15 years, informality continues to be pervasive. With the exception of the transport and communications sector and the public administration sector, wage employment as a share of total employment rose in all sectors, with particularly strong increases in the agriculture, mining, and construction sectors (figure 2.7). Yet of the additional 1.9 million wage jobs that were created between 2004 and 2018, almost 60 percent did not involve the signing of a contract. Most wage employees thus continue to be hired informally. About two-thirds of wage jobs lacked a formal contract in 2018, with higher rates of informality in rural areas compared with urban areas (figure 2.8). In addition, the data show a recent reversal in the improvements in formality rates achieved in the

FIGURE 2.7**Share of wage jobs with formal contract by sector, 2004–18**

Source: Authors' calculations based on ENEI and 2002/2018 Census data.

FIGURE 2.8**Share of wage employees with a contract by geographic domain, 2018**

Source: Authors' calculations based on ENEI and 2002/2018 Census data.

FIGURE 2.9**Share of wage employees with a contract, 2004–18**

Source: Authors' calculations based on ENEI and 2002/2018 Census data.

FIGURE 2.10**Number of workers by job type, 2004–18**

Source: Authors' calculations based on ENEI and 2002/2018 Census data.

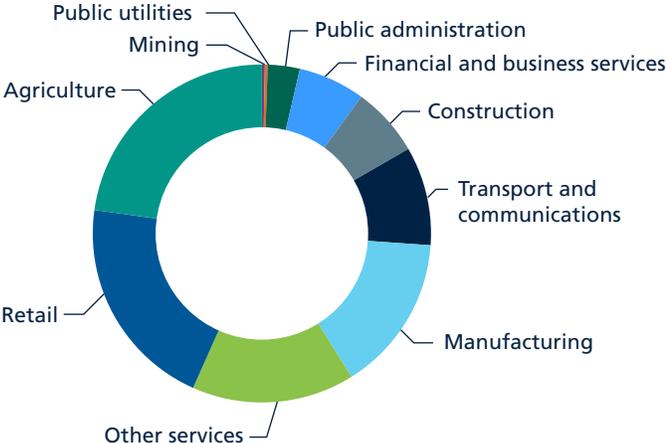
decade to 2014 (figure 2.9). Between 2014 and 2018, limited hiring in the formal sector generated almost no increase in jobs (figure 2.10). Hence, while the share of formal wage jobs rose from 13 percent to 20 percent in rural areas and from 38 percent to 50 percent in urban areas between 2004 and 2014, it fell to 19 percent and 42 percent, respectively, in the period between 2014 and 2018.^B

The data also show that a large share of the workforce is employed in agriculture and low-productivity services, which are characterized by lower job quality. To transform their economies, LICs and LMICs need to shift surplus labor from low-productivity subsistence-based agriculture to more productive activities, typically in manufacturing and services. Yet not all jobs outside agriculture are productive jobs. As economies reach

middle-income status, the speed of transformation slows in some countries because low-productivity jobs in the agriculture sector are increasingly replaced by similarly low-productivity jobs outside agriculture, such as street vending, small-scale trading, hairdressing, or cleaning services. Guatemala has a relatively large share of workers that continue to be employed in agriculture, compared with countries with a similar income level (box 2.1). Moreover, more than half of all Guatemala’s jobs outside agriculture are classified under the broader sector categories of retail, transport and communication, and other services (figure 2.11). Together with agriculture, these sectors typically provide jobs of lower quality, with high levels of informality and self-employment as well as fewer opportunities for formal wage employment. For instance, in 2018 almost 50 percent of workers in the retail sector were self-employed, making this the sector with the highest rate of self-employment. The agriculture sector had the second-highest self-employment rate at 38 percent. Self-employment was less prevalent among workers with jobs classified under the other services sector category, but 43 percent of these jobs were informal.

FIGURE 2.11

Employment distribution by sector, 2018



Source: Authors’ calculations based on ENEI and 2002/2018 Census data.

BOX 2.1. A GLOBAL BENCHMARKING EXERCISE USING GUATEMALA’S KEY LABOR MARKET INDICATORS

International experience has shown that the structure of the labor market changes as countries move up the income ladder. Poorer countries tend to exhibit larger shares of workers employed in agriculture, with a higher prevalence of self-employment. Richer countries are typically more urbanized, exhibit a higher share of employment in industry and services, and feature higher rates of wage employment. To understand a country’s specific jobs problems, it is thus useful to benchmark its labor market outcomes against the characteristics typical at its level of development.

This analysis uses data from the World Development Indicators database to compare Guatemala’s key labor market characteristics with those of other countries in years since 1991 for which per capita gross national income (GNI) is the same as for Guatemala in 2018 (in constant US\$). This allows benchmarking Guatemala’s key labor market indicators against a sample of 35 country-year observations since 1991, as shown in the box plots of figures B2.1.1 and B2.1.2. Figure B2.1.1 compares employment shares across the agriculture, industry, and services sectors. Figure B2.1.2 compares the following labor market indicators:

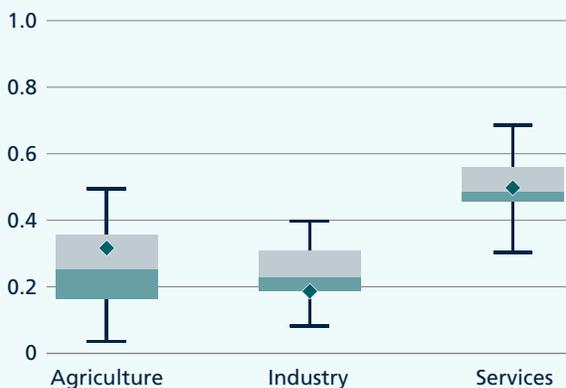
- Labor force participation rates (overall and by gender) defined as the working-age population (15–64 years) that is employed or actively seeking employment
- Unemployment rate defined as the share of the working-age population (15–64 years) that is in the labor force but is not currently employed
- Wage employment rate defined as the share of the employed working-age population (15–64 years) that is in wage employment
- Urbanization rate defined as the share of the total population living in urban locations

The respective boxes for each indicator represent an interquartile range. The thick line in each box marks the mean. The outer range values represent mean \pm 2 standard deviations or the minimum/maximum value, depending on what is bigger/smaller.

The benchmarking exercise shows that Guatemala has a higher share of workers employed in agriculture, a lower share employed in industry, and about the same share employed in services, as would be expected at its level of GNI. Labor force participation is similar to the average at Guatemala’s level of development, but there are considerable differences along gender lines, with a lower participation rate for women and a higher rate for men than is typically exhibited by countries at a similar stage of development. The unemployment rate is slightly lower, whereas wage employment rates and urbanization rates are broadly in line with the average at Guatemala’s income level.

FIGURE B2.1.1

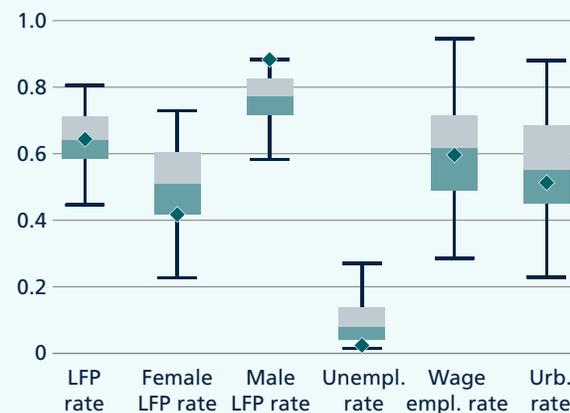
Sector shares in employment for countries at Guatemala’s level of development



Source: Authors’ calculations using the WDI database.

FIGURE B2.1.2

Key labor market characteristics for countries at Guatemala’s level of development



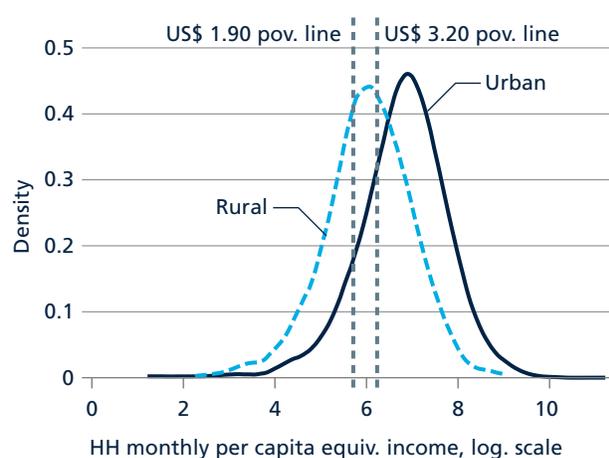
Source: Authors’ calculations using the WDI database.

The shortage of high-quality and productive jobs implies that few jobs pay enough to make a decent living, thus many households rely on other sources of income, such as international remittances.

Computations for this analysis use the minimum expenditure thresholds required to meet the World Bank’s 2011 LIC and LMIC poverty lines of US\$1.90 and US\$3.20 a day, respectively. Converted to Guatemalan Quetzales and accounting for inflation, these equaled Q 302 and Q 509 per month. When these thresholds were compared with the total per capita labor income reported by surveyed households in 2018, some 42.3 percent of household incomes were lower than required to meet the US\$3.20 expenditure threshold. In 25.0 percent of cases, the income was lower than the US\$1.90 threshold. The shares were larger in rural than in urban areas, with 60.0 percent and 27.1 percent of household incomes, respectively, falling below the US\$3.20 poverty line in 2018

FIGURE 2.12

Kernel density for household per capita labor income in rural and urban areas, 2018

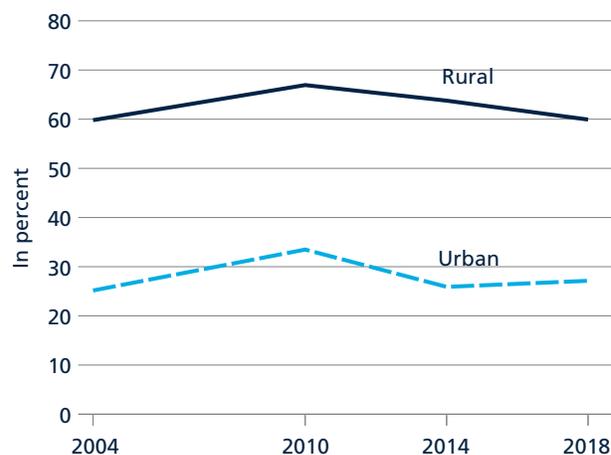


Source: Authors' calculations based on ENEI and 2002/2018 Census data.

Note: The World Bank's 2011 purchasing power parity (PPP) poverty lines of US\$1.90 and US\$3.20 a day were converted to monthly equivalent values in quetzales using the corresponding PPP conversion factors and adjusting for inflation. To meet the PPP expenditure requirement of US\$1.90 and US\$3.20 a day in 2018, each member of a household would have to earn Q 302 and Q 509, respectively.

FIGURE 2.13

Share of households with insufficient labor income to meet US\$3.20 poverty line expenditure threshold, 2004–18



Source: Authors' calculations based on ENEI and 2002/2018 Census data.

(see figure 2.12).⁵ Over time, these shares appear to have remained at broadly similar levels, hovering around the 60 percent and 30 percent levels in rural and urban areas, respectively (see figure 2.13). As a consequence, many households rely on other sources of income, such as remittances, to prop up their overall incomes. Overall, almost 9.5 percent of households received remittances from abroad in 2018. This share rose to 16.2 percent for households with incomes below the US\$3.20 poverty line.

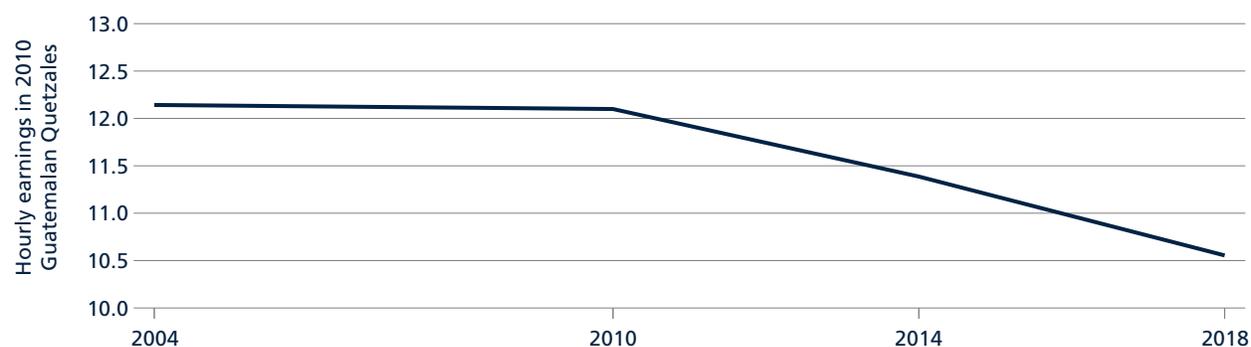
Average labor earnings have declined across most sectors since the early 2000s. Between 2004 and 2018, average hourly earnings declined by 21 percent, from Q 13.82 to about Q 11.93 (figure 2.14).⁶ The decline affected all sectors with the exception of mining (figures 2.15 and 2.16). The largest drops in hourly earnings were observed in the construction sector, followed by the retail and the financial and business services sectors with declines of 42, 36, and 35 percent, respectively.

Education attainment levels have also declined since 2004. The analysis compared workers' earning across five education attainment categories shown in figure 2.17. Workers who did not complete primary education were least affected by the drop in earnings, with a decline of 7 percent between 2014 and 2018. Workers of all other educational attainment categories experienced a much higher contraction in hourly earnings (about 33 percent (figure 2.18)).

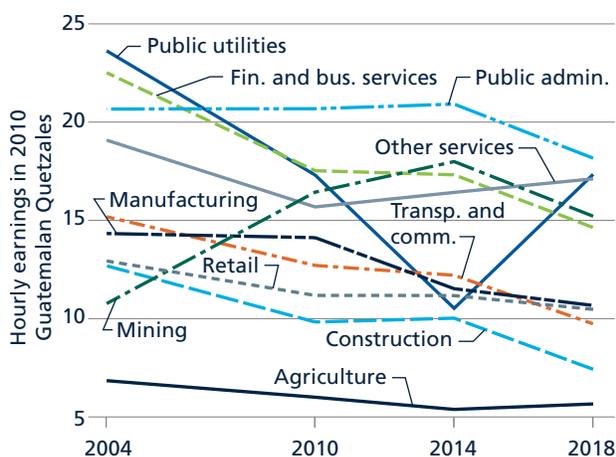
In response to the shortage of quality jobs and falling hourly earnings, the number of weekly working hours that households supply to the labor market is low. In 2018, over 60 percent of households supplied less than 30 hours per week for each working-age adult (ages 15–64) living in the household (figure 2.19). This share was even higher (at 80 percent) for households with labor incomes below the World Bank's international poverty line of US\$3.20. This finding suggests that the overall availability of jobs on the labor market was

⁵ Such high rates of labor income poverty are in line with the latest available headcount poverty rates for 2014 of 60 percent (Sanchez, Kinnon, and Lopez 2016).

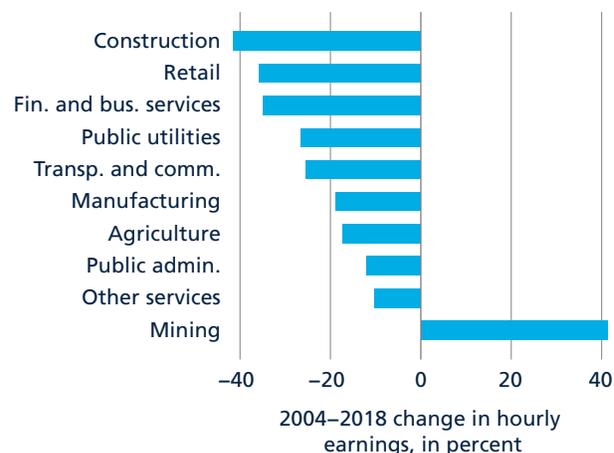
⁶ The percentage decline is even larger if converted to US\$ PPP from US\$4.60 to US\$2.40.

FIGURE 2.14**Evolution of average hourly earnings, 2004–18**

Source: Authors' calculations based on ENEI and 2002/2018 Census data.

FIGURE 2.15**Evolution of average hourly earnings by sector over survey years, 2004–18**

Source: Authors' calculations based on ENEI and 2002/2018 Census data.

FIGURE 2.16**Percentage change in average hourly earnings across sectors between 2004 and 2018**

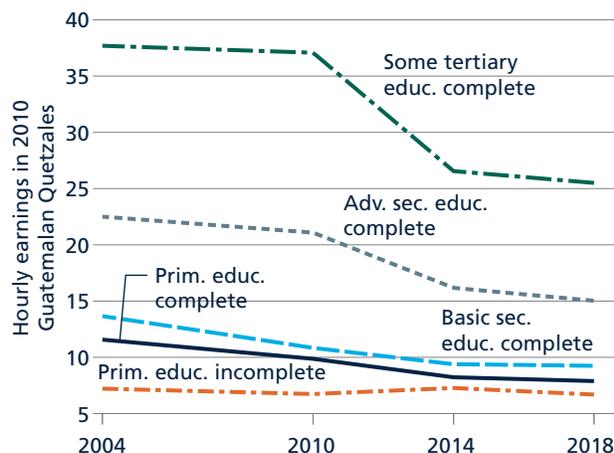
Source: Authors' calculations based on ENEI and 2002/2018 Census data.

insufficient, prompting households to restrain their overall labor supply and resulting in underutilization of the available workforce in the economy.

Low overall household labor supply appears particularly detrimental to the participation of women in the labor market. How many hours individual members of a household supply to the labor market is often the product of complex intra-household decision-making processes. Household decisions typically reflect the interplay of societal norms, the number of household dependents, bargaining power of household members, and differences in the relative opportunities in the labor market that household members perceive. With limited opportunities in the labor market, Guatemalan households appear to make decisions that disproportionately affect women, with lower female labor force participation than would otherwise be expected. Although the overall labor force participation rate stood at 64 percent in 2018—lower than in some of the selected comparator countries in the Latin America and the Caribbean region but broadly in line with Guatemala's expected level of development—the average masks large differences in participation rates between men and women (see figures 2.20 and 2.21). In 2018, only 43 percent of women ages 15-64 participated in the labor market,

FIGURE 2.17

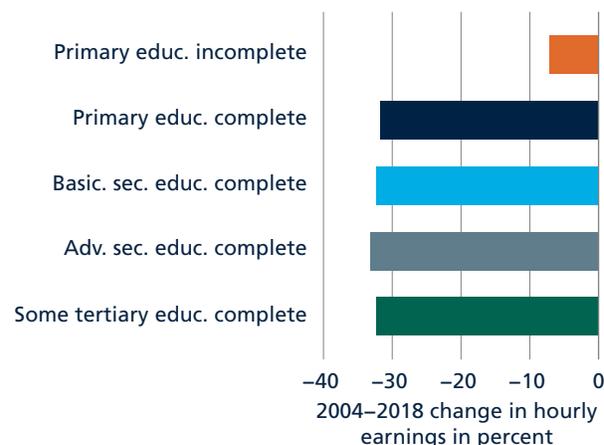
Evolution of average hourly earnings by education level across survey years, 2004–18



Source: Authors' calculations based on ENEI and 2002/2018 Census data.

FIGURE 2.18

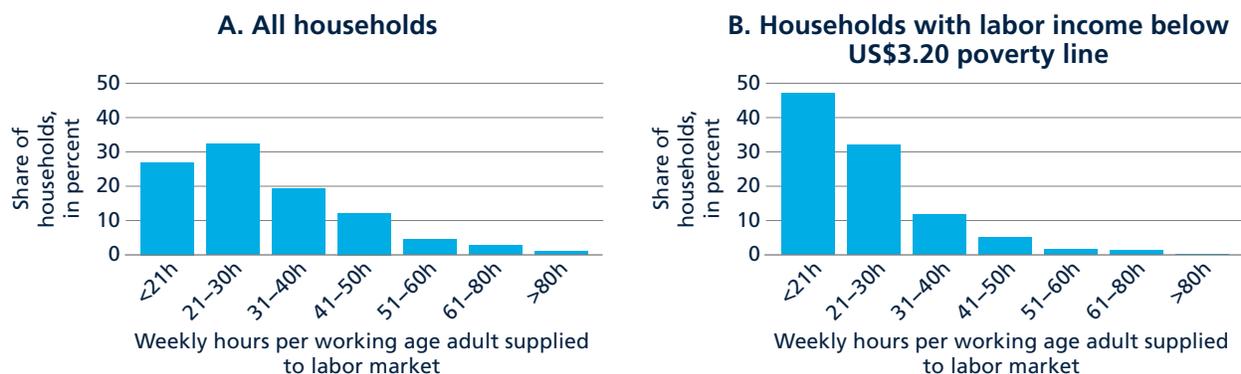
Percentage change in earnings across education level, 2004–18



Source: Authors' calculations based on ENEI and 2002/2018 Census data.

FIGURE 2.19

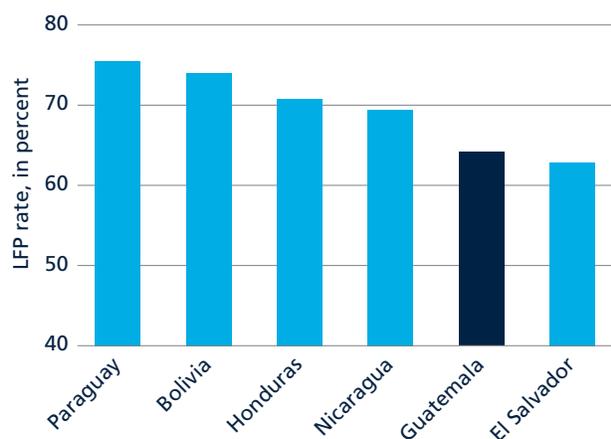
Distribution of households by number of working hours per week, 2018



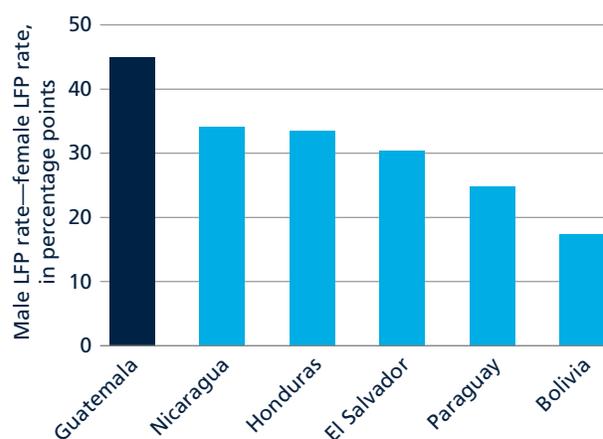
Source: Authors' calculations based on ENEI and 2002/2018 Census data.

a marked contrast with the participation rate for males of 88 percent (figure 2.22). And the gap in labor force participation rates has widened since 2010, rising from almost 29 percentage points in 2010 to 45 percentage points in 2018. Thus the gap is currently one of the largest in Latin America and the Caribbean and much larger than what would be expected at Guatemala's income level (see box 2.1).

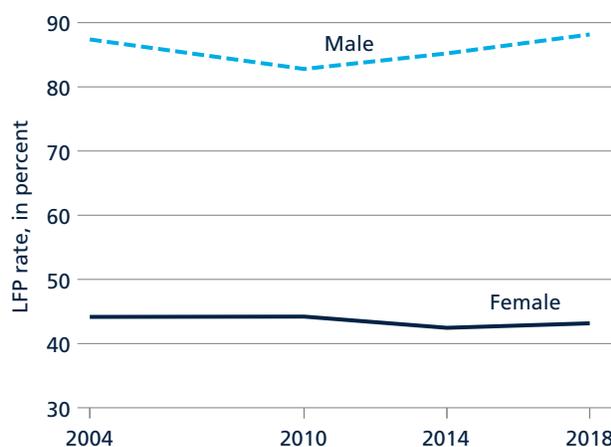
In addition, the deteriorating employment prospects increasingly prompt households to send household members to work abroad. Of the 3.28 million households registered in the 2018 census, 1.8 percent reported that at least one of their members had emigrated in the eight years between 2003 and 2010. That share almost doubled in the following eight years, between 2011 and 2018 (3.4 percent). Figure 2.23 shows the rise in the number of individuals emigrating each year. Before 2011, between 8,000 and 10,000 people emigrated in a typical year; after 2011, emigration numbers rose each year, reaching 27,000 people in 2016. Hence, faced with deteriorating employment opportunities, many individuals appear to be deciding to emigrate in order to seek their luck abroad. The increase in outmigration also coincided with the acceleration in the decline of labor

FIGURE 2.20**Labor force participation in Guatemala versus peer countries, 2018**

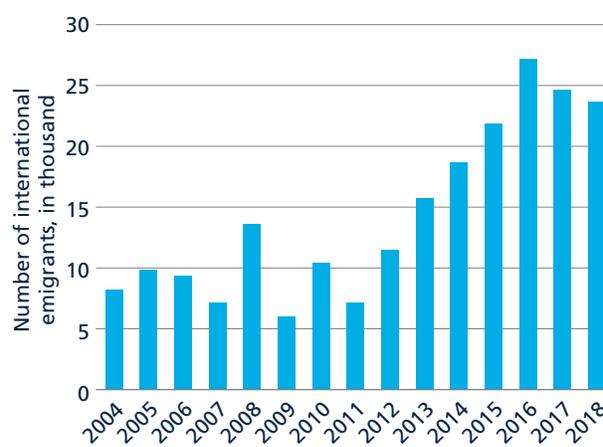
Source: Authors' calculations on the basis of WDI, ENEI, and 2002/2018 Census data.

FIGURE 2.21**Male-to-female labor force participation gap across peer countries, 2018**

Source: Authors' calculations on the basis of WDI, ENEI, and 2002/2018 Census data.

FIGURE 2.22**Labor force participation by gender over time, 2004–18**

Source: Authors' calculations on ENEI and 2002/2018 Census data.

FIGURE 2.23**Annual number of international emigrants, 2004–18**

Source: Authors' calculations based on 2018 Census data.

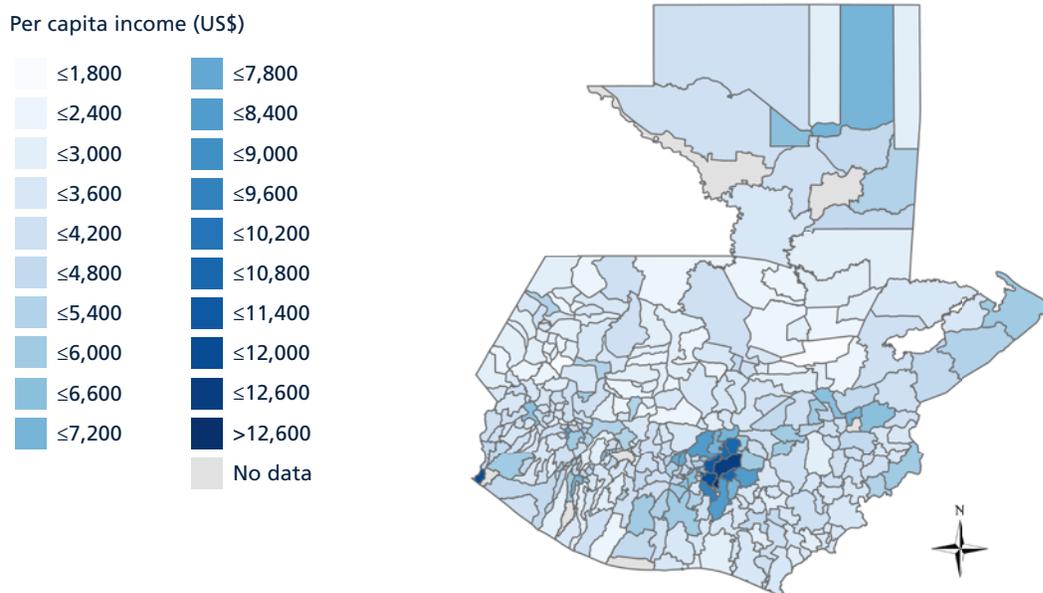
earnings for workers with secondary and tertiary education after 2010, shown in figure 2.17, suggesting that rising migrant outflows also reflect the frustrations of an increasingly educated workforce unable to meet the rising expectations that come with higher levels of education.

The rising levels of international outmigration contrast with relatively limited internal migration, which is low considering the large geographic disparities in incomes across Guatemala. Economic activity in Guatemala is highly unequal across regions and results in strong spatial differences in average annual incomes, which range from US\$1,118 in the poorest municipality of Santa Bárbara, in Huehuetenánago, to almost US\$15,000 in the richest municipality of Petapa, in Guatemala City (see figures 2.24 and 2.25). Moreover, the distribution of the population by municipal per capita GDP is bimodal, with one peak around US\$5,500 and another around US\$12,000 (figure 2.26). Spatially speaking, there are thus two Guatemalas: one that is

relatively poor and one that is relatively rich, with few people living in-between. The high differences in living standards across municipalities would be expected to be accompanied by high levels of internal migration, with the poorest municipalities exhibiting high outward migration rates and the richest municipalities having high inward migration rates. Neither is the case in Guatemala. Outward migration is relatively low for the poorest municipalities, and inward migration is not stronger for the richest municipalities (see figures 2.27 and 2.28).

FIGURE 2.24

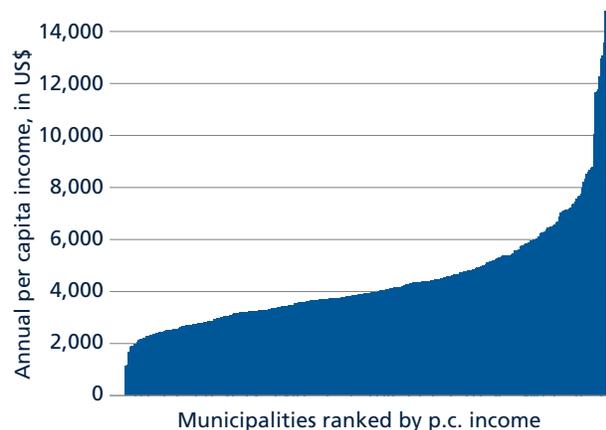
Map with distribution of per capita income by municipality, 2017 (current prices)



Source: Authors' elaboration based on dataset from the Fundación para el Desarrollo de Guatemala (FUNDESA), which combines 2017 municipal-level information on agricultural production, government public expenditure data, and data from the banking system on deposits, private sector credit, and remittances inflows, to establish average incomes at the municipal level (FUNDESA dataset 2019).

FIGURE 2.25

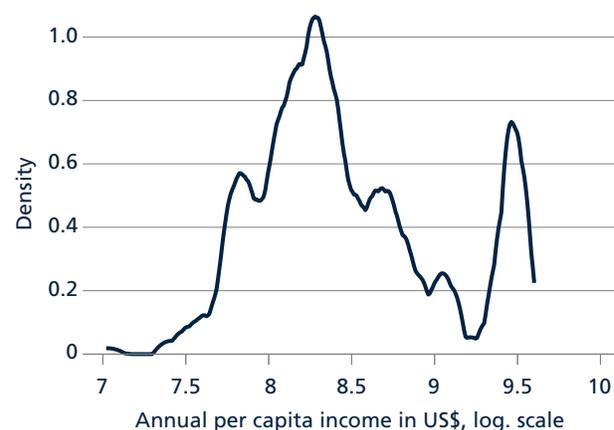
Per capita income by municipality, 2017



Source: Authors' calculations based FUNDESA data.

FIGURE 2.26

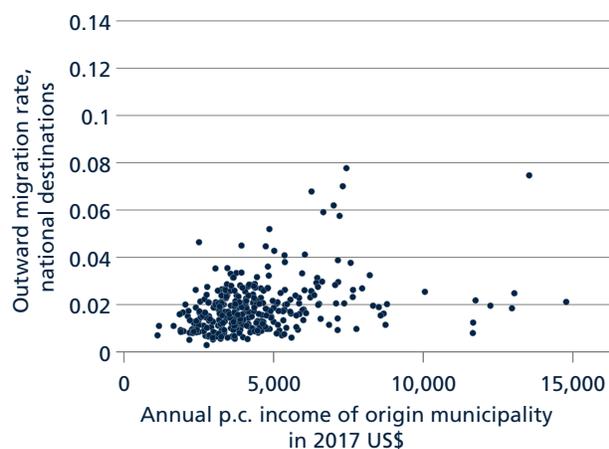
Kernel density of municipal per capita incomes weighted by municipal population, 2017



Source: Authors' calculations based on 2018 Census data and FUNDESA data.

FIGURE 2.27

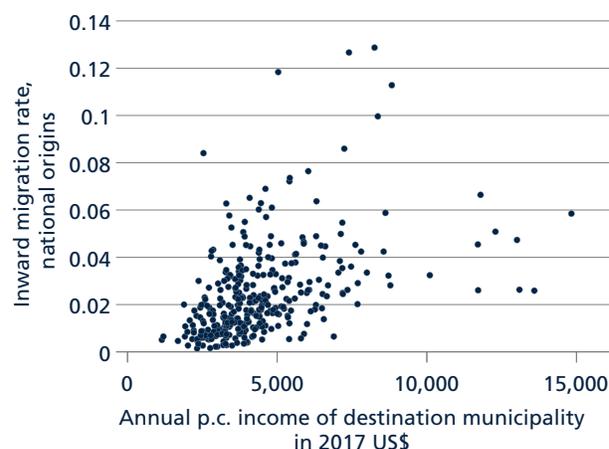
Share of population migrating out of a municipality between 2013 and 2018 by income of municipality of origin



Source: Authors' calculations based on 2018 Census data and FUNDESA data.

FIGURE 2.28

Share of population migrating to a municipality between 2013 and 2018 by income of destination municipality



Source: Authors' calculations based on 2018 Census data and FUNDESA data.

2.2 LABOR MARKET PROJECTIONS

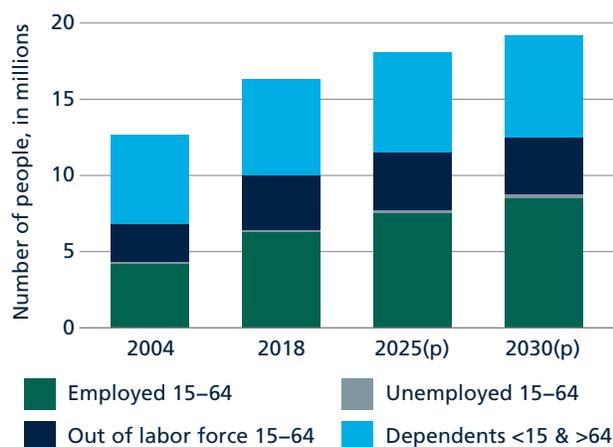
Guatemala is undergoing a demographic transition that will continue throughout the next decade.

The 2018 census showed that Guatemala's population growth started to slow earlier than had been expected in projections based on the 2002 census. With fewer births, the number of dependents relative to the overall population declined steadily from 46 percent to 40 percent between 2004 and 2018, while the working-age population rose from 54 percent to 60 percent as younger cohorts entered the labor force (figure 2.29). Consequently, the dependency ratio (measured as the dependent population divided by the working-age population) fell from 0.85 dependents per working-age adult to 0.67 (figure 2.30). This trend is set to continue. According to official projections from Guatemala's national statistics office, the working-age population will grow at an annual rate of 1.9 percent over the next 10 years (2020–30). In absolute numbers, this implies a net increase of about 210,000 people in the workforce each year, which will reach 12.5 million people by 2030. By contrast, the number of dependents will remain broadly flat, at around 6.6 million. This will allow for a further reduction in the dependency ratio, which is anticipated to fall to 0.58 by 2030.

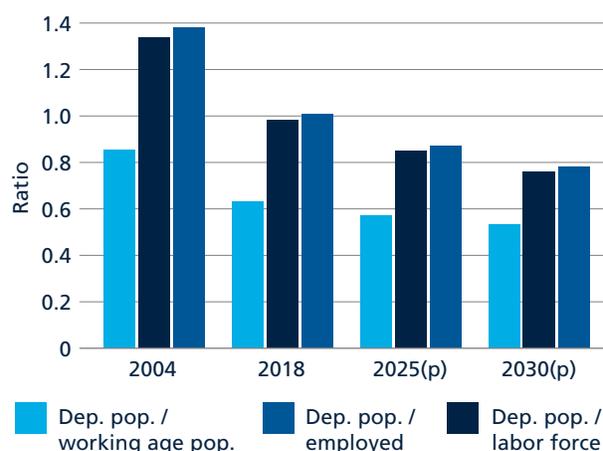
The ongoing decline in the number of dependents and a swelling labor force present Guatemala with a unique opportunity to transform the economy and improve the well-being of its populace.

When the number of dependents per working person falls, economies can reap a demographic dividend that can have both direct and indirect benefits. Direct benefits of a demographic dividend accrue from fewer nonworking people requiring economic support, thus allowing average per capita income levels to rise. Indirect benefits of a demographic dividend stem from lower dependency rates, freeing up economic resources. Those resources, if used wisely, can kick-start a virtuous circle of increased investment in physical and human capital, providing a further boost to economic growth through rising productivity. The demographic transition that is now under way in Guatemala thus has enormous potential to improve the well-being of its people.

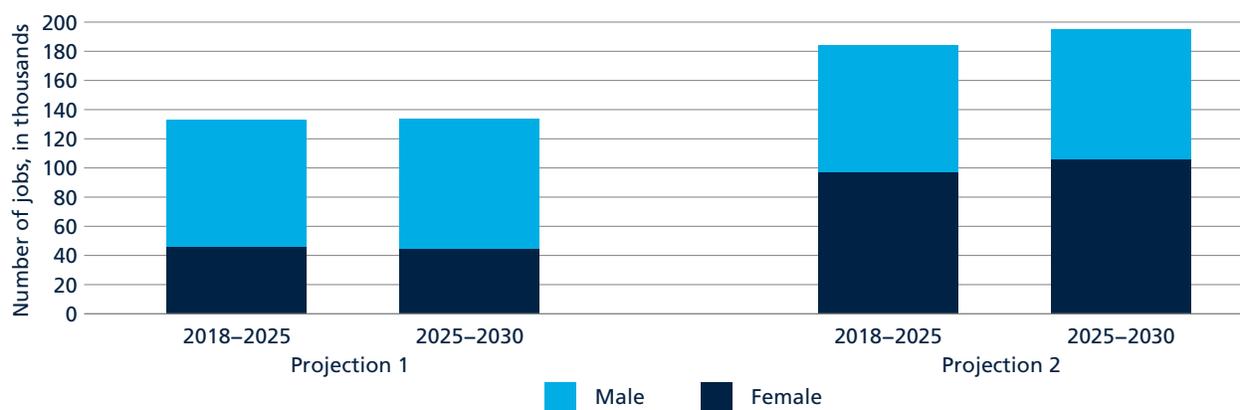
At the same time, however, the challenge of providing Guatemala's swelling workforce with enough quality jobs is daunting in the face of the recent decline in productivity growth and limited formal sector demand for labor. To maintain Guatemala's pre-COVID-19 pandemic ratio of employment to working-age population, the economy will have to generate 132,000 additional jobs (net of job losses) each year over the

FIGURE 2.29**Employment of working-age and dependent populations, 2004, 2018, 2025(p), and 2030(p)**

Source: Authors' calculations based FUNDESA data.

FIGURE 2.30**Dependency ratios, 2004, 2018, 2025(p), and 2030(p)**

Source: Authors' calculations based on 2018 Census data and FUNDESA data.

FIGURE 2.31**Projected annual net job creation, 2018-25 and 2025-30 periods**

Source: Population projections based on the 2018 census.

Note: For projection 1, employment-to-population ratios for both male and female are assumed constant at 2018 levels. For projection 2, employment-to-population ratios are assumed constant for men and assumed to increase by 10 percentage points for women by 2030.

next decade (see figure 2.31, projection 1).⁷ In the absence of strong productivity growth and a strong increase in formal sector demand for labor, most people will be forced to take jobs in low-productivity and predominantly informal activities, with a prevalence of self-employment. This would most likely contribute to further declines in average wages, reinforce low labor force participation rates, and hinder Guatemala's poverty reduction efforts. Moreover, the jobs challenge will be even greater assuming Guatemala wants to increase the participation of young, better-educated women in the labor market. Projections show that, if the participation of women is to rise from its current level of 45 percent to 55 percent by 2030, it will require an additional 60,000 jobs each year for women on top of the 132,000 additional jobs each year needed to retain 2018 levels (see figure 2.31, projection 2).

⁷ Labor market projections were calculated using the World Bank's Jobs Group's demography tool: <http://datatopics.worldbank.org/JobsDiagnostics/jobs-tools.html>.





3. SEARCHING FOR CAUSES: FROM SYMPTOMS TO DIAGNOSIS

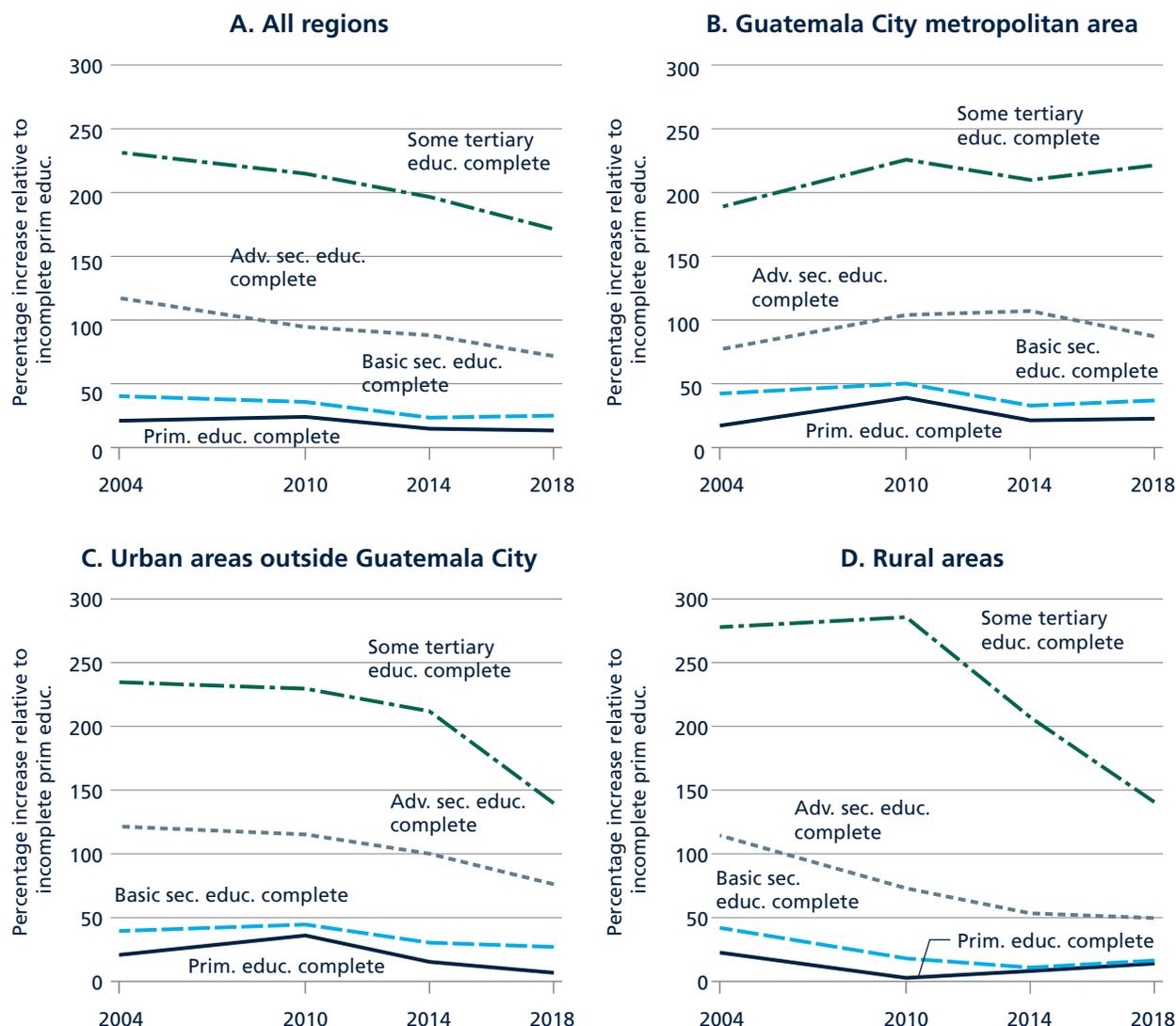
The analysis of chapter 2 shows that Guatemala's labor market has generated high levels of job informality over recent years, with insufficient formal job creation. This condition has coincided with a decline in earning levels, particularly among more educated workers. Households seem to respond to these developments by favoring male over female participation in the labor market and by increasingly sending household members to work abroad. At the same time, internal migration from poorer to richer municipalities is low, which is unusual, given the strong spatial disparities in average incomes that prevail in Guatemala.

The identification of these labor market symptoms is intrinsic to a jobs diagnostic, but it needs to be complemented with more in-depth diagnostic work to distinguish between cause and effect in the emerging clinical picture of a country's labor market. The objective of this chapter is therefore to uncover the factors underlying the main labor market symptoms identified in chapter 2. This is achieved in four steps. First, an in-depth examination of returns to schooling reveals the drivers of the declining education earnings premiums. Second, the drivers of low female participation in the labor market are examined. Third, factors that drive migration decisions in Guatemala are identified. Fourth, firm-level activity and demand for labor are analyzed.

3.1 DECLINING RETURNS TO SCHOOLING

The asymmetric decline in average earnings of workers with and without education, documented earlier, suggests a decline in education earnings premiums. This trend has been witnessed elsewhere in the region of Latin America and the Caribbean (Aedo and Walker 2012). For Guatemala, the decline could signal a range of distinct labor market developments that would call for different policy responses. Falling returns to education may, for instance, reflect changes in the relative supply of better-educated workers, resulting in increased competition between workers for white-collar jobs. To the extent that this process results in an easing of labor supply constraints faced by firms attempting to hire qualified workers, the falling premium would be a welcome development. But because of the overall decline in earnings, the continued high levels of informality, and the large proportion of workers employed in low-productivity activities, one would expect a declining education premium to be a signal of insufficient demand growth for skilled labor that contrasts with the steady increase in the supply of skills. Another potential explanation is that falling premiums are the consequence of an overall erosion in educational quality. Such erosion could come from a rapid expansion of educational systems that results in the creation of new educational institutions that do not abide by the same educational standards. Falling premiums also could result from an increase in demographic pressures on education systems that is not accompanied by an adequate increase in funding levels, resulting in an overall deterioration in the quality of education. This section will shed further light on possible channels that affect the evolution of education premiums in Guatemala.

How much a worker earns in Guatemala depends strongly on that person's educational attainment, but average education premiums for earnings have declined markedly over the past 15 years. Using a Mincer-style regression framework that considers a series of individual and sector-specific characteristics, the team estimated a worker's premium from attaining a certain level of education on the worker's hourly earnings

FIGURE 3.1**The impact of educational attainment on earnings premiums relative to incomplete primary education, 2004–18**

Source: Authors' calculations based on ENEI and 2002/2018 Census data.

Note: Results attained through the implementation of Mincer-style regression estimations for each separate survey year with log hourly labor earnings as a dependent variable, education level dummies, and controls for gender, ethnicity, age, age squared, type of employment (that is, wage employment, self-employment, and employer with employees), and sector fixed effects. Full regression specifications and results are reported in the Annex.

in each of the analyzed survey years.⁸ Premiums were estimated relative to a baseline of not having completed primary education. Results show that the earnings premium rises with each additional level of education attained. In 2018, it equaled 15 percent for workers with primary education, 30 percent for workers with basic secondary education, 79 percent for workers with advanced secondary, and 186 percent for those with tertiary education. In addition, results found that premiums have come down by about a third since the early 2000s. In 2004 they ranged from 24 percent for completed primary education to 266 percent for some completed tertiary education (figure 3.1, panel a).

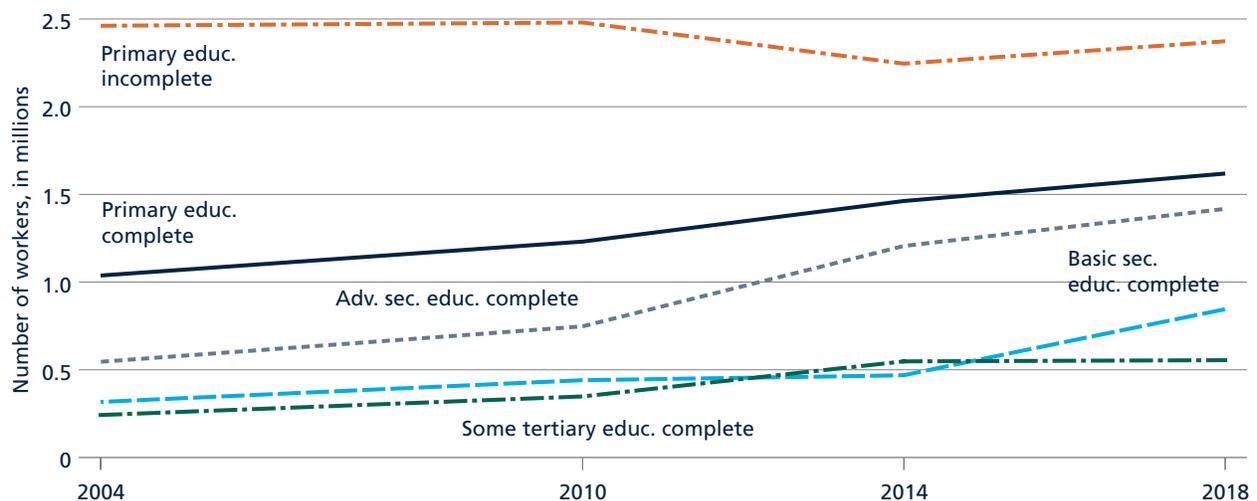
⁸ Full regression specifications and results are reported in the Annex. Specifications follow the approach defined in the Jobs Diagnostics Supply Side methodology, which can be accessed here: <http://datatopics.worldbank.org/JobsDiagnostics/jobs-tools.html>.

The evolution of education earnings premiums varied strongly across the rural-urban divide, with much stronger declines for workers outside Guatemala City. The team tested for differences in the evolution of workers' education premiums by estimating the effects of educational attainment on hourly earnings for the following three geographic domains defined in Guatemala's labor force surveys: the metropolitan area of Guatemala City, other urban areas, and all rural areas. Differences between domains are significant. While earning premiums of each education attainment level relative to workers without primary education remained broadly constant over time for workers in Guatemala City, they fell strongly in other urban and in rural areas. Moreover, the results demonstrate that this decline was more pronounced for the earnings premiums of workers with advanced secondary and tertiary education. The earnings premium of workers with higher levels of education thus declined not only with respect to workers without an educational degree but also with respect to workers with primary education.

The declining returns to education suggest that the supply of educated workers in Guatemala exceeds demand for these workers by firms in rural and urban areas other than the capital city. Between 2004 and 2018 the number of workers with advanced secondary education or higher rose from just under 0.8 million to just under 2.0 million, while the number of workers without completed primary declined marginally from 2.5 to 2.4 million (figure 3.2). The contraction in the earnings premiums for education is at least in part a reflection of the relative increase in the supply of skills to the labor market that has not been matched by a corresponding increase in the demand for more educated workers. This has also been observed in neighboring Mexico, for example, where the decline in earnings premiums has been argued to be the consequence of a misallocation of resources toward less-productive firms, which are less intensive in well-educated workers than are more productive ones (Levy and López-Calva 2019). Note also that the growth in the number of workers with advanced secondary education or higher was particularly steep in rural areas and in urban areas outside the capital, with the workers outside Guatemala City contributing an increasing share of workers with above-secondary education (figures 3.3 and 3.4). This provides part of the explanation for why the decline in an earnings premium was stronger in these regions than in Guatemala City.

FIGURE 3.2

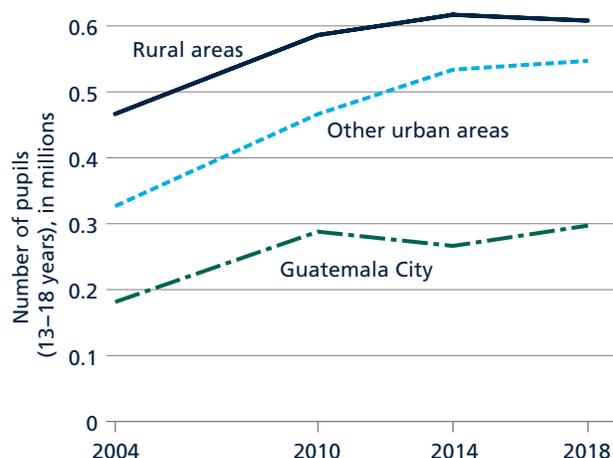
Number of labor market participants by type of education, 2004–18



Source: Authors' calculations based on ENEI and 2002/2018 Census data.

FIGURE 3.3

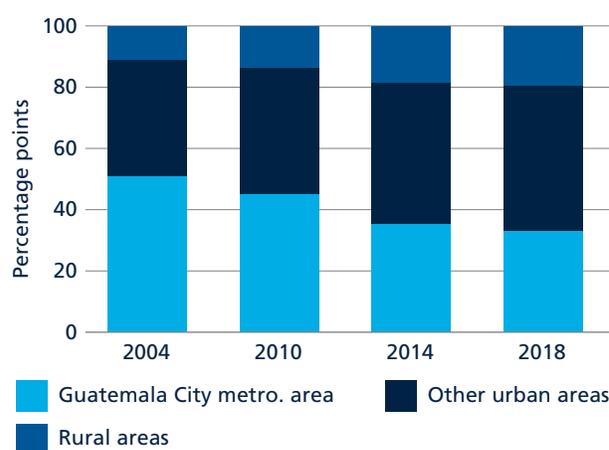
Number of 13- to 18-year-olds attending school by region, 2004–18



Source: Authors' calculations based on ENEI and 2002/2018 Census data.

FIGURE 3.4

Changes in the share of workers with above-advanced secondary education contributed to the labor market by each geographic domain



Source: Authors' calculations based on 2018 Census data.

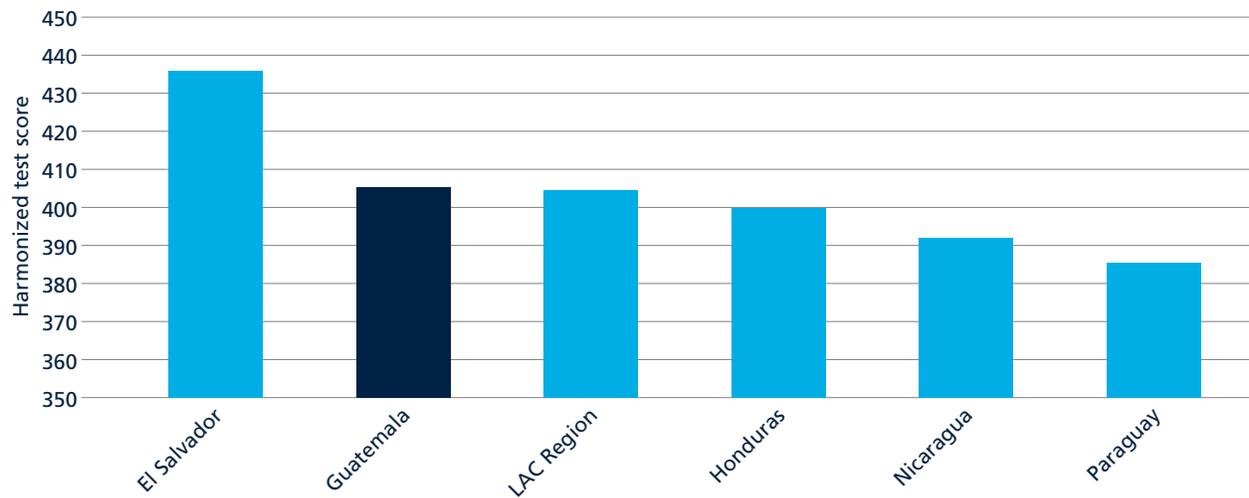
Another channel that may have contributed to the decline in earnings premiums for education in rural areas is a deterioration in education quality. According to the World Bank's Human Capital Project, Guatemala's students achieve test scores in international comparisons of learning levels that are in line with the Latin America and the Caribbean region as a whole and are somewhat higher than in comparator countries (figure 3.5). Yet indicators at the national level mask large differences in schooling quality at subnational levels. Of the nine low- and middle-income countries that have been assessed to date under the Organisation for Economic Co-operation and Development (OECD) Programme for International Student Assessment for Developing Economies (PISA-D), Guatemala has the largest rural-urban gap in reading outcomes, equivalent to two years of schooling (IADB 2018). Guatemala has only recently started to implement standardized testing programs. Direct comparisons of education quality over time are thus not feasible. But the data show that educational systems in regions other than Guatemala City had to cope with much larger increases in the number of children. With higher population growth outside the capital, the schooling system in Guatemala City experienced fewer enrollment pressures than elsewhere in the country. Between 2004 and 2018, the number of students of secondary school age (13–18) going to school rose by 115,000 in Guatemala City, by 220,000 in other urban areas, and by 142,000 in rural areas. This implies that resources would have had to be disproportionately allocated to areas outside Guatemala City to maintain constant per capita funding and to prevent deterioration in educational quality. Despite the lack of data on per capita funding going back in time, data from Guatemala's finance ministry for 2018 confirm that very large differences exist in public per capita spending on education across municipalities. Some of the decline in returns could therefore reflect deterioration in the average quality of education in areas that did not receive an adequate increase in funding to accommodate the increase in secondary education students.

In rural areas, returns to education declined more for young cohorts than for older cohorts, suggesting that at least part of the decline in earnings premiums in rural areas was driven by deteriorating educational quality. To assess whether a deterioration in schooling quality played a role in driving the decline in the education premium, the team looked at the returns to education by age cohort and at how this has changed over time. If quality was a contributing factor to the decline in returns to schooling, one would expect relative earnings of workers that had graduated in the past to increase relative to the new graduates. For rural areas, this is precisely what was found. In 2004 all secondary education graduates in rural areas who are now ages 35–49 earned 11 percent more than recent secondary education graduates in rural areas, who are ages

20–35 (figure 3.6). By 2018 this gap had almost tripled to 37 percent. In contrast, the earnings gap between both cohorts fell slightly in urban areas. These results therefore suggest that in urban areas, insufficient labor demand dominated the decline in returns to education, while in rural areas the decline was further exacerbated by deterioration in schooling quality. Additional evidence on this issue is presented in section 3.3.

FIGURE 3.5

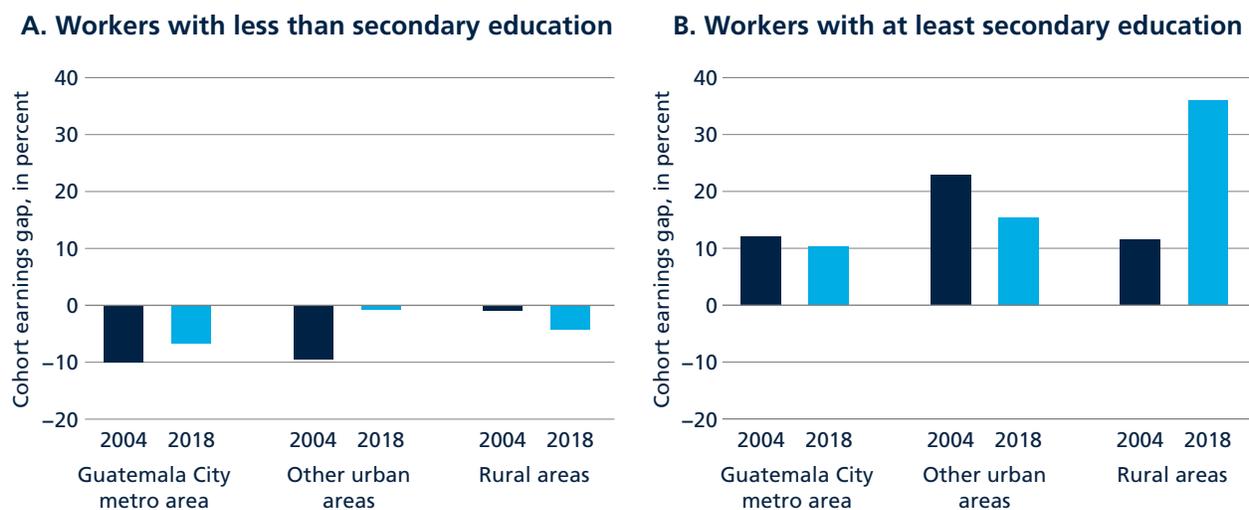
Harmonized test score for learning outcomes of the World Bank’s Human Capital Project



Source: Human Capital Index 2020 reporting harmonized test scores across major international student achievement testing programs measured in TIMMS–equivalent units, where 300 is minimal attainment and 625 is advanced attainment. Most recent estimates as of 2019 are used.

FIGURE 3.6

Earnings gap between workers in age cohorts 35–49 and 20–34, by domain



Source: Authors’ calculations based on ENEI and 2002/2018 Census data.

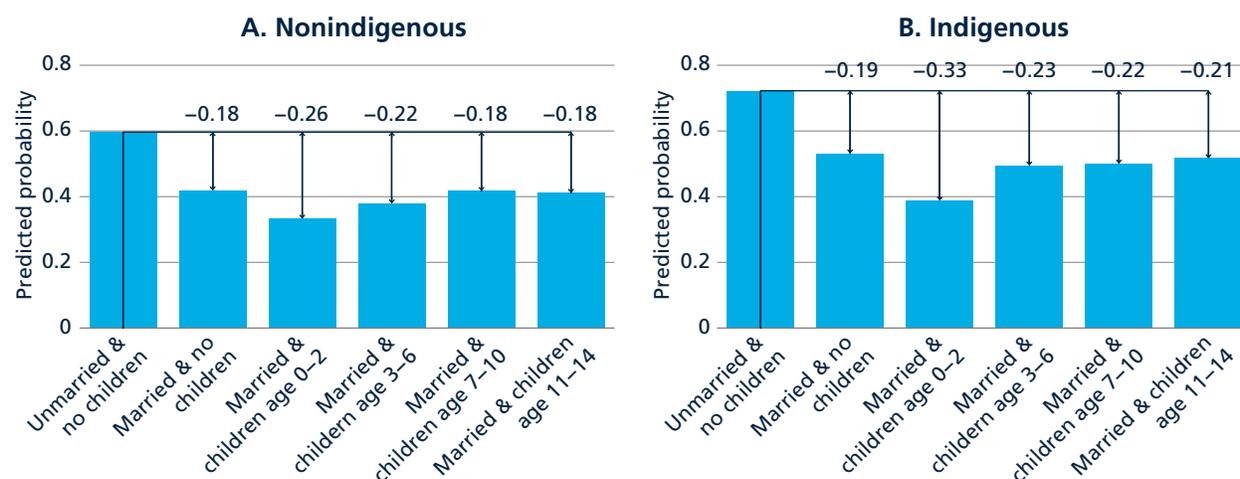
3.2 LOW FEMALE LABOR FORCE PARTICIPATION

Chapter 2 documents that Guatemala’s labor market exhibits one of the largest gaps between male and female labor market participation in the region. On the one hand, this gap could suggest that the shortage of opportunities is particularly detrimental to the participation of women in the labor market. On the other hand, it may reflect the persistence of strong cultural norms that discourage women from working outside the household. This section investigates the drivers of women’s participation in the labor market and highlights key impediments to female labor force participation in Guatemala.

The participation of women in the labor market is more strongly driven by marital status than by motherhood. Women’s decision to participate in the labor market are analyzed using a probabilistic regression model that allows to untangle the impact of female characteristics such as ethnicity, age, educational attainment, and household income from the effects of marriage and motherhood.⁹ Results show that being married in Guatemala reduces the probability of participation by 18 and 19 percentage points for nonindigenous and indigenous women, respectively. Consider first a nonindigenous 30-year-old woman with an average level of education and a median-level household income. Unmarried, she participates in the labor market with a probability of 60 percent, but if she’s married, this probability falls to 42 percent (figure 3.7, panel a). Interestingly, marriage has a considerably larger effect than motherhood, which is often associated with low labor market participation of women. The effect of motherhood is largest for women with very young children, and it declines as children get older. For mothers with children age 0–2, the effect is about half the impact of being married, reducing the probability of labor market participation by 9 percentage points. The impact of having a child age 3–6 is –4 percent, and the effect vanishes for children in older age groups. By contrast, indigenous women display an overall higher participation rate (figure 3.7, panel b). The impact of marital status is broadly in line with that of nonindigenous women. The impact of motherhood, however, is somewhat stronger and

FIGURE 3.7

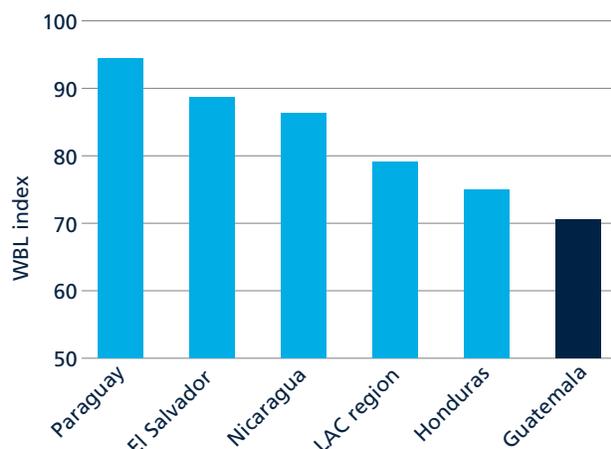
Impact of marital status and motherhood on the probability of female labor force participation, 2018



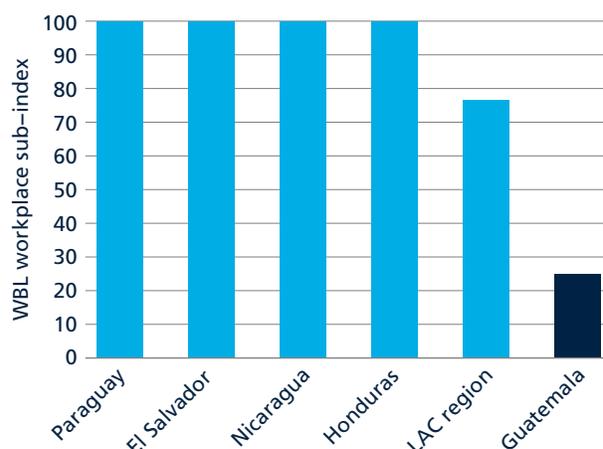
Source: Authors’ calculations based on ENEI and 2002/2018 Census data.

Note: Figures illustrate the predicted probability of labor force participation by marital status and motherhood estimated using an individual-level probit model for nonindigenous women (panel a) and indigenous women (panel b) with controls for age, age squared, educational attainment, and household income based on ENEI labor force survey data for 2018. To illustrate effects, the base category assumes a 30-year-old woman with no children, average level of education, and median household income. Full regression specifications and results are reported in the Annex.

⁹ Full regression specifications and results are reported in the Annex. Specifications follow the approach defined in the Jobs Diagnostics Supply Side methodology, which can be accessed here: <http://datatopics.worldbank.org/JobDiagnositics/jobs-tools.html>.

FIGURE 3.8**World Bank’s Women, Business and the Law assessment, overall index for 2019**

Source: The World Bank Women, Business and Law assessment 2020, with 0 and 100 representing the lowest and highest scores respectively.

FIGURE 3.9**World Bank’s Women, Business and the Law assessment, workplace subindex for 2019**

Source: Workplace sub-index of the World Bank Women, Business and Law Assessment 2020. Workplace sub-index analyzes laws affecting women’s decision to enter and remain in the labor force, with 0 and 100 representing the lowest and highest scores respectively.

more protracted. This effect could reflect differences in access to childcare and schooling in areas with a high prevalence of indigenous population.¹⁰

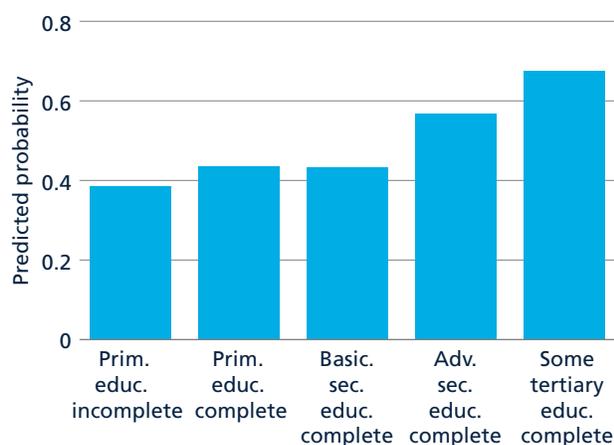
The relevance of marital status as a driver of low female labor force participation confirms that legal barriers and gender norms have a strong grip on women’s ability to participate fully in economic life.

There are higher legal impediments to women’s economic opportunities in Guatemala than in neighboring countries and the Latin America and the Caribbean region as a whole. According the World Bank’s annual Women, Business and the Law assessment, which tracks how the law affects women at various stages in their lives—from the basics of transportation to the challenges of starting a job and getting a pension—Guatemala’s legal framework receives a lower score than comparator countries and the region as a whole (figure 3.8). The score is particularly worrisome for laws that affect women’s decisions to enter and remain in the labor force (figure 3.9), exacerbated by the country’s lack of legal provisions to guard against gender-based employment discrimination and sexual harassment in employment. This concern is compounded by the continued prevalence of cultural norms and beliefs that result in the exclusion of women from economic life. A recent United States Agency for International Development (USAID) study reports that 82 percent of Guatemalan men indicate that women should be required to ask permission to leave the home, and that only 26 percent of women have influence over decisions pertaining to the use of household income, compared with 90 percent of men (USAID 2018).

Educational attainment is positively correlated with female participation, but the correlation is weak at low levels of education and suggests a discontinuous jump in the probability of participation for women with advanced secondary and tertiary degrees.

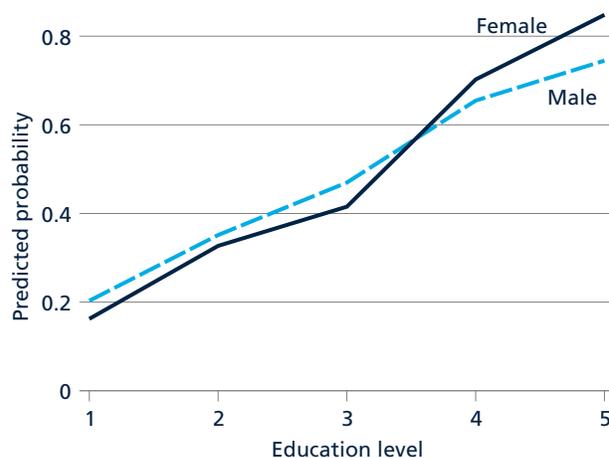
The same probabilistic regression model previously described is used to study the impact of education on female labor force participation. On average, women with higher levels of education exhibit a higher probability of participation. Yet this relationship does not appear to be continuous. To illustrate this point, the analysis considers a 30-year-old woman with no children, an average level of education, and median household income. Results predict that she participates in the labor market with a probability of about 40 percent if she completed basic secondary education or less. Hence, an increase from

¹⁰ Hallman et al (2005) examine how the cost of childcare affects women’s participation in the labor market in Guatemala City. They find that affordability of childcare does not increase women’s chances of working but results in more hours worked for those already working.

FIGURE 3.10**Impact of educational attainment on the probability of female labor force participation, 2018**

Source: Authors' calculations based on ENEI and 2002/2018 Census data.

Note: Figure illustrates the predicted probability of labor force participation for different levels of educational attainment using an individual-level probit model with controls for marital status, motherhood, ethnicity, age, age squared, and household income based on ENEI labor force survey data for 2018. To illustrate effects, the base category assumes a 30-year-old nonindigenous unmarried woman with no children, average level of education, and median household income. Full regression results are reported in the Annex.

FIGURE 3.11**Impact of educational attainment on the probability of male and female formal wage employment, 2018**

Source: Authors' calculations based on ENEI and 2002/2018 Census data.

Note: Figure illustrates the predicted probability for female and male wage employees of being employed with a contract at different levels of educational attainment using an individual-level probit model with controls for marital status, ethnicity, age, age squared, and household income based on ENEI labor force survey data for 2018. To illustrate effects, the base category assumes a 30-year-old nonindigenous unmarried individual with median household income. Full regression results are reported in the Annex.

incomplete primary to completed primary and then on to completed basic secondary does not result in any significant change in her probability of participation. A significant jump in the probability of participation occurs only once she completes advanced secondary or tertiary education (figure 3.10).

Guatemala's low rate of female labor force participation appears to be partly driven by the inadequate availability of formal wage employment opportunities for women in the economy. The data suggest

that the discontinuous increase in the participation of women with high levels of education is correlated with an increase in the likelihood of securing a formal job that requires high levels of education. Previous research has shown that low job quality, insecurity, and informality often disproportionately deter women from participating in the labor market.¹¹ To test this finding, we stipulate a similar probabilistic regression model that allows us to compare how the probability of formal wage employment of men and women evolves with educational attainment.¹² For both men and women, the probability of formal wage employment rises with each level of education (figure 3.11). Crucially, the regression shows that the probability of formal employment displays a step-like increase for women with education above advanced secondary. Two key conclusions are apparent from these results. First, although it is not possible to test directly for a link between participation and formality, the discrete jumps in the respective participation-education and formality-education relationships both coincide with the attainment of advanced secondary education, which suggests that participation and formality are positively correlated. Second, the discrete jump in women's probability of wage employment with higher levels

¹¹ There is a vast literature on the determinants of female labor force participation in developing countries. See Sivakumar and Sharma (2019) and Heath and Jayachandran (2017) for recent literature reviews.

¹² Full regression specifications and results are reported in the Annex.

of education is consistent with a lack of opportunities for formal wage employment for women with lower education, which causes fewer women to participate in the labor market.

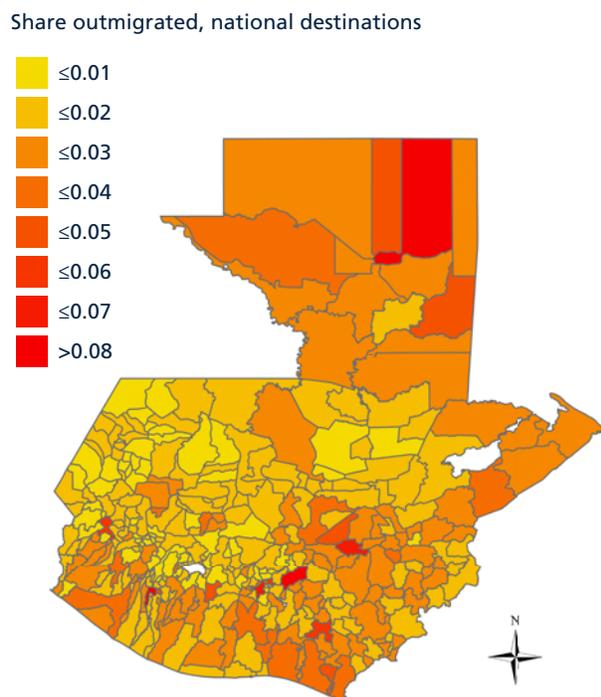
3.3 MIGRATION AND INTERNAL LABOR MOBILITY

Chapter 2 shows that international outmigration has been rising in recent years, but that internal labor mobility is low despite marked regional disparities in income. This suggests that workers' opportunities for internal migration are not equally distributed across space and that workers face difficulties in relocating from locations of low productive potential to locations with high potential. This section analyzes how the ability of migrants to secure jobs in the richest parts of the country varies with the individuals' place of origin.

Municipalities that exhibit lower rates of domestic outmigration tend to have higher rates of international outmigration. The limited internal migration between municipalities in Guatemala could reflect the high relocation costs of moving to urban areas, which are typically more expensive to live in than rural areas. This reason alone, however, does not explain the negative correlation between domestic and international outmigration (see figures 3.12 and 3.13). The team hypothesizes that migrants with particular origins within Guatemala face barriers to internal mobility, so they revert to international migration instead. To explore this further, data from the 2018 census is used to study the probability of migrants being employed in a low-quality job in rich municipalities, depending on their department of origin. A spatial decomposition methodology allows the team to decompose, for each origin department, how migrants' probability of being employed in low-quality jobs varies according to three effects: a schooling attainment effect, a schooling quality discriminatory effect, and an overall geographic discriminatory effect, as explained in box 3.1.

FIGURE 3.12

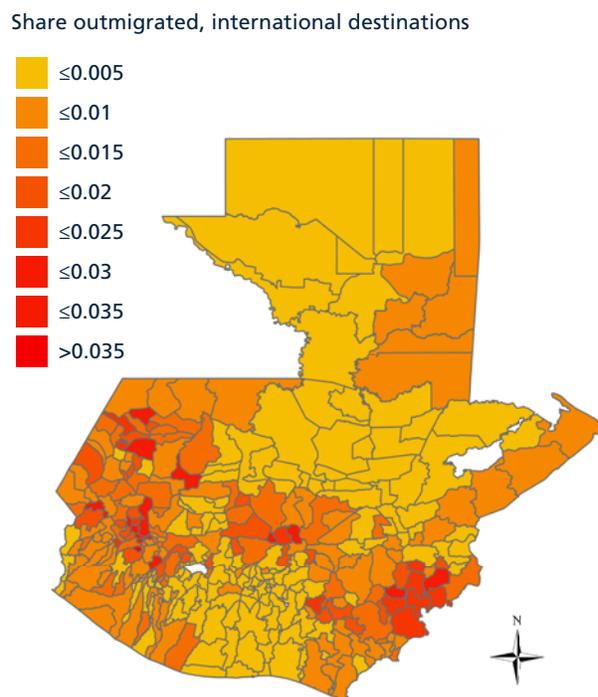
Share of domestically outmigrated population between 2013 and 2018, by municipality of origin



Source: Authors' calculations based on 2018 Census data.

FIGURE 3.13

Share of internationally outmigrated population between 2013 to 2018, by municipality of origin



Source: Authors' calculations based on 2018 Census data.

BOX 3.1 A SPATIAL DECOMPOSITION OF MIGRANTS' EMPLOYMENT OUTCOMES WITH ORIGIN DEPARTMENT FIXED EFFECTS

To investigate whether employment outcomes for migrants in rich municipalities—defined as all municipalities with a per capita GDP of US\$7,500 or more—vary with migrants' department of origin, data from the 2018 census was used. The focus is on recent migrants (those who migrated between 2013 and 2015).

The aim is to establish how likely a migrant originating in a department d is to end up in a low-quality job relative to all migrants, using the following spatial decomposition model:

$$\theta_d - \theta = \beta_d \times \text{Educ}_d - \beta \times \overline{\text{Educ}} + g_d \quad (1)$$

Equation (1) establishes the difference in the probabilities of being employed in low-quality jobs for migrants from d and migrants irrespective of origin, as a function of differences in educational outcomes captured by the term $\beta_d \times \text{Educ}_d - \beta \times \overline{\text{Educ}}$ and a geographic fixed effect g_d . The variable Educ_d measures migrants' average years of education in department d while $\overline{\text{Educ}}$ stands for migrants' overall average years of education. The coefficients β and β_d measure the respective average impact of one additional year of education on the probability of being employed in a low-quality job for all migrants jointly and by migrants' department of origin.

Equation (1) does not allow to distinguish between differences in education levels and education quality. Hence the choice to manipulate equation (1) and obtain the following decomposition function:

$$\theta_d - \theta = (\text{Educ}_d - \overline{\text{Educ}}) \times \beta + (\beta_d - \beta) \times \text{Educ}_d + g_d \quad (2)$$

Equation (2) decomposes differences in the probability of low-quality employment across departments into the following effects:

- A schooling attainment effect defined by term $(\text{Educ}_d - \overline{\text{Educ}}) \times \beta$ and capturing the impact of differences in average schooling levels on $\theta_d - \theta$.
- A schooling quality discrimination effect defined by the term $(\beta_d - \beta) \times \text{Educ}_d$ measuring the differences in the impact of additional years of schooling on job attainment.
- A geographic discrimination effect defined by g_d and other sources of spatial discrimination.

The coefficients of equation (2) are estimated using a series of linear probability regression models. The steps are as follow:

First, estimate the difference $\theta_d - \theta$ by implementing the following regressions:

$$\text{LQJ}_i = \theta_d + X_i' \alpha + \varepsilon_i \quad (3)$$

$$\text{LQJ}_i = \theta + X_i' \alpha + \varepsilon_i \quad (4)$$

where LQJ_i is a binary variable equal to 1 if a migrant i is currently employed in a low-quality job. The definition of a low-quality job is based on ISCO codes 5 and 9, which characterize jobs not requiring specific skills or training. X_i' stands for the following set of individual control variables: age, gender, ethnic background, marital status, and children of less than 15 years of age. Moreover, θ_d and θ are defined so as to capture effects for a base migrant defined as a 30-year-old male, not married, ethnic ladino, and without children.

Next, estimate β and β_d by implementing the following regressions:

$$LQ_{i,d} = \theta_d'' + \beta \text{Educ}_i + X_i' \alpha'' + \varepsilon_i \quad (5)$$

$$LQ_{i,d} = \theta_d''' + \sum_{d=1}^{22} \beta_d \text{Educ}_i + X_i' \alpha''' + \varepsilon_i \quad (6)$$

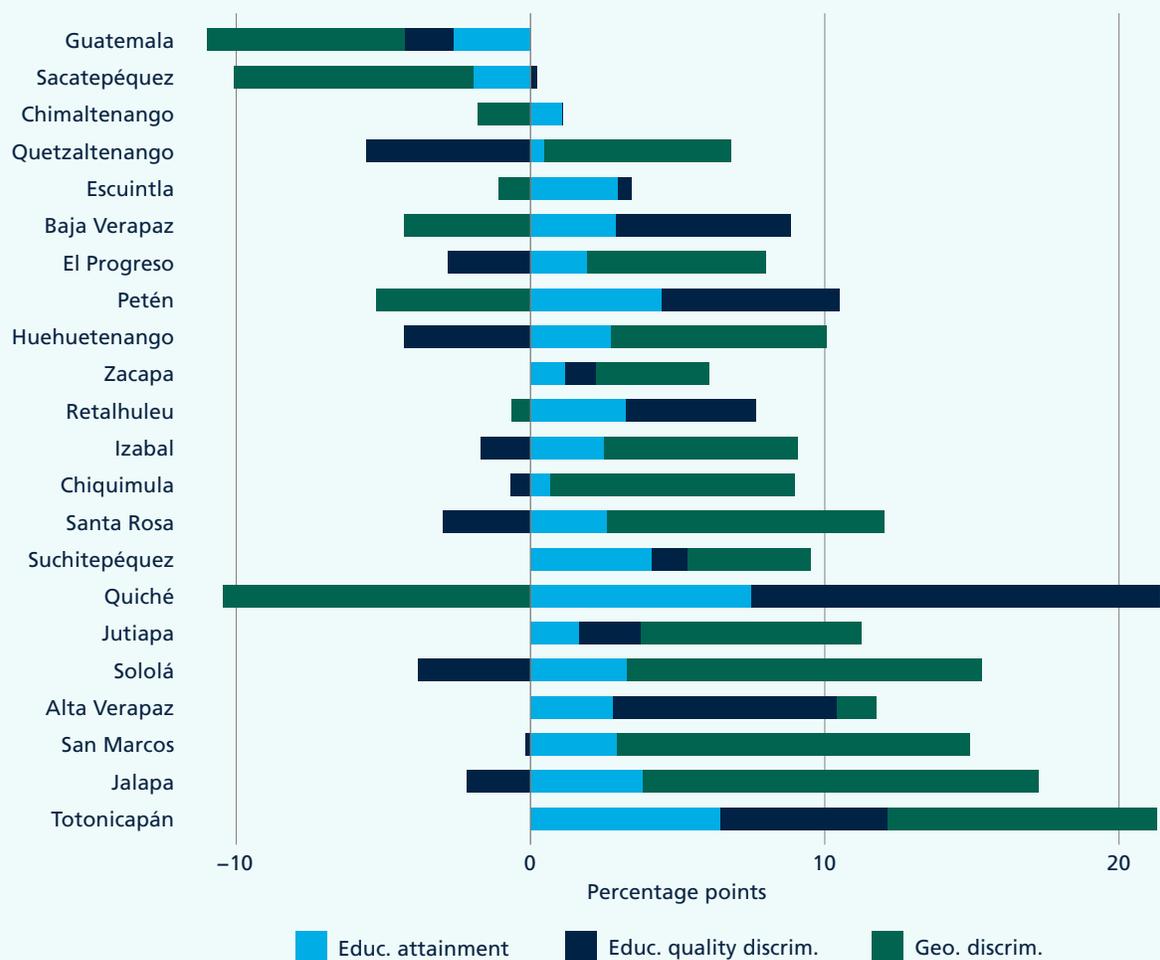
The variable Educ_i measures migrant i 's years of education. The coefficient β captures the average effect of schooling, while coefficients β_1 to β_{22} provide an estimate for how educational attainment matters for migrants' low-quality employment probability depending on the department in which they went to school.

Regression results for equations (3)–(6) are reported in the Annex.

Then, use the estimated coefficients θ , θ_d , β , and β_d , in order to implement the decomposition shown in equation (2), where g_d is calculated as the residual. Figure B3.1.1 summarizes the decomposition for each department.

FIGURE B3.1.1

Decomposition analysis of migrants' probability of being employed in a low-quality job



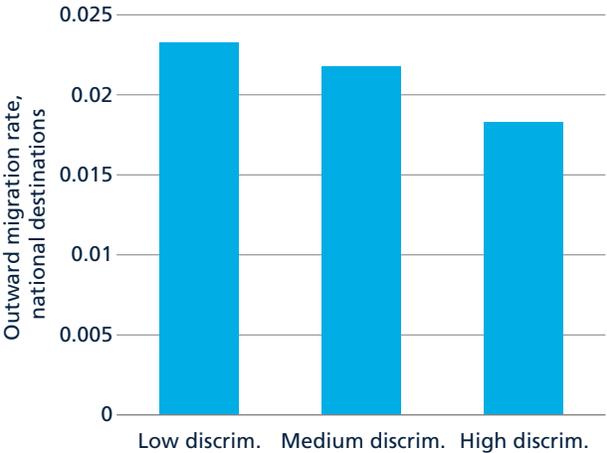
Source: Authors' calculations based on 2018 Census data.

Internal migrants find it much harder to obtain good quality jobs when they come from certain departments than when they originate in others. Results from the spatial decomposition analysis reveal strong differences in the geographic discriminatory effect across departments of origin. This effect measures how much of the difference in the probability of obtaining a good job is attributable to specific factors of the department of origin that are unrelated to differences in educational attainment and quality. Moreover, this effect is strongly correlated with domestic versus international outmigration in the respective origin department: departments that face high levels of geographic discrimination exhibit lower domestic outmigration and higher international outmigration. Meanwhile, departments that face low geographic discrimination exhibit higher domestic outmigration and lower international outmigration (see figures 3.14 and 3.15). Numerous factors can drive such discrimination. First, the existence of network effects may imply that migrants from some departments can rely on a much larger social network that facilitates their ability to obtain a job in destination departments. Second, language barriers may be particularly high for migrants coming from departments where the prevailing language is not Spanish. Third, there may be discrimination against particular ethnic groups that come from a specific department.

The decomposition analysis provides complementary evidence that large spatial differences in educational quality appear to be correlated with varying demographic pressures faced by different departments in recent years. The decomposition analysis presented in box 3.1 implied an educational quality discriminatory effect. This effect measures whether there are certain departments for which additional years of schooling do not lead to an increase in the probability of attaining a quality job once workers migrate to the richer parts of the country. Educational quality issues appear to disproportionately affect migrants from departments in the northern parts of Guatemala—that is, Quiché, Baja Verapaz, Alta Verapaz, and Petén (figure 3.16). This finding disguises another interesting insight. Departments that suffer from the highest educational quality discrimination faced the steepest increase in their respective schooling population over the past decade. High demographic pressures on the schooling systems may therefore be partly responsible for differences in educational quality across the country. These results provide complementary evidence to the analysis on returns to schooling, above, which suggested that the decline in earnings could have been driven by a deterioration in educational quality in places that had to enroll higher numbers of pupils in schools (figures 3.17 and 3.18).

FIGURE 3.14

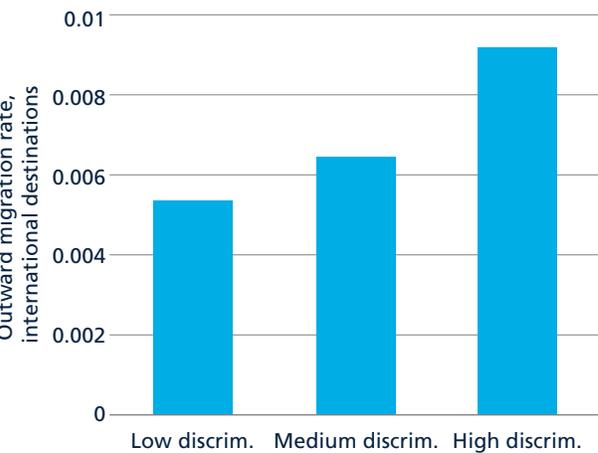
Outmigration to domestic destinations and spatial discrimination in rich municipalities



Source: Authors' calculations based on 2018 Census data.

FIGURE 3.15

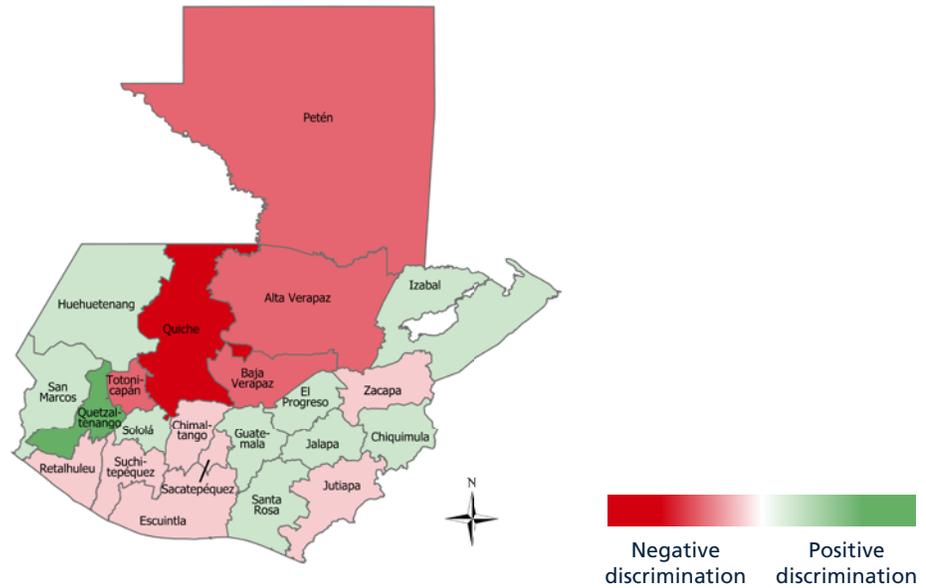
International outmigration and spatial discrimination in rich municipalities



Source: Authors' calculations based on 2018 Census data.

FIGURE 3.16

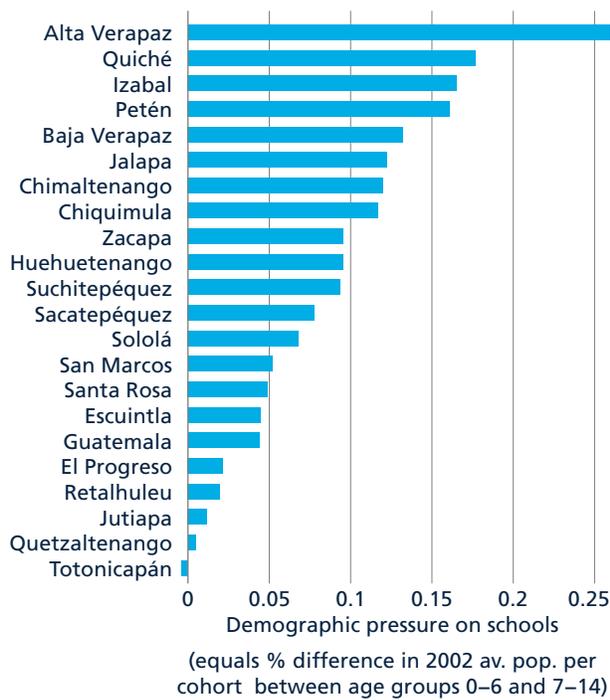
Spatial distribution of the educational quality discriminatory effect



Source: Authors' calculations based on 2018 Census data.

FIGURE 3.17

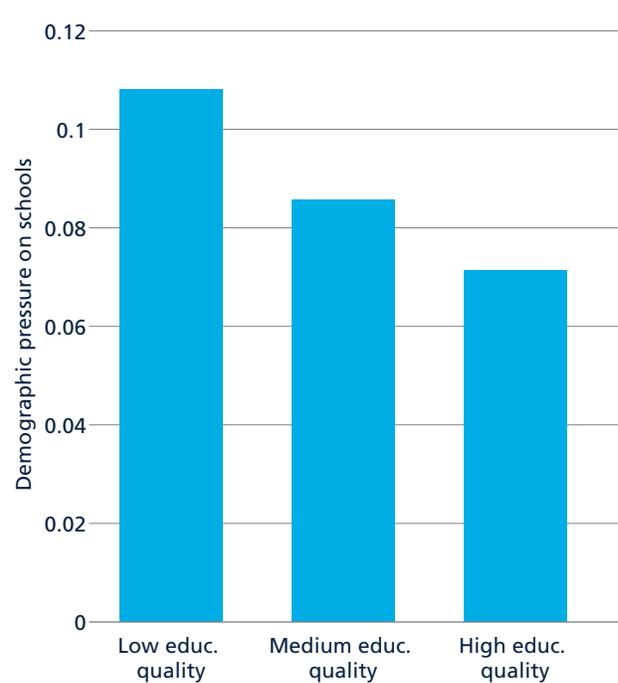
Demographic pressure on education systems by department based on 2002 census



Source: Authors' calculations based on 2002 Census data.

FIGURE 3.18

Demographic pressures on education system versus educational quality discriminatory effect



Source: Authors' calculations based on 2002 and 2018 Census data.

3.4 FIRMS AND THE DEMAND FOR LABOR

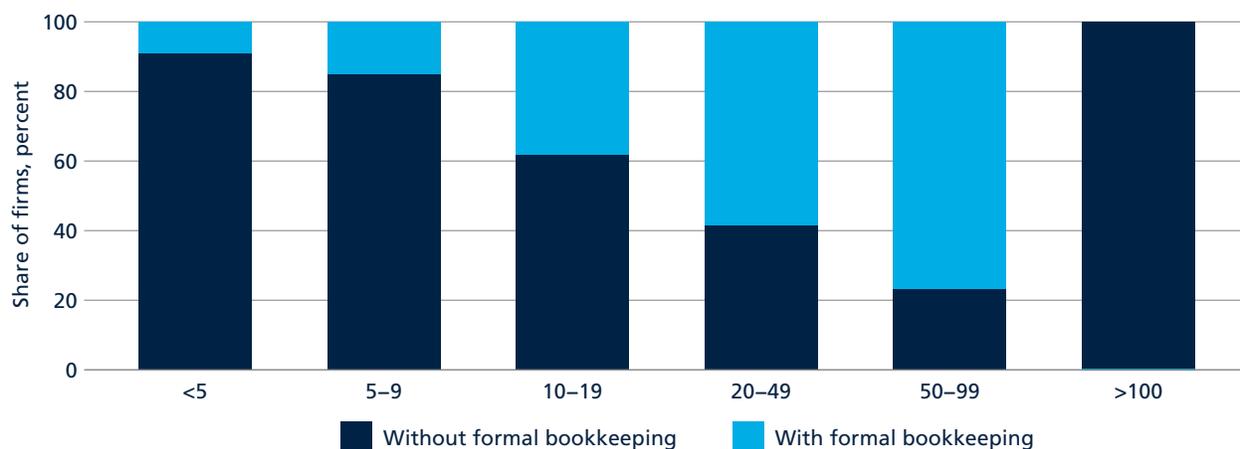
Persistent informality, high levels of employment in low-productivity activities, and declining earnings documented in chapter 2 point to the existence of low labor demand in Guatemala’s formal businesses. Low demand for labor can have many causes, but it typically arises because firms and entrepreneurs face high costs of doing business, high levels of uncertainty, or rigidities in factor markets. Those issues can result in inadequate economic activity and growth relative to the supply of labor, or an insufficient use of labor in economic activity, because growth is capital intensive. This section uses a combination of national accounts and firm and household survey data to look for possible causes of low labor demand.

Only 14 percent of Guatemalan firms are formal enterprises but they contribute about one-third of total wage employment. Guatemala’s central bank, Banco de Guatemala, maintains a national directory of all enterprises with formal bookkeeping records that operate in Guatemala. In 2013—the last time the directory was updated—79,542 such firms logged their accounting records with government agencies in Guatemala (Banco de Guatemala 2014). That number, compared with the total number of formal and informal firms (an estimate derived from 2013 labor force survey data), shows that only about 14 percent of firms in Guatemala operate formally. Firm formalization is often costly and involves having to comply with government regulations and with the tax code. These costs can be particularly burdensome on smaller firms. At the same time, smaller firms tend to find it easier to operate under the radar of government agencies. These reasons explain why the share of formal firms with bookkeeping is much lower among small firms than among large firms (see figure 3.19). Yet, notably, even among the medium-size firms (20–99 employees), a significant share appears to be operating without formal bookkeeping. Moreover, formal firms contribute 36 percent of total wage employment (39 percent when including casual workers). This figure correlates closely with the 35 percent of wage employees reporting a formal contract in the 2013 labor force survey. Guatemala’s low levels of contract formalization in employer-employee relationships are thus likely linked to the limited number of formal enterprises.

Guatemala’s economy is heavily reliant on economic activity in formal firms, with formal firm activity generating four to five times more value added each year than informal firms and contributing over 70 percent of total private sector growth. Since 2013, Guatemala’s national accounts system has provided separate measures for total value added generated in the formal and informal sectors. Crossing this information with nationally representative survey data allows for the establishment of how much of private sector annual value added is generated in formal firms, informal firms, and own-account worker businesses. On average, total annual value added of formal firms was 4.4 times larger than that of informal firms and 9.6 times larger

FIGURE 3.19

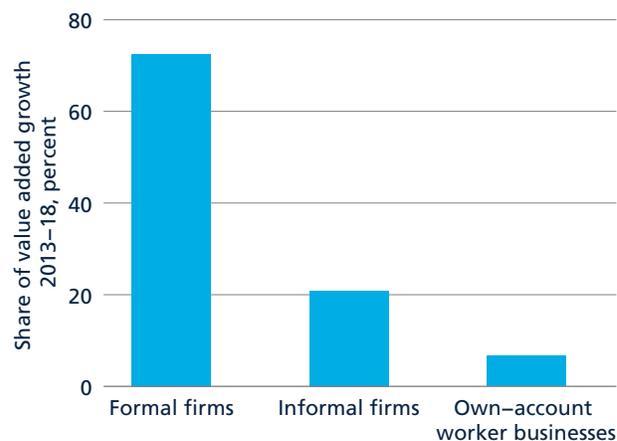
Share of firms with formal bookkeeping, by firm size



Source: Authors’ calculations based on ENEI and 2013 DINEL data.

FIGURE 3.20**Total value added by business type, 2013 and 2018**

Source: Authors' calculations based on national accounts data and 2013/2018 ENEI surveys.

FIGURE 3.21**Share in total value added growth between 2013 and 2018, by business type**

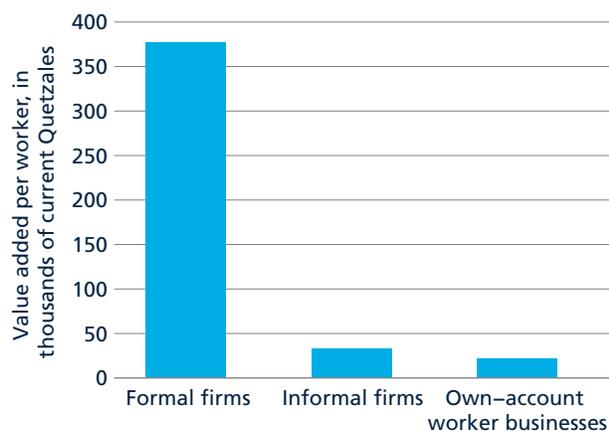
Source: Authors' calculations based on 2018 Census data.

than that of own-account businesses between 2013 and 2018 (see figure 3.20). Private sector growth over this period was equally reliant on formal firms, with 72 percent of growth in nominal value added coming from formal firms and only 22 percent and 6 percent, respectively, coming from informal firms and own-account worker businesses (see figure 3.21).

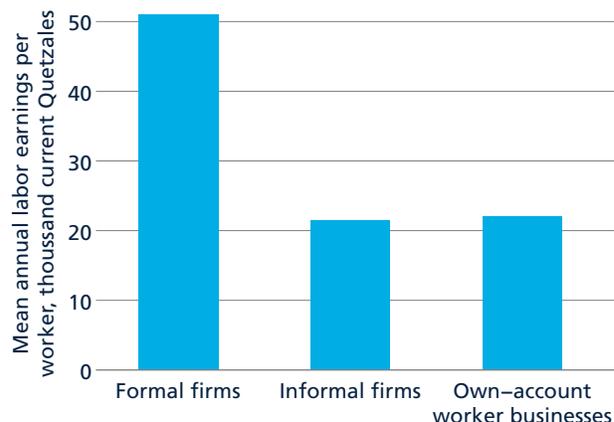
Average labor productivity is much higher in formal firms than in informal firms, but the difference is only partly reflected in higher wages for formal firm employees. In 2018, value added per worker in formal firms amounted to Q 376,000, compared with Q 33,000 in informal firms and Q 22,000 in own-account businesses (see figure 3.22). Such large productivity differentials explain why workers employed in formal firms earn more on average than workers employed in informal firms or on an own-account basis. However, the difference in productivity levels is only partly passed on in wages. Employees in formal firms earn 2.4 times as much as employees in informal firms, equal to 21 percent of the total difference in labor productivity between formal and informal firms (see figure 3.23). A larger gap in labor productivity than in average wages is in line with the theory that formal firms tend to be larger and therefore also tend to be more capital intensive with higher capital-labor ratios than in informal firms. A bigger proportion of the value added generated by each worker will therefore go to pay for the returns to capital embedded in the production process. The same reasoning applies to the share of labor income in total value added, which is much smaller in the case of formal firms (13 percent in 2018) than in the case of informal firms (66 percent in 2018).

The labor share of income in Guatemala's formal firms is very low by international standards and is indicative of a chronic deficiency in formal sector labor demand. Data to benchmark Guatemala's labor share in value added globally comes from Karabarbounis and Neiman (2013), who provide labor shares for the corporate sector in 67 middle- and high-income countries between 2005 and 2012. Middle-income countries other than Guatemala have average labor shares of 42 percent in the formal sector, compared with 51 percent in high-income countries. Only a few countries have labor shares under 20 percent (Azerbaijan, Kuwait, Saudi Arabia, and Qatar), similar to Guatemala's labor shares. Unlike Guatemala, however, these economies have in common that they all depend heavily on hydrocarbon extraction, which is one of the most capital-intensive activities worldwide. Guatemala's extractive sector is small by international standards.¹³ Differences in capital intensity in production are thus unlikely to explain why Guatemala's labor share in the formal sector is so much

¹³ Between 2013 and 2018, the average share of GDP of Guatemala's extractive sector amounted to 1.1 percent.

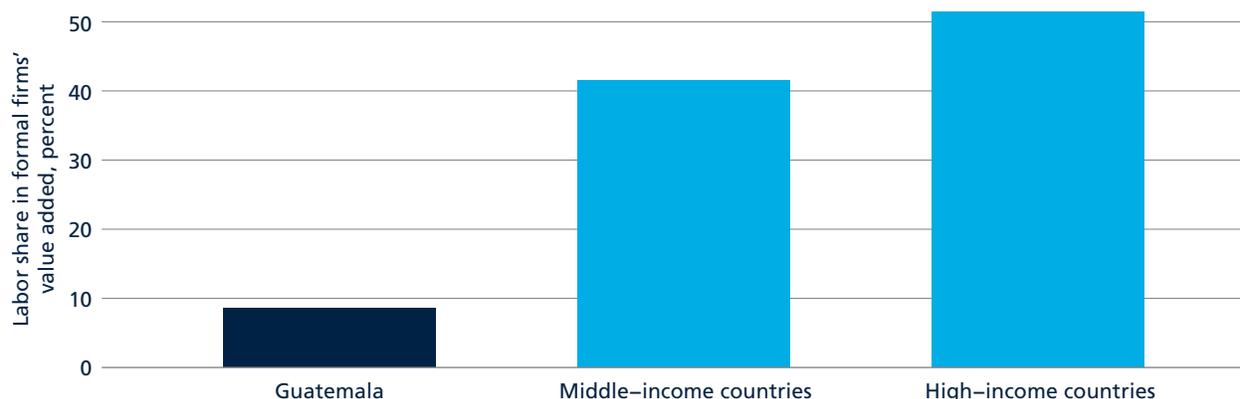
FIGURE 3.22**Per worker value added by business type, 2018**

Source: Authors' calculations based on national accounts data and 2018 ENEI survey.

FIGURE 3.23**Average worker labor earnings by business type, 2018**

Source: Authors' calculations based on national accounts data and 2018 ENEI survey.

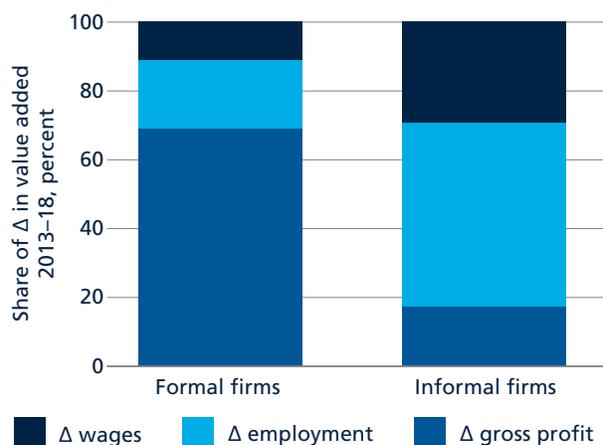
lower than in other middle-income countries (figure 3.24). Instead, data suggest that Guatemala suffers from a structural deficit in formal sector labor demand. The first thing to note is that the labor share is much higher in formal firm sector than in the informal firms sector (figure 3.25). Secondly, a decomposition analysis of firms' value added growth between 2013 and 2018 shows that formal firms used a much smaller share of the overall increase in nominal value added to raise wages, compared with informal firms. Limited wage growth in the face of rising value added could suggest that formal firms wield monopsony power, allowing them to keep a lid on wages in the formal sector, which would in turn explain Guatemala's low labor shares. Yet average wages paid by formal firms in Guatemala grew by 36 percent in nominal terms between 2013 and 2018, twice as fast as wages paid by informal firms, which seems to contradict the theory that formal firms wield monopsony power. More likely, the low share of wage growth in formal firms' value added growth reflects insufficient labor demand by formal firms. Indeed, the decomposition analysis in figure 3.26 shows that relative to value added growth, formal firms expanded their workforce more timidly than informal firms did.

FIGURE 3.24**Guatemala's labor share in a global perspective**

Source: Authors' calculations based on national accounts, 2013 ENEI survey data and Karabarbounis and Neiman (2014).

FIGURE 3.25**Factor shares in formal and informal firms, 2013 and 2018**

Source: Authors' calculations based on national accounts data and 2013/2018 ENEI surveys.

FIGURE 3.26**Factor decomposition of nominal value added growth**

Source: Authors' calculations based on national accounts data and 2013/2018 ENEI surveys.

Low growth in labor demand relative to overall growth in value added points to the existence of disincentives to business growth such as protections from competitive pressures and market dynamism.

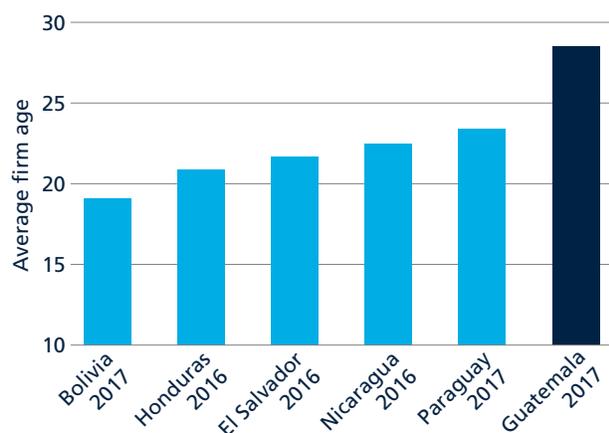
The economics literature shows that when firms are shielded from competition by high barriers to market entry, the result is socially suboptimal production levels, lower investment, stifled innovation, and thus fewer formal sector jobs. Several rounds of the World Bank's Enterprise Survey allow an assessment of this relationship. The Enterprise Surveys are designed to capture a representative sample of firms operating in the formal sector, where covered firms are required to have at least five employees with at least one of them permanent. Although the sample size of Enterprise Surveys is relatively small, hence complicating within-sector comparisons, they provide a good snapshot of a country's firm-level activity in the formal sector. In Guatemala, the Enterprise Survey has been implemented three times, in 2006, 2010, and 2017, and each round drew a representative sample of firms from the firm directory of Guatemala's central bank.¹⁴

In the 2017 World Bank Enterprise Survey for Guatemala, the average firm age was 28.5 years, one of the highest recorded across 144 countries since the start of the survey series. Guatemala has the fifth-highest average firm age ever recorded in the close to 300 surveys that the World Bank has conducted worldwide to date. It also was higher than other enterprise surveys that were implemented in Latin America and the Caribbean in 2016–17 (see figure 3.27). Moreover, average firm size rose by 11 years during the 11-year period between the first Enterprise Survey in 2006 and the most recent one in 2017 (see figure 3.28).

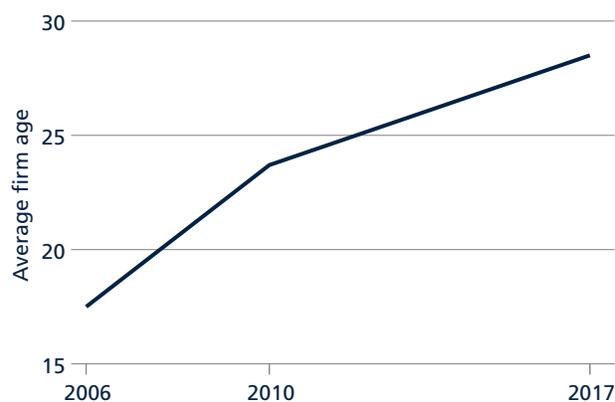
Guatemala's formal firm age over time confirms a lack of market dynamism in the formal sector and suggests the existence of constraints to firm formalization.

An average firm age that rises by exactly one year with each new year over time, as suggested in the Enterprise Survey data, suggests that firm entry and exit among formal firms in Guatemala are limited. Such low levels of churn indicate a lack of dynamism among formal sector firms, which is needed for innovation and productivity growth in an economy. It also points to high barriers to firm entry, as very few firms are able (or willing) to establish themselves in the formal sector. The lack of dynamism also implies that most employment generation in Guatemala is instead driven by increased activity among informal firms. This explains Guatemala's persistently high rates of informal wage employment and why the majority of Guatemalans working outside the agriculture sector get stuck in low-productivity services activities, which tend to be dominated by informal and smaller enterprises.

¹⁴ The central bank's firm directory (DINEL) was updated in 2002, 2007, and 2013. Hence each of the rounds of the Enterprise Survey relied on an updated sampling frame.

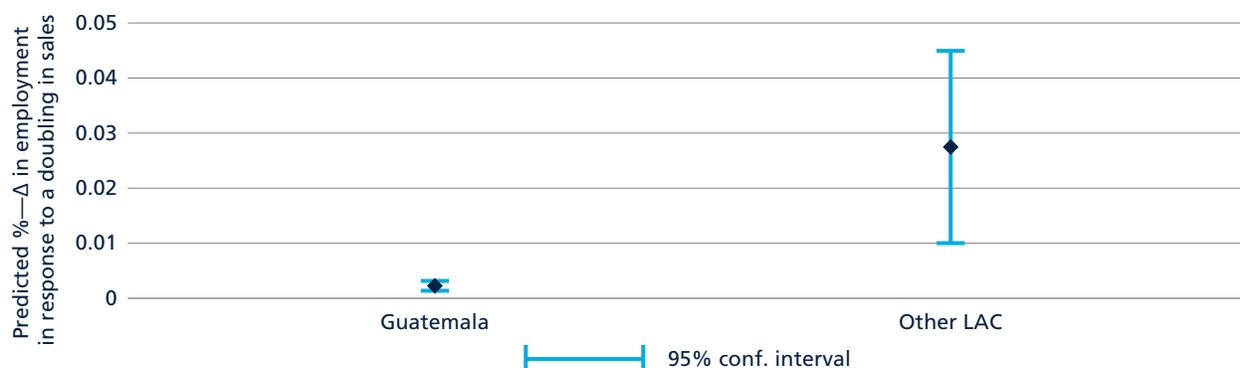
FIGURE 3.27**Average firm age in the formal sector, Guatemala versus peers**

Source: World Bank Enterprise Survey Database.

FIGURE 3.28**Average firm age in the formal sector, 2006–17**

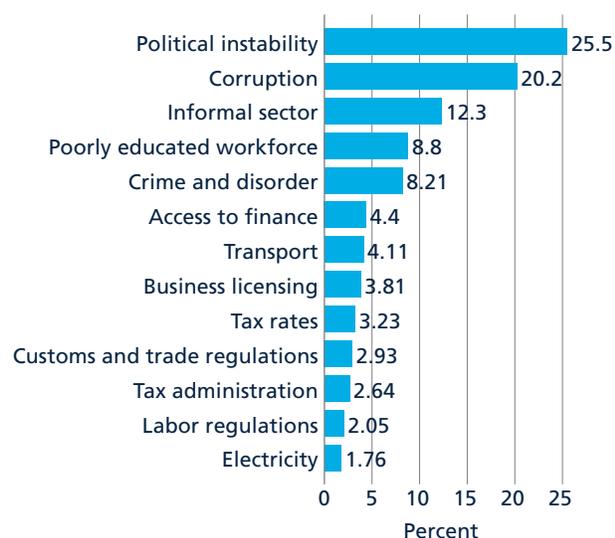
Source: World Bank Enterprise Survey Database.

The reluctance of formal businesses in Guatemala to grow their workforce in response to increasing sales, compared with other countries of the region, is a direct consequence of the lack of market dynamism. To investigate the link between employment growth and sales growth at the firm level, the team conducted a regression analysis using Enterprise Survey data for the set of regional peers defined earlier (that is, Bolivia, El Salvador, Guatemala, Honduras, Nicaragua, and Paraguay) and for all available years, controlling for sector, country, and year-specific effects on economic conditions. In Guatemala a doubling in sales has only a very small (yet precisely estimated) impact on employment growth: a doubling of firm sales (in nominal terms) is associated with a 0.002 percent increase in firm employment size. In contrast, comparator countries display a link between employment and sales that is 14 times larger: a doubling of firm sales is associated with a 0.028 percent increase in firm employment size (see figure 3.29).

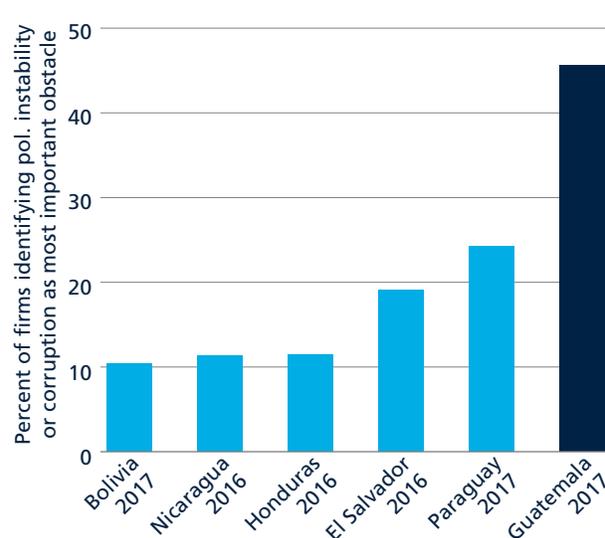
FIGURE 3.29**Predicted increase in employment growth in response to a doubling of firm sales, Guatemala versus peers**

Source: Authors' calculations based on WBES for Guatemala, Bolivia, Honduras, El Salvador, Nicaragua, and Paraguay (all available years).

Note: Results based on a regression analysis of sales growth on employment growth measured at the firm level over the 3-year period previous to each firm's interview date, with data spanning three separate survey rounds in each of the following countries: Guatemala, Bolivia, El Salvador, Honduras, Nicaragua, and Paraguay. Estimations are implemented with country-year fixed effects and controlling for initial sales, initial employment, sector, and firm age. Regression results are reported in the Annex.

FIGURE 3.30**Ranking of top business environment obstacles, 2017**

Source: Authors' calculations based on WBES for Guatemala 2017.

FIGURE 3.31**Share of firms identifying institutional and governance problems as the business environment obstacle, Guatemala vs. peers**

Source: World Bank Enterprise Survey Database.

When asked about the main constraints to expanding jobs, most formal firms highlight an unfavorable political and governance context. More than one-quarter of surveyed firms listed political instability as the most significant obstacle in the business environment (see figure 3.30). Almost 20 percent of firms regarded corruption as the most severe constraint. This implies that almost 50 percent of firms attribute the main obstacle to growth to problems in the institutional and governance environment, a much higher share of firms than in comparator countries of the Latin America and the Caribbean region (see figure 3.31). Weak institutions and governance systems can be a breeding ground for nepotism and crony capitalism. These can in turn generate an aggregate market contestability deficit in the formal sector, making it hard for new firms to get established. According to a recent survey of citizens' perceptions, 60 percent of respondents perceive all or almost all business executives as corrupt (Latinobarometro 2018). Collusive practices and extensive favoritism networks would explain the limited firm entry and exit rates and the overall lack of dynamism that have been documented. Although unfair competition from the informal sector is ranked as the third most important constraint to formal firms, the first two obstacles could also explain why so few firms decide to formalize in Guatemala.

Other reasons for a lack of dynamism could lie in the existence of costly regulatory practices, which are often associated with high levels of informality. Formalization allows firms to grow more quickly by taking advantage of economies of scale, to have better access to credit, and to enjoy greater legal certainty. Yet formalization can be hampered by the existence of onerous regulatory regimes, which make formalization costly relative to its benefits. According to the 2019 World Bank Doing Business indicators, Guatemala ranked 96th of 190 countries in the ease of doing business, and 10th out of the 32 countries in Latin America and the Caribbean (table 3.1). Notably, however, Guatemala seems to be doing better in areas of the business environment that would be expected to incentivize formalization, such as low costs of registering a business, ease of paying taxes, and access to credit. Meanwhile, it does worse in areas that typically help larger firms, such as protection for minority rights, contract enforcement, and insolvency proceedings.

Costly labor regulations are detrimental to formalization. Labor market regulations, such as minimum wages, can play an important role in reducing income inequality and can ensure that low-paid employees are not left behind. When poorly designed, however, such regulations can result in higher levels of informality, labor market duality, and unequal opportunities between formal and informal firms. Guatemala's labor regulations

TABLE 3.1**Ease of Doing Business scores for Guatemala and regional comparator countries, 2019**

Indicator	Guatemala	Bolivia	El Salvador	Honduras	Nicaragua	Paraguay
Starting a business	86.8	69.4	78.6	71.4	79.6	76.0
Dealing with construction permits	65.3	60.0	52.3	56.2	46.3	71.1
Getting electricity	84.2	73.2	74.5	59.9	68.3	70.4
Registering property	64.9	49.9	66.3	62.3	46.4	66.1
Getting credit	85.0	35.0	80.0	80.0	50.0	40.0
Protecting minority investors	30.0	38.0	36.0	42.0	24.0	34.0
Paying taxes	70.3	21.6	77.5	49.9	52.7	64.1
Trading across borders	77.2	71.6	89.8	64.3	77.0	65.1
Enforcing contracts	34.5	55.6	51.9	44.2	58.6	61.6
Resolving insolvency	27.6	42.3	45.6	32.6	41.1	42.1
Distance to the frontier (global index)	62.6	51.7	65.3	56.3	54.4	59.1

Source: World Bank *Doing Business* database.

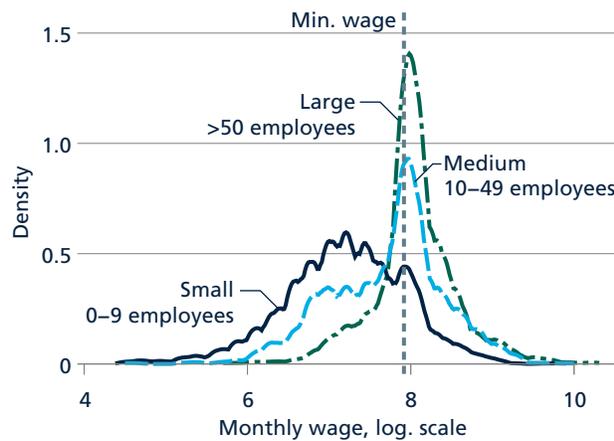
stand out in two ways compared with regional peers. First, Guatemala has a high ratio of minimum wage to per capita gross national income (GNI) of 0.8, compared with a Latin America and the Caribbean average of 0.5.¹⁵ Second, it has the second-highest mandatory severance pay for redundancy dismissals in the entire region, amounting to five weeks for each year of work.

The high minimum wage is a key driver of the significant labor market segmentation observed in Guatemala. On the employees' side, it contributes to the large wage premium for signing a formal contract, which in 2018 amounted to over 60 percent for employees with similar education, age, gender, ethnicity, and sector of employment. On the employers' side, it distorts the opportunities of informal (mostly smaller) firms and formal (mostly larger) firms. Comparing Kernel distribution plots of monthly wages by firm size, adherence to the minimum wage is found to increase monotonically with firm size. This suggests a binding minimum wage for the formal sector (figure 3.32).

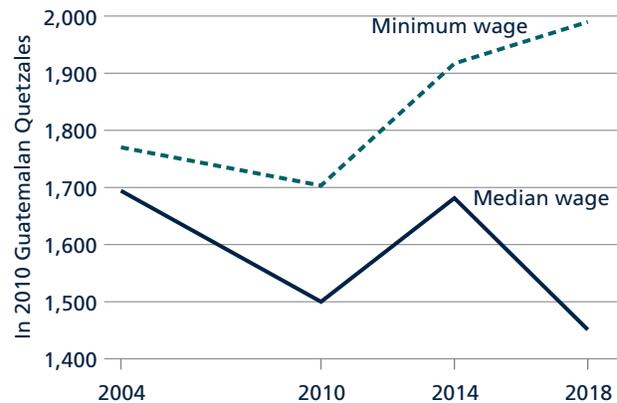
A rising minimum wage against the backdrop of declining wages has increased incentives for non-compliance. Between 2004 and 2018, the minimum wage grew by 12 percent in real terms despite the decline in average real wages and the slowdown in productivity growth (see figure 3.33). As a consequence, the ratio of minimum wage to median wage—a measure that tracks employers' cost of minimum wage compliance—rose from 1.04 in 2004 to 1.37 2018. Unsurprisingly, noncompliance rose from the already high levels of 58.7 percent to 63.5 percent over the same period. Of those employees with remuneration below the minimum wage, 86.1 percent did not have a contract in 2018, versus 13.9 percent who did. Hence, noncompliance with minimum wage legislation also affects wage employees who receive a contract (see figures 3.34 and 3.35).¹⁶ This observation suggests enforcement problems with minimum wage legislation even when contracts are signed. In 2018, for instance, 25 percent of workers with a contract had not been registered for mandatory social security by their employer.

¹⁵ This is further confirmed in a recent report, which shows that, as of 2015, only Honduras and Costa Rica had higher minimum wages expressed in US\$ PPP than Guatemala did (International Policy Centre for Inclusive Growth 2018).

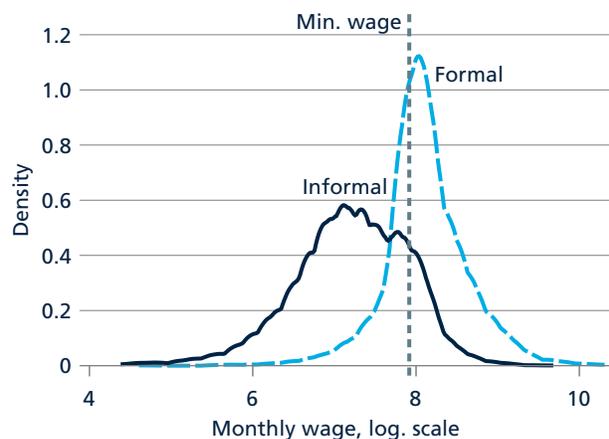
¹⁶ The high level of noncompliance among formal wage employees is not explained by the 8.5 percent lower minimum wage observed in export-oriented industries, as 21 percent of formal wage employees continue to earn less than this lower minimum wage.

FIGURE 3.32**Kernel density distribution of wage earnings by firm size, 2018**

Source: Authors' calculations based on ENEI and 2002/2018 Census data.

FIGURE 3.33**Evolution of the median versus minimum wages over time**

Source: Authors' calculations based on ENEI and 2002/2018 Census data.

FIGURE 3.34**Kernel density distribution of wage earnings by type of contract, 2018**

Source: Authors' calculations based on ENEI and 2002/2018 Census data.

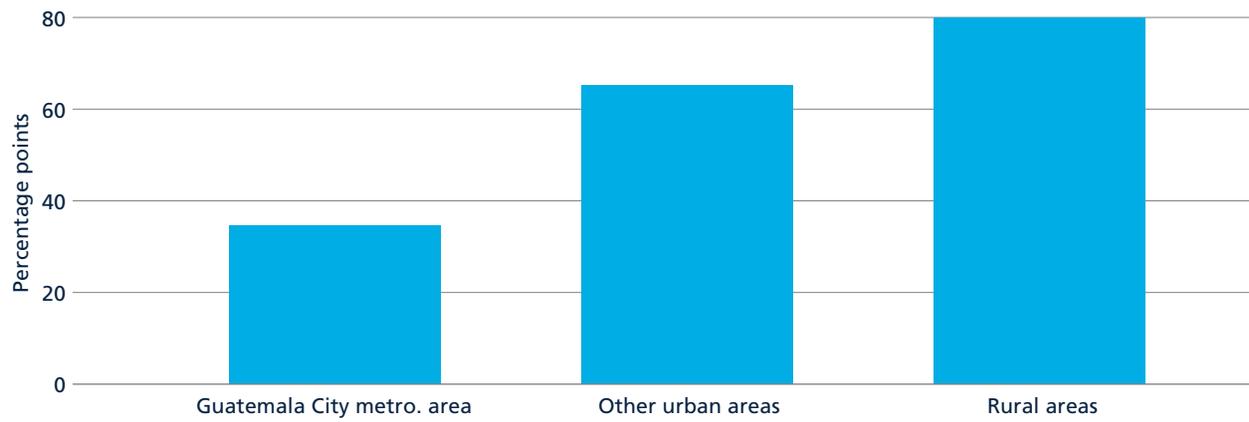
FIGURE 3.35**Share of wage employees earning less than the minimum wage over time**

Source: Authors' calculations based on ENEI and 2002/2018 Census data.

Average wage levels vary considerably by geographic domain, implying marked spatial differences in the incentives for minimum wage compliance and the formal hiring of employees. The median wage in Guatemala City exceeds the median wage in other urban areas and rural areas by 45 and 96 percent, respectively. Minimum-to-median wage ratios are therefore much lower in Guatemala City than in rural areas. Employers' opportunity costs of complying with minimum wages and of hiring employees formally are therefore lower in Guatemala City than outside the capital. This finding is in line with the higher levels of minimum wage compliance in Guatemala City of 75 percent, compared with 35 and 20 percent, respectively, in other urban and rural areas (figure 3.36).

FIGURE 3.36

Share of wage employees being paid less than the minimum wage by geographic domain, 2018



Source: Authors' calculations based on ENEI and 2002/2018 Census data.



4. CONCLUSION—POLICY PRIORITIES TO ADDRESS GUATEMALA’S JOBS CHALLENGES

Guatemala’s job market is trapped in a low-level equilibrium with high levels of informality, declining labor earnings, low female labor force participation, and rising emigration. Although Guatemala stands out as having achieved high rates of wage employment, most hiring of workers takes place informally in predominantly low-productivity activities. Consequently, few jobs pay enough to make a decent living, and average hourly earnings are down by 21 percent in real terms compared with 15 years ago.¹⁷ Faced with high levels of informality and low wages, households seem to be responding to these developments by favoring male over female participation in the labor market and by increasingly sending household members to work abroad.

The ongoing decline in the number of dependents and a swelling labor force could offer Guatemala a unique opportunity to transform the economy and improve the well-being of its populace, but without productivity growth leading to more and better jobs, the prospects for such a transformation are slim. When the number of dependents per working person falls, economies can reap a demographic dividend. If used wisely, this dividend can kick-start a virtuous circle of increased investment in physical and human capital, providing a further boost to economic growth through rising productivity. The demographic transition that is under way in Guatemala thus has enormous potential to improve the well-being of its people. At the same time, however, the working-age population is projected to expand by 210,000 people per year over the next decade, requiring a net increase of at least 132,000 jobs each year to maintain a ratio of pre-COVID-19 employment to working-age population of 63 percent. Ensuring that these new jobs are mostly high-quality jobs will be a formidable challenge, considering that even before the pandemic Guatemala was creating fewer than 1,000 formal sector jobs a year. A new jobs compact is needed that ensures that the new jobs the economy creates are of better quality, are more productive, and result in higher average labor earnings. This report has presented evidence that this step will require a series of key jobs challenges to be addressed on both the supply and the demand sides of the labor market. A list of specific priorities for policy reforms emerging from the analysis is provided in table 4.1. The main priority areas are summarized in turn.

Educational quality seems to be a binding constraint to achieving better-quality jobs, particularly in the more deprived departments of the north. The analysis has shown that large spatial differences in educational quality occur in Guatemala as a result of the demographic pressures the education system has had to accommodate since the early 2000s (sections 3.1 and 3.3). The gap in educational quality compared with the country average is particularly wide in departments to the north of the country (Quiché, Alta Verapaz, Baja Verapaz, and Petén). With the demographic transition well under way, pressures on the schooling system will start to ease. This should allow policy makers to give greater priority to deprived areas in the north and to work toward a leveling of quality differences in the education system across the country.

¹⁷ That is, earnings went from Q 13.82 (US\$4.60 in PPP) in 2004 to about Q 11.93 in 2018 (US\$2.40 in PPP).

Policy efforts that facilitate internal labor mobility are needed to ensure that workers can move to places with higher jobs potential. There are wide disparities in average income levels across Guatemala's geography, yet internal labor mobility is low. One impediment to increased internal mobility is that migrants face important constraints in obtaining quality jobs depending on from where they migrated (section 3.3). Such spatial discrimination is detrimental to internal labor mobility and will lead to underexploited opportunities of migration. The reasons for spatial discrimination against migrants vary, including network effects, language barriers, and ethnic discrimination. This situation warrants a multipronged policy approach for increased labor mobility. An internal mobility framework could be developed and integrated with the government's 2017 employment strategy (Gobierno de la República de Guatemala 2017). The network of regional offices that was recently established to provide employment services to citizens in major towns, under the Servicio Nacional de Empleo, could be expanded to offer advice and assistance for migrants both in municipalities of origin and of destination. This framework could be complemented with active labor market policies such as language courses and mobility benefits that facilitate greater access to jobs in the poorest parts of the country and that boost internal labor mobility.

Guatemala's gender gap in female labor force participation is one of the largest in the region and calls for a reduction in the role of gender-biased social norms that prevent women from entering the labor market and for measures that would allow women to better balance work and family. In 2018, only 43 percent of women participated in the labor market, compared with 88 percent of their male counterparts. A key driver of these differences is gender-biased social norms, as evidenced by the large detrimental effect of marital status on women's participation in the labor market (section 3.2). Revisions to the labor code with respect to the prevention of sexual harassment in either employment or education should therefore be combined with policies that increase women's safety on their way to work. In addition, communications campaigns could start chipping away at the persistent norms that prevent women from participating optimally in the labor market. Revisions of the labor code also would allow for greater availability of part-time work opportunities that would help attract women who seek to balance work and family to the labor market.

On the demand side, the labor market is constrained by a lack of dynamism in the formal sector, which does not generate enough quality jobs for a more inclusive and broad-based development. Guatemala's GDP is heavily dependent on the economic activity of its formal firms. But the formal sector lacks dynamism, displays almost no firm entry or exit, and is characterized by one of the oldest firm-age structures worldwide. It also exhibits a much lower labor share in value added than the formal sectors of other middle-income countries (section 3.4). Recent increases in formal firms' nominal value added have coincided with a significant boost in gross profits. Additional hiring of employees was much more limited, suggesting that formal firms that face favorable conditions do not expand the activities as one would expect them to. A comparative look across countries underscores this. A firm in Guatemala experiencing robust growth in sales is significantly less likely to grow its workforce than a similar firm elsewhere in the Latin America and the Caribbean region. Such a lack of dynamism results in a misallocation of resources in low-productivity firms, and in the face of rising educational attainment can cause the decline in returns to schooling that is documented in this report.¹⁸

A big push will be needed to remove barriers to formalization, create a level playing field between incumbent and new firms, and attract increased foreign investment. The lack of dynamism in the formal sector does not extend to the informal sector. The number of informal firms has been growing strongly over the past decade and a half, accounting for an increasing share of employment. The challenge is that these firms are less productive, are typically small, and seem to be either unwilling or unable to formalize. A dearth of data on informal sector firms makes it difficult to comprehensively assess the constraints faced by these firms. Increased data-gathering efforts in the informal sector will thus be paramount in defining an effective intervention strategy. Data limitations notwithstanding, the analysis has shown that efforts to further reduce the costs associated with the regulatory regime will go some way in easing the marked formal-informal divide between firms, particularly in relation to labor regulations. Minimum wage legislation, for instance, could be reformed to better reflect the significant differences in productivity across Guatemala's geography. Redundancy costs could be brought in line with the average in the Latin America and the Caribbean region to incentivize more formal hiring of workers.

¹⁸ Levy and López-Calva (2019) find that Mexico's decline in earnings premiums is the consequence of a misallocation of resources toward less-productive firms, which are less intensive in well-educated workers compared with more productive ones.

However, the biggest problem in the private sector seems to be an overall lack of market contestability on account of widespread favoritism and business corruption. These practices create high barriers to market entry for informal firms that want to formalize and for new firms that want to establish themselves. Governance and institutional reforms are needed to put high penalties on nepotism and crony capitalism and to create a level playing field between incumbent firms and newcomers. These should be complemented with efforts to attract increased foreign direct investment (FDI), which can be an additional source of dynamism and innovation, particularly when it generates competitive pressures. Competition can force firms to improve their business practices, invest into new technologies, and strive for increased productivity, resulting in better jobs for more of Guatemala's people.

TABLE 4.1

List of priority reform areas

Priority reform area	Key findings	Possible policy levers
Improve schooling quality in rural areas	<ul style="list-style-type: none"> • Large drop in returns to education in rural areas points to a deterioration in schooling quality in rural areas. • The labor market discriminates against graduates who completed their education in the (predominantly rural) departments that faced the highest demographic pressures over the past two decades, suggesting that schools in these departments were underfunded relative to the increase in pupils 	<p>Conduct an expenditure review in the education sector. An in-depth expenditure review of the education sector should be considered to assess the allocation mechanisms of the national education budget at local levels.</p> <p>Provide geographically targeted capitation grants to schools. Authorities should explore the possibility of geographically targeted capitation grants to channel increased funding to departments that generate schooling graduates with worse job market prospects.</p> <p>Revise remuneration practices and incentive mechanisms to increase teacher attraction and retention in rural areas. Recent policy reviews of Guatemala's education system suggest insufficient incentives to attract well-trained teachers to rural areas (Centro de Investigaciones Económicas Nacionales 2019; Meza 2013). A revision of remuneration and incentives practices should thus be considered to better compensate teachers for remoteness and harsher living conditions in rural areas.</p> <p>Strengthen supervision capacities in hard to reach areas. Coordination and inspection teams of central education authorities do not reach remote areas, generating a supervision vacuum (Centro de Investigaciones Económicas Nacionales 2019). Authorities should review the supervision mechanisms of rural schools and, where necessary, allocate increased funding to inspection activities in hard-to-reach areas.</p>
Facilitate greater internal labor mobility	<ul style="list-style-type: none"> • Internal labor mobility is low, considering the large spatial disparities in incomes across Guatemala's geography. • The labor market displays high levels of spatial discrimination: Migrants from some departments find it much harder to access good-quality jobs when coming from certain departments than when coming from others. • Municipalities that exhibit lower rates of domestic outmigration tend to have higher rates of international outmigration. 	<p>Develop an internal labor mobility framework that assists jobseekers in their decision to migrate in-country. An internal mobility framework could be developed and integrated with the government's 2017 employment strategy (Gobierno de la República de Guatemala 2017). The recently established network of regional offices that provides employment services to citizens in major towns under the Servicio Nacional de Empleo could be expanded to offer advice and assistance for migrants in municipalities of origin as well as destination.</p> <p>Offer Spanish language courses for adults in regions with low outmigration. Ethnicity and language barriers can be drivers of underexploited opportunities for internal migration. Spanish language courses for adults could be offered to potential migrants in regions that have large ethnic populations.</p> <p>Provide mobility benefits. High costs of relocation discourage movement out of lagging regions and result in suboptimal levels of internal labor mobility. The government may consider providing targeted mobility benefits for migrants from lagging regions to assist with migration-associated costs.</p>

Reduce the role of gender-biased social norms

- Marital status has a large detrimental effect on women's participation in the labor market.
- Guatemala scores poorly in international comparisons of legal barriers to women's ability to participate in labor markets and the prevalence of gender norms.

Revise the labor code. Recent analysis reveals several gaps in Guatemala's labor code with respect to the prevention of sexual harassment in either employment or education and identifies additional challenges with regard to discriminatory provisions in the labor code itself (USAID 2018). This calls for an in-depth revision of the legal code to ensure that the legislative framework does not foment gender-based discrimination in the labor market.

Improve women's safety when commuting to work. Concerns about sexual harassment and abuse while commuting to work can be an important barrier to female labor force participation (Jayachandran 2020). Investing in safe modes of public transport for women can boost women's labor force participation (Kondylis and others 2020). In Guatemala City, a women-only bus service was introduced in 2011 on peak hours and on selected routes. Authorities should consider rolling out women-only public transport more widely across Guatemala City and other major urban areas.

Roll-out communication programs. Several recent studies have shown communication programs that seek to change attitudes and norms about women's work, either by airing promotional videos (McKelway 2019) or by working with adolescents through the schooling system (Dahr, Jain, and Jayachandran 2020). The authorities should develop a communications strategy that redresses the influence of gender norms on women's ability and willingness to work.

Limit distortive impacts of costly labor regulations

- Firm formalization and the creation of formal jobs are very low.
- There is a large wage premium for signing a formal contract.
- The gap between minimum and median wages has been widening over the last two decades.
- Noncompliance with minimum wage legislation is on the rise.
- The average wage varies considerably by geographic domain while the minimum wage does not.
- Low female labor force participation is driven by an inadequate number of formal jobs for women.

Adapt the labor code to allow for part-time work. Guatemala continues to lack a legal framework for part-time work, following the Constitutional Court's 2019 suspension of the law regulating part-time work. A new legislative proposal that responds to the Constitutional Court's ruling should be expedited to facilitate part-time work in Guatemala. An increased availability of part-time work opportunities should also help to attract women to the labor market who seek to balance work and family.

Simplify dismissal procedures and lower severance pay. Contracts that discriminate by their duration tend to exacerbate the exclusion of vulnerable groups from longer contracts, resulting in labor market segmentation (Packard and others 2019). To that end the government should consider simplifying dismissal procedures and bringing severance pay in line with the Latin America and the Caribbean average.

Review the minimum wage. The government should consider institutional and legislative reforms that prevent future increases in minimum wage from being set above labor productivity growth. This will ensure that minimum wage revisions do not further deteriorate firm competitiveness and/or disincentivize formalization. The government should also explore how previously failed efforts to allow for a regional differentiation in minimum wages could be aligned with constitutional provisions of equal pay to reflect differences in labor productivity across space.

Promote more private sector dynamism and competitiveness

- Only 14 percent of Guatemalan firms are formal enterprises that log accounting records with government agencies.
- The average firm age in the formal sector is one of the highest worldwide.
- Formal businesses in Guatemala are much more reluctant to grow their workforce in response to increasing sales than those in other countries of the region.
- When asked about the main constraints to expanding jobs, formal firms highlight an unfavorable political and governance context.

Improve collection of firm-level data. Firm formalization is very low, yet data are not readily available to assess informal firms' barriers to formalization. The government should seek to strengthen statistical capacities in the collection of firm-level data in both the formal and informal sectors.

Address barriers to increased FDI. Complex and confusing laws and regulations, inconsistent judicial decisions, bureaucratic impediments, and corruption continue to constitute practical barriers to investment in Guatemala (US Department of State 2018). Similarly, the World Bank's Doing Business Index highlights reforms that are most needed in the areas typically affecting FDI inflows, such as protecting minority investors, enforcing contracts, and resolving insolvency. The government should seek to implement cross-cutting reforms that increase the attractiveness of Guatemala as a destination for foreign investors.

Promote greater transparency in obtaining permits and licenses. Guatemala's legal and regulatory systems are not transparent, with regulations often containing few explicit criteria for government administrators. This results in ambiguous requirements that are applied inconsistently by different government agencies and the courts (Government of the US Department of State 2018). A lack of transparency of licensing requirements and prevailing inconsistencies can favor established and larger firms over new firms and stand in the way of a level playing field among firms. A series of amendments to the Commercial Code introduced in 2018 have recently helped to reduce the costs of business registration. The government should consider leveraging these efforts through the introduction of an effective grievance system that allows firms to provide feedback and generates transparency in the process of obtaining business licenses and permits at different levels of government.

Source: Authors' elaboration.

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ANNEX A: REGRESSION TABLES

TABLE A1

Mincerian earnings regressions by survey years, all employed individuals

Variables	(1) all employees in 2004	(2) all employees in 2010	(3) all employees in 2014	(4) all employees in 2018
Female	-0.277*** (0.0140)	-0.179*** (0.0255)	-0.164*** (0.0233)	-0.166*** (0.0187)
Indigenous	-0.170*** (0.0128)	-0.239*** (0.0247)	-0.243*** (0.0242)	-0.113*** (0.0191)
Age	0.0485*** (0.00197)	0.0372*** (0.00366)	0.0476*** (0.00352)	0.0511*** (0.00273)
Age squared	-0.000533*** (2.28e-05)	-0.000412*** (4.19e-05)	-0.000490*** (4.05e-05)	-0.000529*** (3.14e-05)
Primary education complete	0.191*** (0.0158)	0.216*** (0.0290)	0.138*** (0.0280)	0.126*** (0.0229)
Basic secondary education complete	0.339*** (0.0236)	0.306*** (0.0426)	0.211*** (0.0404)	0.224*** (0.0288)
Advanced secondary education complete	0.776*** (0.0191)	0.665*** (0.0356)	0.632*** (0.0320)	0.541*** (0.0257)
Some tertiary education	1.198*** (0.0268)	1.147*** (0.0466)	1.087*** (0.0419)	0.998*** (0.0334)
Guatemala City	-0.139*** (0.0260)	-0.113*** (0.0281)	-0.102*** (0.0259)	-0.172*** (0.0205)
Rural areas	-0.214*** (0.0314)	-0.149*** (0.0322)	-0.134*** (0.0293)	-0.159*** (0.0230)
Mining	0.707*** (0.119)	0.658** (0.257)	0.459** (0.209)	0.780*** (0.198)
Manufacturing	0.473*** (0.0209)	0.417*** (0.0382)	0.544*** (0.0366)	0.513*** (0.0292)
Public utilities	0.789*** (0.0957)	0.513*** (0.132)	0.325*** (0.111)	0.779*** (0.114)
Construction	0.566*** (0.0250)	0.464*** (0.0486)	0.583*** (0.0474)	0.397*** (0.0365)

Retail	0.520*** (0.0193)	0.389*** (0.0367)	0.533*** (0.0355)	0.439*** (0.0279)
Transport and communication	0.504*** (0.0326)	0.425*** (0.0514)	0.598*** (0.0439)	0.564*** (0.0333)
Financial and business services	0.606*** (0.0392)	0.481*** (0.0607)	0.616*** (0.0519)	0.576*** (0.0404)
Public administration	0.685*** (0.0360)	0.568*** (0.0800)	0.732*** (0.0617)	0.784*** (0.0513)
Other services	0.705*** (0.0226)	0.509*** (0.0404)	0.610*** (0.0392)	0.627*** (0.0317)
Non-paid employee	-1.378*** (0.0484)	-1.200*** (0.0912)	-0.855*** (0.107)	-0.735*** (0.0863)
Employer	0.278*** (0.0252)	0.538*** (0.0601)	0.260*** (0.0580)	0.408*** (0.0469)
Self-employed	-0.397*** (0.0145)	-0.286*** (0.0263)	-0.343*** (0.0257)	-0.353*** (0.0204)
Constant	0.817*** (0.0485)	0.966*** (0.0815)	0.582*** (0.0792)	0.537*** (0.0625)
Observations	21,857	5,867	6,129	8,689
R-squared	0.388	0.386	0.413	0.401

Note: Table reports regression estimates for Mincerian-style ordinary least squares regressions estimating the impact of individual and household-level characteristics on hourly log labor earnings using data from the ENEL labor force survey for 2018. Standard errors are reported in parentheses where ***, **, and * indicate significance at 1, 5, and 10 percent, respectively.

TABLE A2

Mincerian earnings regressions by survey years, employed individuals living in Guatemala City

Variables	(1) Guatemala City employees in 2004	(2) Guatemala City employees in 2010	(3) Guatemala City employees in 2014	(4) Guatemala City employees in 2018
Female	-0.253*** (0.0500)	-0.153*** (0.0387)	-0.127*** (0.0298)	-0.158*** (0.0267)
Indigenous	-0.306*** (0.0805)	-0.193*** (0.0660)	-0.151*** (0.0537)	-0.120*** (0.0437)
Age	0.0400*** (0.00851)	0.0413*** (0.00679)	0.0416*** (0.00540)	0.0438*** (0.00446)
Age squared	-0.000422*** (0.000102)	-0.000426*** (7.92e-05)	-0.000398*** (6.32e-05)	-0.000450*** (5.05e-05)

Primary education complete	0.159** (0.0623)	0.329*** (0.0537)	0.194*** (0.0439)	0.204*** (0.0413)
Basic secondary education complete	0.353*** (0.0874)	0.407*** (0.0672)	0.284*** (0.0583)	0.314*** (0.0462)
Advanced secondary education complete	0.571*** (0.0694)	0.713*** (0.0569)	0.728*** (0.0444)	0.626*** (0.0412)
Some tertiary education	1.059*** (0.0798)	1.181*** (0.0666)	1.131*** (0.0530)	1.167*** (0.0471)
Mining		0.610 (0.550)	0.0906 (0.251)	1.185* (0.648)
Manufacturing	0.668*** (0.118)	0.499*** (0.131)	0.391*** (0.136)	0.686*** (0.0893)
Public utilities	0.876** (0.387)	0.324 (0.313)	0.221 (0.178)	0.771*** (0.158)
Construction	0.626*** (0.128)	0.545*** (0.141)	0.445*** (0.143)	0.589*** (0.0966)
Retail	0.705*** (0.115)	0.340*** (0.131)	0.334** (0.135)	0.538*** (0.0884)
Transport and communication	0.548*** (0.146)	0.507*** (0.139)	0.392*** (0.138)	0.686*** (0.0928)
Financial and business services	0.850*** (0.138)	0.564*** (0.142)	0.454*** (0.140)	0.755*** (0.0929)
Public administration	0.635*** (0.174)	0.520*** (0.161)	0.587*** (0.148)	0.934*** (0.106)
Other services	0.862*** (0.121)	0.454*** (0.133)	0.329** (0.138)	0.665*** (0.0908)
Non-paid employee	-2.040*** (0.430)	-0.461 (0.380)	-3.131*** (0.373)	-2.447*** (0.376)
Employer	0.219** (0.0938)	0.450*** (0.0947)	0.206*** (0.0720)	0.306*** (0.0632)
Self-employed	-0.552*** (0.0582)	-0.256*** (0.0463)	-0.269*** (0.0389)	-0.388*** (0.0328)
Constant	0.920*** (0.189)	0.747*** (0.176)	0.761*** (0.170)	0.493*** (0.127)
Observations	1,183	1,798	2,137	2,827
R-squared	0.318	0.282	0.312	0.345

Note: Table reports regression estimates for Mincerian-style ordinary least squares regressions estimating the impact of individual and household-level characteristics on hourly log labor earnings using data from the ENEI labor force survey for 2018. Standard errors are reported in parentheses where ***, **, and * indicate significance at 1, 5, and 10 percent, respectively.

TABLE A3

Mincerian earnings regressions by survey years, employed individuals living in urban areas outside Guatemala City

Variables	(1) urban area employees in 2004	(2) urban area employees in 2010	(3) urban area employees in 2014	(4) urban area employees in 2018
Female	-0.272*** (0.0149)	-0.243*** (0.0420)	-0.157*** (0.0440)	-0.163*** (0.0324)
Indigenous	-0.182*** (0.0136)	-0.216*** (0.0371)	-0.225*** (0.0413)	-0.145*** (0.0317)
Age	0.0495*** (0.00212)	0.0444*** (0.00621)	0.0618*** (0.00661)	0.0624*** (0.00485)
Age squared	-0.000543*** (2.46e-05)	-0.000490*** (7.12e-05)	-0.000621*** (7.57e-05)	-0.000623*** (5.55e-05)
Primary education complete	0.189*** (0.0169)	0.308*** (0.0489)	0.142*** (0.0531)	0.0657 (0.0417)
Basic secondary education complete	0.333*** (0.0249)	0.369*** (0.0683)	0.265*** (0.0722)	0.239*** (0.0530)
Advanced secondary education complete	0.795*** (0.0201)	0.767*** (0.0552)	0.694*** (0.0581)	0.566*** (0.0439)
Some tertiary education	1.208*** (0.0286)	1.193*** (0.0748)	1.137*** (0.0728)	0.874*** (0.0568)
Mining	0.746*** (0.126)	0.722 (0.465)	1.078** (0.473)	1.054*** (0.272)
Manufacturing	0.453*** (0.0227)	0.302*** (0.0619)	0.463*** (0.0683)	0.507*** (0.0534)
Public utilities	0.796*** (0.0992)	0.666*** (0.184)	0.336 (0.241)	0.956*** (0.233)
Construction	0.550*** (0.0269)	0.464*** (0.0807)	0.574*** (0.0903)	0.426*** (0.0641)
Retail	0.478*** (0.0209)	0.414*** (0.0584)	0.495*** (0.0639)	0.505*** (0.0492)
Transport and communication	0.484*** (0.0347)	0.347*** (0.0854)	0.575*** (0.0821)	0.604*** (0.0568)

Financial and business services	0.572*** (0.0432)	0.480*** (0.108)	0.601*** (0.116)	0.502*** (0.0780)
Public administration	0.676*** (0.0378)	0.707*** (0.131)	0.729*** (0.109)	0.837*** (0.0905)
Other services	0.692*** (0.0245)	0.556*** (0.0661)	0.698*** (0.0697)	0.801*** (0.0542)
Non-paid employee	-1.391*** (0.0575)	-1.987*** (0.196)	-1.427*** (0.368)	-0.450 (0.289)
Employer	0.312*** (0.0267)	0.557*** (0.0869)	0.300*** (0.104)	0.460*** (0.0817)
Self-employed	-0.343*** (0.0157)	-0.188*** (0.0453)	-0.204*** (0.0488)	-0.282*** (0.0372)
Constant	0.655*** (0.0446)	0.656*** (0.131)	0.0856 (0.147)	0.0466 (0.105)
Observations	18,186	2,046	1,894	2,861
R-squared	0.378	0.383	0.365	0.358

Notes: Table reports regression estimates for Mincerian-style ordinary least squares regressions estimating the impact of individual and household-level characteristics on hourly log labor earnings using data from the ENEL labor force survey for 2018. Standard errors are reported in parentheses where ***, **, and * indicate significance at 1, 5, and 10 percent, respectively.

TABLE A4

Mincerian earnings regressions by survey years, employed individuals living in rural areas

Variables	(1) rural area employees in 2004	(2) rural area employees in 2010	(3) rural area employees in 2014	(4) rural area employees in 2018
Female	-0.357*** (0.0537)	-0.145*** (0.0536)	-0.221*** (0.0495)	-0.176*** (0.0388)
Indigenous	-0.0575 (0.0412)	-0.271*** (0.0395)	-0.266*** (0.0385)	-0.0796*** (0.0298)
Age	0.0398*** (0.00640)	0.0263*** (0.00615)	0.0403*** (0.00617)	0.0446*** (0.00482)
Age squared	-0.000459*** (7.27e-05)	-0.000320*** (6.94e-05)	-0.000444*** (7.05e-05)	-0.000481*** (5.62e-05)
Primary education complete	0.204*** (0.0549)	0.0272 (0.0498)	0.0784 (0.0489)	0.131*** (0.0378)
Basic secondary education complete	0.351*** (0.0996)	0.166* (0.0950)	0.103 (0.0812)	0.152*** (0.0515)

Advanced secondary education complete	0.763*** (0.0997)	0.548*** (0.0938)	0.428*** (0.0717)	0.403*** (0.0531)
Some tertiary education	1.329*** (0.150)	1.350*** (0.174)	1.122*** (0.143)	0.878*** (0.0987)
Mining	0.434 (0.373)	0.684* (0.383)	0.268 (0.601)	0.422 (0.350)
Manufacturing	0.473*** (0.0695)	0.479*** (0.0701)	0.615*** (0.0651)	0.500*** (0.0501)
Public utilities	0.747 (0.492)	0.350 (0.250)	0.161 (0.258)	0.999*** (0.262)
Construction	0.677*** (0.0878)	0.357*** (0.0877)	0.543*** (0.0848)	0.366*** (0.0642)
Retail	0.756*** (0.0633)	0.410*** (0.0667)	0.598*** (0.0641)	0.472*** (0.0482)
Transport and communication	0.685*** (0.134)	0.376*** (0.113)	0.656*** (0.0911)	0.571*** (0.0627)
Financial and business services	0.666*** (0.165)	0.144 (0.172)	0.503*** (0.132)	0.431*** (0.103)
Public administration	0.799*** (0.164)	0.465** (0.212)	0.692*** (0.157)	0.750*** (0.107)
Other services	0.701*** (0.0800)	0.506*** (0.0762)	0.651*** (0.0770)	0.594*** (0.0599)
Non-paid employee	-1.424*** (0.104)	-1.085*** (0.114)	-0.728*** (0.129)	-0.754*** (0.0997)
Employer	0.0666 (0.0995)	0.614*** (0.158)	0.311** (0.141)	0.511*** (0.105)
Self-employed	-0.662*** (0.0460)	-0.381*** (0.0458)	-0.491*** (0.0456)	-0.396*** (0.0358)
Constant	0.847*** (0.131)	1.173*** (0.126)	0.740*** (0.127)	0.570*** (0.0984)
Observations	2,488	2,023	2,098	3,001
R-squared	0.336	0.260	0.310	0.271

Note: Table reports regression estimates for Mincerian style ordinary least squares regressions estimating the impact of individual and household-level characteristics on hourly log labor earnings using data from the ENEI labor force survey for 2018. Standard errors are reported in parentheses where ***, **, and * indicate significance at 1, 5, and 10 percent, respectively.

TABLE A5**Mincerian earnings regressions by survey years, ages 15–34 only**

Variables	(1) all employees in 2004	(2) all employees in 2010	(3) all employees in 2014	(4) all employees in 2018
Female	−0.253*** (0.0230)	−0.204*** (0.0410)	−0.164*** (0.0372)	−0.155*** (0.0289)
Indigenous	−0.149*** (0.0210)	−0.241*** (0.0397)	−0.236*** (0.0385)	−0.0856*** (0.0299)
Age	0.0348** (0.0146)	0.0134 (0.0258)	0.0506** (0.0237)	0.0551*** (0.0182)
Age squared	−0.000388** (0.000151)	−0.000150 (0.000268)	−0.000487** (0.000245)	−0.000596*** (0.000188)
Primary education complete	0.231*** (0.0262)	0.249*** (0.0469)	0.120*** (0.0424)	0.120*** (0.0338)
Basic secondary education complete	0.406*** (0.0435)	0.340*** (0.0765)	0.204*** (0.0705)	0.202*** (0.0476)
Advanced secondary education complete	0.885*** (0.0325)	0.809*** (0.0582)	0.693*** (0.0515)	0.590*** (0.0396)
Some tertiary education	1.331*** (0.0438)	1.250*** (0.0739)	1.169*** (0.0665)	1.108*** (0.0499)
Guatemala City	−0.0921** (0.0427)	−0.0879** (0.0446)	0.00397 (0.0400)	−0.0612** (0.0307)
Rural areas	−0.171*** (0.0514)	−0.114** (0.0522)	−0.0710 (0.0470)	−0.0882** (0.0352)
Mining	1.097*** (0.205)	0.809** (0.349)	0.563* (0.295)	1.090*** (0.344)
Manufacturing	0.602*** (0.0340)	0.500*** (0.0615)	0.658*** (0.0579)	0.647*** (0.0459)
Public utilities	0.911*** (0.145)	0.746*** (0.200)	0.490*** (0.164)	1.013*** (0.194)
Construction	0.676*** (0.0412)	0.621*** (0.0776)	0.741*** (0.0725)	0.580*** (0.0544)
Retail	0.653*** (0.0308)	0.506*** (0.0574)	0.687*** (0.0548)	0.626*** (0.0432)
Transport and communication	0.690*** (0.0523)	0.527*** (0.0858)	0.811*** (0.0682)	0.715*** (0.0519)

Financial and business services	0.733*** (0.0679)	0.563*** (0.101)	0.771*** (0.0873)	0.685*** (0.0642)
Public administration	0.781*** (0.0553)	0.628*** (0.120)	0.853*** (0.0951)	0.931*** (0.0762)
Other services	0.809*** (0.0363)	0.542*** (0.0637)	0.749*** (0.0617)	0.805*** (0.0482)
Non-paid employee	-1.850*** (0.119)	-2.185*** (0.270)	-1.762*** (0.414)	-1.020*** (0.233)
Employer	0.186*** (0.0358)	0.535*** (0.0798)	0.328*** (0.0758)	0.404*** (0.0583)
Self-employed	-0.444*** (0.0229)	-0.290*** (0.0389)	-0.336*** (0.0362)	-0.359*** (0.0288)
Constant	0.956*** (0.345)	1.373** (0.611)	0.239 (0.564)	0.285 (0.431)
Observations	9,569	2,581	2,800	4,038
R-squared	0.390	0.404	0.415	0.427

Note: Table reports regression estimates for Mincerian-style ordinary least squares regressions estimating the impact of individual and household-level characteristics on hourly log labor earnings using data from the ENEL labor force survey for 2018. Standard errors are reported in parentheses where ***, **, and * indicate significance at 1, 5, and 10 percent, respectively.

TABLE A6

Mincerian earnings regressions by survey years, ages 35–64 only

Variables	(1) all employees in 2004	(2) all employees in 2010	(3) all employees in 2014	(4) all employees in 2018
Female	-0.295*** (0.0170)	-0.141*** (0.0315)	-0.166*** (0.0285)	-0.192*** (0.0231)
Indigenous	-0.177*** (0.0157)	-0.233*** (0.0310)	-0.212*** (0.0301)	-0.148*** (0.0232)
Age	0.128*** (0.0131)	0.0883*** (0.0254)	0.0945*** (0.0245)	0.0774*** (0.0188)
Age squared	-0.00198*** (0.000261)	-0.00135*** (0.000504)	-0.00129*** (0.000482)	-0.000962*** (0.000373)
Primary education complete	0.145*** (0.0188)	0.165*** (0.0359)	0.0979*** (0.0367)	0.0963*** (0.0302)
Basic secondary education complete	0.290*** (0.0261)	0.258*** (0.0482)	0.183*** (0.0469)	0.193*** (0.0342)

Advanced secondary education complete	0.683*** (0.0228)	0.556*** (0.0434)	0.564*** (0.0398)	0.475*** (0.0321)
Some tertiary education	1.062*** (0.0325)	1.044*** (0.0575)	0.966*** (0.0522)	0.851*** (0.0426)
Guatemala City	-0.194*** (0.0314)	-0.139*** (0.0352)	-0.203*** (0.0329)	-0.300*** (0.0258)
Rural areas	-0.271*** (0.0383)	-0.192*** (0.0399)	-0.200*** (0.0357)	-0.273*** (0.0283)
Mining	0.372*** (0.139)	0.361 (0.364)	0.483 (0.307)	0.590*** (0.225)
Manufacturing	0.259*** (0.0264)	0.279*** (0.0481)	0.362*** (0.0459)	0.327*** (0.0355)
Public utilities	0.559*** (0.120)	0.119 (0.174)	0.134 (0.141)	0.631*** (0.132)
Construction	0.371*** (0.0308)	0.298*** (0.0600)	0.357*** (0.0602)	0.185*** (0.0460)
Retail	0.322*** (0.0250)	0.203*** (0.0475)	0.310*** (0.0456)	0.206*** (0.0350)
Transport and communication	0.221*** (0.0403)	0.269*** (0.0614)	0.330*** (0.0556)	0.343*** (0.0411)
Financial and business services	0.394*** (0.0460)	0.344*** (0.0723)	0.415*** (0.0613)	0.405*** (0.0479)
Public administration	0.488*** (0.0460)	0.415*** (0.103)	0.552*** (0.0771)	0.571*** (0.0649)
Other services	0.510*** (0.0288)	0.398*** (0.0514)	0.428*** (0.0494)	0.405*** (0.0399)
Non-paid employee	-1.370*** (0.0489)	-1.129*** (0.0883)	-0.824*** (0.100)	-0.760*** (0.0835)
Employer	0.278*** (0.0380)	0.498*** (0.102)	-0.00463 (0.106)	0.0750 (0.0968)
Self-employed	-0.341*** (0.0187)	-0.275*** (0.0362)	-0.311*** (0.0378)	-0.282*** (0.0286)
Constant	0.0572 (0.162)	0.477 (0.311)	0.188 (0.301)	0.468** (0.230)
Observations	11,145	2,944	3,031	4,163
R-squared	0.405	0.389	0.426	0.407

Note: Table reports regression estimates for Mincerian-style ordinary least squares regressions estimating the impact of individual and household-level characteristics on hourly log labor earnings using data from the ENEI labor force survey for 2018. Standard errors are reported in parentheses where ***, **, and * indicate significance at 1, 5, and 10 percent, respectively.

TABLE A7

Probit model on the determinants of the female labor force participation

Variables	(1) all women	(2) non-indigenous women	(3) indigenous women
Child in household, age 0–3	–0.278*** (0.0454)	–0.363*** (0.0814)	–0.227*** (0.0550)
Child in household, age 4–7	–0.112*** (0.0418)	–0.0921 (0.0778)	–0.103** (0.0499)
Child in household, age 8–11	–0.0342 (0.0435)	–0.0777 (0.0802)	–0.00446 (0.0522)
Child in household, age 12–15	–0.0358 (0.0436)	–0.0369 (0.0805)	–0.0196 (0.0522)
Married	–0.468*** (0.0359)	–0.510*** (0.0687)	–0.447*** (0.0423)
Age	0.135*** (0.00803)	0.112*** (0.0151)	0.146*** (0.00953)
Age squared	–0.00164*** (0.000106)	–0.00136*** (0.000199)	–0.00176*** (0.000125)
Indigenous	0.145*** (0.0360)		
Household income quintile 2	0.222*** (0.0475)	0.263*** (0.0758)	0.185*** (0.0614)
Household income quintile 3	0.295*** (0.0486)	0.416*** (0.0858)	0.233*** (0.0602)
Household income quintile 4	0.528*** (0.0495)	0.587*** (0.0929)	0.488*** (0.0602)
Household income quintile 5	0.641*** (0.0522)	0.603*** (0.102)	0.629*** (0.0627)
Primary education complete	0.132*** (0.0430)	0.224*** (0.0768)	0.0639 (0.0526)
Basic secondary education complete	0.121** (0.0537)	0.247** (0.106)	0.0588 (0.0627)
Advanced secondary education complete	0.463*** (0.0478)	0.612*** (0.114)	0.406*** (0.0540)

Some tertiary education	0.744*** (0.0731)	0.534** (0.207)	0.730*** (0.0796)
Constant	-2.848*** (0.138)	-2.334*** (0.250)	-2.990*** (0.162)
Observations	7,472	2,161	5,311

Note: Table reports regression estimates for a probit model estimating the impact of individual and household-level characteristics on women's participation in the labor market using data from the ENEI labor force survey for 2018. Non-indigenous women are defined as all women classified as ladino in the data. Standard errors are reported in parentheses where ***, **, and * indicate significance at 1, 5, and 10 percent, respectively.

TABLE A8

Probit model on the determinants of the formal wage employment

Variables	(1) all wage employed	(2) all wage employed	(3) female wage employed	(4) male wage employed
Married	0.193*** (0.0442)	0.195*** (0.0448)	0.120 (0.0849)	0.225*** (0.0535)
Age	0.130*** (0.0104)	0.130*** (0.0105)	0.135*** (0.0194)	0.126*** (0.0125)
Age square	-0.00149*** (0.000137)	-0.00150*** (0.000138)	-0.00152*** (0.000261)	-0.00146*** (0.000163)
Household income quintile 2	0.818*** (0.117)	0.821*** (0.117)	0.778*** (0.220)	0.842*** (0.138)
Household income quintile 3	1.168*** (0.115)	1.172*** (0.116)	1.020*** (0.216)	1.232*** (0.137)
Household income quintile 4	1.360*** (0.114)	1.367*** (0.114)	1.336*** (0.210)	1.386*** (0.137)
Household income quintile 5	1.607*** (0.116)	1.613*** (0.116)	1.608*** (0.211)	1.613*** (0.140)
Female	0.0334 (0.0424)	-0.155 (0.106)		
Primary education complete	0.473*** (0.0620)	0.449*** (0.0717)	0.548*** (0.123)	0.443*** (0.0720)
Basic secondary education complete	0.759*** (0.0687)	0.755*** (0.0790)	0.786*** (0.136)	0.747*** (0.0798)
Advanced secondary education complete	1.321*** (0.0614)	1.229*** (0.0725)	1.528*** (0.114)	1.226*** (0.0738)

Some tertiary education	1.684*** (0.0793)	1.490*** (0.0971)	2.009*** (0.139)	1.501*** (0.0987)
Primary education complete * female		0.0880 (0.140)		
Basic secondary education complete * female		0.0167 (0.152)		
Advanced secondary education complete * female		0.288** (0.127)		
Some tertiary education * female		0.525*** (0.162)		
Constant	-4.780*** (0.218)	-4.752*** (0.219)	-4.971*** (0.408)	-4.697*** (0.260)
Observations	5,738	5,738	1,854	3,884

Note: Table reports regression estimates for a probit model estimating the impact of individual and household-level characteristics on likelihood of formal contractual employment for all wage employees using data from the ENEI labor force survey for 2018. Standard errors are reported in parentheses where ***, **, and * indicate significance at 1, 5, and 10 percent, respectively.

TABLE A9

Firm-level employment growth regression

Variables	(1) all wage employed
Growth in sales over last three years	0.000275*** (8.28e-05)
Growth in sales over last three years * guatemala	-0.000252*** (8.01e-05)
Log sales three years ago	0.0841*** (0.0201)
Log employment three years ago	-0.199*** (0.0342)
Manufacturing sector	
Services sector	-0.0813** (0.0349)
Age	-0.00344*** (0.000680)

Country–Survey Year FE	YES
Constant	–0.348 (0.226)
Observations	5,683
R–squared	0.059

Note: Table reports regression results for an ordinary least squares regression estimating the effect of sales growth on employment growth, with growth in both sales and employment measured at the firm level over the 3-year period previous to a firm's interview. Data come from the World Bank Enterprise Survey database with the following surveys included in the regression: Guatemala-2006, Guatemala-2010, Guatemala-2017; Bolivia-2006, Bolivia-2010, Bolivia-2017; El Salvador-2006, El Salvador-2010, El Salvador-2016; Honduras-2006, Honduras-2010, Honduras-2016; Nicaragua-2006, Nicaragua-2010, Nicaragua-2016; Paraguay-2006, Paraguay-2010, Paraguay-2017.

TABLE A10

Regression results of spatial decomposition analysis of migrants' employment outcomes with origin department fixed effects

Variables	(1) all migrants in municipalities with p.c. income >7,500	(2) all migrants in municipalities with p.c. income >7,500	(3) all migrants in municipalities with p.c. income >7,500	(4) all migrants in municipalities with p.c. income >7,500
Female	0.110*** (0.00464)	0.112*** (0.00473)	0.126*** (0.00455)	0.128*** (0.00455)
Married	–0.121*** (0.00408)	–0.0909*** (0.00420)	–0.0432*** (0.00410)	–0.0410*** (0.00410)
Age	–0.00269*** (0.000161)	–0.000598*** (0.000169)	–0.00170*** (0.000163)	–0.00166*** (0.000163)
Ladino	–0.154*** (0.00434)	–0.131*** (0.00528)	–0.0591*** (0.00518)	–0.0606*** (0.00519)
Children	0.0158*** (0.00593)	0.0195*** (0.00600)	–0.00785 (0.00579)	–0.00684 (0.00578)
Years of education			–0.0286*** (0.000409)	
Origin department dummies				
Guatemala City				
El Progreso		0.162*** (0.0166)	0.0966*** (0.0160)	0.110*** (0.0345)
Sacatepéquez		0.0110 (0.0117)	0.00401 (0.0112)	–0.0189 (0.0254)
Chimaltenango		0.103*** (0.0117)	0.0560*** (0.0113)	0.0352 (0.0234)

Escuintla	0.133*** (0.0104)	0.0602*** (0.0101)	0.0350 (0.0215)
Santa Rosa	0.200*** (0.0117)	0.126*** (0.0113)	0.141*** (0.0255)
Solola	0.225*** (0.0191)	0.159*** (0.0184)	0.178*** (0.0348)
Totonicapán	0.323*** (0.0166)	0.233*** (0.0161)	0.151*** (0.0298)
Quetzaltenango	0.122*** (0.0108)	0.0850*** (0.0104)	0.132*** (0.0230)
Suchitepéquez	0.205*** (0.0114)	0.116*** (0.0110)	0.0813*** (0.0238)
Retalhuleu	0.180*** (0.0153)	0.0995*** (0.0148)	0.0274 (0.0324)
San Marcos	0.258*** (0.00923)	0.184*** (0.00895)	0.166*** (0.0202)
Huehuetenango	0.168*** (0.0178)	0.117*** (0.0172)	0.147*** (0.0345)
Quiché	0.219*** (0.0104)	0.117*** (0.0101)	-0.0532*** (0.0172)
Baja Verapaz	0.155*** (0.0178)	0.101*** (0.0172)	0.0125 (0.0371)
Alta Verapaz	0.227*** (0.0114)	0.190*** (0.0110)	0.0820*** (0.0238)
Petén	0.163*** (0.0153)	0.0816*** (0.0147)	-0.0116 (0.0292)
Izabal	0.184*** (0.0161)	0.132*** (0.0155)	0.133*** (0.0350)
Zacapa	0.171*** (0.0201)	0.117*** (0.0194)	0.0846* (0.0450)
Chiquimula	0.193*** (0.0202)	0.135*** (0.0195)	0.124*** (0.0428)
Jalapa	0.261*** (0.0166)	0.165*** (0.0160)	0.170*** (0.0343)
Jutiapa	0.222*** (0.0109)	0.149*** (0.0106)	0.105*** (0.0249)

Guatemala City * years of education	-0.0304*** (0.000532)
El Progreso * years of education	-0.0324*** (0.00346)
Sacatepéquez * years of education	-0.0283*** (0.00208)
Chimaltenango * years of education	-0.0285*** (0.00227)
Escuintla * years of education	-0.0279*** (0.00212)
Santa Rosa * years of education	-0.0327*** (0.00260)
Solola * years of education	-0.0341*** (0.00399)
Totonicapán * years of education	-0.0188*** (0.00387)
Quetzaltenango * years of education	-0.0356*** (0.00205)
Suchitépéquez * years of education	-0.0267*** (0.00264)
Retalhuleu * years of education	-0.0222*** (0.00344)
San Marcos * years of education	-0.0288*** (0.00216)
Huehuetenango * years of education	-0.0346*** (0.00352)
Quiché * years of education	-0.00312 (0.00219)
Baja Verapaz * years of education	-0.0202*** (0.00401)
Alta Verapaz * years of education	-0.0179*** (0.00250)
Petén * years of education	-0.0193*** (0.00310)
Izabal * years of education	-0.0309*** (0.00349)

Zacapa * years of education				-0.0272*** (0.00434)
Chiquimula * years of education				-0.0294*** (0.00414)
Jalapa * years of education				-0.0318*** (0.00393)
Jutiapa * years of education				-0.0258*** (0.00253)
Constant	0.610*** (0.00631)	0.438*** (0.00795)	0.710*** (0.00858)	0.728*** (0.00927)
Observations	61,390	61,390	61,390	61,390
R-squared	0.064	0.109	0.175	0.177

Note: Table reports regression estimates for a linear probability model on the probability of being employed in a low-quality job, defined as jobs with ISCO codes 5 and 9. Results are used for the spatial decomposition analysis described in box 3 of the main text. Standard errors are reported in parentheses where ***, **, and * indicate significance at 1, 5, and 10 percent, respectively.



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