

Cruces, Guillermo; Fields, Gary; Jaume, David; Viollaz, Mariana

**Working Paper**

## The growth-employment-poverty nexus in Latin America in the 2000s: Paraguay country study

WIDER Working Paper, No. 2015/081

**Provided in Cooperation with:**

United Nations University (UNU), World Institute for Development Economics Research (WIDER)

*Suggested Citation:* Cruces, Guillermo; Fields, Gary; Jaume, David; Viollaz, Mariana (2015) : The growth-employment-poverty nexus in Latin America in the 2000s: Paraguay country study, WIDER Working Paper, No. 2015/081, ISBN 978-92-9230-970-1, The United Nations University World Institute for Development Economics Research (UNU-WIDER), Helsinki, <https://doi.org/10.35188/UNU-WIDER/2015/970-1>

This Version is available at:

<https://hdl.handle.net/10419/126328>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

UNU-WIDER

30 YEARS OF RESEARCH  
FOR DEVELOPMENT

WIDER Working Paper 2015/081

## **The growth-employment-poverty nexus in Latin America in the 2000s**

Paraguay country study

Guillermo Cruces,<sup>1</sup> Gary Fields,<sup>2</sup> David Jaume,<sup>3</sup> and Mariana Viollaz<sup>4</sup>

September 2015

**Abstract:** During the 2000s Paraguay experienced slow economic growth but improved all labour market indicators. The growth process was erratic. Paraguay underwent a macroeconomic crisis at the beginning of the period, a recession as a consequence of the international crisis of 2008, and a local crisis in 2012. Most labour market indicators improved between 2001 and 2013 following the erratic pattern of GDP. The only labour market indicator that improved almost steadily over the period was the educational level of the employed population. All poverty and inequality indicators exhibited an erratic behaviour over time, but fell overall between 2001 and 2013.

**Keywords:** Paraguay, Latin America, inclusive growth, labour market, poverty  
**JEL classification:** O15, J01, J30

**Figures and tables:** Provided at the end of the paper.

---

<sup>1</sup>CEDLAS, Universidad Nacional de La Plata, CONICET, and IZA; <sup>2</sup>Cornell University, IZA; corresponding author: [gsf2@cornell.edu](mailto:gsf2@cornell.edu); <sup>3</sup>Cornell University, CEDLAS, Universidad Nacional de La Plata; <sup>4</sup>CEDLAS, Universidad Nacional de La Plata.

This study has been prepared within the UNU-WIDER project ‘[The Growth-Employment-Poverty Nexus in Latin America in the 2000s](#)’, directed by Finn Tarp and Gary Fields.

Copyright © UNU-WIDER 2015

ISSN 1798-7237 ISBN 978-92-9230-970-1

Typescript prepared by Lesley Ellen for UNU-WIDER.

UNU-WIDER gratefully acknowledges the financial contributions to the research programme from the governments of Denmark, Finland, Sweden, and the United Kingdom.

The World Institute for Development Economics Research (WIDER) was established by the United Nations University (UNU) as its first research and training centre and started work in Helsinki, Finland in 1985. The Institute undertakes applied research and policy analysis on structural changes affecting the developing and transitional economies, provides a forum for the advocacy of policies leading to robust, equitable and environmentally sustainable growth, and promotes capacity strengthening and training in the field of economic and social policy-making. Work is carried out by staff researchers and visiting scholars in Helsinki and through networks of collaborating scholars and institutions around the world.

UNU-WIDER, Katajanokanlaituri 6 B, 00160 Helsinki, Finland, [wider.unu.edu](http://wider.unu.edu)

The views expressed in this publication are those of the author(s). Publication does not imply endorsement by the Institute or the United Nations University, nor by the programme/project sponsors, of any of the views expressed.

## 1 Introduction

Latin America in the 2000s witnessed an unprecedented period of growth with poverty and inequality reduction. The region also suffered from the economic crises in Europe and the United States from 2007/08 onwards.

Economic development has been defined as a widespread improvement in the material standards of living of a country's people. Economic growth is defined as an increase in the total amount of goods and services produced in an economy.

This paper on labour markets and growth in Paraguay since 2000 is one of sixteen studies of Latin American countries, each of which aims to answer the following broad questions: Has economic growth resulted in economic development via improved labour market conditions in Latin America in the 2000s, and have these improvements halted or been reversed since the Great Recession? How do the rate and character of economic growth, changes in the various labour market indicators, and changes in poverty relate to each other?

More specifically:

- What was the country's economic growth experience?
  - Characteristics of economic growth: breakdown by sector (agriculture, industry, services).
- How have the following indicators of labour market conditions changed in the course of each country's economic growth?
  - 1. Employment and unemployment:
    - a. Unemployment rate, using International Labour Organization definition.
    - b. Employment-to-population ratio.
    - c. Labour force participation rate.
  - 2. Employment composition:
    - a. Occupational group—professional, managerial, and clerical, etc.
    - b. Occupational position—wage/salaried employee, self-employed, unpaid family worker, etc.
    - c. Sector of employment—agriculture, manufacturing, services, etc.
    - d. Education level—low, medium, high.
    - e. Registered/unregistered with the nation's social security system.

- 3. Labour market earnings, real:
  - a. Overall.
  - b. Disaggregated by gender.
  - c. Disaggregated by age (youth/non-youth).
  - d. Disaggregated by occupational group.
  - e. Disaggregated by occupational position.
  - f. Disaggregated by sector (agriculture etc.).
  - g. Disaggregated by education level (low, middle, high).

The answers to the preceding questions are by no means obvious. Claims have been made that economic growth in Latin America has been jobless, that productivity has grown at the expense of employment, and that Latin America, having even greater economic inequality than the United States, may have been following the US's course of rising incomes for those at the very top of the income distribution and stagnating or even falling incomes for the great majority, especially the poor. It has also been claimed that Latin America is caught in a middle-income bind, squeezed between the advanced economies on the one hand and emerging economies, especially China, on the other.

Recent evidence has shown that economic growth generally leads to an improvement in labour market conditions and reductions in poverty within developing countries (Fields 2012). The relatively scarce evidence for Latin America, however, indicates some heterogeneity at the country level. In the case of Argentina, the strong growth that followed the economic meltdown of 2001–02 was accompanied by large employment gains and increases in labour earnings, with higher gains (in relative terms) for less skilled workers. This process led to a large reduction in poverty in the 2003–06 period (Gasparini and Cruces 2010). In Brazil, economic growth during the period 1996–2004 was relatively low. In this context, unemployment remained high and labour earnings low, while poverty increased (Fields and Raju 2007). Nicaragua also experienced economic growth during the period 2001–06, and although there were increases in employment levels, overall poverty did not fall significantly (Gutierrez et al. 2008). The 2000–06 period of economic growth in Mexico was accompanied by improvements in employment composition, rising real labour earnings, and falling poverty, although the country also experienced rising unemployment levels in those years (Rangel 2009). The relatively long period of economic growth in Costa Rica (1976–2000) took place with increases in labour income, a reduction of employment in agriculture, and improvements in education, with a reduction in poverty levels (Fields and Bagg 2003). Finally, the period of economic growth in Colombia between 2002 and 2011 led to a reduction in unemployment and poverty levels (Ham 2013). This mixed evidence indicates that the growth-employment-poverty nexus is fairly complex and the experiences of Latin American countries are far from homogeneous.

Limited evidence is available on the mechanisms underlying the growth-labour markets-poverty nexus in Latin America. For instance, a World Bank (2011) study finds that the increase in men's

labour income was higher than that of women's in the 2000s, and that this was the most important factor in lifting households out of poverty, even though World Bank (2013a) shows that the increase in the labour force over this period was mainly led by women. Inchauste (2012) reports that job-related events were the main escape route from poverty for Latin American households over the same period, and these events included household heads getting a new job, other family members starting to work, and those employed achieving higher labour earnings than before.

Overall, previous studies generally show a positive association between economic growth, improvement in labour market indicators, and reduction in poverty in Latin American countries. However, the tightness of these relationships is not always clear from these studies. Moreover, these regional aggregates mask the heterogeneity at the country level, which implies that little can be said about the underlying mechanisms at play. This paper on Paraguay is one of sixteen case studies which, taken together, will allow us to separate and identify country-specific from region-wide factors in the relationship between the economy's overall performance and labour market outcomes in the decade of 2000s.

## **2 Data and methodology**

All the statistics in this paper are obtained using microdata from the Encuesta Integrada de Hogares (EIH) for the year 2001, and the Encuesta Permanente de Hogares (EPH) from the years 2002 to 2013. The nationwide surveys were incorporated into the SEDLAC—Socio Economic Database for Latin American and the Caribbean (CEDLAS and the World Bank 2014); three of the authors of this paper were involved in this project at CEDLAS (Center for Distributive, Labor, and Social Studies), Universidad Nacional de la Plata in Argentina. The survey's sample size has decreased over time; it went from 8,131 households and 37,437 persons in 2001 to 5,424 households and 21,207 persons in 2013 (Table 1). The sample size has moved erratically from 2001 to 2004, while from 2005 to 2013 it kept around 5,000 households. Despite the reported changes in the survey's sample size, the EPH surveys continued to be representative of the total population of Paraguay.

For this study, we processed the microdata from Paraguay to construct time series of comparable data for a wide range of labour market and income distribution indicators. The resulting indicators are compiled into a large number of tables and figures, provided at the end of this paper, which form the basis for the text that follows. We use a vertical line in a figure or a horizontal line in a table when the series are consistent on each side of the line but not from one side of the line to the other, e.g. when the country changed a classification so that it is not possible to use a consistent definition throughout the full time period. Each time a line is used, a note stating its meaning is added to the table or figure.

Several definitions and classifications are used in order to assess whether the labour market has improved or deteriorated. Unemployment is defined as usual, i.e. the share of unemployed people over the economically active population. A person is unemployed if s/he is 15 years old or more and during the reference period (one week in the Paraguayan survey), s/he was without work, available for work and seeking work. Youths are those between 15 and 24 years old, while adults are those between 25 and 65 years old.

Occupational groups are defined according to the following classification:<sup>1</sup> management; professionals; technicians and associate professionals; clerical; service and sales workers; agricultural, forestry and fishery workers; craft and related trades workers; plant and machine operators and assemblers; elementary; and armed forces. Paraguay makes use of the *Clasificación Paraguaya de Ocupaciones* (CPO), which is based on the International Standard Classification of Occupations of 1988 (ISCO-88). The main groups used in that classification system fully coincided with the ones used in the classification systems endorsed by the authors of this paper. While the questions geared to capturing the categories outlined here were asked in all of the surveys, we had access to this data only through the year 2009. An improvement in the labour market would be implied by a decrease in the share of low-earning occupations and an increase in the share of high-earning occupations.

The occupational position is classified into four categories: employer, wage/salaried employee, self-employed, and unpaid worker. Given the nature of labour markets in Latin America, the analysis of the employment structure according to occupational positions will identify a decrease in self-employment and an increase in wage/salaried employees as an improvement in the labour market.

The sector of employment was divided into: primary activities; industry; construction; commerce; utilities and transportation; skilled services; public administration; education and health; and domestic workers.<sup>2</sup> When looking at the sectoral distribution of employment, an improvement in the labour market is implied by an increase in the share of the sectors with higher earnings.

Turning now to the educational level of employed workers, we define three categories for the analysis: low (eight years of schooling or less); medium (from nine to thirteen years of schooling); and high (more than thirteen years of schooling). An increase in the education level of the employed population is considered as an improvement in the labour market as the share of workers that are expected to receive high levels of earnings increases and the share of workers with low earnings levels decreases.

We also classify employed workers according to whether they are registered with the social security system or not. In 2010, the Paraguayan household survey asked about registration with the social security system to paid employees only. To avoid comparability problems, this year is not included in the analysis. We assume that it is better for employed workers to be registered, so an increase in this indicator will be interpreted as an improvement in the labour market.

Labour earnings are expressed on a monthly basis in 2005 purchasing power parity (PPP) dollars, and higher earnings represent an improvement in the labour market. We use the per capita household income to compute poverty and inequality statistics. Household income is the sum of labour income plus non-labour income; included in non-labour incomes are capital income, pensions, public and private transfers, and the imputed rent from own-housing.

---

<sup>1</sup> This is the International Standard Classification of Occupations of 2008 (ISCO-08) at one digit level.

<sup>2</sup> Most of the other country studies distinguish between low-tech and high-tech industries. The Paraguayan household surveys do not allow this differentiation from 2011 to 2013. Statistics are presented for the entire industry sector over the whole period.

Poverty rates are estimated considering the national lines for moderate and extreme poverty. We calculate the poverty headcount ratio for each. We also calculate the share of working poor households (those with at least one member employed and a per capita family income below the moderate poverty line), and the poverty rate according to the international poverty lines of 4 dollars-a-day and 2.5 dollars-a-day. Income inequality is calculated using the Gini coefficient of per capita household income and labour earnings.

### 3 Empirical results

*Paraguay experienced slow economic growth from 2000 to 2013. The growth process was erratic. Within the period, the country suffered a serious macroeconomic crisis in the early years, grew steadily from 2003 to 2008, suffered a recession induced by the international crisis of 2008, experienced a quick recovery led by agriculture, suffered a recession once again generated by a severe drought in 2012, and exhibited the largest growth rates of the period in 2013 (Figures 1 and 2).*

During the period 2000 to 2013, Paraguay experienced low economic growth by Latin American standards. GDP per capita increased by 29.1 per cent, while the average for the eighteen Latin American countries was 36.2 per cent during the same period. GDP (measured at 2005 PPP dollars) grew by 64.2 per cent, and GDP per employed person experienced a rise of 14.0 per cent. The annual growth rate of GDP per capita was 1.6 per cent, and it varied from a minimum of -5.7 per cent in 2009 to a maximum of 11.6 per cent in 2013 (Table 2). The process of economic growth in Paraguay was erratic. The volatility of the GDP growth rate in Paraguay during the 2000s was associated both with external factors, such as shocks to terms of trade and foreign demand, and domestic factors, such as weather conditions (World Bank 2013b; ILO 2014). The country experienced a serious macroeconomic crisis in the first years of the period analysed. That crisis, which began in 1997, was associated with a number of factors: a domestic banking crisis and foreign economic crises (specifically in East Asian countries, Russia, Brazil, and Argentina). GDP declined by 1.1 per cent a year from 2000 to 2002, while GDP per capita fell by 3.1 per cent annually during the same period. Starting in 2003, the economy recovered through a boom in the volume of exports and in prices despite a context of declining terms of trade (Hausmann and Klinger 2007). The upward trend in exports was related to the rapid spread of soybean production thanks to innovations, such as genetically modified seeds, as well as greater meat production. From 2003 to 2008, the Paraguayan economy grew at an annual rate of 4.5 per cent while the GDP per capita growth rate averaged 2.6 per cent a year. The country was negatively affected by the international crisis of 2008, which induced a drop in external demand, and also by the fall in international prices for agricultural products and by a drought in 2009. GDP fell by 4.0 per cent in 2009, and GDP per capita declined by 5.7 per cent that year. The growth trend quickly resumed with the growth in the agricultural sector, the better weather conditions, and the implementation of a countercyclical policy response (*Plan Estratégico*) that included the performance of public works projects, the deferral of tax increases, and agricultural subsidies (Ramírez and González 2009; CEPAL 2010; IMF 2012). GDP grew by 13.0 per cent and GDP per capita by 11.1 per cent in 2010. Later, the country was adversely affected by a severe drought that impacted on agriculture and local shocks to the non-agricultural sector as a ban to meat export (IMF 2012; Castilleja et al. 2014). Growth slowed to 4.3 per cent in 2011 and fell to 1.2 per cent in 2012. In 2013, the economy bounced back sharply and that year witnessed the largest growth rate of the entire period. GDP grew by 13.5 per cent and GDP per



capita by 11.6 per cent. The agricultural sector and the recovery of the meat export markets were largely responsible for that growth (Castilleja et al. 2014).

The shares of the service and agriculture sectors in the economy increased, while the share of the industry sector diminished between 2000 and 2013. The share of the service sector, the largest one in the Paraguayan economy, increased from 48.5 per cent in 2000 to 51.6 per cent in 2013 (Table 2). Most of the growth in this sector's share ensued after 2010, when the agricultural sector shrank due to a severe drought. Overall, though, the share of the agricultural sector increased during the period, from 15.8 per cent in 2000 to 21.1 per cent in 2013. The bulk of that increase occurred between 2002 and 2008, when the prices of exports were rising. As mentioned above, a drought had a severe impact on that sector, yielding a reduction in its value added and in its share of GDP at the end of the period. In 2010, the agricultural sector represented 22.5 per cent of GDP and, by 2012, that figure had dropped to 18.1 per cent. In 2013, the agricultural sector recovered its pre-drought production value. The share of the industrial sector diminished over the period from 35.7 per cent in 2000 to 27.3 per cent in 2013. Both the agricultural and industrial sectors were affected by the international crisis of 2008. The industrial sector lost 1.9 per cent of its value added in 2009, while the agricultural sector shrank by 17.3 per cent. Both sectors recovered immediately and, by 2010, they had surpassed their pre-crisis value added levels. However, the agricultural sector later experienced another setback—the drought—losing 19.8 per cent of its value added in 2012. The service sector appears not to have been affected by the international crisis.

*The unemployment rate moved jointly with the business cycle. It decreased between 2001 and 2013 overall and for all population groups. Within the period, the unemployment rate increased in the early years, it decreased from 2003 to 2008, grew once again during the international crisis of 2008, recovered the downward trend after that episode, and had a new rise by the end of the period. The increase in the unemployment rate led by the international crisis held for all population groups (Figure 3).*

The unemployment rate (measured as the ratio of unemployment to labour force) fell from 7.6 per cent in 2001 (188,610 unemployed persons) to 5.0 per cent in 2013 (168,386 unemployed persons). Changes in the unemployment rate followed the business cycle. The unemployment rate increased between 2001 and 2002 when the economy was immersed in a major macroeconomic crisis, climbing from 7.6 to 10.7 per cent (66,937 new unemployed persons). From 2002 to 2008, the unemployment rate decreased, dropping to 5.6 per cent in 2008. This reduction was not steady; the unemployment rate experienced an increase in 2006. In 2009, the unemployment rate increased once again as a result of the international crisis, reaching 6.5 per cent (38,243 new unemployed persons compared to 2008). Both the number of persons in the labour force and the number of persons employed increased between 2008 and 2009 by 190,167 and 151,924 respectively. These figures suggest that the increase in the unemployment rate during the international crisis was explained by new entrants into the labour market that could not find a job. By the end of the period, the unemployment rate was decreasing in conjunction with economic recovery, though there was a slight increase in 2013, probably as a response to the recession of 2012.

From 2001 to 2013, the unemployment rate dropped for all population groups (youth and adults, men, and women). The youth unemployment rate fell from 13.8 per cent in 2001 to 10.5 per cent in 2013, while for adult workers the reduction was from 5.4 per cent in 2001 to 3.4 per cent in 2013. Both men and women benefited from the downward trend in the unemployment rate over the entire period. The reduction was from 6.7 per cent in 2001 to 4.5 per cent in 2013 for men and from 8.9 to

5.7 per cent for women. The erratic evolution of the unemployment rate that was observed in the aggregate, held for all population groups. Their unemployment rates increased at the beginning of the period, from 2001 to 2002, began a downward trend in 2003, but experienced new increases in 2006 and 2009. The increase of 2013 appeared only for men and adult workers.

The unemployment rate increased during the international crisis for young and adult workers, men, and women. The increase was from 11.8 per cent in 2008 to 13.5 per cent in 2009 for young workers. For adults, the unemployment rate increased from 3.6 per cent in 2008 to 3.9 per cent in 2009. The unemployment rate began a downward trend in 2010 for both groups and reached the pre-recession level in that same year for adults and in 2012 for young workers. Men were more affected than women by the rise in overall unemployment rates during the Great Recession. The unemployment rate for the male population climbed from 4.4 per cent in 2008 to 5.6 per cent in 2009. The increase for women was from 7.5 per cent to 7.9 per cent. By 2011, the unemployment rate recovered the pre-recession level for both men and women.

*There was a slight improvement in the composition of employment by occupational group between 2001 and 2009 (when data on this variable stopped being available) as workers moved from elementary, agricultural, and forestry and fishery occupations to better paying occupations such as service and sales, and clerical jobs. Young and adult workers, men, and women benefited from the improvement in the structure of employment by occupational group over the period. Within the period, the structure of employment suffered a worsening between 2001 and 2002 overall and for all population groups and an improvement in the following years that was not affected by the international crisis of 2008, either overall or at the population group level (Figure 4).*

Changes in the occupational composition of employment between 2001 and 2009 showed a mild improvement. Low-earning occupations (elementary, craft and trades, and agricultural, forestry and fishery occupations) lost share in total employment (drop of 4.1 percentage points). High-earning occupations (management, armed forces and professionals) also reduced their share in total employment (drop of 0.5 percentage points). Mid-earning occupations (plant and machine operators, and technical, clerical, services and sales jobs), then, are those that gained share (increase of 4.6 percentage points) (Tables 3 and 6). Within the period 2001–09, there was a worsening in the employment structure by occupational group between 2001 and 2002, when the share of low-earning occupations in total employment increased and the share of high-earning occupations decreased. Starting in 2003, the employment structure by occupational group improved, mainly through the increase in the share of mid-earning occupations in total employment. The improvement continued up to the end of the period with an interruption in 2004.

The improvements in the occupational composition of employment between 2001 and 2009 took place for young and adult workers and for men and women. While the decrease in the share of low-earning occupations in total employment was larger for youth than for adults (drop of 5.9 percentage points for youth versus 3.7 percentage points for adult workers), so was the decrease in the share of high-earning categories in total employment (drop of 1.7 and 0.1 percentage points respectively for youth and adults). As a result, the share of workers in mid-earning occupations increased more for young workers than for men (increase of 7.6 percentage points for youth and 3.7 percentage points for adults). Among men, the share of both low- and high-earning occupations in total employment decreased by 4.4 and 1.0 percentage points respectively. Among women, the share of low-earning occupations remained constant, while the share of high-earning occupations increased by 1.5 percentage points. Consequently, the share of mid-earnings occupations increased

for men (growth of 5.4 percentage points) and decreased for women (drop of 1.6 percentage points). All population groups suffered a worsening in the employment structure by occupational group in the early years of the period and a slight improvement after that.

The international crisis of 2008 did not affect the improving trend in the employment composition by occupational group, either overall or for all population groups. The share of high-earning occupations in total employment increased by 1.4 percentage points while the share of low-earning occupations decreased by 0.6 percentage points. The occupations most affected negatively were crafts and trades (drop of 1.1 percentage points) and plant and machine operators (drop of 0.9 percentage points). Adult and young workers, men, and women, experienced an improvement in their employment composition by occupational group between 2008 and 2009. For young workers, there was a reduction both in the share of low- and high-earning occupations in total employment but the fall was larger for the low-earning category. These changes resulted in an increase in the share of mid-earning occupation in total employment for young workers. For adult workers and women, the share of high-earning occupations increased while the share of low-earning occupations fell. For adults, there was a reduction in the share of mid-earning occupations in total employment, while for women there was an increase. For men, there was an increase both in the shares of low- and high-earning occupations but the growth was larger for the high-earning category. These changes resulted in a reduction in the share of employed workers in mid-earning occupations for men. The changes in employment composition by occupational groups that took place in the years following the Great Recession cannot be analysed because the classification is only available until 2009.

*The employment structure by occupational position improved from 2001 to 2013 as the shares of wage/salaried employees in total employment increased and the shares of self-employed and unpaid workers decreased. All population groups benefited from the improvement in the structure of employment by occupational position over the period. Within the period, the employment structure deteriorated in the early years overall and for all population groups, it improved in the following years, and suffered a worsening once again during the international crisis of 2008, in the aggregate and for adults, men, and women, but not for young workers. All occupational positions returned to their pre-crisis shares in 2010 (Figure 5).*

The share of paid employees—the largest category in Paraguay—increased from 45.8 per cent in 2001 to 55.4 per cent in 2013. The share of the self-employed and unpaid workers decreased from 38.4 per cent in 2001 to 31.5 per cent in 2013 and from 9.8 per cent to 6.7 per cent respectively. The share of employers was essentially unchanged over the period (Table 4). These changes in the structure of employment by occupational position can be interpreted as an improvement due to the fall in the share of low-earning positions (self-employment and unpaid workers) and the increase in the share of high-earning positions (employers and wage/salaried employees). Within the period, the employment structure by occupational position deteriorated at the beginning, when the economy was immersed in a severe macroeconomic crisis and began an improving trend in 2003 that was interrupted by the international crisis of 2008.

All population groups (young and adult workers, men, and women) benefited from the improvement in the employment structure by occupational position between 2001 and 2013. The share of low-earning positions (unpaid workers and the self-employed) in total employment fell from 2001 to 2013 for youth and adults (drops of 8.0 and 11.6 percentage points respectively). The share of high-earning positions (employer and paid employees) increased accordingly, indicating an

improvement in the employment structure by occupational position over time for young and adult workers. There was also an improvement from 2001 to 2013 in the employment structure by occupational position for men and women. The share of high-earning positions increased by 9.3 percentage points for men and 11.1 percentage points for women. The share of low-earning positions in total employment fell for both genders accordingly. All population groups experienced a worsening in their employment structure by occupational position between 2001 and 2002. In 2003, an improving trend began for all population groups, which was interrupted in 2009 during the international crisis.

The international crisis of 2008 led to a deterioration in the employment structure by occupational position for adult workers, men, and women, while it remained largely unchanged for young workers. Between 2008 and 2009, the share of paid employees decreased for adult workers, men, and women. The share of unpaid workers increased for young workers and men, and the share of employers and self-employed increased for adults, men, and women, while they decreased for young workers. The deterioration in the employment structure by occupational position is in accord with the increase in the unemployment rate during the crisis, as economic necessity may compel workers to look for free-entry activities such as unpaid family jobs or self-employment. Overall, these changes implied a reduction in the share of high-earning positions and an increase in the share of low-earning positions for adult workers, men, and women, while for the group of young workers, those shares remained unchanged. By 2010, all of the groups recovered their pre-crisis levels.

*The employment composition by economic sector improved over the period studied, overall and for all population groups, though erratically. The international crisis reversed this tendency for adult workers, men, and women but they recovered the previous structure of employment by 2010 (Figure 6).*

The period from 2001 to 2013 witnessed a reduction in the share of workers in low-earning sectors (domestic workers, primary activities, and industry), as the percentage of workers in those sectors dropped from 50.3 per cent in 2001 to 40.0 per cent in 2013. As mentioned above, although the agricultural sector fuelled economic growth in Paraguay from 2002 to 2008, this sector's share of total employment fell due to increased mechanization and the capital- and land-intensive characteristics of the soy production, the main Paraguayan export (Hausmann and Klinger 2007; Castilleja et al. 2014). During the same period the share of workers in high-earning sectors (skilled services, utilities and transportation, and public administration) increased from 10.9 per cent to 20.2 per cent (Tables 4 and 5). Consequently, the share of mid-earning sectors in total employment (construction, commerce, education and health) experienced a small change over the period (increase of 1.0 percentage point). Within the period, there was a slight deterioration in the employment structure by economic sector at the beginning, from 2001 to 2004, as the share of low-earning sectors in total employment increased along with a slight increase in the share of high-earning sectors. From 2004 and up to the end of the period the employment structure by economic sector improved with some ups and downs in the share of each category. Specifically, low-earning sectors had a small increase during the international crisis of 2008 and rose once again in 2012, while high-earning sectors decreased slightly.

The employment composition by economic sector improved between 2001 and 2013 for young and adult workers and for men and women as they moved from low-earning sectors to high-earning sectors. For young workers, the share of low-earning sectors in total employment dropped from 56.0 per cent in 2001 to 45.2 per cent in 2013, while that reduction was from 46.8 per cent in 2001

to 37.1 per cent in 2013 for adult workers. Over the same period, the share of high-earning sectors in total employment increased from 8.5 to 13.8 per cent for young workers and from 12.3 to 23.2 per cent for adult workers. For both men and women the share of low-earning sectors in total employment decreased over the period (from 51.9 per cent in 2001 to 40.1 per cent in 2013 for men, and from 47.8 per cent to 39.9 per cent for women), and the share of high-earning sectors increased (from 13.0 per cent to 20.5 per cent for men and from 7.5 per cent to 19.8 per cent for women). The changes in the employment structure by economic sector were erratic for all population groups. There was a worsening in the early years of the period for all of them. For youth, adults, and women the deterioration took place from 2001 to 2004, while for men it occurred from 2001 to 2002. The employment structure by economic sector then improved steadily up to 2008 for adults, men, and women who suffered the negative effects of the international crisis. Young workers were not affected. Adults, men, and women recovered the improving trend in 2010. In 2011, adults and women suffered a worsening once again, while young workers exhibited a deterioration in their employment structure by economic sector in 2013.

The international crisis of 2008 led to a slight worsening in the employment composition by economic sector overall and for adult workers, men, and women, while young workers continued with the pre-recession trend in their employment composition. Between 2008 and 2009, the share of low-earning sectors increased by 0.6 percentage points in the aggregate, while the share of high-earning sectors remained essentially unchanged. The sectors that experienced the largest changes were primary activities (an increase of 2.5 percentage points), and the education, and health and industry sectors (a drop of 1.2 percentage points in both cases). In 2010, the primary activities sector resumed its earlier downward trend, probably due to the severe drought in Paraguay. The education and health services sector, meanwhile, continued with the falling trend after the international crisis and the same pattern held for the industry sector. Adult workers, men, and women experienced an increase in the share of low-earning sectors and a decrease in the share of high-earning sectors between 2008 and 2009. All of the groups recovered their pre-crisis shares by 2010. For young workers, the international crisis meant a decrease in the share of low-earning sectors and a slight increase in the share of high-earning sectors.

*The educational level of the employed population improved over the period for all population groups, and especially among young workers. The international crisis of 2008 did not have an effect on the structure of employment by educational level (Figure 7).*

The share of workers with low educational levels (eight years of schooling or less) dropped from 65.2 per cent in 2001 to 45.4 per cent in 2013, while the share of workers with medium and high educational levels (nine to thirteen years of schooling and over thirteen years of schooling) grew from 24.5 per cent in 2001 to 34.4 per cent in 2013 and from 10.1 per cent to 20.3 per cent respectively.<sup>3</sup> We interpret this result as an improvement for the employed population as the level of education is an important predictor of labour earnings. Consequently, the changes in the employment structure by educational level implied an increase in the share of workers that tend to

---

<sup>3</sup> The most frequent value of years of education for employed workers in Paraguay was 6 during the entire period (around 22.0 per cent of employed workers had six years of education).

have high levels of earnings and a decline in the share of workers with low earnings' levels.<sup>4</sup> The changes in the structure of employment by educational level took place with small ups and downs over the period. The improvement in the educational level of the employed population took place simultaneously with the implementation of programmes aiming to improve access to and permanence in basic school (*Escuela Viva* since 2001) and literacy programmes for young and adult people (*Paraguay lee y escribe*, since 2007) (Lavigne 2012; Castilleja et al. 2014).

The improvement in the educational level of the employed population occurred for all population groups, and primarily for young workers. For the youth population, the share of employed workers with low educational levels dropped from 60.1 per cent in 2001 to 29.2 per cent in 2013. The share of young workers with medium or high educational levels grew from 33.6 per cent in 2001 to 57.3 per cent in 2013 and from 6.3 per cent to 13.5 per cent respectively. The reduction in the share of adult employed workers with low educational levels was from 65.5 per cent in 2001 to 47.5 per cent in 2013. During the same period there was an increase in the shares of adult workers with medium and high educational levels, from 22.6 to 29.1 per cent and from 12.0 per cent to 23.4 per cent respectively. The share of employed workers with low educational levels also fell for men and women. That reduction was from 67.3 per cent in 2001 to 47.7 per cent in 2013 for men and from 61.9 to 42.1 per cent for women. The educational level of employed women, though, improved more sharply than the educational level of men. The share of female workers with high educational levels climbed from 13.3 per cent in 2001 to 26.0 per cent in 2013; for men, the increase was from 8.3 per cent to 16.1 per cent.

The pattern of improvement in the level of education of the employed population in Paraguay continued even during the international crisis of 2008, overall and for all population groups.

*The overall share of workers registered with the social security system increased between 2001 and 2013, though erratically. However, the employed population in Paraguay has been largely unregistered over the period. All population groups benefited from the improvement in the share of registered workers over the period. The improvement was not interrupted by the international crisis of 2008 (Figure 8).*

The social security system in Paraguay is composed of a contributory scheme and a non-contributory scheme. The contributory scheme comprises a pension system and a national health system. Paraguay has eight social security institutions but two of them concentrate most of the insured population: the *Caja Fiscal* and the *Instituto de Previsión Social* (IPS). The others are administered by municipalities, railways, banks, Parliament, the national administration for electricity, and *Itaipú* (the bi-national hydroelectric power plant located between Brazil and Paraguay). The IPS is the main organization managing social security for wage earners who work in the private sector in urban areas, but in recent years it has been incorporating public sector workers. The IPS provides both retirement pensions and health coverage for its affiliates and their families, protecting them against diverse risks, including illness, accidents, maternity, old age, and disability. The old age retirement fund is funded by employers' and employees' contributions, while the IPS

---

<sup>4</sup> The improvement in the employment structure by educational level is related to changes in the relative demand and supply of workers with high educational levels with corresponding implications for the wage gap by educational group and the unemployment rate of each educational level. We introduce a discussion about the role of these factors in Paraguay in the paragraph on labour earnings.

contributory health insurance is also funded by the government. The non-contributory scheme comprises different programmes directed at persons in poverty and is funded totally by the government. These programmes include the *Pensión alimentaria para adultos mayores en situación de pobreza*, Survivor pension, and Veterans of the Chaco war (Lavigne 2012; Higgins et al. 2013; ILO 2014).

The social security records show an increase in the percentage of workers registered with the contributory scheme between 2001 and 2013 from 13.0 per cent to 21.9 per cent (397,850 new registered workers). Despite several years of economic growth, the increase in registered employment in Paraguay was slow. The productive infrastructure based on micro and small enterprises, with a concentration of agricultural exports of little value added and very vulnerable to weather conditions and external shocks explains the slow reduction in unregistered employment (ILO 2014). The changes were erratic. From 2001 to 2004, the percentage of workers registered with the social security system fell from 13.0 per cent to 11.0 per cent. That figure increased in 2005 to 14.1 per cent only to fall again in 2006 to 12.0 per cent. From 2007 onwards, the share of workers registered with the social security system increased steadily, and this trend was not interrupted by the international crisis of 2008. In an effort to expand coverage, the IPS launched several institutional reforms in 2003, such as the improvement and modernization of institutional management and the development of skills of IPS's human resources. Some legal reforms also had a positive effect on expanding retirement coverage. In 2004, Paraguay ratified a reciprocity agreement among Mercosur countries, by which a worker who contributed in a Mercosur member country can access social security benefits in another member country.<sup>5</sup> In 2009, the country also adopted reciprocity agreements between the different fiscal funds and the IPS. The exchange of information between the IPS and public sector entities, such as the Tax Secretariat and the National Directorate of Public Contracting, also helps explain the reduced evasion and increased coverage (ILO 2014).

Disaggregating, the rate of registration with the social security system increased for all population groups (young and adult workers, men, and women) over the period. The share of registered workers in total employment grew from 6.1 per cent in 2001 to 14.1 per cent in 2013 for young workers and from 16.4 to 25.6 per cent for adults. The increase was from 12.7 to 22.0 per cent for men and from 13.6 to 21.7 per cent for women. The changes in the share of registered workers in total employment were erratic for all population groups. All of them suffered a reduction in the percentage of registered workers in the early years of the period, from 2001 to 2004, an increase in 2005, a fall in 2006, and a steady improvement in the following years.

The international crisis of 2008 did not affect the upward trend in the share of workers registered with the social security system that took place from 2006 onwards, overall and for any of the population groups.

*Labour earnings increased overall during the period studied, though erratically. Within the period, labour earnings experienced a downward trend in the first half (from 2001 to 2006) with some ups and down and began an upward trend in 2006 that was interrupted by the international crisis of 2008 and by the local crisis of 2012. Though workers' earnings were affected by the 2008 international crisis, they surpassed pre-crisis level by 2010. All population groups experienced earnings gains between 2001 and 2013, but labour incomes moved erratically for all of*

---

<sup>5</sup> Mercosur is a regional trade agreement between Argentina, Brazil, Paraguay, and Uruguay, that was established in 1991.

*them. The evidence indicates that workers from low-earning categories increased their labour earnings, while workers from high-earning categories tended to suffer earnings losses over the period (Figure 9).*

Average monthly earnings, expressed in dollars at 2005 purchasing power parity (PPP), increased by 14.1 per cent over the period, climbing from US\$571 in 2001 to US\$651 in 2013 (Table 6). The increase in labour earnings was just half of the increase in GDP per capita over the period that was 29.1 per cent (Table 2). From 2001 to 2006, changes in labour earnings did not reflect changes in the country's economic performance. Between 2001 and 2002, GDP changed only slightly (drop of 0.02 per cent) while labour earnings decreased by 7.4 per cent. From 2003 to 2006, the economy grew at a rate of 3.8 per cent annually, while labour earnings decreased at a rate of 2.8 per cent a year. From 2007 onwards, labour earnings moved with the business cycle; GDP and earnings experienced a general upward trend during that period, with setbacks in 2009, when labour earnings fell by 2.3 per cent, and in 2012, when they fell by 11.1 per cent.

Labour earnings of young and adult workers, men, and women increased between 2001 and 2013, though erratically. Young workers experienced an earnings gain of 18.8 per cent over the period, while that figure was 10.4 per cent for adult workers. Labour earnings of men rose by 12.9 per cent between 2001 and 2013, while the increase was 19.8 per cent for women. All population groups suffered an earnings reduction in the first half of the period analysed (from 2001 to 2006). An upward trend began in 2007 for all groups with earnings losses in 2009 and in 2012.

Workers from low-earning categories increased their labour earnings between 2001 and 2013, while workers from high-earning categories tended to suffer earnings losses. Among occupational positions, labour earnings of the self-employed increased more than those of paid employees—increases of 26.0 and 8.7 per cent respectively—while employers suffered an earnings loss of 3.7 per cent. The earnings of workers in high-earning sectors (skilled services, utilities and transportation, and public administration) decreased by 6.3 per cent on average over the period studied, while the earnings of workers in low-earning sectors (domestic workers, primary activities, and industry sector) increased by 12.9 per cent. Labour earnings of the remaining sectors (construction, commerce, and education and health) increased by an average of 3.7 per cent. Disaggregating by educational levels, the change in labour earnings from 2001 to 2013 favoured less educated workers. Labour earnings of workers with high educational levels fell by 19.2 per cent. The drop for workers with medium educational levels was 12.3 per cent. Workers with low educational levels were the only educational group whose labour earnings increased over the period, with a rise of 18.2 per cent. Among occupational groups, the labour earnings of all groups decreased during the 2001–09 period. After 2007, the aggregate trend for labour earnings was upward but, due to the international crisis of 2008, there was a negative overall change from 2001 to 2009.

The evidence of increasing labour earnings between 2001 and 2013 for workers with low educational levels, and falling labour earnings for workers with medium and high levels of education, can be interpreted in light of previous findings of improving educational levels of the Paraguayan employed population and improving employment structure by economic sector over that period. The improving employment structure by economic sector implied an increase in the share of sectors that can be expected to employ workers with high and medium educational levels, such as skilled services and public administration, and a reduction in the share of sectors that employ workers with low educational levels, such as domestic workers, primary activities and industry sectors. This evidence indicates that the demand for workers with high and medium educational levels relative to those



with low educational levels increased between 2001 and 2013. On the other hand, the educational level of persons in the labour force improved over the same period, indicating an increase in the relative supply of workers with high and medium levels of education (Table 8). The prediction of a supply and demand analysis is that the relative wages of workers with high and medium educational levels relative to those with low levels of education will rise or fall depending on which effect dominates (increase in the relative demand versus increase in the relative supply). In the Paraguayan labour market, the relative wages of workers with high and medium educational levels relative to those with low educational levels fell over the period, while the relative wages of workers with high educational levels relative to those with medium educational levels also decreased (Table 7). The adjustment process also led to a reduction in the unemployment rate of all educational groups between 2001 and 2013 that was larger for workers with medium and low levels of education compared to those with high levels of education (Table 9).

The international crisis of 2008 had a negative impact on labour earnings in the aggregate, for adult workers, men, and women, and for most occupational categories. Labour earnings decreased by 2.3 per cent between 2008 and 2009 but recovered quickly and surpassed the pre-crisis level in 2010. In 2012, there was a new reduction in labour earnings of 11.1 per cent as a consequence of the local crisis. By 2013, labour earnings were at their highest level of the entire period. Both men and women were affected negatively by the international crisis of 2008. Their labour earnings fell by 2.1 and 1.6 per cent respectively in 2009, but immediately returned to their pre-recession levels. Men and women were also hit by the local crisis of 2012, when their labour earnings dropped by 12.0 and 8.0 per cent respectively. Both groups surpassed their pre-crisis levels of earnings by 2013. Labour earnings of adults were affected negatively by the international crisis of 2008. Adult labour earnings fell by 4.6 per cent in 2009 but recovered in 2010. On the contrary, youth labour earnings increased by 4.0 per cent between 2008 and 2009. The local crisis of 2012 hit adult workers harder than young workers. Adults suffered a drop of 11.2 per cent in their labour earnings, while the reduction for young workers was of 2.2 per cent that year. Adult workers recovered the pre-crisis income level but young workers were still below that figure in 2013. Self-employed workers and employers were impacted negatively by the Great Recession. They suffered earning losses of 3.0 and 14.8 per cent respectively during the crisis, but they recovered their pre-recession earnings levels by 2010. In 2012, the self-employed and employers were affected adversely by the local crisis, and their labour earnings dropped by 31.3 and 24.6 per cent respectively. They could not recover their previous level of income by 2013. Paid employees were not affected by the international and local crises. Both the international crisis of 2008 and the local crisis of 2012 had a negative effect on the earnings of workers in most economic sectors. Workers performing primary activities were hit hardest. Their labour earnings fell by 20.8 per cent in 2009 and by 8.3 per cent in 2012, and by 2013 they were still below the level of 2008. Workers with medium and high educational levels were adversely affected by the international crisis of 2008, with drops in their labour earnings of 5.3 and 5.0 per cent respectively. Both groups of workers recovered their pre-crisis level of income by 2010. All educational groups were affected by the local crisis of 2012, though, and workers with low educational levels were hit hardest on this occasion. Their labour earnings decreased by 14.8 per cent that year. The drop for workers with medium educational levels was 9.6 per cent and for workers with high educational levels the drop was 3.1 per cent. None of the groups returned to the local pre-crisis level of income by 2013. Among occupational groups, the categories most affected by the international crisis were agricultural, forestry and fishery workers (drop in earnings of 15.2 per cent between 2008 and 2009), clerical workers (drop of 10.2 per cent), and plant and machine operators (drop of 7.9 per cent). Owing to the cessation of the classification of employment by occupational

groups in 2009, it is not possible to analyse the trend in years following the international crisis for workers in different occupations.

*The poverty rate and the rate of working poor households dropped between 2001 and 2013 for all poverty lines. Within the period, they increased in the early years (from 2001 to 2002), fell between 2002 and 2005, experienced an increase in 2006 and began a downward trend after that year. Those reducing trends were not interrupted by the international crisis of 2008 or the local crisis of 2012, except for the poverty rate measured by the 2.5 dollars-a-day international line that suffered a slight increase between 2008 and 2009 and the extreme poverty rate that exhibited a small rise in 2010 (Figure 10).*

The moderate poverty rate (measured by the country's official poverty line) fell from 34.2 per cent in 2001 to 22.2 per cent in 2013; the extreme poverty rate dropped from 15.4 per cent to 9.1 per cent over the period. The percentage of working poor households (defined as the proportion of persons in the population living in poor households where at least one member works) decreased from 24.4 per cent to 15.6 per cent over the same period. These poverty indicators increased between 2001 and 2002, dropped between 2002 and 2005, increased again in 2006, and then began a steady downward trend that was not interrupted by the international crisis of 2008 or by the local crisis of 2012. The only exception was the extreme poverty rate that stopped decreasing in 2009 and exhibited a small increase in 2010 (rise of 0.1 percentage points). The analysis based on the 2.5 and 4 dollars-a-day PPP international poverty lines also shows a drop in the poverty rate from 2001 to 2013. The poverty rate based on the 2.5 dollars-a-day poverty line fell from 22.1 per cent in 2001 to 8.3 per cent in 2013. The reduction was from 37.7 per cent in 2001 to 20.2 per cent in 2013 for the poverty rate based on the 4 dollars-a-day poverty line. Both poverty indicators followed similar trends compared to the poverty indicators based on the official poverty lines: they increased between 2001 and 2002, fell from 2002 to 2005, increased once again in 2006 and then started a downward trend up to the end of the period. The downward trend was interrupted by the international crisis of 2008 only for the poverty rate based on the 2.5 dollars-a-day poverty line (increase of 0.8 percentage points).

Rising labour incomes have been the driving force of poverty reduction during the 2000s, both because of increased earnings and increased numbers of earners (World Bank 2014a). Household labour incomes fell at the beginning of the decade, from 2001 to 2006, but exhibited an increase of 46.5 per cent between 2006 and 2013 (Figure 11). Non-labour incomes, such as public transfers, only started to play a significant role in 2011 due to important increases in coverage of the main social programmes. In fact, direct transfers had a small poverty reducing effect in 2010 due to the low coverage among the poor and the low per capita transfers to those who are covered (Higgins et al. 2013). Between 2010 and 2013, incomes from government transfers at the household level grew by 87.3 per cent. The reduction in food prices also played a role in poverty reduction in the last years of the period under study (World Bank 2014a). As a result, between 2011 and 2013, all poverty indicators exhibited important reductions compared to previous years.

*Household per capita income and labour earning inequality decreased from 2001 to 2013. Changes in the inequality indices over the period were erratic: they increased at the beginning of the period (from 2001 to 2002), fell from 2002 to 2005, rose once again in 2006 and began a downward trend in 2007 that was interrupted by the international crisis of 2008 (Figure 12).*

The Gini coefficient of household per capita income fell from 0.547 in 2001 to 0.482 in 2013. This indicator increased between 2001 and 2002, dropped between 2002 and 2005, increased again in 2006, and then entered into a downward trend that was interrupted by the international crisis of 2008. The Gini coefficient of household per capita income increased from 0.496 in 2009 to 0.526 in 2011; the downward trend resumed in 2012. The Gini coefficient of labour earnings among employed workers tended to be higher than the Gini coefficient of household per capita income over the period and dropped from 0.548 in 2001 to 0.498 in 2013; this reduction in labour earnings inequality is in accord with the evidence presented above showing earnings increases for low-earning categories and earnings reductions for high-earning categories. Consequently, the reduction in labour earnings inequality in Paraguay occurred at the expense of income losses for some categories. The Gini coefficient of labour earnings exhibited the same trends as the Gini coefficient of household per capita income over the period.

Changes in household per capita income inequality in Paraguay have been related mainly to changes in demographical factors. Azevedo et al. (2013b) decomposed the change in the Gini coefficient of household per capita income for the period 1999–10 and found that changes in demographical factors, such as the share of adults and the share of occupied by adults, were inequality reducing, while changes in labour and non-labour income were inequality increasing over that period. Other studies have analysed the factors behind the evolution of labour income inequality. Azevedo et al. (2013a) used a decomposition approach and found that changes in the education wage premium (or the ‘price effect’) and changes in the distribution of the stock of education (the ‘quantity effect’) were inequality reducing between 1999 and 2010. Gasparini et al. (2011) found a reduction in the gap between the wages of skilled workers (those with complete or incomplete college education) and unskilled workers (those who have completed secondary education or less) in Paraguay between 2003 and 2009. The shrinking educational earnings gap can be explained by factors related to supply and demand: the relative supply of skilled workers increased steadily while the relative demand for those workers fell.

#### **4 Conclusions**

Overall, Paraguay experienced slow economic growth by Latin American standards between 2000 and 2013. Within the period, the country suffered a serious macroeconomic crisis in the early years, grew steadily from 2003 to 2008, suffered a recession induced by the international crisis of 2008, experienced a quick recovery led by agriculture, suffered a recession once again in 2012 generated by a severe drought, and exhibited the largest growth rates of the period in 2013.

Most labour market indicators followed the erratic pattern of economic growth over the period. The unemployment rate fell overall between 2001 and 2013 and exhibited an increase in the early years of the period, a downward trend from 2003 to 2008, an increase after the international crisis, a recovery of the downward trend, and a final increase by the end of the period. The composition of employment by occupational group suffered a worsening at the beginning of the period but exhibited a slight improvement overall between 2001 and 2009 (the latest we have data on this classification) that was not affected by the Great Recession. The employment structure by occupational position improved overall from 2001 to 2013, as the shares of paid employees and employers in total employment increased and the shares of self-employed and unpaid workers decreased. Within the period, the employment structure by occupational position changed erratically,

with a worsening in the early years of the period (from 2001 to 2002), an improvement in the following years, a worsening during the international crisis of 2008, and a recovery of the pre-crisis structure by the end of the period. The employment composition by economic sector changed erratically over the period and was affected negatively by the international crisis. Overall, there was an improvement between 2001 and 2013. The overall share of workers registered with the social security system increased between 2001 and 2013, with ups and downs. The improving trend was not interrupted by the international crisis of 2008. Labour earnings increased overall between 2001 and 2013. Within the period, labour earnings experienced a downward trend in the first half (from 2001 to 2006) with some ups and downs and began an upward trend in 2006 that was interrupted by the international crisis of 2008 and by the local crisis of 2012. The evidence indicated that workers from low-earning categories increased their labour earnings, while workers from high-earning categories tended to suffer earnings losses. All poverty indicators and the inequality of household per capita income and labour earnings dropped between 2001 and 2013. Within the period, they increased in the early years (from 2001 to 2002), fell between 2002 and 2005, experienced an increase in 2006 and began a downward trend after that year. Those reducing trends were not interrupted by the international crisis of 2008 or the local crisis of 2012 for the moderate poverty rate and the poverty rate based on the 4 dollars-a-day international line, but were affected negatively by the international crisis for the inequality indices, the extreme poverty rate, and the poverty rate based on the 2.5 dollars-a-day international line, but only slightly. The only labour market indicator that changed steadily over the period was the educational level of the employed population that improved over the period and was not affected negatively by the international crisis of 2008.

The comparison between the effects of the international crisis of 2008 on labour market indicators and the effects generated by the macroeconomic crisis at the beginning of the period (2001–02) and the recession caused by the severe drought of 2012 reveals that the 2001–02 crisis impacted Paraguay more strongly. The increase in the unemployment rate and the growth in the share of low-earning positions in total employment were larger during the 2001–02 crisis compared to the international crisis of 2008 and the 2012 recession. The share of low-earning occupations in total employment, the share of unregistered workers, and all poverty and inequality indicators increased during the 2001–02 crisis, while in general they fell during the other recessionary episodes. On the other hand, the reduction in GDP and the increase in the share of low-earning sectors in total employment were larger during the Great Recession, while the reduction in labour earnings was larger during the 2012 recession.

Young workers had worse labour market outcomes over the period compared to adults, but they do not seem to be more vulnerable to macroeconomic crises. Men and women exhibited a balanced situation in their labour market outcomes, but men were most affected by the negative impacts of the crises. The unemployment rate was higher for young compared to adult workers, the share of young employed workers in low-earning occupational groups was larger than the share of adult workers, the percentage of young workers registered with the social security system was lower when compared to adults, and labour earnings of young workers were below those of adults. On the other hand, the shares of young workers in low-earning occupational positions and sectors were lower compared to adults and their educational level improved more than that of adults. Despite the generally inferior situation of young workers in the labour market compared to adults, adult workers were more affected by the episodes of crises, specifically the international crisis of 2008, in all labour market indicators, except for the increase in the unemployment rate that was larger among young workers. Disaggregating by gender, we found that men were better than women in some cases, e.g.

the male unemployment rate was lower, the share of male workers in low-earning positions was lower compared to women, labour earnings of men were higher than labour earnings of women; in other cases, the opposite occurred, e.g. the percentage of workers registered with the social security system tended to be larger for women compared to men, and the share of workers in low-earning occupations and sectors tended to be lower for women compared to men. The negative impacts of the international crisis of 2008 affected men more than women in all labour market indicators.

In summary, the growth process of Paraguay during the 2000s was volatile. Most labour market indicators followed the erratic pattern of economic growth, but ended the period with a general improvement.

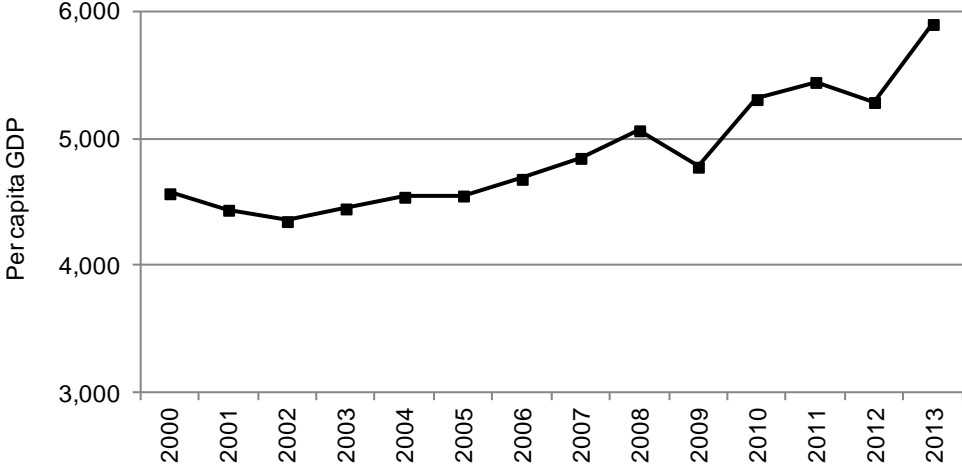
## References

- Azevedo, J.P., M.E. Dávalos, C. Díaz-Bonilla, B. Atuesta, and R.A. Castañeda (2013a). ‘Fifteen Years of Inequality in Latin America. How Have Labor Markets Helped?’. Policy Research Working Paper 6384. Washington, DC: The World Bank.
- Azevedo, J.P., G. Inchauste, and V. Sanfelice (2013b). ‘Decomposing the Recent Inequality Decline in Latin America’. Policy Research Working Paper 6715. Washington, DC: The World Bank.
- Castilleja, L., P. Garay, and D. Lovera (2014). ‘Diagnóstico de Crecimiento de Paraguay’. Nota Técnica IDB-TN-666. Washington, DC: International Development Bank, Departamento de Países del Cono Sur.
- CEDLAS and the World Bank (2014). SEDLAC-Socio Economic Database for Latin American and the Caribbean. Available at: <http://sedlac.econo.unlp.edu.ar/eng/index.php>. Centro de Estudios Distributivos, Laborales y Sociales, Facultad de Ciencias Económicas, Universidad Nacional de La Plata, and World Bank poverty Group LCR. Date of access: 2014.
- CEPAL (2010). *Economic Survey for Latin America and the Caribbean 2009–2010*. Santiago de Chile: Economic Commission for Latin America and the Caribbean.
- Fields, G. (2012). ‘Challenges and Policy Lessons for the Growth-Employment-Poverty Nexus in Developing Countries’. *IZA Journal of Labor Policy*, 1(6): 1–24.
- Fields, G.S. and W.S. Bagg (2003). ‘Long-Term Economic Mobility and the Private Sector in Developing Countries: New Evidence’. In G.S. Fields and G. Pfeffermann (eds), *Pathways out of Poverty: Private Firms and Economic Mobility in Developing Countries*. Norwell, MA: Kluwer Academic Publishers.
- Fields, G.S., and D. Raju (2007). ‘Assessing Current and Changing Labor Market Conditions in Brazil’. Report prepared for the World Bank.
- Gasparini, L., and G. Cruces (2010). ‘A Distribution in Motion: The Case of Argentina’. In L.F. López Calva and N. Lustig (eds), *Declining Inequality in Latin America: A Decade of Progress?*. Washington, DC: Brookings Institution Press.

- Gasparini, L., S. Galiani, G. Cruces, and P. Acosta (2011). 'Educational Upgrading and Returns to Skills in Latin America: Evidence from a Supply-Demand Framework, 1990–2010'. IZA Working Paper 6244. Bonn: Institute for the Study of Labor.
- Gutierrez, C., P. Paci, and M. Ranzani (2008). 'Making Work Pay in Nicaragua'. Washington, DC: The World Bank.
- Ham, C. (2013). 'Did Workers in Colombia Benefit from Economic Growth in the 2000s?'. Unpublished. Masters thesis, Cornell University.
- Hausmann, R., and B. Klinger (2007). 'Growth Diagnostic: Paraguay'. Unpublished manuscript. Cambridge, MA: Center for International Development, Harvard Kennedy School.
- Higgins, S., N. Lustig, J. Ramírez, and B. Swanson (2013). 'Social Spending, Taxes, and Income Redistribution in Paraguay'. CEQ Working Paper 1311. New Orleans: Tulane University.
- ILO (2014). 'Slight Decline and Key Challenges in Informal Employment in Paraguay'. FORLAC. Programme for the Promotion of Formalization in Latin America and the Caribbean. Geneva: Regional Office for Latin America and the Caribbean, International Labour Organization.
- IMF (2012). 'Paraguay: Staff Report for the 2012 Article IV Consultation'. IMF Country Report 12/211. Washington, DC: International Monetary Fund.
- Inchauste, G. (2012). 'Jobs and Transitions out of Poverty: A Literature Review'. Background paper for the World Development Report 2013.
- Lavigne, M. (2012). 'Social Protection Systems in Latin America and the Caribbean: Paraguay'. ECLAC, Project Documents collection. Santiago de Chile: United Nations.
- Ramírez, J., and C. González (2009). 'Crisis y Pobreza Rural en América Latina: El Caso de Paraguay'. Documento de Trabajo 48. Santiago de Chile: Centro Latinoamericano para el Desarrollo Rural.
- Rangel, E. (2009). 'Have the Poor in Mexico Benefited from Economic Growth in Mexico from 2000 to 2006?'. Unpublished. Masters thesis, Cornell University.
- World Bank (2011). *On the Edge of Uncertainty. Poverty Reduction in Latin America and the Caribbean during the Great Recession and Beyond*. Washington, DC: The World Bank.
- World Bank (2013a): 'Jobs'. World Development Report 2013. Washington, DC: The World Bank.
- World Bank (2013b): 'Growth Volatility in Paraguay. Sources, Effects, and Options'. Report 78318-PY. Washington, DC: Poverty Reduction and Economic Management, Latin America and the Caribbean Region, the World Bank.
- World Bank (2014a): 'Volatility and Inequality as Constraints to Shared Prosperity: Paraguay Equity Assessment'. Report ACS9297. Washington, DC: Poverty and Gender Group (LCSPP), the World Bank.
- World Bank (2014b). World Development Indicators. Available at: <http://data.worldbank.org/data-catalog/world-development-indicators>. Date of access: April 2014.

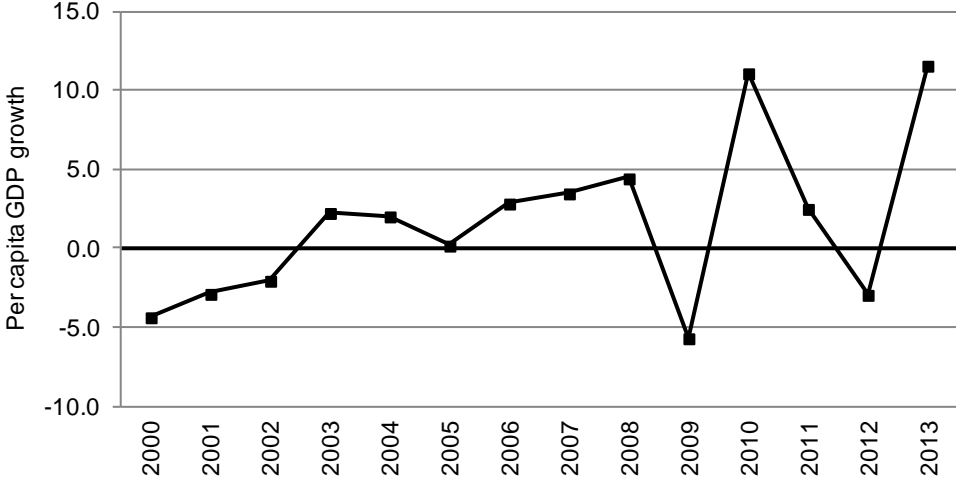
**Figures**

Figure 1: GDP per capita at PPP dollars of 2005, 2000–13



Source: World Development Indicators (the World Bank 2014b).

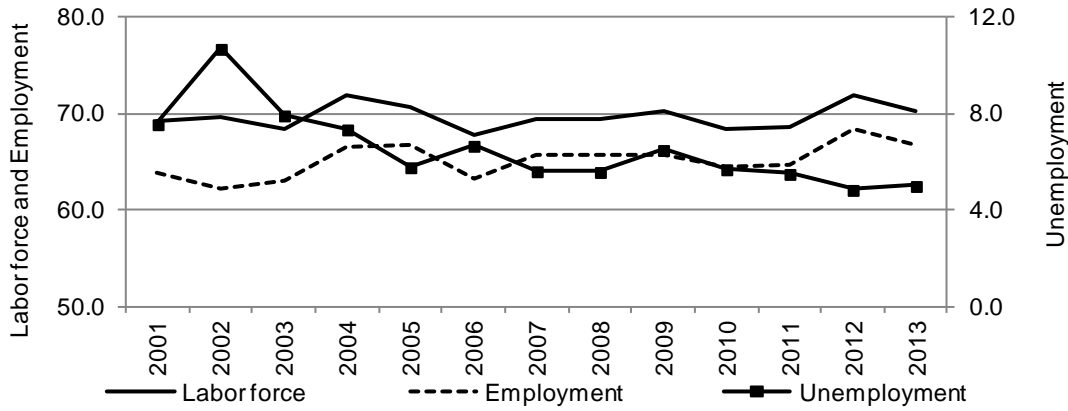
Figure 2: Annual growth of GDP per capita at PPP dollars of 2005, 2000–13



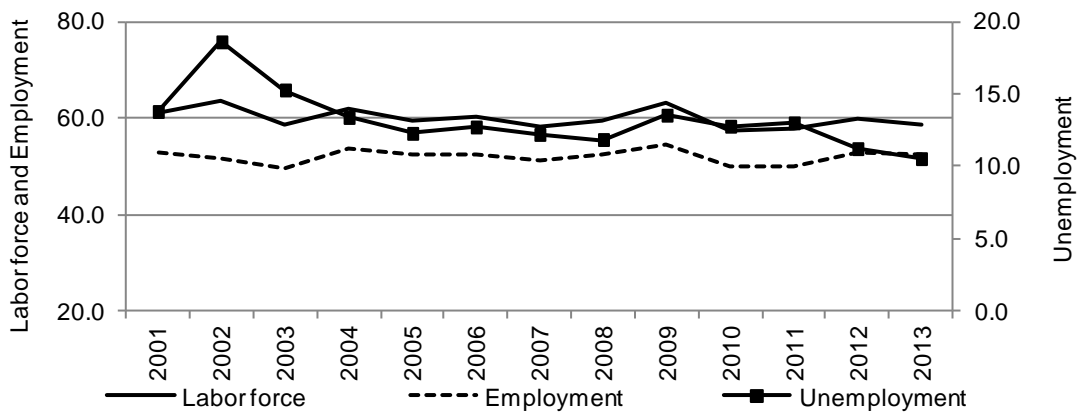
Source: World Development Indicators (the World Bank 2014b).

Figure 3: Labour force rate, employment to population rate, and unemployment rate: population 15 years old or more, 2001–13

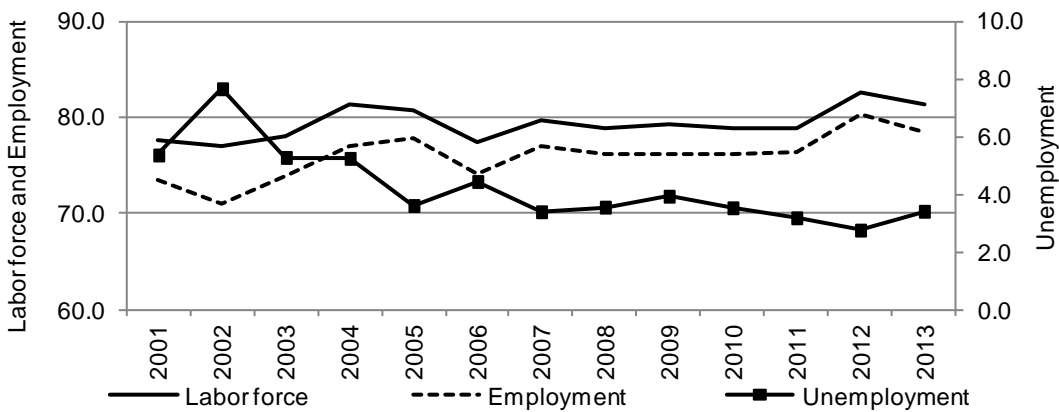
(a) All



(b) Youth (15 to 24 years old)

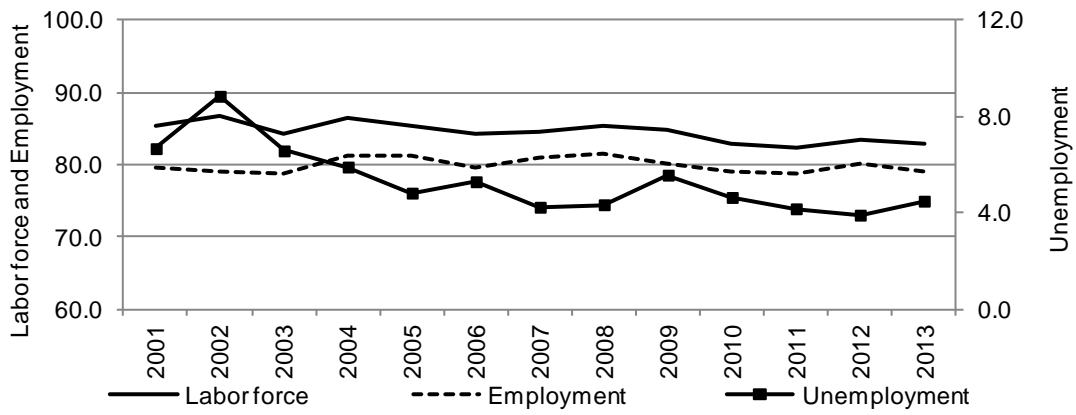


(c) Adults (25 to 64 years old)





(d) Men

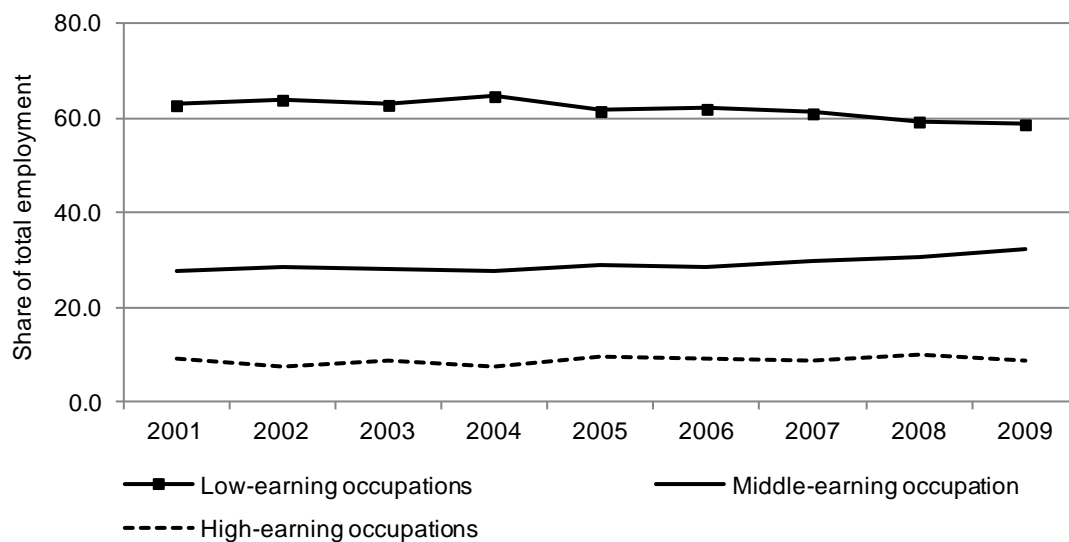


(e) Women



Source: Authors' calculations from SEDLAC (CEDLAS and the World Bank 2014).

Figure 4: Share of employment by occupational group (categories grouped by earning levels): all employed workers, 15 years old or more. 2001–09

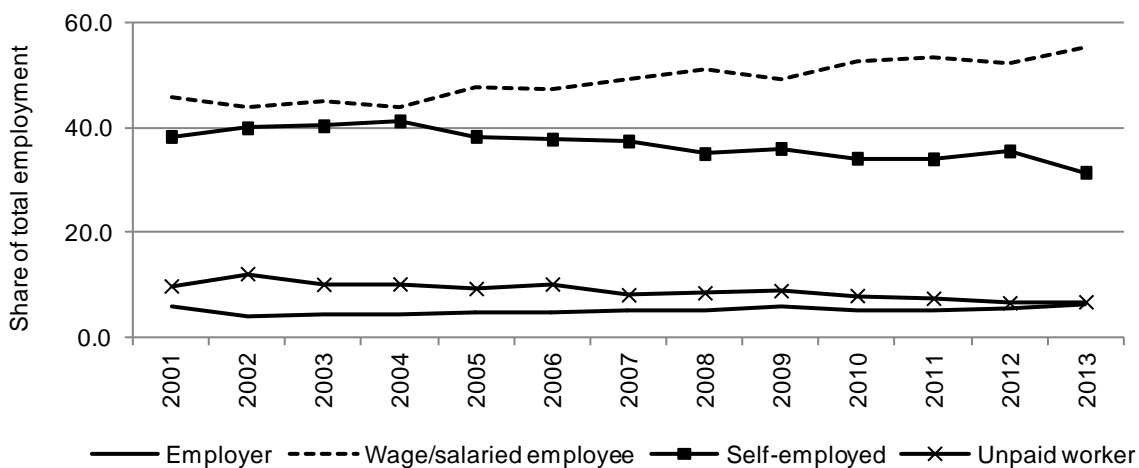


Note: Low-earning occupations: elementary, craft and trades jobs, agricultural, forestry and fishery occupations. Medium-earning occupations: services and sales, clerical, plant and machine operators and assemblers, technicians and associate professionals. High-earning occupations: management, armed forces, professionals.

Data on occupational classification is only available from 2001 to 2009.

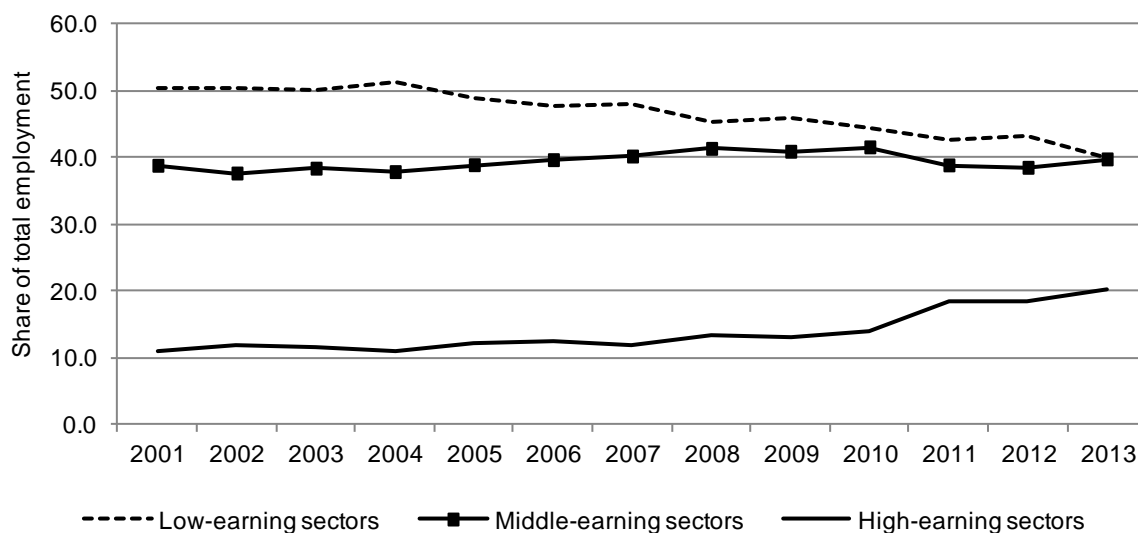
Source: Authors' calculations from SEDLAC (CEDLAS and the World Bank 2014).

Figure 5: Share of employment by occupational position: all employed workers, 15 years old or more, 2001–13



Source: Authors' calculations from SEDLAC (CEDLAS and the World Bank 2014).

Figure 6: Share of employment by economic sector (categories grouped by earning levels): all employed workers, 15 years old or more, 2001-2013

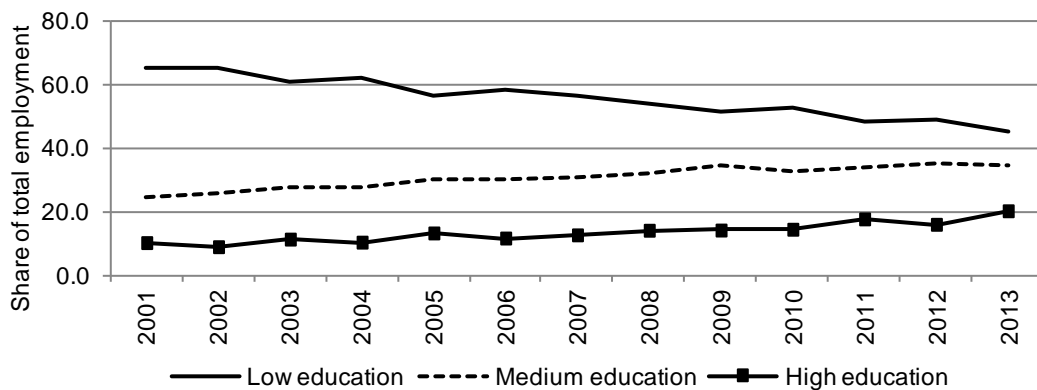


Note: Low-earning sectors: domestic workers, primary activities, industry. Middle-earning sectors: construction, commerce, education and health. High-earning sectors: skilled services, utilities and transportation, public administration.

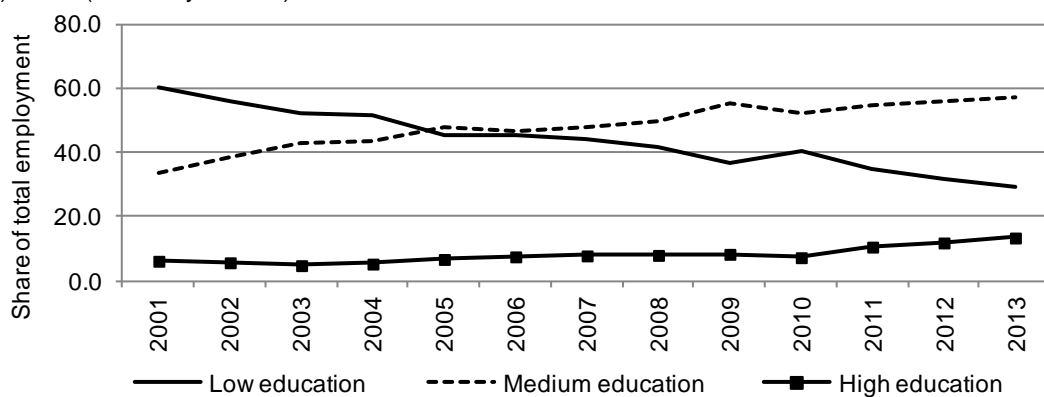
Source: Authors' calculations from SEDLAC (CEDLAS and the World Bank 2014).

Figure 7: Share of employment by educational level: employed workers, 15 years old or more, 2001–13

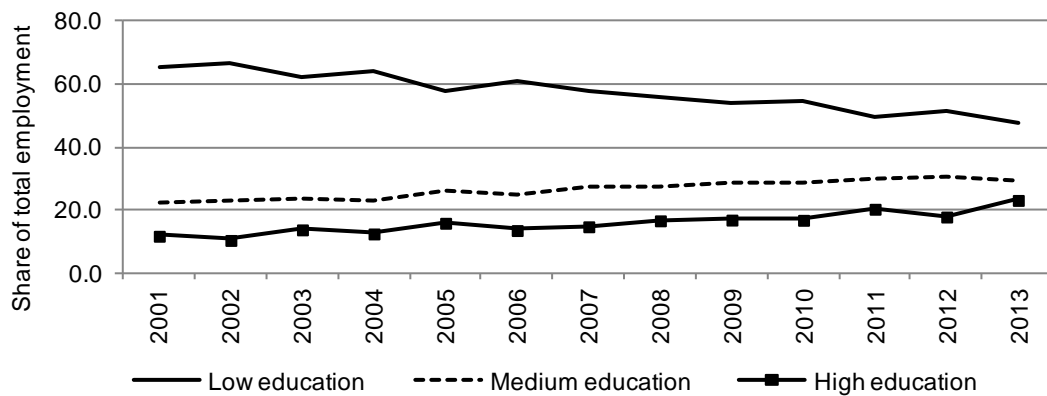
(a) All employed workers



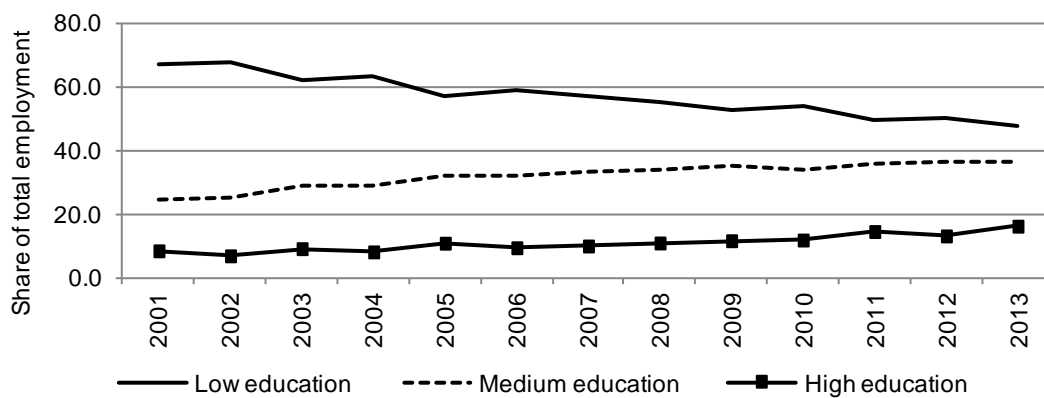
(b) Youth (15 to 24 years old)



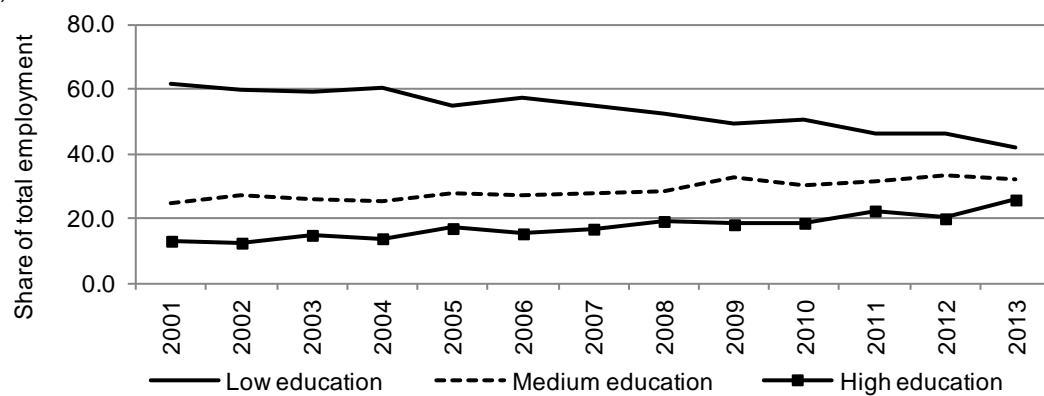
(c) Adults (25 to 64 years old)



(d) Men



(e) Women

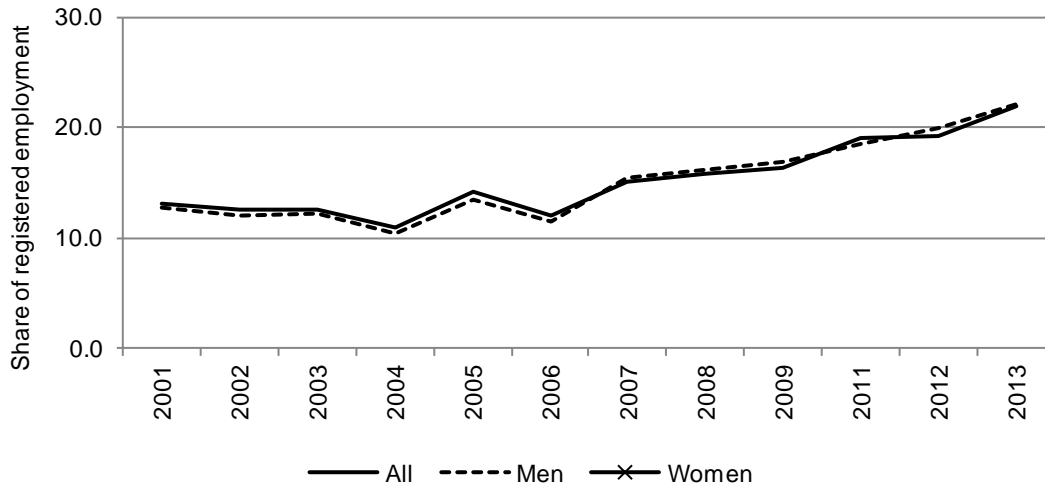


Note: Low: eight years of schooling or less. Medium: from nine to thirteen years of schooling. High: Over thirteen years of schooling.

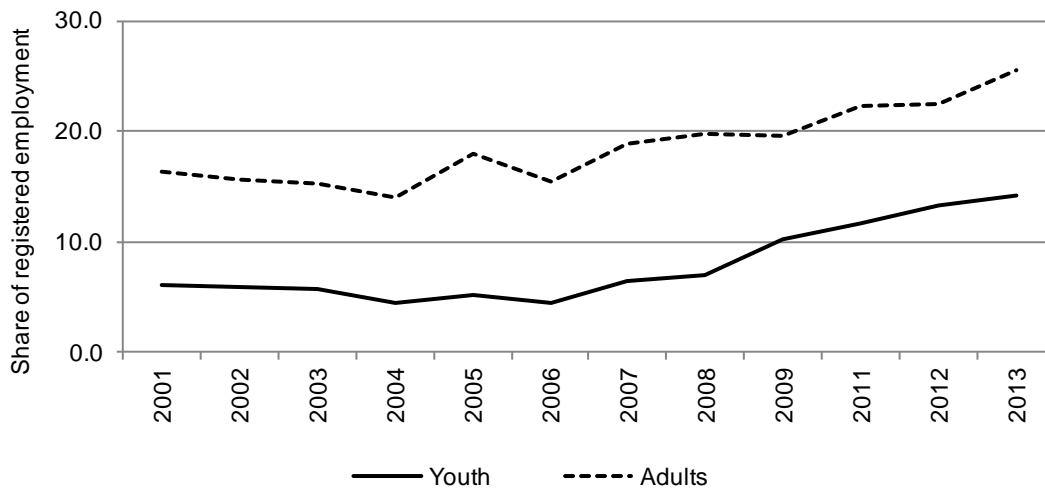
Source: Authors' calculations from SEDLAC (CEDLAS and the World Bank 2014).

Figure 8: Share of employment registered with the national social security system: employed workers, 15 years old or more, 2001–09 and 2011–12

(a) Overall and by gender



(b) By age groups

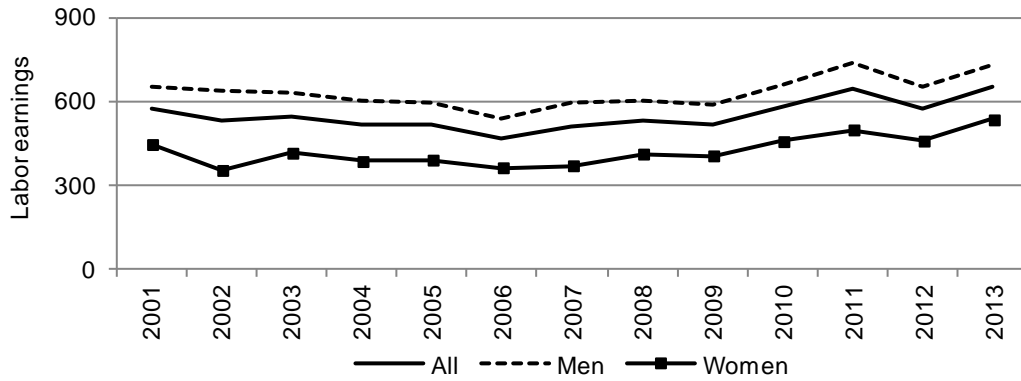


Note: Data on registration of workers with the social security system in 2010 is only available for wage/salaried employees. We do not present the statistics for that year.

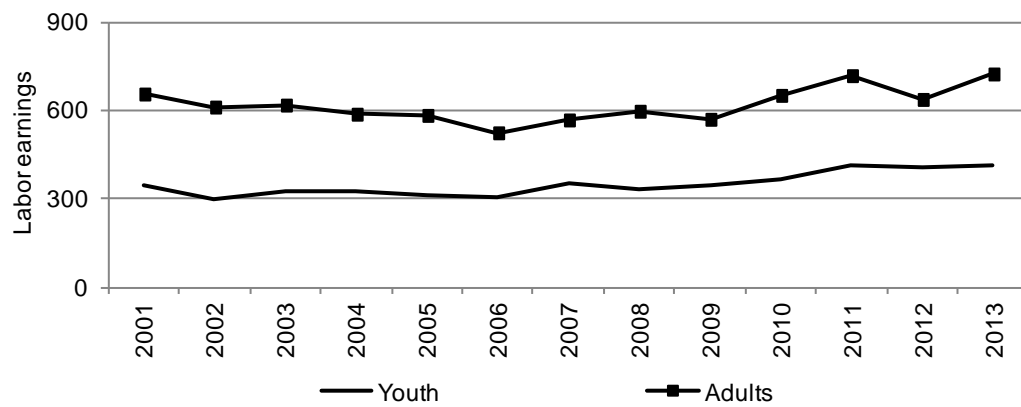
Source: Authors' calculations from SEDLAC (CEDLAS and the World Bank 2014).

Figure 9: Monthly labour earnings at PPP dollars of 2005, 2001-2013

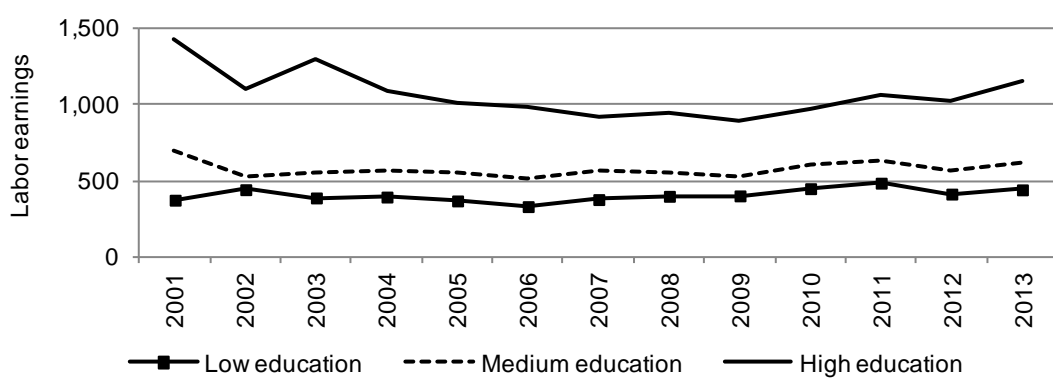
(a) Overall and by gender



(b) By age



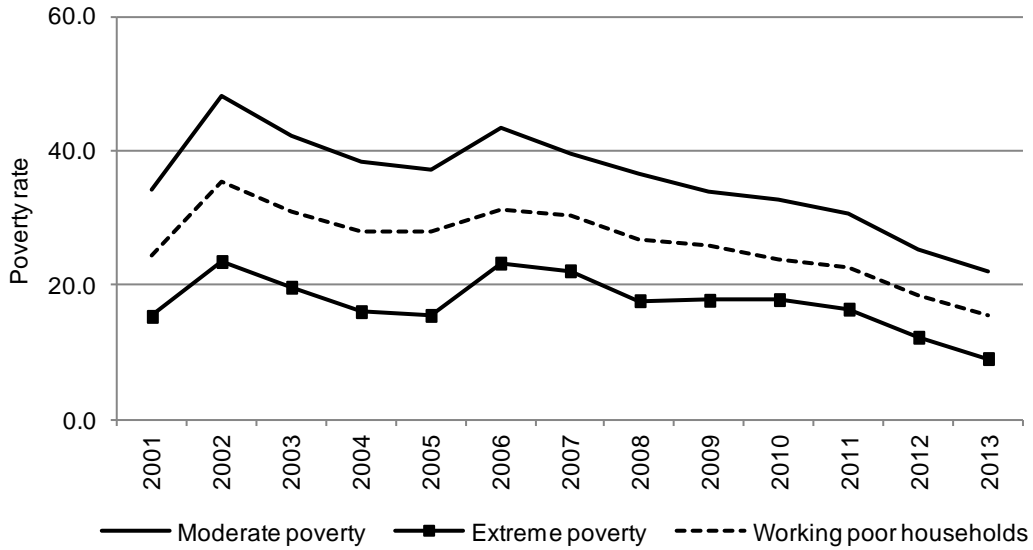
(c) By educational level



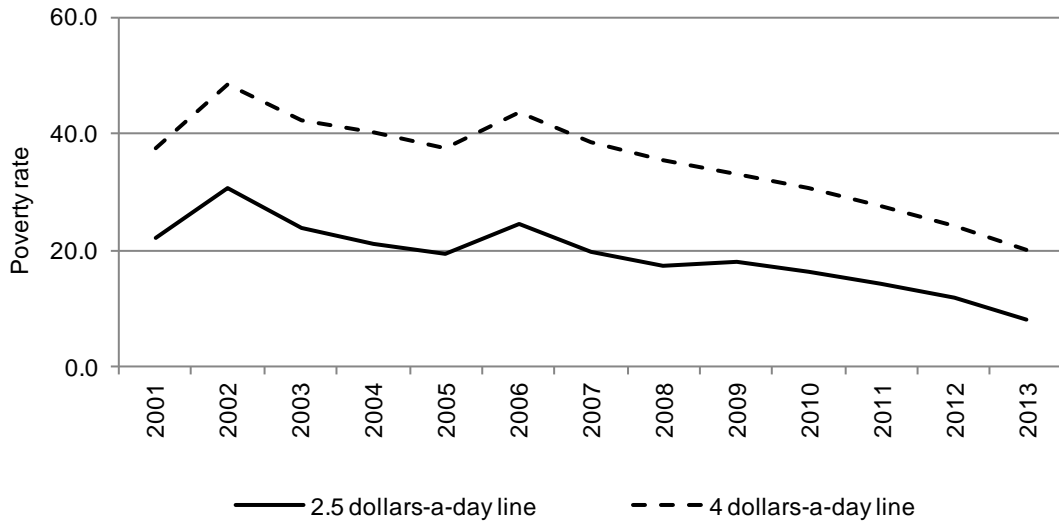
Source: Authors' calculations from SEDLAC (CEDLAS and the World Bank 2014).

Figure 10: Poverty rates and working poor households, 2001–13

(a) Official lines



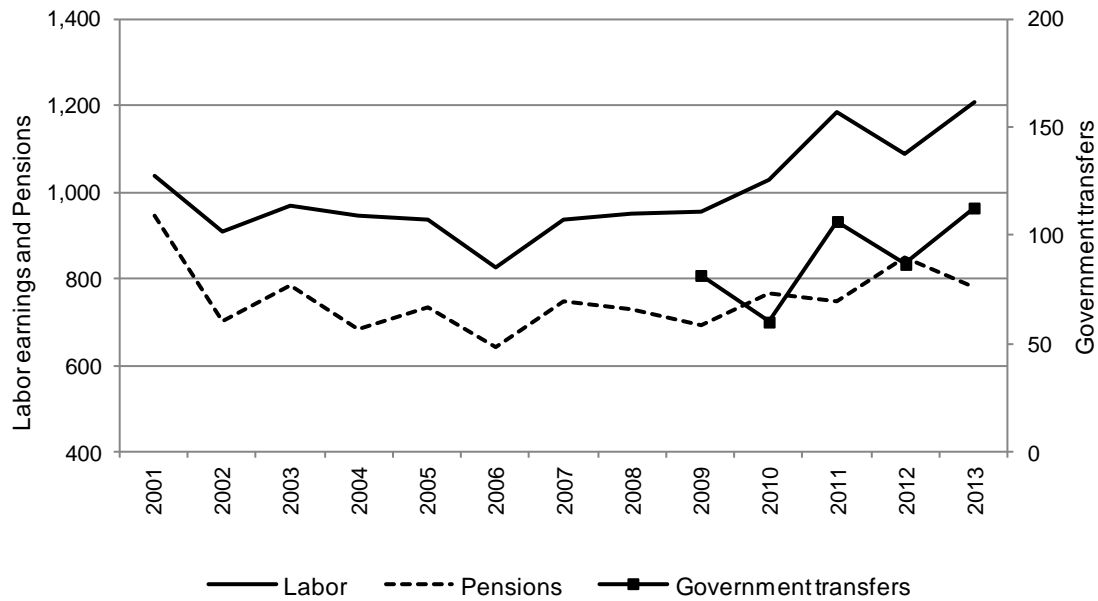
(b) International lines



Source: Authors' calculations from SEDLAC (CEDLAS and the World Bank 2014).



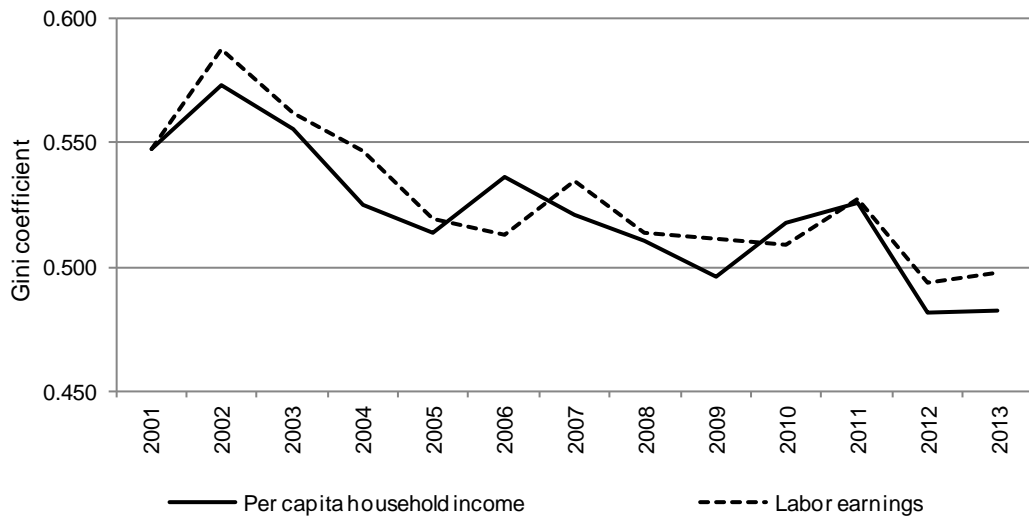
Figure 11: Sources of monthly household total income at PPP dollars of 2005, 2001–13



Note: Data on government transfers is only available from 2009 to 2013.

Source: Authors' calculations from SEDLAC (CEDLAS and the World Bank 2014).

Figure 12: Gini coefficient of household per capita income and labour earnings, 2001–13



Note: Gini coefficients of household per capita income and labor earnings are calculated among persons with positive household per capita income and positive labor earnings respectively.

Source: Authors' calculations from SEDLAC (CEDLAS and the World Bank 2014).

## Tables

Table 1: Household surveys' description

	Number of households	Number of persons
2001	8,131	37,437
2002	3,789	17,600
2003	9,591	43,161
2004	7,823	34,636
2005	4,464	19,579
2006	5,292	22,733
2007	4,812	21,053
2008	4,601	19,416
2009	4,439	18,419
2010	5,003	20,475
2011	4,894	19,740
2012	5,288	21,151
2013	5,424	21,207

Source: Authors' calculations from SEDLAC (CEDLAS and the World Bank 2014).

Table 2: Macroeconomic variables, 2000–13

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
GDP <sup>1,2</sup>	24,462	24,258	24,253	25,301	26,328	26,889	28,182	29,710	31,599	30,346	34,319	35,809	35,375	40,159
GDP per capita <sup>1</sup>	4,572	4,442	4,353	4,453	4,544	4,554	4,685	4,850	5,067	4,781	5,313	5,448	5,290	5,904
GDP per person employed <sup>1,2</sup>	12,483	11,984	12,019	11,813	11,884	11,580	11,906	12,060	12,519	11,671	13,153	13,381	12,995	14,230
GDP growth	-2.31	-0.83	-0.02	4.32	4.06	2.13	4.81	5.42	6.36	-3.97	13.09	4.34	-1.21	13.52
GDP per capita growth	-4.32	-2.84	-2.01	2.28	2.06	0.22	2.88	3.52	4.47	-5.65	11.13	2.54	-2.90	11.61
Exports of goods and services <sup>1,2</sup>	3,959	3,441	3,719	4,160	4,503	5,007	5,195	5,681	5,795	5,256	6,293	6,471	6,018	7,425
Agriculture, value added (% of GDP)	15.82	14.75	14.92	18.28	20.38	19.56	19.09	21.23	23.55	18.92	22.53	22.28	18.11	21.05
Industry, value added (% of GDP)	35.68	37.99	40.50	37.32	34.56	34.76	33.29	31.69	29.73	32.05	30.11	29.33	30.38	27.31
Services, value added (% of GDP)	48.51	47.26	44.58	44.40	45.06	45.68	47.61	47.09	46.73	49.03	47.37	48.40	51.51	51.64
Agriculture, value added <sup>1,2</sup>	1,211	1,352	1,409	1,522	1,581	1,579	1,636	1,871	2,043	1,689	2,267	2,352	1,886	2,658
Industry, value added <sup>1,2</sup>	2,831	2,604	2,566	2,700	2,789	2,806	2,931	2,904	3,095	3,036	3,159	3,254	3,395	3,567
Services, etc., value added <sup>1,2</sup>	3,371	3,337	3,318	3,377	3,535	3,688	3,903	4,110	4,307	4,401	4,798	5,077	5,386	5,804
Total population <sup>2</sup>	5.35	5.46	5.57	5.68	5.79	5.90	6.01	6.13	6.24	6.35	6.46	6.57	6.69	6.80
Working age population (15-64) <sup>2</sup>	3.07	3.16	3.24	3.33	3.42	3.51	3.60	3.69	3.78	3.87	3.96	4.05	4.14	4.22

1: Purchasing power parity dollars of 2005.

2: In millions.

Source: World Development Indicators (the World Bank 2014b).

Table 3: Share of employment by occupational group: all employed workers, 15 years old or more, 2001–09

(a) All employed workers

	Management	Professionals	Technicians & associate professionals	Clerical	Service & sales workers	Agricultural, forestry & fishery workers	Craft & related trades workers	Plant & machine operators, and assemblers	Elementary	Armed forces
2001	4.52	4.66	5.01	3.76	15.15	27.04	14.33	3.84	21.57	0.12
2002	2.96	4.19	4.53	4.48	15.82	29.98	13.30	3.79	20.81	0.13
2003	3.49	5.10	4.54	4.70	15.28	28.26	13.91	3.76	20.83	0.12
2004	3.05	4.25	4.16	4.46	15.30	29.19	14.64	3.79	21.03	0.13
2005	3.20	5.99	4.57	4.67	15.37	27.60	13.72	4.35	20.38	0.15
2006	3.64	5.40	3.95	4.89	15.91	27.45	14.90	3.94	19.82	0.10
2007	3.49	5.02	4.38	5.60	15.77	26.04	15.93	4.18	19.24	0.35
2008	3.50	6.15	5.01	5.48	15.32	23.12	15.59	4.81	20.77	0.25
2009	3.05	5.58	5.06	6.01	17.36	24.02	14.49	3.92	20.39	0.13

(b) Youth (15 to 24 years old)

	Management	Professionals	Technicians & associate professionals	Clerical	Service & sales workers	Agricultural, forestry & fishery workers	Craft & related trades workers	Plant & machine operators, and assemblers	Elementary	Armed forces
2001	0.77	2.35	4.65	5.81	14.47	26.64	13.10	2.31	29.86	0.04
2002	0.39	2.66	3.73	6.93	12.32	30.38	12.87	1.61	29.12	
2003	0.64	1.49	4.53	7.09	12.93	28.94	12.79	2.19	29.31	0.08
2004	0.55	1.53	4.02	6.17	13.23	30.58	12.08	2.78	29.05	0.02
2005	0.30	1.84	3.90	6.57	14.17	28.87	10.88	3.25	30.22	
2006	1.21	1.14	4.38	7.87	14.25	28.08	12.81	2.27	27.99	
2007	0.93	1.44	4.62	8.07	13.83	27.18	15.36	3.08	25.35	0.15
2008	0.83	1.69	5.02	9.49	14.02	23.04	15.06	2.77	27.97	0.11
2009	0.50	0.94	4.17	10.74	17.29	22.14	11.87	2.65	29.69	

(c) Adults (25 to 64 years old)

	Management	Professionals	Technicians & associate professionals	Clerical	Service & sales workers	Agricultural, forestry & fishery workers	Craft & related trades workers	Plant & machine operators, and assemblers	Elementary	Armed forces
2001	6.00	5.69	5.35	3.19	15.47	25.07	15.05	4.65	19.38	0.15
2002	3.97	5.04	5.07	3.73	16.94	27.97	13.86	4.90	18.35	0.19
2003	4.40	6.58	4.75	4.11	15.82	26.33	14.79	4.55	18.53	0.14
2004	4.02	5.45	4.38	4.11	15.77	26.96	15.93	4.36	18.84	0.17
2005	4.21	7.69	5.08	4.31	15.76	25.04	14.82	5.02	17.87	0.21
2006	4.54	7.22	3.85	4.09	16.47	25.70	15.99	4.70	17.30	0.14
2007	4.37	6.50	4.49	5.06	16.34	23.73	16.36	4.80	17.90	0.45
2008	4.47	8.01	5.25	4.49	15.78	21.06	15.83	5.75	19.06	0.30
2009	4.00	7.57	5.60	4.76	17.37	22.09	15.75	4.67	17.99	0.19

(d) Men

	Management	Professionals	Technicians & associate professionals	Clerical	Service & sales workers	Agricultural, forestry & fishery workers	Craft & related trades workers	Plant & machine operators, and assemblers	Elementary	Armed forces
2001	4.55	3.31	5.20	2.81	9.16	32.06	18.35	6.07	18.30	0.19
2002	3.07	2.65	4.83	3.34	9.75	36.81	16.85	5.90	16.62	0.17
2003	3.65	3.31	4.61	4.05	10.33	33.76	17.69	5.98	16.43	0.19
2004	3.49	2.59	4.31	3.54	9.95	33.17	18.59	6.11	18.04	0.21
2005	3.38	3.99	4.85	3.38	10.82	31.89	18.32	6.87	16.27	0.24
2006	3.61	3.61	4.27	4.06	10.19	31.62	20.15	6.22	16.12	0.16
2007	3.77	3.43	4.31	4.30	10.63	28.50	22.04	6.66	15.80	0.56
2008	3.78	3.79	5.27	4.80	10.60	26.49	20.75	7.50	16.63	0.40
2009	3.24	3.63	5.56	5.01	11.74	26.76	18.85	6.31	18.70	0.22

(e) Women

	Management	Professionals	Technicians & associate professionals	Clerical	Service & sales workers	Agricultural, forestry & fishery workers	Craft & related trades workers	Plant & machine operators, and assemblers	Elementary	Armed forces
2001	4.47	6.79	4.71	5.26	24.64	19.09	7.97	0.31	26.74	
2002	2.77	6.79	4.02	6.40	26.06	18.46	7.32	0.23	27.88	0.07
2003	3.25	7.96	4.44	5.74	23.20	19.47	7.87	0.21	27.87	
2004	2.39	6.79	3.93	5.87	23.44	23.13	8.62	0.26	25.57	
2005	2.92	9.05	4.16	6.63	22.33	21.05	6.71	0.50	26.65	0.01
2006	3.70	8.29	3.44	6.23	25.16	20.70	6.40	0.26	25.81	
2007	3.04	7.45	4.48	7.58	23.60	22.29	6.64	0.40	24.48	0.04
2008	3.06	9.86	4.61	6.55	22.73	17.82	7.49	0.59	27.28	
2009	2.75	8.58	4.30	7.55	26.05	19.79	7.75	0.24	23.00	

Note: Data on the classification of workers by occupational group is only available from 2001 to 2009.

Source: Authors' calculations from SEDLAC (CEDLAS and the World Bank 2014).

Table 4: Share of employment by occupational position: all employed workers, 15 years old or more, 2001-2013

(a) All employed workers

	Employer	Wage/salaried employee	Self-employed	Unpaid worker
2001	6.07	45.82	38.35	9.76
2002	3.84	44.05	39.99	12.12
2003	4.49	45.07	40.38	10.06
2004	4.39	44.14	41.32	10.15
2005	4.67	47.70	38.36	9.28
2006	4.67	47.38	37.83	10.12
2007	5.27	49.19	37.47	8.08
2008	5.26	51.23	35.06	8.46
2009	5.80	49.29	36.05	8.86
2010	5.25	52.64	34.18	7.93
2011	5.14	53.39	34.06	7.40
2012	5.68	52.21	35.57	6.54
2013	6.34	55.42	31.50	6.74

(b) Youth (15 to 24 years old)

	Employer	Wage/salaried employee	Self-employed	Unpaid worker
2001	0.67	59.34	15.46	24.54
2002	0.34	53.70	15.19	30.76
2003	1.04	56.08	17.56	25.33
2004	0.57	53.47	18.99	26.97
2005	0.40	59.59	14.39	25.62
2006	0.58	58.89	14.49	26.05
2007	0.95	60.90	16.66	21.50
2008	1.13	62.44	15.29	21.14
2009	0.48	63.26	13.48	22.78
2010	0.54	65.23	12.97	21.26
2011	0.58	66.84	12.51	20.07
2012	1.26	66.41	14.89	17.44
2013	1.34	66.68	12.49	19.49

(c) Adults (25 to 64 years old)

	Employer	Wage/salaried employee	Self-employed	Unpaid worker
2001	7.89	43.02	44.34	4.74
2002	4.98	42.65	46.72	5.65
2003	5.53	43.47	45.87	5.12
2004	5.69	42.89	47.03	4.39
2005	5.90	46.26	43.66	4.17
2006	6.00	45.41	43.89	4.70
2007	6.62	47.79	41.77	3.83
2008	6.44	50.32	38.70	4.55
2009	7.68	47.35	40.63	4.34
2010	6.52	51.36	37.99	4.13
2011	6.44	51.86	37.75	3.95
2012	7.00	50.46	39.20	3.34
2013	7.68	54.85	34.45	3.02

## (d) Men

	Employer	Wage/salaried employee	Self-employed	Unpaid worker
2001	7.96	46.05	35.50	10.48
2002	5.12	43.18	38.06	13.64
2003	5.73	44.66	38.71	10.91
2004	5.84	44.52	38.93	10.70
2005	6.08	46.83	37.20	9.89
2006	6.04	47.45	35.97	10.54
2007	6.83	50.27	34.41	8.49
2008	7.10	52.21	32.77	7.93
2009	7.57	49.87	33.26	9.30
2010	6.69	53.57	31.61	8.13
2011	6.90	54.20	31.67	7.24
2012	7.18	54.35	31.79	6.68
2013	7.91	55.44	30.18	6.46

## (e) Women

	Employer	Wage/salaried employee	Self-employed	Unpaid worker
2001	3.09	45.45	42.84	8.63
2002	1.69	45.53	43.24	9.55
2003	2.50	45.73	43.06	8.71
2004	2.19	43.56	44.95	9.30
2005	2.51	49.03	40.12	8.34
2006	2.45	47.26	40.84	9.44
2007	2.89	47.54	42.12	7.45
2008	2.36	49.69	38.66	9.29
2009	3.07	48.39	40.36	8.18
2010	2.95	51.15	38.29	7.61
2011	2.55	52.21	37.60	7.65
2012	3.58	49.20	40.88	6.34
2013	4.19	55.39	33.31	7.11

Source: Authors' calculations from SEDLAC (CEDLAS and the World Bank 2014).



Table 5: Share of employment by economic sector: all employed workers, 15 years old or more, 2001–13

(a) All employed workers

	Primary activities	Industry	Construction	Commerce	Utilities & transportation	Skilled services	Public administration	Education & Health	Domestic workers
2001	30.92	11.88	4.88	24.13	4.14	3.49	3.27	9.77	7.52
2002	33.30	10.31	4.69	22.88	4.20	3.59	4.03	10.05	6.95
2003	31.62	10.63	4.29	23.10	4.55	3.30	3.71	10.95	7.84
2004	32.10	11.40	4.69	22.90	4.52	2.98	3.44	10.23	7.74
2005	31.31	9.62	5.58	22.48	4.46	3.95	3.88	10.81	7.93
2006	30.49	10.36	5.97	22.99	4.75	3.44	4.37	10.67	6.97
2007	28.61	11.90	5.85	23.63	4.21	3.99	3.62	10.69	7.51
2008	25.69	12.25	6.39	23.90	4.75	4.49	4.09	11.02	7.40
2009	28.16	11.02	6.06	24.96	4.87	4.04	4.28	9.87	6.76
2010	25.78	11.08	7.38	24.42	4.53	4.66	4.81	9.74	7.60
2011	25.52	10.60	6.69	25.60	3.91	4.55	10.04	6.55	6.55
2012	26.14	10.61	5.63	25.64	4.07	4.84	9.50	7.21	6.35
2013	22.82	10.03	6.66	25.64	3.70	5.15	11.39	7.44	7.17

(b) Youth (15 to 24 years old)

	Primary activities	Industry	Construction	Commerce	Utilities & transportation	Skilled services	Public administration	Education & Health	Domestic workers
2001	32.04	11.43	3.93	23.13	3.07	3.70	1.70	8.44	12.56
2002	34.91	9.26	4.54	20.77	3.46	3.68	2.00	7.76	13.63
2003	33.66	9.96	3.53	22.51	3.04	3.03	2.52	7.77	13.98
2004	34.37	11.43	3.97	21.78	4.08	2.83	2.10	7.24	12.21
2005	34.26	8.93	4.51	21.85	2.58	3.31	2.32	8.16	14.07
2006	32.15	9.31	5.04	22.63	3.58	4.28	3.39	7.39	12.25
2007	31.35	12.74	5.57	22.78	4.03	4.26	1.78	6.78	10.72
2008	26.95	13.16	6.80	23.36	3.73	4.78	2.01	7.29	11.91
2009	27.57	11.27	5.58	27.37	4.29	3.87	3.19	6.54	10.32
2010	28.31	11.24	6.99	26.32	3.27	4.18	1.95	6.59	11.17
2011	26.11	11.85	6.70	27.03	3.77	4.95	4.14	5.69	9.77
2012	24.14	11.21	4.26	28.51	4.08	6.79	4.24	7.37	9.40
2013	24.32	10.65	7.06	27.77	3.48	5.57	4.75	6.18	10.23

(c) Adults (25 to 64 years old)

	Primary activities	Industry	Construction	Commerce	Utilities & transportation	Skilled services	Public administration	Education & Health	Domestic workers
2001	28.52	12.27	5.47	24.82	4.77	3.54	3.97	10.67	5.98
2002	30.95	11.09	4.91	23.53	4.77	3.71	4.94	11.30	4.80
2003	29.27	11.18	4.82	23.34	5.28	3.46	4.31	12.28	6.07
2004	29.57	11.65	5.19	23.27	4.92	3.16	4.10	11.67	6.48
2005	28.36	9.79	6.27	23.11	5.36	4.37	4.57	11.95	6.22
2006	28.40	10.86	6.54	23.09	5.34	3.27	4.97	12.22	5.30
2007	25.92	11.66	6.14	24.08	4.48	4.07	4.41	12.47	6.78
2008	23.10	11.99	6.59	24.26	5.32	4.56	5.02	12.88	6.27
2009	26.02	11.14	6.61	24.49	5.44	4.21	4.89	11.37	5.84
2010	23.55	11.08	7.56	23.98	5.09	4.92	5.88	10.97	6.97
2011	23.34	10.37	6.94	25.59	4.17	4.59	12.41	6.76	5.83
2012	24.62	10.78	6.33	25.09	4.05	4.42	11.63	7.34	5.74
2013	20.45	9.99	6.65	25.01	3.96	5.17	14.11	8.06	6.60

(d) Men

	Primary activities	Industry	Construction	Commerce	Utilities & transportation	Skilled services	Public administration	Education & Health	Domestic workers
2001	37.94	12.97	7.89	20.30	5.97	3.94	3.12	6.84	1.03
2002	41.60	10.73	7.27	18.79	5.73	3.63	4.77	6.68	0.79
2003	38.87	11.25	6.86	20.81	6.34	3.57	3.81	7.32	1.16
2004	37.55	11.90	7.59	21.15	6.32	3.37	3.70	7.11	1.32
2005	37.41	10.23	9.21	20.41	6.18	4.41	4.05	7.07	1.02
2006	36.17	11.58	9.53	19.91	6.74	3.53	4.38	7.24	0.91
2007	32.37	14.01	9.63	21.53	5.92	4.16	3.93	7.24	1.21
2008	30.25	13.97	10.42	20.86	6.70	4.79	4.64	7.37	0.99
2009	32.91	11.78	9.85	21.86	6.90	4.45	4.63	6.53	1.09
2010	30.53	12.86	11.81	20.96	6.20	4.84	5.20	6.79	0.80
2011	29.44	12.14	11.03	23.21	5.49	4.55	8.53	4.68	0.93
2012	28.78	12.37	9.57	23.55	6.26	4.90	8.40	5.37	0.78
2013	27.60	11.70	11.36	22.97	5.48	5.55	9.50	5.00	0.84

(e) Women

	Primary activities	Industry	Construction	Commerce	Utilities & transportation	Skilled services	Public administration	Education & Health	Domestic workers
2001	19.82	10.15	0.13	30.19	1.24	2.79	3.51	14.39	17.78
2002	19.29	9.59	0.33	29.77	1.62	3.52	2.78	15.74	17.35
2003	20.01	9.62	0.18	26.77	1.69	2.88	3.56	16.76	18.53
2004	23.80	10.64	0.29	25.58	1.80	2.38	3.03	14.99	17.50
2005	22.00	8.70	0.02	25.63	1.82	3.24	3.60	16.52	18.46
2006	21.30	8.37	0.20	27.97	1.53	3.30	4.36	16.22	16.77
2007	22.88	8.67	0.08	26.82	1.59	3.72	3.16	15.96	17.12
2008	18.54	9.55	0.06	28.68	1.68	4.02	3.24	16.77	17.48
2009	20.82	9.84	0.20	29.75	1.73	3.40	3.73	15.03	15.51
2010	18.18	8.24	0.28	29.96	1.86	4.36	4.18	14.47	18.47
2011	19.72	8.32	0.28	29.14	1.57	4.54	12.27	9.31	14.86
2012	22.44	8.13	0.10	28.56	1.00	4.77	11.05	9.79	14.17
2013	16.24	7.74	0.17	29.32	1.25	4.59	13.99	10.80	15.89

Source: Authors' calculations from SEDLAC (CEDLAS and the World Bank 2014).

Table 6: Monthly labour earnings at PPP dollars of 2005, 2001–13

(a) All employed workers, by gender, age group, occupational position, and educational level

	All	Gender		Age		Occupational position			Educational level		
		Men	Women	Youth	Adults	Employer	Wage/salaried employee	Self-employed	Low	Medium	High
2001	570.8	650.8	446.9	345.9	656.1	1750.0	605.8	342.3	373.7	697.9	1423.9
2002	528.3	636.6	354.1	300.8	611.9	2734.6	543.7	299.4	442.8	521.5	1099.6
2003	546.0	629.3	415.8	327.9	618.5	1662.0	580.8	383.0	388.4	551.2	1303.6
2004	517.2	604.8	385.9	325.4	587.7	1794.8	508.4	390.7	394.3	559.9	1087.9
2005	515.3	598.2	391.1	309.4	583.7	1591.0	516.7	382.7	368.8	554.2	1008.3
2006	469.7	536.0	363.6	308.3	524.5	1465.1	494.1	316.4	331.3	516.2	990.2
2007	508.3	598.2	370.8	354.8	568.1	1806.5	486.1	352.2	377.6	561.5	914.0
2008	530.6	603.9	412.7	331.6	597.7	1416.7	523.9	406.4	399.2	552.4	946.8
2009	518.4	591.2	406.2	344.9	570.3	1207.2	527.3	394.4	401.9	522.9	899.1
2010	579.8	656.6	457.3	363.4	651.5	1814.8	549.3	435.7	449.4	606.0	969.2
2011	642.5	738.5	499.3	416.0	718.5	2128.9	584.8	507.5	485.7	628.0	1059.6
2012	571.0	650.1	459.3	407.0	637.8	1604.6	607.5	348.4	413.8	567.9	1026.4
2013	651.2	734.7	535.3	411.0	724.1	1684.6	658.3	431.3	441.7	612.4	1150.1

(b) By economic sector

	Primary activities	Industry	Construction	Commerce	Utilities & transportation	Skilled services	Public administration	Education & Health	Domestic workers
2001	355.8	580.9	530.5	616.7	1025.0	1097.5	1036.6	684.7	303.3
2002	543.6	485.6	450.9	456.6	752.3	915.7	887.1	517.8	285.9
2003	465.6	476.9	456.7	556.7	845.7	1003.9	1013.3	581.2	275.8
2004	480.9	524.9	437.7	519.2	715.9	911.3	788.4	516.7	285.9
2005	426.4	620.8	457.2	468.6	919.4	808.1	794.8	556.0	273.5
2006	335.8	450.0	444.2	488.1	857.5	870.3	710.7	493.9	265.8
2007	455.1	447.1	462.6	558.4	731.7	796.4	647.9	536.3	259.1
2008	518.9	494.5	434.3	506.9	813.8	875.5	710.3	544.4	267.2
2009	431.6	509.9	524.6	509.5	690.9	861.1	732.0	585.6	268.6
2010	499.8	622.0	563.1	565.5	850.1	855.1	781.1	601.3	305.5
2011	490.1	673.5	582.9	681.9	788.7	1045.5	794.5	720.7	287.8
2012	369.8	575.7	631.1	567.9	707.5	851.0	935.8	605.4	310.7
2013	449.8	623.1	609.4	626.3	886.2	1041.0	1034.8	647.8	318.1

(c) By occupational group

	Management	Professionals	Technicians & associate professional	Clerical	Service & sales workers	Agricultural, forestry & fishery workers	Craft & related trades	Plant & machine operators, and assemblers	Elementary	Armed forces
2001	1765.2	1313.3	948.6	630.7	524.8	359.3	462.8	627.1	343.5	1268.5
2002	1642.4	1076.8	693.7	585.0	447.1	557.7	402.9	599.6	297.9	935.6
2003	2017.2	1129.3	739.6	583.7	485.9	480.1	392.5	604.2	297.3	949.6
2004	1685.1	996.5	687.1	588.9	494.3	485.4	403.5	592.5	303.3	1303.6
2005	1954.1	951.8	697.5	578.8	447.8	437.6	407.7	580.7	280.1	1034.4
2006	1560.5	1005.7	669.3	515.3	422.4	324.1	393.2	586.4	282.9	1004.0
2007	1695.7	942.9	674.2	506.5	468.3	427.0	413.4	610.3	297.0	905.8
2008	1209.7	922.2	753.8	583.7	468.0	538.1	433.3	650.9	300.5	1042.7
2009	1271.7	967.2	770.6	524.2	473.7	456.2	486.8	599.2	303.5	1185.3

Note: Data on the classification of workers by occupational group is only available from 2001 to 2009.

Source: Authors' calculations from SEDLAC (CEDLAS and the World Bank 2014).

Table 7: Hourly wage in main occupation at PPP dollars of 2005, 2001–13

(a) All employed workers, by gender, by age group, by occupational position, and by educational level

	Gender		Age		Occupational position			Educational level			
	All	Men	Women	Youth	Adults	Employer	Wage/salaried employee	Self-employed	Low	Medium	High
2001	3.49	3.62	3.28	2.23	3.91	10.27	3.52	2.38	2.35	4.05	8.78
2002	3.06	3.44	2.45	1.88	3.45	15.01	3.00	1.99	2.58	2.96	6.43
2003	3.31	3.30	3.33	2.13	3.64	9.39	3.18	2.78	2.45	3.33	7.49
2004	3.13	3.21	3.01	2.13	3.48	9.35	2.78	2.83	2.53	3.19	6.24
2005	3.09	3.26	2.83	1.87	3.44	8.94	2.83	2.70	2.37	2.99	6.13
2006	2.66	2.84	2.38	1.79	2.92	7.10	2.72	2.04	1.90	2.77	5.90
2007	2.98	3.11	2.78	1.96	3.28	8.38	2.69	2.60	2.25	3.00	5.85
2008	3.11	3.19	2.98	1.94	3.47	7.33	2.88	2.82	2.39	3.09	5.67
2009	3.09	3.21	2.89	2.02	3.42	6.83	2.97	2.64	2.32	3.19	5.40
2010	3.56	3.55	3.59	2.39	3.93	12.27	3.06	3.00	2.70	3.78	6.07
2011	3.86	3.97	3.70	2.34	4.29	10.63	3.30	3.73	2.96	3.63	6.52
2012	3.48	3.59	3.31	2.55	3.78	8.92	3.41	2.68	2.66	3.18	6.41
2013	3.77	3.95	3.52	2.47	4.11	9.09	3.71	2.81	2.65	3.49	6.55

(b) By economic sector

	Primary activities	Industry	Construction	Commerce	Utilities & transportation	Skilled services	Public administration	Education & Health	Domestic workers
2001	2.7	3.3	2.6	3.3	5.6	6.5	6.3	4.8	1.9
2002	3.3	2.5	2.2	2.3	4.4	5.5	4.8	3.7	1.6
2003	3.3	2.7	2.3	3.0	4.4	6.1	5.2	4.2	1.6
2004	3.5	2.9	2.1	2.6	4.0	5.1	4.5	3.6	1.6
2005	3.3	2.8	2.1	2.3	4.9	4.7	4.7	4.1	1.6
2006	2.2	2.3	2.2	2.3	4.5	4.5	4.1	3.9	1.4
2007	3.0	2.3	2.3	2.7	5.4	4.8	3.6	3.8	1.4
2008	3.6	2.5	2.2	2.5	4.3	5.4	4.1	3.9	1.7
2009	3.0	2.7	2.7	2.8	3.4	4.7	4.3	4.4	1.6
2010	3.2	3.7	2.7	3.2	6.4	5.0	4.8	4.4	1.9
2011	4.1	3.6	2.8	3.4	4.2	6.5	5.2	4.5	1.7
2012	2.7	3.4	3.2	2.9	4.4	5.6	5.7	4.2	2.0
2013	3.1	3.3	3.0	3.1	4.4	6.5	6.3	4.6	2.0

(c) By occupational group

	Management	Professionals	Technicians & associate professional	Clerical	Service & sales workers	Agricultural, forestry & fishery workers	Craft & related trades	Plant & machine operators, and assemblers	Elementary	Armed forces
2001	9.2	9.0	6.3	4.1	2.7	2.9	2.4	3.1	2.1	6.3
2002	8.3	6.4	5.3	3.8	2.2	3.5	2.1	2.9	1.8	4.2
2003	10.3	7.4	5.4	3.6	2.3	3.6	2.1	2.8	1.9	3.6
2004	9.4	5.8	4.8	3.5	2.5	3.7	2.1	2.8	1.8	5.0
2005	10.5	6.1	4.6	3.3	2.0	3.5	2.0	2.9	1.7	4.6
2006	7.7	6.0	5.0	3.1	1.9	2.2	2.0	3.1	1.6	3.8
2007	10.4	5.8	4.6	3.1	2.2	3.0	2.1	2.9	1.8	4.9
2008	6.2	5.9	5.0	3.5	2.3	3.8	2.2	3.0	1.8	3.8
2009	6.6	6.5	5.0	3.1	2.6	3.2	2.5	2.9	1.8	5.1

Note: Data on the classification of workers by occupational groups is only available from 2001 to 2009.

Source: Authors' calculations from SEDLAC (CEDLAS and the World Bank 2014).

Table 8: Share of persons in the labour force by educational levels: population 15 years old or more, 2001–13

	Low	Medium	High
2001	64.21	25.78	10.01
2002	63.74	27.63	8.62
2003	60.01	28.78	11.21
2004	61.10	28.54	10.36
2005	55.97	30.86	13.17
2006	57.42	31.08	11.50
2007	55.35	32.27	12.38
2008	53.45	32.61	13.94
2009	50.31	35.58	14.11
2010	51.90	33.72	14.38
2011	47.29	35.06	17.65
2012	47.79	36.29	15.92
2013	44.84	35.14	20.02

Source: Authors' calculations from SEDLAC (CEDLAS and the World Bank 2014).

Table 9: Unemployment rate by educational levels: population 15 years old or more, 2001–13

	Low	Medium	High
2001	6.13	12.03	5.49
2002	8.84	16.06	7.39
2003	6.31	11.73	6.91
2004	5.61	10.94	7.09
2005	4.92	7.66	5.05
2006	5.37	9.61	5.26
2007	4.12	9.03	3.40
2008	4.42	8.06	4.32
2009	4.23	9.95	6.00
2010	3.92	8.64	5.26
2011	3.85	7.91	5.20
2012	2.76	7.81	4.37
2013	3.93	7.06	3.84

Source: Authors' calculations from SEDLAC (CEDLAS and the World Bank 2014).