

Maurizio, Roxana; Monsalvo, Ana Paula; Catania, Sol; Martínez, Silvana

**Working Paper**

## Changes in the structure of employment and the discussion on occupational polarization in Latin America the cases of Argentina, Chile and Mexico

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Maurizio, R., Monsalvo, A. P., Catania, S., and Martínez, S.

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# Changes in the structure of employment and the discussion on occupational polarization in Latin America: the cases of Argentina, Chile and Mexico

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## Abstract

This article examines the changes in the structure of employment and income in three Latin American countries -Argentina, Chile and Mexico- during different subperiods over the first two decades of the new millennium. It applies the “jobs approach”, which combines occupation type and branch of activity. The study is carried out for all workers and also for different subgroups defined on the basis of gender, age, educational level and formality status. The results show a wide variation of structural change patterns between periods and countries. In Argentina, an inverted U-shaped pattern is found in employment growth for the period 2003–12, while a certain polarizing trend is observed between 2012 and 2019. In Chile, no clear pattern is identified between 2000 and 2009, and a certain pattern of upgrading is found from 2009 until 2017. In Mexico, there is no evidence of significant changes between 2006 and 2010, while an inverted U-shaped pattern is found in the following decade. In the three countries, when the nearly two decades under analysis are considered as a whole, a reallocation of jobs from the lower end of the distribution to jobs in the middle and upper part of the distribution can be observed. Lastly, mean wages behaved differently from what was observed in jobs, as lower-income occupations experienced greater increases during the period studied.

**Keywords:** job polarization, structural change, jobs, Latin America

**Joint Research Centre reference number:** JRC134733

## Related publications and reports:

Torrejon Perez, S., Hurley, J., Fernandez Macias, E. and Staffa, E., [Employment shifts in Europe from 1997 to 2021: from job upgrading to polarisation](#). JRC Working Papers Series on Labour, Education and Technology 2023/05, European Commission, 2023, JRC132678.

(...) [See full list of related publications [here \(all papers published in 2023\)](#).]

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<sup>1</sup> This study was conducted while Roxana Maurizio held the position of Regional Specialist on Labour Economics for Latin America and the Caribbean at the ILO.

## Contents

|  |    |
|--|----|
| Executive summary .....  | 1  |
| 1 Introduction .....   | 2  |
| 2 Literature Review .....  | 4  |
| 3 Sources of information, approach and methodology .....   | 6  |
| 3.1 Approach and methodology .....   | 6  |
| 3.2 Sources of information and classifications used .....  | 7  |
| 3.3 Approach to and measurement of labour informality .....  | 11 |
| 4 Main labour and distributional trends during the first two decades of the twenty-first century ..... | 12 |
| 4.1 Argentina .....  | 13 |
| 4.2 Chile .....  | 16 |
| 4.3 Mexico .....   | 20 |
| 5 Changes in employment structure in the first two decades of the twenty-first century .....           | 23 |
| 5.1 Argentina .....  | 23 |
| 5.2 Chile .....  | 24 |
| 5.3 Mexico .....   | 26 |
| 6 Changes in the employment structure by characteristics of employed persons .....                     | 27 |
| 6.1 By gender .....  | 27 |
| 6.2 By formality/informality status .....  | 31 |
| 6.3 By level of education .....  | 34 |
| 6.4 By age .....   | 36 |
| 7 Changes in income in the first two decades of the twenty-first century .....                         | 39 |
| 8 Discussion and concluding remarks .....  | 41 |
| References .....   | 42 |
| List of figures .....  | 48 |
| List of tables .....   | 49 |

## **Executive summary**

- The article examines changes in employment structure and income in Argentina, Chile, and Mexico over the first two decades of the new millennium.
- This study follows the approach used in the European Jobs Monitor to regularly assess changes in employment structure in the European Union. The jobs-based approach is based on the analysis of jobs defined through the identification of a specific occupation in a specific sector of activity.
- Job polarization is not confirmed in any of the three countries. Results show a reallocation of jobs from the lower to middle and upper quintiles.
- In particular, patterns of structural change vary across periods and countries. In Argentina, an inverted U-shaped pattern is found in employment growth for the period 2003–12, while a certain polarizing trend is observed between 2012 and 2019. In Chile, no clear pattern is identified between 2000 and 2009, and a certain pattern of upgrading is found from 2009 until 2017. In Mexico, there is no evidence of significant changes between 2006 and 2010, while an inverted U-shaped pattern is found in the following decade.
- Income behaviour differs from job trends, with lower-income jobs experiencing the highest real income increases in Argentina and Chile.
- Institutional factors, such as minimum wage increases, may have influenced wage behaviour in the lower part of the income distribution.
- Several questions arise, including the impact of automation, differences in automation trends between developed and developing countries, and the overall impact of changing job shares on income distribution.
- The results emphasize the need for country-specific studies to inform policy design addressing decent work deficits and wage inequality in Latin American countries.

## **1 Introduction**

In order to understand the impact of different macroeconomic and microeconomic factors on the creation and destruction of jobs, it is vital to study the changes in the composition of employment. In turn, these changes have implications for several different areas, such as working conditions, productivity, inequality and working poverty.

All these dimensions become more relevant in the current employment context, which is characterized by three types of transitions. The first is a demographic transition involving the ageing of the population and the extension of working life. The second is the digital transition, which goes hand in hand with the acceleration of technological change, and the third is the green transition and the effects of climate change. These trends impact different jobs to varying extents and in different ways and, in this way, shape the overall composition of employment.

With respect to technological change, there is fierce debate across the globe about the impact of the automation of tasks on the current and future nature of work. However, this discussion is not new. During the 1990s, a consensus was reached on skills-biased technological change, particularly in developed countries. This was the canonical explanation for the increasing demand for highly skilled workers over underkilled workers. This process, in turn, contributed to an increase in income inequality.

Recently, a new phenomenon has emerged in high-income countries, whereby the number of medium-skilled jobs has declined compared with high- and low-skilled occupations. This phenomenon of occupational polarization has occurred mainly in the United States (Wright and Dwyer 2003; Autor and Dorn 2013; Autor, Katz and Kearney, 2006; Matias 2016; Autor 2015; Salvatori 2015; Goos and Manning 2007; Autor 2011) and in some European countries (Goos, Manning and Salomons 2009, 2014). However, it has not been a widespread trend in Europe. Fernández-Macías (2012) found, between 1995 and 2007, patterns of labour polarization in continental Europe, upgrading in the Nordic countries and Luxembourg, and a combination of both trends in southern Europe. Torrejón Pérez et al. (2023) studied the cases of Czechia, Germany, Spain, France, Ireland, Italy, Romania and Sweden between 1997 and 2021, and identified not only upgrading and polarization, depending on the year and the country, but also episodes of downgrading, and growth in the middle distribution. Other studies also support the idea of different patterns of employment structural change in Europe (Fernández-Macías and Hurley 2017; Oesch and Menés 2011; Oesch and Piccitto 2019; Fernández-Macías et al. 2017; Oesch 2015).

However, labour polarization has not always gone hand in hand with income polarization. While Autor et al. (2006) found that these two trends coincided in the United States, Goos and Manning (2007) observed polarization of labour but not of wages in the United Kingdom.

Despite the growing importance of these issues, the empirical literature for least developed countries, including those in Latin America, is scant. Given that the composition of employment, the speed and type of adoption of technology, the position of countries in global value chains, and national macroeconomic and productive conditions, are very different throughout the world, the results can differ widely among countries.

It is for this reason that the present study focuses on an analysis of occupational structure in three countries in Latin America -Argentina, Chile and Mexico- over the first two decades of the new millennium. More specifically, for Argentina, the period between 2003 and 2019 is examined; for Chile, between 2000 and 2017; and for Mexico, between 2006 and 2019. For each of these periods, the analysis is separated into subperiods, in order to account for changes in the labour trends observed during the time frame under study.

During the first decade of the new millennium, Latin America recorded a high rate of economic growth driven by, inter alia, the so-called “commodities super cycle”. This favourable macroeconomic

performance came in tandem with major labour improvements. In particular, an upward trend in employment together with a decreased unemployment rate were observed. The creation of new jobs, in turn, was biased towards formal occupations, which resulted in a widespread process of employment formalization (Beccaria, Maurizio and Monsalvo 2020; Bertranou et al. 2013; Maurizio 2015; Maurizio et al. 2021; ILO 2014). At the same time, the levels of inequality in labour and household income declined in most countries (Alvaredo and Gasparini 2015; Amarante, Colafranceschi and Vigorito 2011; Beccaria and Maurizio 2017; Cornia 2012; López-Calva and Lustig 2010). This decrease in inequality contrasted not only with the distributive worsening observed in the 1990s, but also with that registered in developed countries (Acemoglu and Autor 2011; Atkinson 2008) and in other developing countries (Ge and Yang 2014; Lee and Wie 201) in the new millennium.

The labour market has played a central role in these distributive improvements. It contributed to both the change in the composition of employment and the behaviour of returns to certain worker characteristics. In relation to the first factor, the increase in the rate of formality has been one of the factors that has a significant equalizing impact (Amarante and Arim 2015; Beccaria, Maurizio and Vázquez 2015; Beccaria, Maurizio and Monsalvo 2020; Maurizio and Vázquez 2015; Rodrigues-Silveira 2003). This contrasts with the unequalizing effects of the increase in the educational level of the employed population (Battistón, García-Doménch and Gasparini 2014; Alejo et al. 2022). Regarding the second factor, the decrease in returns to education has been one of the factors that most explains the distributive improvements (López-Calva and Lustig 2010; Beccaria, Maurizio and Vázquez 2015; Beccaria, Maurizio and Monsalvo 2020; Gasparini and Lustig 2012). It may have been the result of the increase in the supply of skills that exceeded the demand for workers with a higher level of education. However, labour institutions have also played a role. In particular, the increase in the minimum wage has led, in several countries in Latin America, to decreased wage dispersion, including a reduction in the wage gap between workers with different skills (Maurizio and Vázquez 2016).

These positive trends slowed or stopped in the second decade of the new millennium. The regional employment rate recorded a declining trend while the unemployment rate increased. In parallel, the countries experienced a slowdown in the pace of labour formalization or even a reversal of this trend (Maurizio et al. 2021).

In this period marked by contrasting labour trends, the aim of this study is to evaluate whether the countries observed experienced one of the four types of potential trends in relation to employment structure by job. The first type is a process of occupational polarization in which jobs at the extremes of the distribution record growth while those at the centre of the distribution contract or grow less sharply. The second is an inverted U-shaped behaviour, in which trends opposite to those mentioned above are observed: increases in jobs at the centre of the distribution together with a decrease in the lowest- and highest-income and lowest- and highest-skilled jobs. The third is a rise in jobs at the top end of the distribution at the expense of the other occupations (upgrading), and the fourth is a trend opposite to the third, in which lower-skilled jobs increase at a faster pace (downgrading).

This study follows the approach used in the European Jobs Monitor (Fernández-Macías and Hurley 2016) to regularly assess changes in employment structure in the European Union. The jobs-based approach is based on the analysis of jobs defined through the identification of a specific occupation in a specific sector of activity. The observation unit is not directly each worker, but rather each cell of the matrix built using these two variables. Then, the jobs are sorted into quintiles according to the hourly wages or average years of education for each job in the initial year of the period under study.

The results obtained from the application of this approach indicate distinctly different behaviours among the three countries, as well as contrasting trends between the two subperiods in each of the countries. When the almost two decades under analysis are considered as a whole, a reallocation of jobs from the lower end of the distribution to jobs in the middle and upper quintiles is observed. This may be a reflection of labour transitions that enabled low-income workers to increasingly move into



higher-skilled and higher-income positions. It may also, in turn, be consistent with the upward trend in the educational level of the workforce observed in the three countries. However, it may also indicate growing difficulties in obtaining and remaining in an occupation for lower-skilled workers in the face of a labour demand biased towards higher levels of education. The latter possibility may, in turn, be a consequence of technological change. However, regardless of the option, the hypothesis of job polarization could not be verified in any of the three countries.

Lastly, income experienced significantly different changes from those observed in the relative share of jobs. This suggests the presence of other factors that may have influenced wages, such as the minimum wage or collective bargaining.

The remainder of the document is structured as follows. The second section contains a review of the literature, and the third provides details of the sources of information and methodology used. The fourth section analyses the main labour and distributive trends in each of the three countries over the period examined. The fifth section provides an analysis of the changes in occupational structure and the contributions of different jobs to the employment change in the different quintiles. In sixth section, this analysis is conducted in the different groups of employed persons defined by gender, level of education, status of formality or informality, and age. The seventh section examines the changes in labour income throughout the distribution, and the eighth section concludes.

## **2 Literature Review**

As mentioned above, in contrast with more developed countries, the empirical evidence on changes in employment structure, the tasks performed in different jobs, and their impact on income and the distribution, remains extremely scarce in Latin American countries.

Gasparini et al. (2021) analyse changes in jobs according to the level of exposure to the process of automation during the new millennium in the three countries observed in this study, and also in Brazil, Colombia and Peru. In order to achieve their objective, they use non-parametric regression (LOWESS regressions) and parametric models (Ordinary Least Squares (OLS) and fixed effects) to assess the effect of change in employment structure by occupation type on a routinization index constructed on the basis of data obtained from the Programme for the International Assessment of Adult Competencies (PIACC). The authors do not find evidence of labour polarization in these countries. Their results show that, during the first two decades of the nineteenth century, employment in occupations with high routine task content increased relatively less or even decreased, while occupations with low routine task content grew. They therefore find that the routinization index declined in the region, particularly in the first decade. The case of Mexico is particular in that, during the 2000s, an increase in the level of routinization was observed, which could be associated, according to the authors, with the outsourcing of routine tasks by companies from the United States.

Apella and Zunino (2022) analyse task content in nine countries in Latin America, including Argentina, Chile and Mexico. Following the methodology of Acemoglu and Autor (2011) and Hardy, Keister and Lewandowski (2015), they construct five indicators to measure the intensity of different task types in each occupation. They find that in the 1990s and mid-2010s, the non-routine cognitive task content of jobs increased, while that of manual tasks decreased. At the same time, the authors find that, for Argentina and Chile, and also for Brazil, El Salvador and Uruguay, the rise in the importance of routine cognitive tasks and the drop in the share of manual tasks, are mainly due to the movement of workers between jobs and, therefore, between different combinations of tasks. The authors also find that the increase in routine cognitive tasks could have an unequalizing impact, as most workers who carry out these tasks are located in the middle part of the distribution, while workers in the first deciles of income have jobs in which they perform mostly non-routine manual tasks and, therefore, are less likely to be replaced by a robot.

In the case of Chile, the study by Zapata-Román (2021) uses two task routinization indexes in line with the study by Gradín and Schotte (2020). One of the indexes is based on information from O\*NET, while the other is based on information specific to the country. For the classification of jobs, the International Standard Classification of Occupations of 1988 (ISCO-88) three-digit classification is used. To statistically assess the hypothesis of labour polarization and income polarization, an OLS regression is used where the dependent variable is alternatively the variation of the logarithm of the share of occupations or the variation of the logarithm of income, and where the covariate of interest is the logarithm of lagged income and the same squared, or alternatively the two routinization indexes. For the period between 1992 and 2017, the study does not find statistically significant evidence of job or wage polarization. However, the author finds an inverted U-shaped pattern in earnings for the subperiod 2000–06 as a result of a sharper increase in real earnings in the middle of the distribution. At the same time, during this subperiod, the author observes a decrease in the share of high-wage jobs in favour of middle- and low-income occupations, together with stronger wage increases at the lower end of the distribution. Lastly, between 2006 and 2017, there is a displacement of jobs in the lower and the middle part of the distribution of skills towards those in the upper part, with earnings increasing more sharply in the three first deciles of this distribution.

Messina and Silva (2018, 2019, 2021) analyse changes in wages and occupations across the percentiles of the distribution, by using income in the initial period of the study as a proxy measure of the skill level of jobs. The authors find in the case of Chile during the 2000s that changes in employment tended to be polarized, as sharper increases were recorded among high-skill, high-wage occupations and, to a lesser extent, low-wage occupations, as well as contractions in the share of occupations in the middle part of the distribution. The authors carried out the same study for Mexico, Peru and Brazil and concluded that there is no evidence of occupational polarization in these countries. In the three countries, and particularly in Mexico, the decrease in the employment share occurred in the first three deciles of earnings, while the magnitude of the positive variations was similar across the rest of the distribution. The behaviour of real earnings, however, differs from that observed in the occupations in the four countries studied. In particular, these increased most strongly at the lower end of the distribution, which is consistent with the decrease in inequality during this period (Messina and Silva 2021).

Maloney and Molina (2016, 2019) build a base of 80 countries with census data from 1960 until 2015 based on information from the Integrated Public Use Microdata Series (IPUMS). The variable used for the study is occupation grouped into 11 categories according to the ISCO classification and, alternatively into four categories as proposed by Autor (2010). On the basis of regression models (OLS), authors study whether polarization and the resulting displacement of employed persons due to automation observed in developed countries is also found in developing economies. They find that, in Mexico (and in Brazil), while the share of total employment of operators and assemblers grew until 2000, this process slowed in the following decade, which could be consistent with an incipient process of polarization.

Certain indications of occupational and wage polarization in Mexico are found by García Ramírez and García Ramírez (2020). Their study used data from the National Survey of Occupation and Employment and produced a typology of skills based on the National Occupation Classification System (SINCO). Three groups of skills were identified – high, medium and low – which is in line with the classification used by Autor (2010) for abstract non-routine tasks, routine tasks and manual non-routine tasks. The authors find an increase in occupations requiring higher skills in accordance with the established categorization, compared with those requiring a medium level of skills. The evidence of this pattern is even greater when examining solely informal employment, where, in addition to the above, there is also a rise in occupations requiring a low level of skills. According to the authors, this latter increase reflects two general trends in the Mexican labour market: a low relative demand for higher-skilled

workers, and low economic growth which pushes both skilled and unskilled individuals into informal employment.

Lastly, Maurizio and Monsalvo (2021) apply a similar methodology to that used in the study by Zapata-Román (2021) to classify occupations by task content, as well as the econometric strategies also used in the same study. The authors analyse the changes in the structure of employment in Argentina between 2003 and 2019. They find contrasting trends in employment with regard to wages, and also different patterns throughout the two subperiods under analysis. While during the first of these subperiods, they observe a certain tendency for jobs to display an inverted U-shaped behaviour, the econometric results do not show this to be statistically significant. However, the results for earnings had statistical significance. During the second subperiod, the polarizing trends for employment that were observed in the descriptive findings were not confirmed in the econometric results. Nevertheless, in a context of widespread reductions in real earning, the greatest decreases were in the middle part of the distribution, which is consistent with a process of polarization, together with an increase in wage inequality.

On the basis of this evidence, the present study contributes to this line of research in several ways. On one hand, it uses a methodology common to the three countries, which enables more robust comparisons to be made between the results obtained. Furthermore, the approach used, which is based on the identification of a specific occupation in a given sector of activity, allows for a more granular assessment of the changes in the structure of employment in the region. On the other hand, the inclusion of an extensive period of time makes it possible to identify short- and long-term labour trends. The selection of countries, with distinct work structures and dynamics, enables visibility to be given to the heterogeneity of situations within the region. Lastly, the detailed study of these trends in different groups of workers provides a valuable contribution towards a better understanding of the changes in the labour market that have occurred in the new millennium in the three countries examined.

### **3 Sources of information, approach and methodology**

#### **3.1 Approach and methodology**

This study follows the job-based approach (Wright and Dwyer 2003; Fernández-Macías and Hurley 2008; Hurley and Fernández-Macías 2015; Fernández-Macías and Hurley 2016), which uses jobs as a unit of analysis. A specific job is identified on the basis of the combination of two elements: occupation type and sector of economic activity. Therefore, the analysis is not based directly on the employed persons, but rather on the cells that are determined in the matrix, which is created using the aforementioned two elements.

The cells are then sorted and classified according to the grade of the jobs in each of them. There are different alternatives for this, such as hourly wages or level of education. The indicator used for this grading can be the mean or median value of either of the two alternatives. The cells are therefore ranked from those with lowest average income and/or level of education to those with the highest income and/or level of education. Finally, these ranked cells are grouped into a specific number of quantiles, for example, quintiles. This categorization is based on the position of the cells in the initial year and remains unchanged throughout the period.

This approach has several advantages over other strategies. On one hand, the combination of the type of occupation and sector of activity allows for a more accurate and detailed view of the evolution and characteristics of employment structure, as it takes into account the potential diversity within a single occupation, but in different sectors of activity. On the other hand, working with cells grouped into percentiles, rather than directly with individuals gives greater robustness to the results. Lastly, keeping the position of the cell unchanged in the distribution makes it possible to assess the relative changes

of different jobs over the period according to their initial position on the wage scale. However, a potential disadvantage of this approach is that the quintiles do not necessarily end up having an equal share of employed persons due to the fact that some occupations account for a significant proportion of total employment.<sup>2</sup>

### **3.2 Sources of information and classifications used**

The main sources of information used were employment and household surveys from the countries analysed. For Argentina, the Permanent Household Survey (EPH) was used. The EPH, which is undertaken by the National Institute of Statistics and Censuses (INDEC), has been conducted quarterly since 2003, and covers 31 urban areas in the country. For Chile, the Chile National Socioeconomic Characterization Survey (CASEN) was used, which is conducted by the Ministry of Social Development and Family, and which has national coverage. Between 2000 and 2009, it was carried out every three years. However, since 2009, it has been conducted every two years, during the last quarter of the survey year and the first quarter of the following year. For Mexico, the National Survey of Occupation and Employment (ENOE) was used, which is conducted on a quarterly basis by the National Institute of Statistics and Geography (INEGI), and which has had national coverage since 2005.

The specific period under analysis depends on each country. For Argentina, the four quarters of the years 2003, 2012 and 2019 are used. For Chile, the years 2000, 2009 and 2017 are considered. Lastly, for Mexico, the surveys from the four quarters of the years 2006, 2010 and 2019 were used. The starting year is the first year of the new millennium from which comparable survey information is available over the period under consideration. The concluding year corresponds to the last survey available before the impact of the COVID-19 pandemic, which is a period excluded from the analysis. Lastly, the intermediate years identify different business and employment cycles in each country and their inclusion allows for each of the two subperiods to be analysed separately.

A key aspect of this study is the identification of occupations and sectors of activity, for which national classifications from each country are used, as detailed below.<sup>3</sup>

#### *Argentina*

For Argentina, the study used the National Classification of Occupations 2001 (CNO) at the two-digit level, which identifies 52 occupations, and the Classification of Economic Activities for Social and Demographic Surveys of MERCOSUR, version 1.0 Argentina (CAES 1.0)<sup>4</sup>, at the two-digit level, which contains 85 sectors. The combination of both classifications results in 4,420 theoretical cells. However, the effective number of cells with employed persons in the starting year was significantly lower than that, amounting to 901.<sup>5</sup> Most of these jobs (501) also recorded employed persons in the other two years under analysis, accounting for around 92 per cent of the total number of workers in one of the three years (table 1).

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<sup>2</sup> However, there are analytical strategies to ensure that groups of jobs (quintiles or similar groups) are of the same size. For further information, see footnote 7 on Torrejón et al. (2023).

<sup>3</sup> The choice of national classifications for occupation and sector of activity rather than standard international classifications is based on the fact that, for Argentina and Mexico, the conversion from national classifications to international classifications involved a significant loss of cases due to a lack of direct correspondences.

<sup>4</sup> In 2003, the EPH used the CAES classification, and in the following years, CAES 1.0, so a conversion was carried out using the official crossword provided by INDEC.

<sup>5</sup> It is to be expected that some theoretical cells will not have employed persons, as not all combinations of occupation and sector of activity exist in reality or always have a positive number of workers.

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**Table 1. Number of jobs and workers in Argentina (2003–19)**

|                                    | Jobs  | Employed persons | Distribution of employed persons (per cent) |
|------------------------------------|-------|------------------|---|
| Total theoretical jobs             | 4,420 |                  |   |
| Jobs with employed persons in 2003 | 901   | 9,065,121        | 100   |
| Each year                          | 501   | 8,358,134        | 92.2  |
| Only 2003                          | 177   | 242,028          | 2.7   |
| In 2003 and 2012                   | 87    | 156,384          | 1.7   |
| In 2003 and 2019                   | 136   | 308,575          | 3.4   |

*Source: Authors' own elaboration based on the Permanent Household Survey.*

The 901 jobs were sorted according to average hourly wage in 2003 and then grouped into quintiles. Table 2 shows the number of jobs and employed persons in each quintile. In this table, a highly unequal distribution of jobs in each quintile can be observed, which is due to the difference in size in terms of workers in each of the jobs considered. For example, while the first quintile contains 216 jobs, the second quintile has only 59 jobs. However, this unequal distribution of jobs is combined with a relatively equal distribution of the number of employed persons in each quintile. This is due to the fact that the size of jobs varies considerably (they have more or fewer workers). The most relevant aspect is that they are grouped in such a way that all the quintiles are similar in size in terms of jobs. In any case, as a result of the fact that the unit of observation is the cells and not the employed persons directly, the quintiles do not always contain exactly 20 per cent of the total number of workers.

**Table 2. Distribution of jobs and workers by quintile for Argentina (2003–19)**

| Quintile | Jobs | Employed persons | Distribution of employed persons (%) |
|----------|------|------------------|--------------------------------------|
| 1        | 216  | 1,886,301        | 20.8                                 |
| 2        | 59   | 1,786,857        | 19.7                                 |
| 3        | 125  | 1,877,283        | 20.7                                 |
| 4        | 276  | 1,837,137        | 20.3                                 |
| 5        | 225  | 1,677,543        | 18.5                                 |
| Total    | 901  | 9,065,121        | 100                                  |

*Source: Authors' own elaboration based on the Permanent Household Survey.*

## *Chile*

During the period under analysis, the Chile National Socioeconomic Characterization Survey (CASEN) used the International Standard Classification of Occupations 1988 (CIUO-88). For the classification of sector of activity in the year 2000, the survey used the International Standard Industrial Classification of All Economic Activities (ISIC) - Revision 2, while in 2009 and 2017, it used the ISIC - Revision 3.1. In order to change from ISIC – Revision 2 to ISIC – Revision 3.1, and to classify the observations in the three years under study in a uniform manner, the crossword proposed by the United Nations Statistics Division was used.

Owing to the fact that, initially, the distribution by quintiles of employed persons was highly unequal, it was decided to extend the disaggregation of occupations to three digits, and maintain the classification of sector of activity at two digits. This resulted in a higher number of cells with a lower proportion of employed persons in each cell, which allowed for a more equal distribution throughout the distribution.

As shown in table 3 below, 7,192 theoretical jobs were identified, of which 2,675 had employed persons in the year 2000. Most of these jobs (1,487) also had employed persons in the other two years under analysis, accounting for around 82 per cent of the total number of employed persons present in one of the three years.

*Table 3. Number of jobs and workers in Chile (2000–17)*

|                                    | Jobs  | Employed persons | Distribution of employed persons (%) |
|------------------------------------|-------|------------------|--------------------------------------|
| Total theoretical jobs             | 7,192 |                  |                                      |
| Jobs with employed persons in 2000 | 2,675 | 5,437,403        | 100                                  |
| All years                          | 1,487 | 4,439,418        | 81.6                                 |
| Only 2000                          | 407   | 53,342           | 1.0                                  |
| In 2000 and 2009                   | 503   | 870,463          | 16.0                                 |
| In 2000 and 2017                   | 278   | 74,180           | 1.4                                  |

*Source: Authors' own elaboration based on the Chile National Socioeconomic Characterization Survey.*

The 2,675 jobs were sorted by average hourly labour income for the year 2000, and then were grouped into quintiles. Table 4 shows the number of jobs and employed persons in each quintile. As was the case in Argentina, there is an unequal distribution of jobs in each quintile due to the difference in size in terms of employed persons for each of the jobs considered. For example, while the first quintile contains 615 jobs, the third quintile has only 272 jobs. The fact that a greater disaggregation of occupations was considered, as mentioned above, allowed for the distribution of employed persons to be very equal.

**Table 4. Distribution of jobs and workers by quintile for Chile (2000–17)**

| Quintile | Jobs  | Employed persons | Distribution of employed persons (%) |
|----------|-------|------------------|--------------------------------------|
| 1        | 615   | 1,090,745        | 20.1                                 |
| 2        | 298   | 1,100,107        | 20.2                                 |
| 3        | 272   | 1,082,349        | 19.9                                 |
| 4        | 620   | 1,099,100        | 20.2                                 |
| 5        | 870   | 1,065,103        | 19.6                                 |
| Total    | 2,675 | 5,437,403        | 100                                  |

*Source: Authors' own elaboration based on the Chile National Socioeconomic Characterization Survey.*

#### **Mexico**

As for Argentina and Chile, national classifications were also used for Mexico. Between 2006 and 2010, the National Survey of Occupation and Employment (ENOE) used the Mexican Classification of Occupations (CMO) and, from then onwards, the National Occupation Classification System 2011 (SINCO-2011). It was therefore necessary to use the conversion proposed by INEGI to apply the SINCO-2011 classification for the three years. Throughout the entire period, the survey used the North American Industry Classification System (NAICS) 2007 – Private households (NAICS 2007 – Private households). The combination of both classifications produced 1,248 theoretical jobs, of which 860 had employed persons in one of the years considered. Once again, almost all these occupations (703) had employed persons in the three years under study, accounting for 99% of the total number of employed persons present in any of them (table 5).

**Table 5. Number of jobs and workers in Mexico (2006–19)**

|                                    | Jobs  | Employed persons | Distribution of employed persons (%) |
|------------------------------------|-------|------------------|--------------------------------------|
| Total theoretical jobs             | 1,248 |                  |                                      |
| Jobs with employed persons in 2006 | 860   | 43,897,039       | 100                                  |
| All years                          | 703   | 43,701,155       | 99.5                                 |
| Only 2006                          | 47    | 24,071           | 0.2                                  |
| In 2006 and 2010                   | 85    | 157,488          | 0.2                                  |
| In 2006 and 2019                   | 25    | 14,324           | 0.1                                  |

*Source: Authors' own elaboration based on the National Survey of Occupation and Employment.*

In contrast with the other two countries, for Mexico, jobs were ranked by average years of education. The reason for this change was the high- and growing-income non-response rate in the National Survey of Occupation and Employment throughout the period under analysis (which reached around 30 per cent of the sample in the last years). The decision was therefore made to use level of education due to the higher response rate and its high correlation with labour income. Table 6 shows the distribution of jobs and employed persons by quintile. As can be seen in the table, while the first quintile comprises 56 jobs, the second quintile contains twice this amount. Therefore, the distribution of employed persons was less equal than in the other two countries.

*Table 6. Distribution of jobs and workers by quintile for Mexico (2006–19)*

| Quintile | Jobs | Employed persons | Distribution of employed persons (%) |
|----------|------|------------------|--------------------------------------|
| 1        | 56   | 8,880,972        | 20.2                                 |
| 2        | 122  | 10,291,760       | 23.4                                 |
| 3        | 92   | 7,401,249        | 16.9                                 |
| 4        | 175  | 8,566,204        | 19.5                                 |
| 5        | 415  | 8,756,853        | 19.9                                 |
| Total    | 860  | 43,897,039       | 100                                  |

*Source: Authors' own elaboration based on the National Survey of Occupation and Employment.*

### **3.3 Approach to and measurement of labour informality**

The definition of informality used is based on the recommendations of the International Conference of Labour Statisticians (ICLS). Informal wage-earners are workers whose jobs are not subject to national labour laws, or tax or social security regulations. Non-wage-earning workers are considered informal workers if they carry out their activities in the informal sector.

To implement this approach on informality, the general criteria of the ILO Regional Office for Latin America and the Caribbean were applied, in order to obtain comparable data, taking into account the availability of information in each of the survey used. In Argentina and Mexico, informal wage-earners are workers who do not have health insurance (Obra Social) or social security, respectively, which are paid by the employer. In Chile, informal wage-earners are workers who do not contribute to the pension system.

Concerning the identification of informal non-wage-earning workers, in Argentina, this depends on whether such workers have family members or associates in the enterprise in which they work. In the first case, workers are informal if the enterprise is not duly incorporated. In the second case, the workplace is taken into consideration, and thus: (1) self-employed workers are informal if they do not work in a business or office; (2) the employers are informal (2.1) if they do not work in an office, transport vehicle, construction site, or fixed location on the street; (2.2) if they work in any of these four types of location, but have less than five employees.

In the case of Mexico, informal non-wage-earning workers are those whose enterprise does not keep accounting records. Where this information was lacking, the place of work size of the enterprise was used (up to five employees). Lastly, in Chile, informal self-employed are those workers do not have



professional qualifications, and employers who work in an enterprise or business that has five employees or less.<sup>6</sup>

## **4 Main labour and distributional trends during the first two decades of the twenty-first century**

Significant changes in labour and distributive dynamics in the region have been observed in the new millennium. However, these trends were not homogenous throughout the period between 2001/2002 and 2019, before the outbreak of the COVID-19 pandemic. These dynamics were associated, at least partially, with macroeconomic events in the region.

In this regard, two distinct business cycles can be observed. In the first cycle, between the beginning of the new millennium and 2008, per capita output increased by an average of 3.6 per cent per year, a trend for which the only precedent in terms of intensity and duration in the region was in the period from the late 1960s to the mid-1970s (ECLAC 2010). This was due, in part, to improvements in the international context, particularly the commodities boom, which enabled countries, especially in South America, to experience a stable path of economic growth.

The international financial crisis of 2008/2009 brought an end to this path of economic growth, which was characterized by significant increases in fundamentals (a curb on inflation, an accumulation of international reserves, a reduction in debt, and fiscal and external surpluses). In addition to a decline in foreign trade, (expressed through a fall in prices and export volumes), in remittances and in international lending, domestic demand also experienced slower growth. Although after a decrease in regional GDP of almost 2 per cent in 2009, the region once again experienced a positive variation in the level of activity, the economic growth recorded in the second decade of the new millennium (until 2019) was, on average, around 0.4 per year, which was significantly lower than in the previous decade.<sup>7</sup>

These two economic cycles were also reflected in the differing trends of labour indicators and regional inequality. In particular, in the first sub-period, the creation of new jobs exceeded population growth, with the employment rate increasing from 52.3 per cent to 55 per cent between 2003 and 2008, while the unemployment rate fell from 11.4 per cent to 7.5 per cent during the same period (Bertranou and Maurizio 2010). Many countries experienced considerable decreases in the rate of informality as a result of the application of different types of policies specifically implemented to support the formalization process (such as incentives for the creation of formal jobs and increased labour inspection), together with a favourable macroeconomic context (ILO 2018; Berg 2010; Maurizio 2015, 2016; Rodrigues-Silveira 2023). Throughout this period, an upward trend in real mean wages was observed in several countries in the region, as well as increases in the real minimum wage and the relaunch of collective bargaining.

These labour trends were in turn accompanied by significant distributive increases, whereby wage inequality in almost all the countries in the region contracted. Different factors contributed to this process. On one hand, the decrease in returns to education, which contrasted significantly with the trend observed in the 1990s (Lopez-Calva and Lustig 2010; Azevedo, Inchaust and Sanfelice 2013; Ciaschi et al. 2011; Cornia 2013). The above-mentioned formalization process was another factor that contributed to the decrease in inequality (Maurizio 2015; Beccaria, Maurizio and Vázquez 2014; Amarante and Arim 2015; Beccaria, Maurizio and Monsalvo 2020; Beccaria, Maurizio and Vázquez 2015; Maurizio and Vázquez 2015; ECLAC-ILO 2010). Furthermore, the strengthening of labour

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<sup>6</sup> For Chile, the criteria of the ILO Regional Office were not strictly applied due to the absence of the required variables in the CASEN survey.

<sup>7</sup> CEPALSTAT 2023. Statistical Databases and Publications. <https://statistics.cepal.org/portal/cepalstat/index.html?lang=es>

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institutions, in particular the minimum wage, also had a positive impact on the distribution (Maurizio and Vázquez 2016; Lemos 2009).

The second period was characterized by a stagnation and even declines in the regional employment rate and, consequently, by increases in the unemployment rate, which rose from 7.7 per cent to 8.8 per cent between 2010 and 2019 (ILO 2020). Furthermore, the growth of labour formality during the first years of the new millennium halted and, in some countries, was reversed, mainly as from 2014/2015 (Maurizio et al. 2021). This decreased momentum with regard to labour was also reflected in the levels of inequality, which continued to follow a downward trend at the regional level, although at a slower rate than in the first decade of the new millennium (CEPALSTAT 2023).

To a great or lesser extent, these labour and distributive trends were also observed in the three countries included in this study, as described below.

#### **4.1 Argentina**

For Argentina, two distinct sub-periods can be identified: 2003–12 and 2012–19. During the first of these sub-periods, after the economic crisis of 2001/2002 as a consequence of the collapse of the convertibility regime in force during the 1990s, the country experienced a process of intense economic growth, with annual rates of around 8/9 percent (figure 1). This increased rate of growth, which was partly due to the rebound from the crisis, was maintained until 2011, although the international financial crisis caused a sharp economic contraction of around 6 per cent in 2009. However, Argentina had already begun to encounter difficulties some years before. Inflation had accelerated at the end of 2007, which, as explained below, had a negative impact on the evolution of the purchasing power of wages.

In addition to the above, increasing external and fiscal difficulties led, as from 2012, to a significant slowdown in growth, with alternating years of significantly lower positive rates than in the first sub-period and contractions in economic activity. GDP in real terms fell in five of the eight years between 2012 and 2019.

The contrasting macroeconomic cycles had a differential impact on the pace of job creation and the composition of employment. The economic momentum during the first sub-period led to a rapid expansion of employment, at a rate that even exceeded growth in economic activity, coupled with an increase in the quality of new jobs and significant decreases in labour informality, and a rise in real average wages. In particular, as can be observed in figure 1, the unemployment rate halved (falling from 14 per cent to 7 per cent) during this period, as a consequence of growth in total employment at an average annual rate of 2.1 per cent. This resulted in an increase of almost 4 percentage points in the employment rate. The upward trend in the total number of jobs was observed together with stability in the share of women in total employment.

The age composition of employment changed as the labour share of young persons declined and the corresponding share of middle-aged employed persons increased. At the same time, the rate of formality experienced a sharp upward trend, with an increase of 13 percentage points, from 44 percent to 57 per cent of the total employed population. This was accompanied by an increase in the minimum wage. In particular, after remaining at the same, reduced nominal and real value since 1993 (200 Argentine Pesos equivalent to 200 United States dollars (USD)), as from 2003, the minimum wage was subject to an intense policy in order to update its nominal value, which involved a real increase of around 200 per cent between 2003 and 2012. The strengthening of this institution was also accompanied by the relaunch of collective bargaining (Senén González, Medwid and Trajtemberg 2011; Alejo and Casanova 2016).

The employment improvements slowed, stopped or even reversed in the second sub-period. In particular, the annual rate of net job creation declined from 2.1 per cent to 1.6 per cent, which resulted

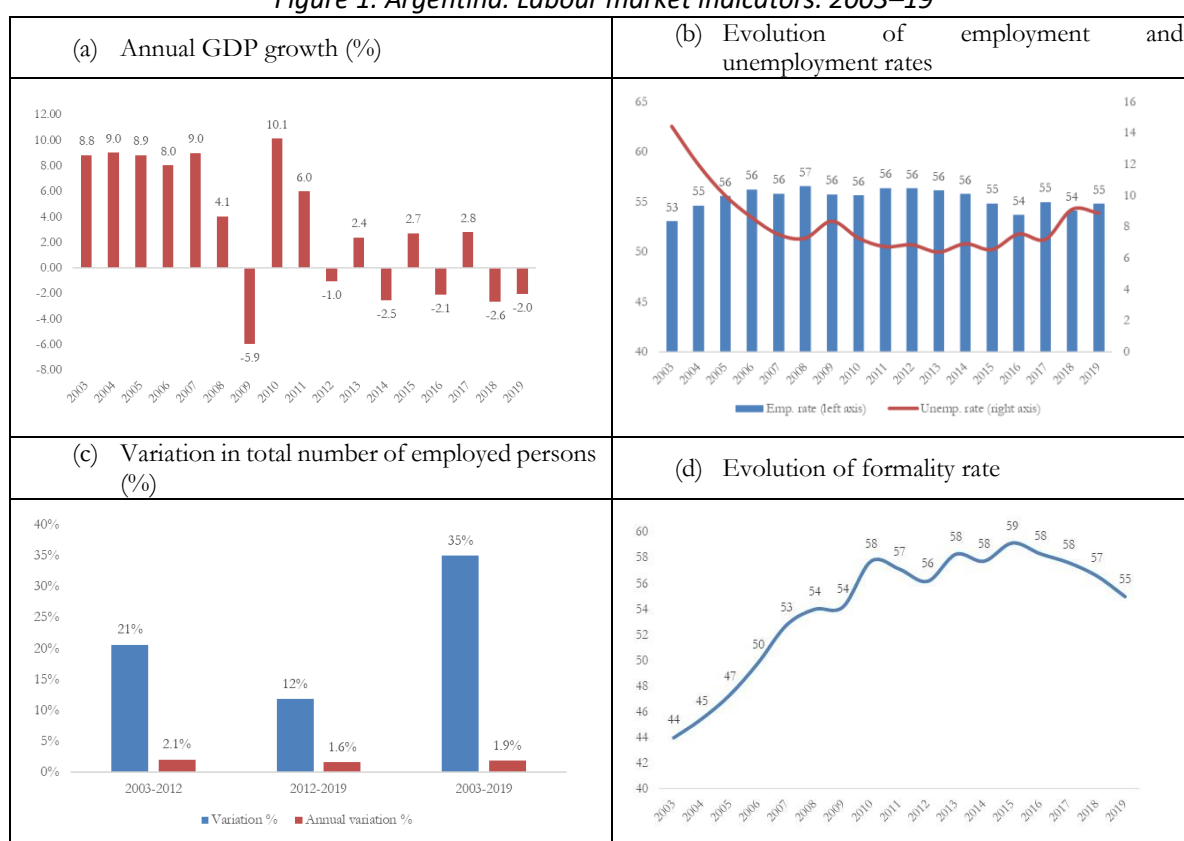
in decreases and stagnation in the employment rate. As a consequence of this, the unemployment rate firstly ceased to fall and then increased. The growing macroeconomic and labour difficulties also resulted in a downward trend in the rate of labour formality. At the same time, the acceleration in inflation had a negative impact on the real value of the minimum wage, which decreased by around 30 per cent between 2012 and 2019.

In contrast with the first sub-period, the rate of feminization of employment increased, particularly in the last years studied. In 2019, around 44 per cent of employed persons were women, compared with 41 per cent in 2012. Lastly, the share of young persons in employment continued to decline, and the share of middle-aged workers contracted, while the share of employed persons aged over 45 years increased.

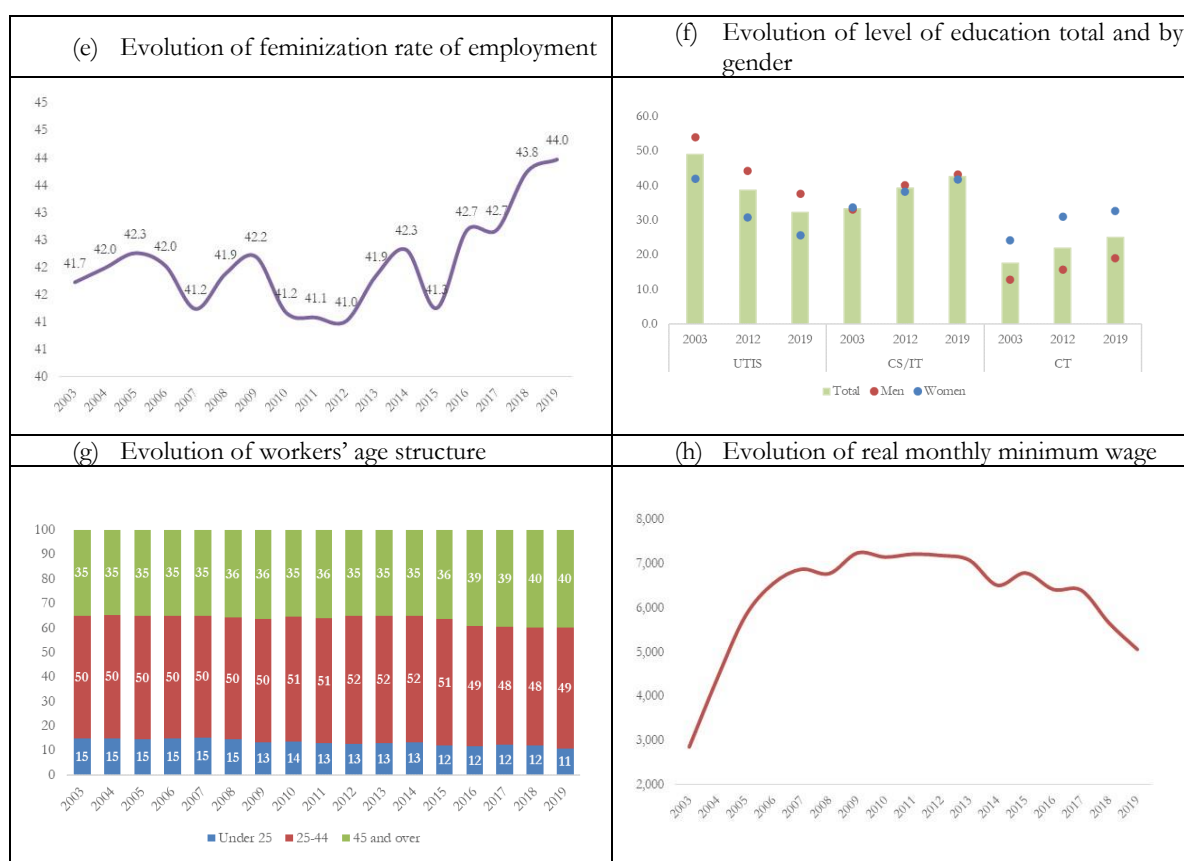
Despite the erratic macroeconomic and labour performance, some long-term trends were observed in Argentina. In particular, throughout the almost two decades under study, the employed population became more skilled, since the share of workers with a completed secondary education/incomplete university education increased by 9 percentage points and the share of workers with a completed university (or technical) education rose by 7 percentage points. On contrary, the share of workers with less than a completed secondary education contracted sharply by around 16 percentage points. This sustained increased in level of education was observed among both women and men.

In 2019, a third of workers had not completed secondary education, while 25 per cent of employed persons had a university education. It is interesting to note that women have a higher average level of education than men. Therefore, while the share of employed men who had not completed secondary education was 38 per cent, that of employed women was 26 per cent. In contrast, almost a third of employed women had a completed university (or technical) education, while 19 per cent of employed men had a completed university (or technical) education.

**Figure 1. Argentina. Labour market indicators. 2003–19**



*Changes in the structure of employment and the discussion on occupational polarization in Latin America:  
the cases of Argentina, Chile and Mexico*

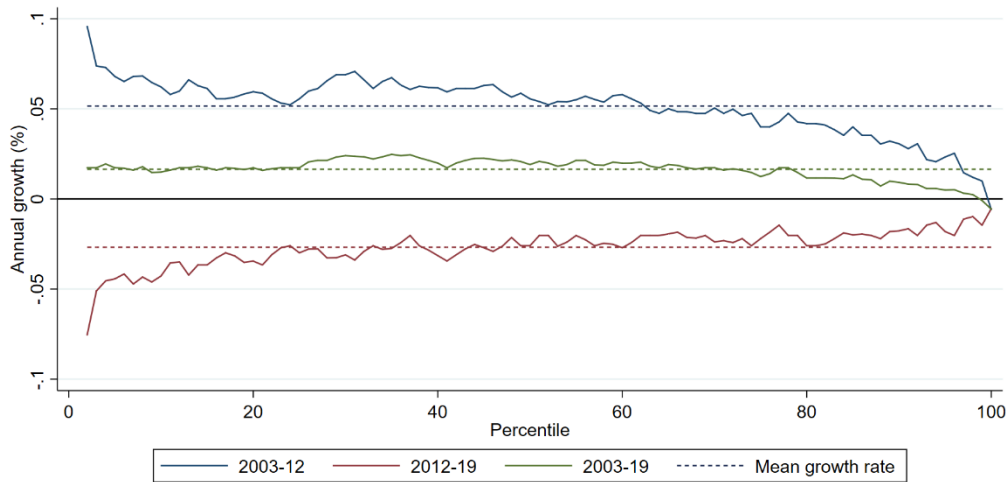


Source: Authors' own elaboration based on the Permanent Household Survey. Note: UTIS: Up to incomplete secondary; CS/IT: completed secondary/incomplete tertiary; CT: completed tertiary.

In parallel to the macroeconomic and labour-market changes, the wage distribution also experienced significant changes throughout the period considered. In particular, after the distributive worsening observed during the 1990s, the inequality during the first sub-period decreased. The Gini index of hourly labour income fell by 11 percentage points between 2003 and 2012, from 0.49 to 0.38, while the Theil index declined from 0.39 to 0.23. Figure 2, which shows the growth incidence curves (GIC), indicates that the distributive improvement occurred in a context in which almost all the percentiles experienced increased in real wages, with a greater intensity at the lower end of the distribution.

During the second sub-period, these distributive trends were reversed. The Gini index registered an increase of 3 percentage points and the Theil index registered a rise of 5 percentage points. Figure 2 shows that, over this period, as a result of the above-mentioned acceleration in inflation, there was a widespread fall in real wages. However, this contraction was significantly higher than in the lower part of the distribution, with highly unequal impacts. This sharp decline in the purchasing power of wages is in line with the aforementioned decrease in the real value of the minimum wage.

**Figure 2. Argentina. Percentage change in real wages throughout the distribution. 2003–19**



*Source: Authors' own elaboration based on the Permanent Household Survey.*

To summarize, during the first decade of the new millennium, in particular between 2003 and 2012, Argentina experienced high economic growth with major labour and distributive improvements. However, in the second sub-period, in a context of negative or slightly positive GDP growth rates, job creation slowed, informality and unemployment increased, and average and minimum wages fell. This downturn in the labour market was, in turn, unequalizing. However, given that the distributive improvements of the first sub-period were not completely reversed, the inequality indices were lower in 2019 than in 2003. Figure 2 shows that these conflicting behaviours resulted in positive net wage variations with a similar intensity up to the 60th percentile and with lower intensity thereafter.

## 4.2 Chile

Throughout the period between 2000 and 2017, the Chilean economy experienced sustained economic growth, with an average annual rate of 4 per cent, which was interrupted only in 2009 as a result of the international financial crisis. GDP contracted in 2009 (-1 per cent) but registered positive changes of around 6 per cent in the following three years (figure 3).

As from the end of the 1990s, the productive structure of Chile was driven by a series of economic and trade reforms which led to greater economic openness and a sharp increase in foreign investment. In the initial years of the new millennium, there was a major boom in sectors such as mining, agriculture and services, while the manufacturing industry and the production of domestic consumer goods lost ground. This shift in the production structure resulted in certain benefits for the Chilean economy, such as the increase in exports (from 22 billion dollars in 2003 to 69 billion dollars in constant values in 2007) and in foreign direct investment (from 5 billion dollars in constant values to almost 15 billion dollars in constant values in that period). During this first subperiod, the economy benefitted from a favourable external environment with high prices for main exports, particularly copper. However, the limited diversification of production created greater dependence on commodity exports, in particular copper, the share of which followed a trend of growth until 2007, when it peaked at 57% of total exports (Central Bank of Chile).

The international financial crisis adversely impacted economies at the global level, and Chile was no exception, particularly as there was a strong contraction in its export volumes (which dropped by 20% between 2007 and 2009). The increase in international prices of petroleum and food also had a negative impact on the macroeconomic dynamics and the ratio of public debt to GDP, thus increasing the external fragility of the Chilean economy (Perez Caldentey 2023). The percentage of copper exports

decreased from its peak of 57% in 2006 to 53% in 2009. Subsequently, it followed a downward trend and remained at around 48% from 2011 until the end of the period considered in this study.

However, the depreciation of the dollar and increase in the price of copper (between October 2009 and August 2011, the price of copper recorded sustained increases) mitigated the impact of the crisis and, together with counter-cyclical monetary and fiscal policies, led to a path of economic recovery (ECLAC 2009). Although as from 2011, GDP once again registered positive growth, that growth slowed from 2013 onwards. Throughout the period under study, inflation remained at relatively low levels, hovering around an annual average rate of 3.3% in both subperiods. This can be explained by the inflation target scheme and a cautious monetary policy. However, there have been several episodes of inflation rate hikes, such as in 2008 (when inflation was 8.7%) and in 2014 (when inflation stood at 4.7%).

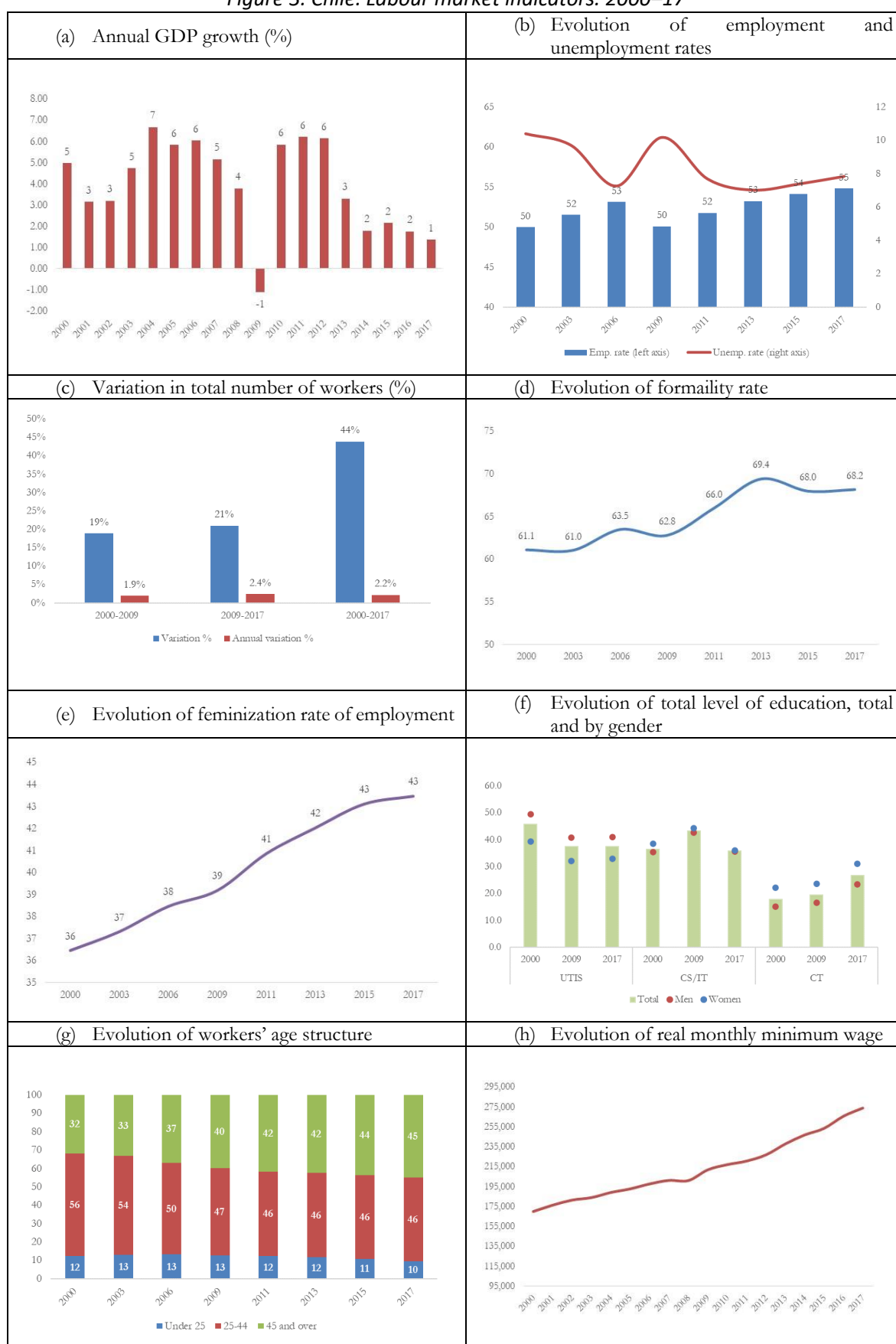
The labour trends during the two subperiods did not always follow those observed in the level of economic activity. In fact, while the average growth rate was, as already mentioned, lower in the second subperiod, in particular between 2014 and 2017, labour trends demonstrated the opposite behaviour.

Between 2000 and 2009, total employment grew at an average annual rate of 1.9%, which led to an increased employment rate of 3 percentage points between 2000 and 2006. This trend was completely reversed in 2009 as a consequence of the impact of the international financial crisis. The employment rate, however, was the same in 2009 as in 2000. A similar trend was observed in the unemployment rate, which was around 10% in both years (figure 3). Over the first decade, a certain increase in the share of formal workers in total employment was observed. As a result, the formality rate rose from 61% to 63%. This increase was accompanied by growth in the real value of the minimum wage of around 25% in that period. At the same time, there was an increase in the share of women in total employment. According to the ILO (2017), this was a result of growth in female employment compared with stability in male employment.

In the second subperiod, despite the slowdown in economic growth, particularly as from 2014, the employment rate registered an upward trend and, in 2017, was almost 5 percentage points higher than in both 2009 and 2000. However, given the growth of the labour supply, the unemployment rate also experienced a certain increase, although the growth registered in 2019 was significantly lower than that at the beginning of the new millennium (7.9% and 10.4%, respectively).

The path of employment growth was accompanied by an intensification of the formalization process, especially during the first years of this second phase. The incorporation of women into the labour market continued at a higher pace, and female employment grew at a slightly higher rate than in the previous subperiod. In addition to these changes, the real minimum wage continued to follow an upward trend, at a somewhat faster pace than that observed in the previous years.

Figure 3. Chile. Labour market indicators. 2000–17



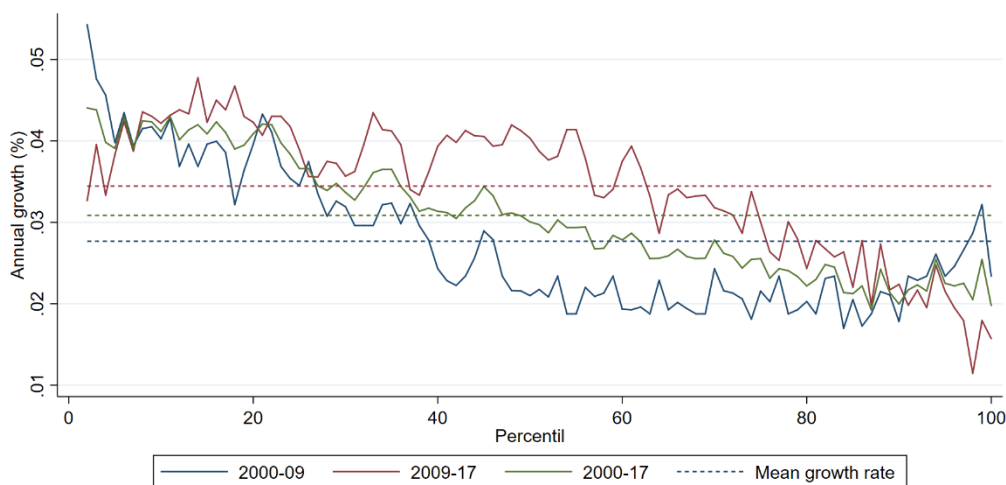
*Source: Authors' own elaboration based on the Chile National Socioeconomic Characterization Survey. Note: UTIS: Up to incomplete secondary; CS/IT: completed secondary/incomplete tertiary; CT: complete tertiary.*

As was the case for Argentina, the level of education of the employed population increased throughout the period considered. The percentage of workers with a completed university or technical education increased from 18% in 2000 to 19.4% in 2009, and reached 27% in 2017. The flip side of this rise was that the number of employed persons with a lower level of education dropped sharply by around 8 percentage points between the start and end of the period. Women were more qualified than men: around one third of employed women in 2017 had a university or technical education, while the percentage of employed men with the same level of education was 23%.

Lastly, another long-term trend was observed in the evolution of the age structure of the employed population. As in Argentina, an increase in the share of workers aged over 45 years was observed, while the opposite trend was recorded in the two other groups of employed persons. According to Vives et al. (2021), in addition to the ageing population, workers with a higher level of education, specifically those with university studies, are increasingly remaining in the labour market after they have reached retirement age.

The changes observed in employment have had a significant impact on the distribution of labour income. The Gini index decreased from 0.55 to 0.52 between 2000 and 2009, and to 0.50 between 2009 and 2017. The Theil index registered a decline from 0.59 to 0.56 in the first subperiod, while, in the second subperiod, it remained relatively stable. Figure 4 shows that, in both subperiods, all percentiles of real income experienced positive changes, with a greater level of intensity at the lower end of the distribution.

*Figure 4. Chile. Percentage change in real wages throughout the distribution. 2000–17*



*Source: Authors' own elaboration based on the Chile National Socioeconomic Characterization Survey.*

Throughout the period of almost two decades under analysis, Chile recorded positive economic growth rates (with the sole exception of 2009), although the pace slowed in the last years under study. However, this did not prevent labour and distributive indicators from continuing to improve, some of which increased even more markedly than in the first subperiod. As a result, in the last years analysed, the country recorded higher rates of employment, formality and female employment than at the beginning of the 2000s, together with a higher average level of education of the employed population. This was confirmed by increasing minimum and mean wages, and lower levels of inequality.



### **4.3 Mexico**

As was the case for the other two countries, it was also possible to identify two different subperiods over the period under analysis. The first of these was from 2006 to 2010 and included the impact of the 2009 financial crisis. The second covered the period from 2010–19 (figure 5).

Unlike in Argentina and Chile, and in most countries, the growth rate was higher in the second subperiod. On average, GDP grew at an annual rate of 1.6% between 2006 and 2010, against the background of a slowdown in GDP growth leading up to the contraction seen in 2009, as a result of the impact of the international financial crisis. The level of activity dropped significantly by around 5% in 2009. However, already in the following year, GDP recorded a similar increase followed by further sharper rises. On average, the annual growth rate between 2010 and 2019 was 2.7%.

The evolution of economic growth was associated with the trade liberalization policies and capital inflows, which began even before the signature of the North American Free Trade Agreement (NAFTA) in 1994. The levels of foreign direct investment in the mid-2000s positioned Mexico as one of the developing countries with the greatest influence in terms of this type of investment (Mogrovejo 2012; Gomes, Fernandes and Carvalho Campos 2013). Furthermore, prior to the international financial crisis, the public debt-to-GDP ratio was relatively low and the fiscal situation did not present any major complications (Ros 2012). However, in the first decade of the new millennium, in comparison with the period 1993–2000, in which export growth was high, Mexico's exports fell as a result of the increase in China's share of exports to the United States.

In this context, and due to a strong dependency on the economy of the United States, the 2009 financial crisis seriously affected Mexico's performance. In particular, exports contracted by 20% and 16% during the fourth quarter of 2008 and the first quarter of 2009, respectively (Ros 2012). This was due to the collapse in the price of petroleum and the volume of industrial goods, which are Mexico's main exports. Public spending increased in order to counterbalance the sharp drop in activity despite the balanced budget rule approved in 2006, at the same time as tax revenue was impacted by the decline in the domestic production and price of petroleum. However, the fiscal deficit remained moderate, which was made possible by, inter alia, the use of non-recurring revenue from the Oil Revenues Stabilization Fund and the operating surplus of the Central Bank from 2008 (Mexico 2010), as well as the real depreciation of the currency. This latter factor, in turn, drove the recovery as it spurred the revival of exports and, consequently, boosted the level of economic activity.

In the third quarter of 2010, GDP had already returned to the levels from before the crisis and the influence of foreign direct investment on the country increased, registering the highest level in absolute terms in 2013 (Mexico 2023). The Mexican economy, which is highly dependent on the external sector, grew steadily between 2010 and 2018, while, in the following year, before the outbreak of the COVID-19 pandemic, GDP fell slightly due to a difficult international environment, an increase in financial uncertainty, and domestic complications related to the momentum of public investment and energy production (ECLAC 2019).

Throughout the period and with respect to wages and prices, a certain nominal stability was observed, with an average annual inflation rate of around 4.5% which, in any case, was above the target rate of the Bank of Mexico.

The specificities of the macroeconomic situation in each subperiod were also observed in the labour indicators. After recording systematic decreases between 2007 and 2010, the employment rate followed an upward trend (with fluctuations), which enabled this indicator to return, in 2010, to values similar to those at the beginning of the period. The annual rate of growth in the number of employed persons doubled between the first and second subperiod, from 1.1% to 2.2%. In relation to this process, the unemployment rate showed a downward trend from 2011 onwards. In any case, the low

level traditionally recorded for this level shows that it is only a partial reflection of the performance of the Mexican labour market.

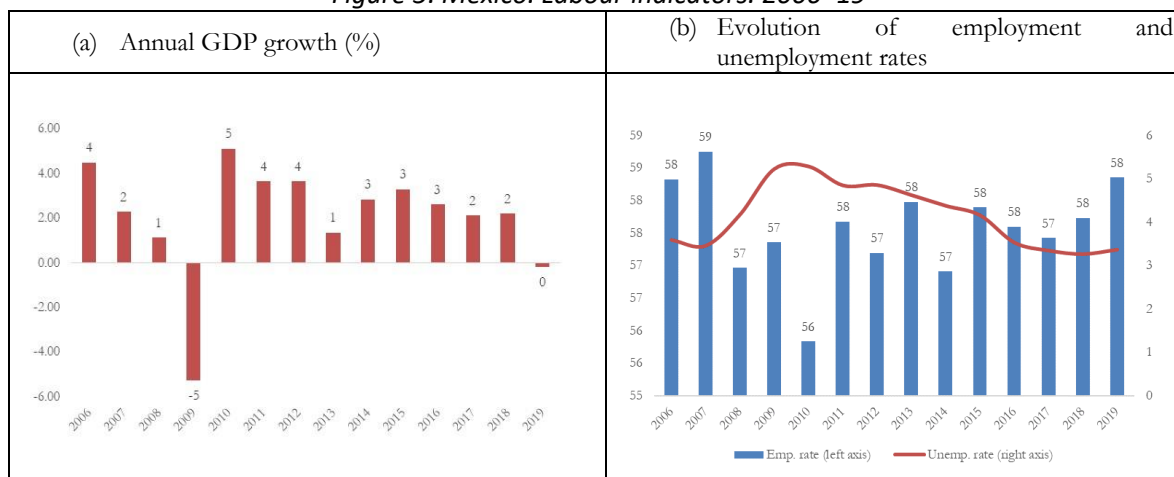
The rate of formality also experienced opposing trends in both phases, resulting in U-shaped net behaviour. During the first years, this indicator experienced a contraction of around 3 percentage points, which began to be reversed as from 2012 and, towards the end of the period, decreased to a slight lower value than at the start of the period, standing at around 45%. This sets Mexico apart from Argentina and Chile, where the formality rate at the end of the period under analysis was considerably higher than at the beginning of the period.

Throughout the first subperiod, the share of women in total employment was stable. However, in the last years of the subperiod, there was a certain process of feminization of the labour market, whereby the share of women increased by over 2 percentage points. While female employment grew at an average annual rate of 1.1% during the first subperiod, the rate almost doubled in the second subperiod.

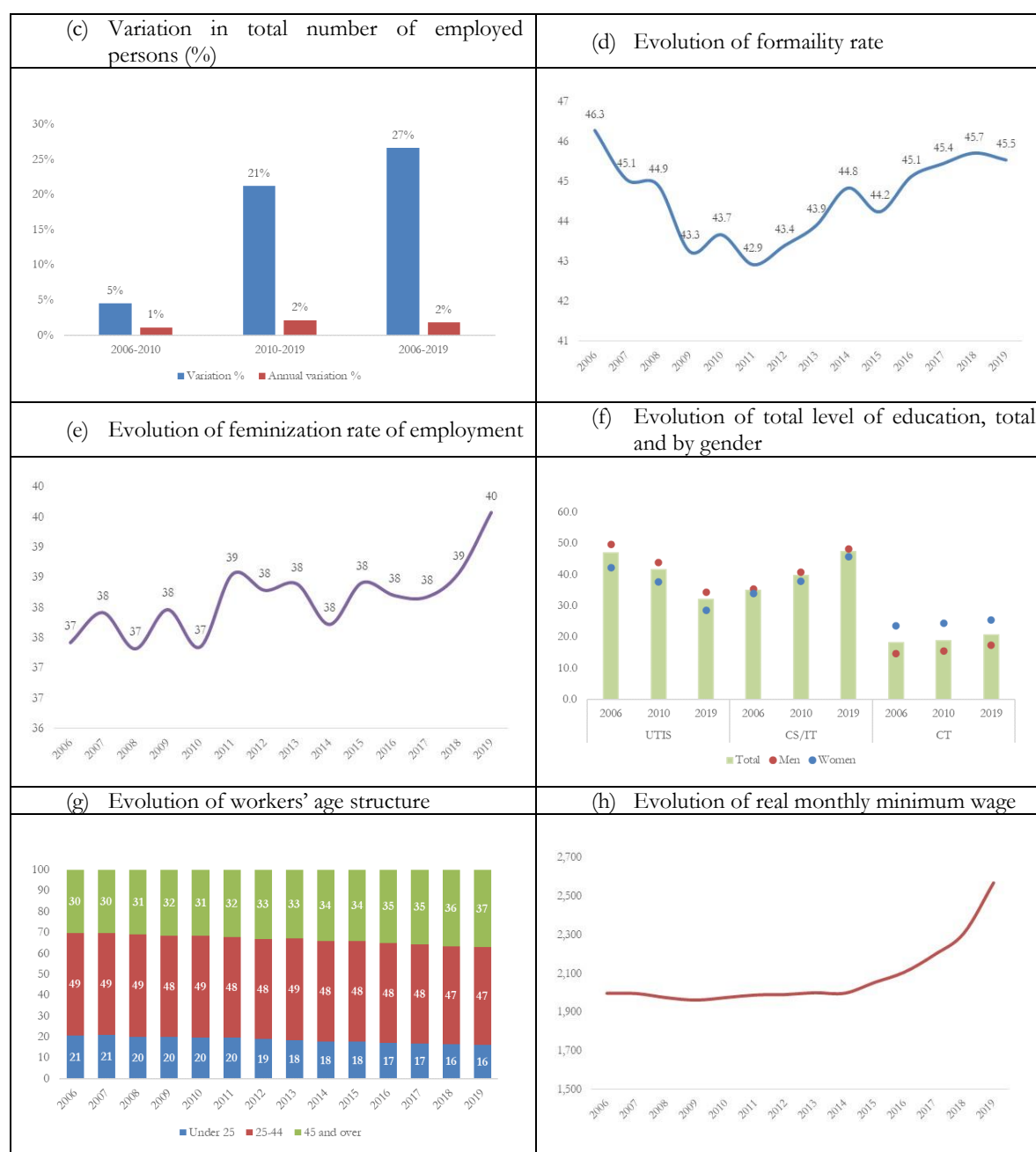
In parallel to this, and similarly to what happened in the other two countries, the level of education of the employed population improved. While in 2006, almost half of workers had an incomplete secondary education or less, this proportion decreased to one third in 2019. In contrast, there was a sharp increase in the share of workers with intermediate levels of education, from 35% to 47%, and a smaller increase in the percentage of workers with a completed university or tertiary education, from 18% to 21%. These trends were observed for both men and women. As in Argentina and Chile, women have higher average skill levels than men. For example, while in 2019, around 17% of men had completed higher education, this share was 25% for women. In addition to this long-term trend, there was a systematic decline in the percentage of young persons and middle-aged employed persons, and an increase in the percentage of employed persons aged over 45 years.

The real value of the minimum wage experienced a different trend from that observed in Argentina and Chile. Mexico has traditionally recorded very low real minimum wage values. The Mexican Government, through the National Minimum Wage Commission (CONASAMI), announced, at the beginning of 2012, the consolidation of three existing wage areas (A, B and C) into two areas (A and C), which were then merged into one area in 2015 (Campos-Vázquez and Rodas Milián 2020). Throughout this period, each of the minimum wages by area demonstrated significant real increases. As observed in figure 5, between 2012 and 2019, the average real minimum wage grew by around 30%.

*Figure 5. Mexico. Labour indicators. 2006–19*



*Changes in the structure of employment and the discussion on occupational polarization in Latin America: the cases of Argentina, Chile and Mexico*



Source: Authors' own elaboration based on the National Survey of Occupation and Employment. Note: UTIS: Up to incomplete secondary; CS/IT: completed secondary/incomplete tertiary; CT: completed tertiary.

Lastly, according to Campos-Vázquez and Lustig (2017), between 2006 and 2017, the indicators showed a slowdown in the downward trend in the inequality experienced in previous years,<sup>8</sup> where even though returns to education continued to fall, they did so at a slower rate.

<sup>8</sup> There is controversy over the evolution of inequality since the mid-2000s. This is due to the fact that the indices show different trends depending on the survey used, that is, the National Survey of Occupation and Employment (ENOE) or the National Survey of Household Income and Expenditure (ENIGH). These discrepancies are due, in part, to the increase in the non-response rate, especially for the National Survey of Occupation and Employment. According to Campo-Vázquez and Lustig (2018), after correcting for non-response, the only robust conclusion is that inequality stopped falling from 2006 onwards. In this study, we use the National Survey of Occupation and Employment to identify the labour trends throughout the period under study. However, given that the non-response rate on income progressively increased from 2006 onwards, it was decided not to use this variable or the distributive indicators from this survey.

## 5 Changes in employment structure in the first two decades of the twenty-first century

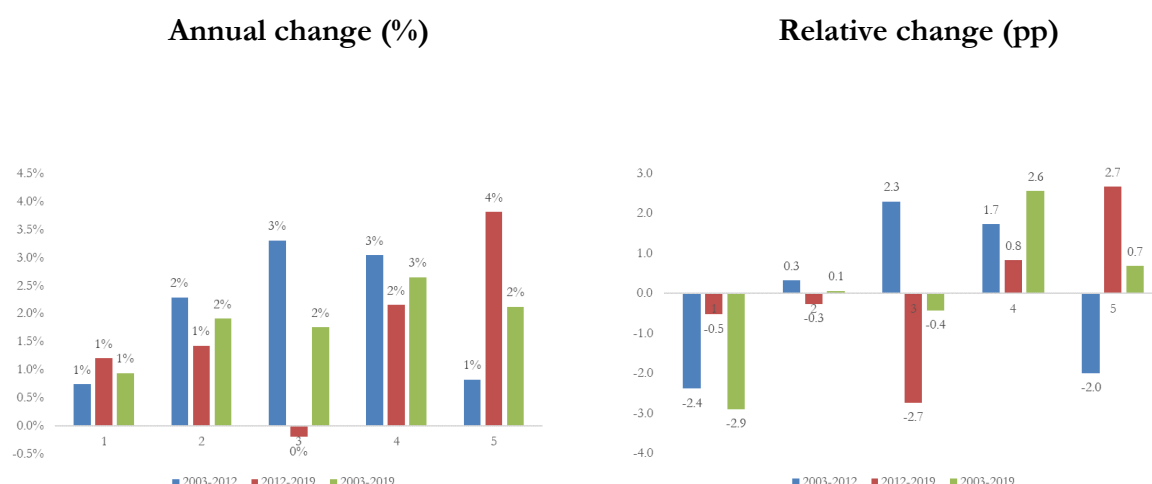
Using the labour market trends in the three countries under analysis as a reference framework, this section examines the changes in the employment structure by jobs grouped into quintiles on the basis of hourly earnings (Argentina and Chile) or years of education (Mexico).

### 5.1 Argentina

In the context of high economic growth with increased job creation and lower unemployment in the period 2003–12, the changes in employment structure by jobs demonstrated inverted U-shaped behaviour (figure 6). That is, while all the quintiles (sorted according to average hourly labour income for 2003) recorded positive changes during this subperiod, the annual rate of increase was higher in the middle part of the distribution than at the ends.

Consequently, in relative terms, for both the first quintile (that for lower income) and the fifth quintile, the share of total employment decreased by 2 percentage points in each case. However, the share in total employed persons of the third quintile, located in the central part of the distribution, increased by 2.3 percentage points, followed by the fourth quintile with an increase of 1.7 percentage points. The employment share of the second quintile remained relatively stable. The overall behaviour contrasted clearly with the trends towards occupational polarization observed in the United States and in some European countries.

*Figure 6. Argentina. Annual change in the number of workers and relative changes in the employment structure by income quintile*



*Source: Authors' own elaboration based on the Permanent Household Survey.*

The increase of the third quintile was mainly driven by the behaviour of domestic services jobs and land transport jobs. Domestic services jobs accounted for around 36% and land transport jobs accounted for a further 16% of total jobs in the middle part of the distribution. While domestic services jobs grew by 31% between 2003 and 2012, transport jobs rose by 56%. In the fourth quintile, which also saw relative increases in that period, administrative management and public administration planning jobs contributed the most to this result, both in terms of their weight in this quintile and their growth. This increase, albeit less marked, of jobs in the second quintile was driven primarily by the rise recorded in construction sector jobs. These jobs represented around 35% of total employment in the quintile and experienced strong growth of around 56%.

The lower increases at the ends of the distribution were the result of countervailing movements experienced by different jobs within each quintile. Almost half of the jobs in the first quintile were direct sales jobs in commerce, which rose significantly, although at a slower rate than the above-mentioned jobs. Furthermore, increased growth was observed in the industrial and artisanal production of leather and leather products, such as footwear. In contrast with this, however, there was a decrease in the number of street vendors, who represent the second main job type in this quintile. In the case of the last quintile, the increase in jobs in the education and health sectors (which had the greatest weight in the quintile) was offset by steep drops in administrative management jobs in the financial intermediation sector and budgetary and accounting management jobs in enterprises.

The situation changed significantly in the second subperiod. The above-mentioned slowdown in total employment growth was not reflected to the same extent throughout the distribution, but rather was more marked in the middle part. Employment in the third quintile decreased slightly in absolute terms between 2012 and 2019, while the adjacent quintiles grew, although at a lower rate than in the previous period. However, quintiles at the ends of the distribution grew at a higher annual rate than in the first years of the new millennium, particularly the last quintile, which registered an annual growth of around 4% (compared with 1% in the first subperiod).

The different rates at which jobs grew were also strongly reflected in the changes in the composition of total employment. A certain trend towards occupational polarization was observed, with greater relative decreases in the positions in the middle of the distribution and increases in the share of the top two quintiles. Although the two lower-income quintiles did not register increases (as the hypothesis of polarization would strongly indicate), the relative contractions in these quintiles were more minor than those observed in the central part of the distribution. In any case, in a period of weak labour demand, the share of the two higher-income quintiles increased at the expense of the rest of the distribution.

The two job types that contributed most during the first subperiod to employment growth in the third quintile -domestic and transport service jobs- account for the main part of the decrease in employment in this quintile during the second subperiod. The weaker relative contraction observed in the first quintile can be explained by the continued decline in street vendor jobs and the drop in industrial and artisanal jobs in the production of leather and footwear, which had increased in the previous period. However, the strongest growth of jobs in the last quintile was driven by the continued trend of growth in jobs in the health and education sector.

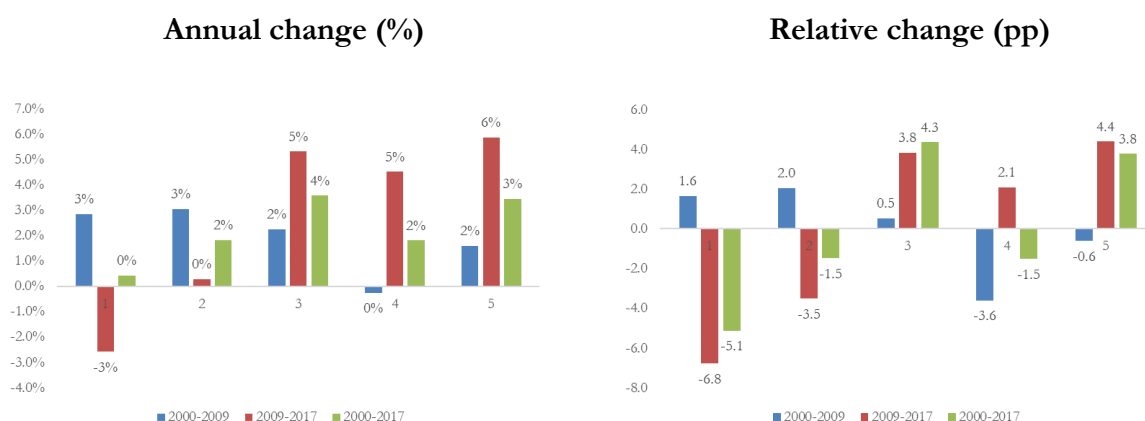
Therefore, in Argentina, strongly contrasting trends were observed in the two subperiods considered. In the first subperiod, employment displayed an inverted U-shaped behaviour, while, in the second, a certain trend towards job polarization was observed. The net result of the two cycles shows an unclear trend in a context of increases in the number of employed persons in all the quintiles. However, a strong contrast between the ends of the distribution was observed. In relative terms, the largest relative losses over the period of almost 20 years under study were experienced by jobs in the lower-income quintile. The share of these jobs in the structure of total employment declined by almost 3 percentage points, mainly as a consequence of the contraction observed in the first subperiod. There was also a decrease in the relative share in the two following quintiles. This was offset by the relative increase in the fourth and fifth quintile, which was greater than in the fourth quintile. Overall, during the new millennium, employment in Argentina was biased towards the upper part of the distribution. This was consistent, at least partially, with the upward trend in the level of education recorded in the country throughout the period.

## **5.2 Chile**

In Chile, contrasting trends between the two subperiods analysed were also found (figure 7). In the first subperiod, the number of employed persons grew in almost all the quintiles, except in the fourth,

although less strongly in the first quintiles. While the positive change between the first and second quintile was, on average, 3% annually between 2000 and 2009, it was 1.6% in the last quintile. Employment in the fourth quintile decreased slightly over this period. This overall behaviour led to a trend of downgrading (due to a declining rate of growth of the first fourth quintiles) and another trend of polarization (if the growth rate of the three upper quintiles is taken into consideration).

*Figure 7. Chile. Annual change in the number of workers and relative changes in the employment structure by income quintiles*



*Source: Authors' own elaboration based on the Chile National Socioeconomic Characterization Survey.*

In relative terms, the share of the two quintiles at the lower end of the distribution increased by 2 percentage points at the expense of the two quintiles at the upper end, particularly the fourth quartile, which decreased by almost 4 percentage points. Therefore, as was the case for Argentina, there was no robust evidence to support the hypothesis of occupational polarization in Chile.

In the first quintile, the increase was driven by a rise in the number of agricultural, forestry and fisheries workers, which represented around 22% of employment in the quintile, and which experienced growth of around 50% in that decade. This trend was offset, though only partially, by the drop in the number of subsistence agricultural and fisheries workers. The even-stronger growth in the second quintile can be explained by the increase (like in Argentina) in domestic services jobs (which account for a third of employment in this quintile) and stewards/cooks in hotels and restaurants.

The stability of employment in absolute terms (and relative decrease) in the fourth quintile, was due to opposing trends between different jobs. On one hand, managerial jobs in retail trade enterprises and secretarial and clerical jobs contributed to the decline. On the other hand, the rise in the number of teachers and nurses partially offset these decreases. Lastly, the weak growth of employment in the last quintiles was caused by the contraction of jobs in the armed forces and those of mid-level professionals performing administration tasks in the provision of essential services, in the face of the increase in certain mid-level technical and professional jobs.

During the second subperiod, the situation changed significantly. Not all the quintiles showed growth or stability, but rather in the lower part of the distribution, there was a net decrease in jobs at an average annual rate of 3% between 2009 and 2017. However, the three upper quintiles recorded annual increases of between 5% and 6%. The second quintile remained relatively constant.

These different rates of variation led to major relative changes, involving, as can be deduced from the above, a sharp contraction of the share of lower-income jobs and the increase of that of higher-income jobs. In a context of relatively high growth of total employment (+2.4% annually), together with

increases in the level of education of the population, these shifts could be evidence of a certain process of occupational upgrading with a reallocation of jobs from the lower part to the middle and upper part.

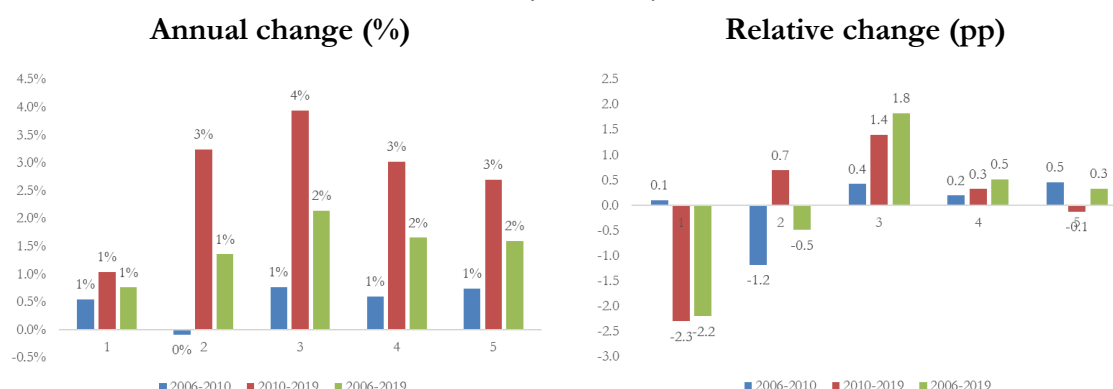
The decline in agricultural labourer and market stall vendor jobs accounted for a significant part of the contraction in total employment in the first quintile. The drop in domestic services jobs, which had increased in the previous subperiod, partly accounted for the decline in employment in the following quintile. However, mid-level professional jobs in administration services propelled the increase in employment in the higher-income quintile.

Therefore, as was the case for Argentina, in Chile, contrasting trends were observed when comparing the two subperiods under analysis. While between 2000 and 2009, there was a relative increase in the share of two first quintiles at the expense of the two higher-income quintiles, the opposite occurred in the following period. Given that these latter trends were stronger than the first, in net terms, the changes observed between 2009 and 2017 prevailed. Over the period of almost 20 years under study, the share of lower-income jobs (which were, in general, also lower-skilled jobs) contracted strongly by around 5 percentage points, in favour of the upper quintile and the quintile in the middle part of the distribution. Like in Argentina, this reallocation from the lower to the upper part of the distribution could be due to the increase in the level of education observed in that period in Chile.

### 5.3 Mexico

Similarly, to Argentina and Chile, Mexico also recorded differentiated trends over the period under study (figure 8). In the first subperiod, between 2006 and 2010, the relatively low increase in total employment (which involved, as mentioned above, decreases in the employment rate) was accompanied by relatively similar annual growth rates (lower than 1%) throughout the distribution. As a result, the relative structure of employment did not change substantially. The exception was the contraction in the share of employment in the second quintile. This was mostly due to the fall in jobs in construction and those of traders in retail outlets.

*Figure 8. Mexico. Annual change in the number of workers and relative changes in the employment structure by income quintiles*



Source: Authors' own elaboration based on the National Survey of Occupation and Employment.

During the second subperiod, against a backdrop of faster employment growth, the differences between the trends recorded by quintile became more marked. An inverted U-shaped pattern was observed, in which the middle part of the distribution grew faster than the ends of the distribution. While jobs in the third quintile experienced annual growth of around 4%, jobs in the last quintile increased by around 3%, and jobs in the first by only 1%. Consequently, the last quintile and particularly the first quintile experienced a relative decline and the three quintiles in the middle part of the distribution increased, in particular the third quintile.

Between 2010 and 2019, there was a reallocation of lower- and higher-income jobs towards middle-income jobs. Agricultural/livestock workers, who represented around 60% of jobs in the first quintile,

accounted significantly for the decrease in employment in the first quintile. However, the employment growth in the third quintile was spurred, *inter alia*, by food preparation workers and personal care workers.

This inverted U-shaped behaviour was also observed for the entire period. This contrasted clearly with the hypothesis of occupational polarization.

In conclusion, none of the three countries demonstrated homogenous behaviour in the employment structure throughout the entire period. However, depending on the macroeconomic context and probably other factors, the trends contrasted significantly between the first and second subperiod examined. When the nearly two decades under analysis are considered together, in the three countries, a relative decrease in the lower part of the distribution can be observed. However, in all three countries, the share of jobs located in the upper 20% of the distribution grew, albeit at different rates. These trends are not consistent with a process of polarization. Depending on the country, it is possible to identify, although not consistently, a certain tendency towards an inverted U-shaped behaviour (Mexico) or upgrading (Chile and Argentina).

The reallocation of jobs from the lower part to the upper part of the distribution may be in line with different types of labour transitions. It could indicate that workers increasingly left low-income jobs due to increased employment opportunities in the upper part of the distribution. This, in turn, would be more likely in cases in which it was verified by significant increases in total employment. The secular trend towards a higher level of education of the employed population would contribute to this result. However, this pattern may, in a manner complementary to the above, be indicative of cases in which lower-income workers increasingly lose employment opportunities due to the fact that they do not have the required qualifications for jobs for which demand is growing.

## **6 Changes in the employment structure by characteristics of employed persons**

In addition to the study of the changes in total employment, this section examines the trends observed in different groups of employed persons throughout the period considered. This analysis allows for a better understanding of some of the factors that may explain the employment trends examined in the previous section, by making it possible to identify the segments of employed persons (by age, gender and level of education) and types of employment in which employment growth and decline is concentrated in each period.

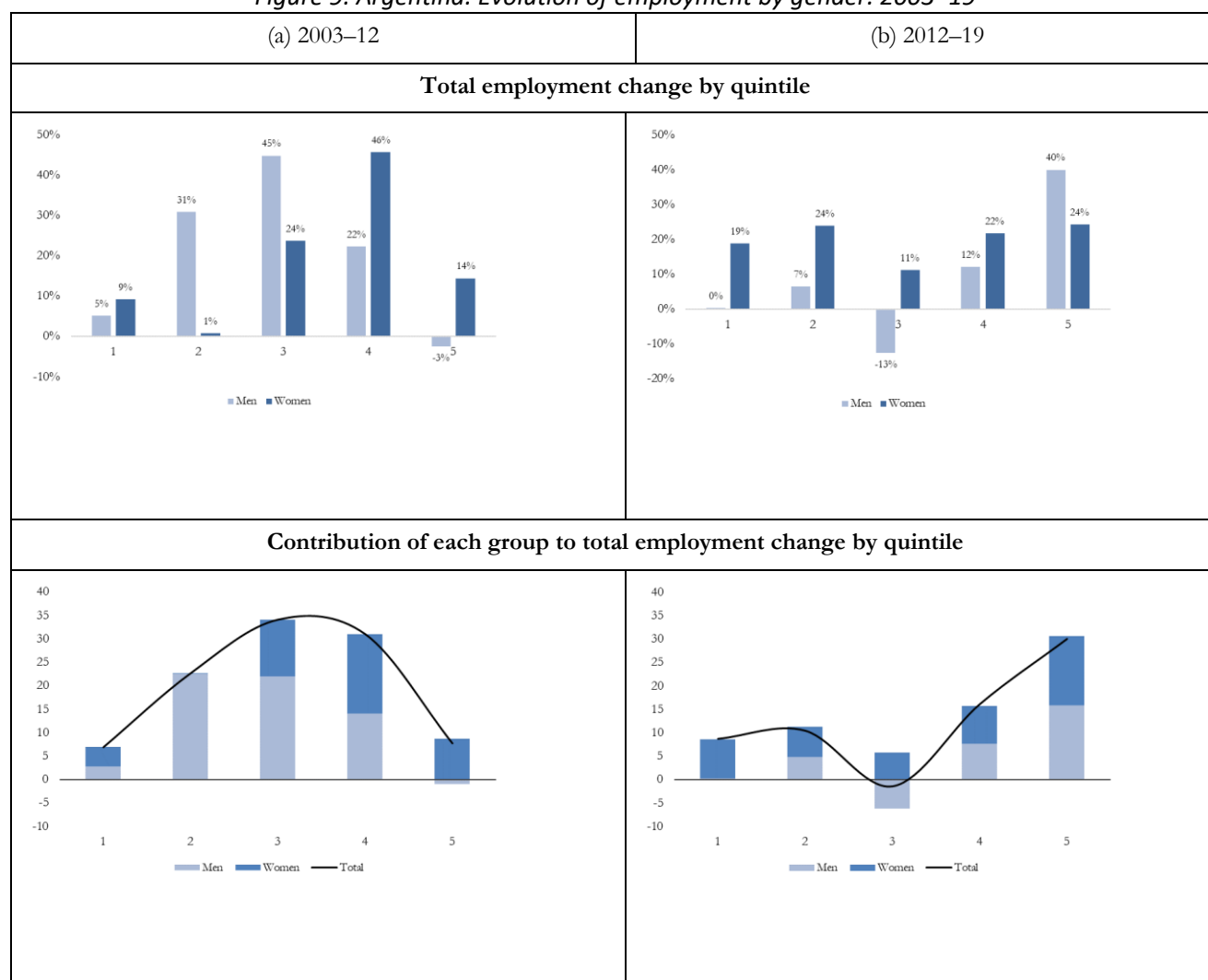
### **6.1 By gender**

As can be observed in figure 9, in Argentina, men and women in almost all of the income quintiles benefitted from robust employment growth during the first subperiod, from 2003 to 2012. However, the intensity of this growth differed among the quintiles and, therefore, so did the contribution of each group to the changes in total employment across the distribution.

In particular, the inverted U-shaped observed in the behaviour of employment from 2003 to 2012 mainly reflects what happened among men, as women show a certain upgrading process. Men in the middle part of the distribution and women in the fourth quintile experienced the greatest increases in employment. The next largest increases were for men in the second quintile and women in the third.



**Figure 9. Argentina. Evolution of employment by gender. 2003–19**



Source: Authors' own elaboration based on the Permanent Household Survey.

When the contribution of each group to employment growth in the quintiles is analysed, it can be observed that both genders contributed significantly to the overall process. As mentioned above, the increase in employment in the third quintile was driven mostly by the changes in domestic services and transport jobs. While domestic service jobs were mainly female-dominated, there was a high percentage of men in transport jobs. The increase in public administration jobs contributed the most to the positive change in the fourth quintile, accounting also for a large share of female employment. The increase in construction jobs, which were in the second quintile, accounted for a significant part of the rise in male employment in this part of the distribution, in which men contributed to almost all of the growth in employment.

However, the changes observed in the two quintiles at the ends of the distribution were driven mainly by women. This was due to the relatively high share of female employment in both quintiles, and also to the fact that the positive changes were greater in the case of men in both parts of the distribution. The increase in jobs in the education and health sectors accounted, in part, for the rise in female employment in the last quintile. The increase in direct sales jobs in commerce contributed to higher employment for both genders at the lower end of the distribution.

As indicated above, during the second subperiod, a very different behaviour to that recorded previously in the country was observed. The trend towards job polarization was confirmed to a certain extent for both men and women. In both groups, the third quintile experienced a contraction (men) or

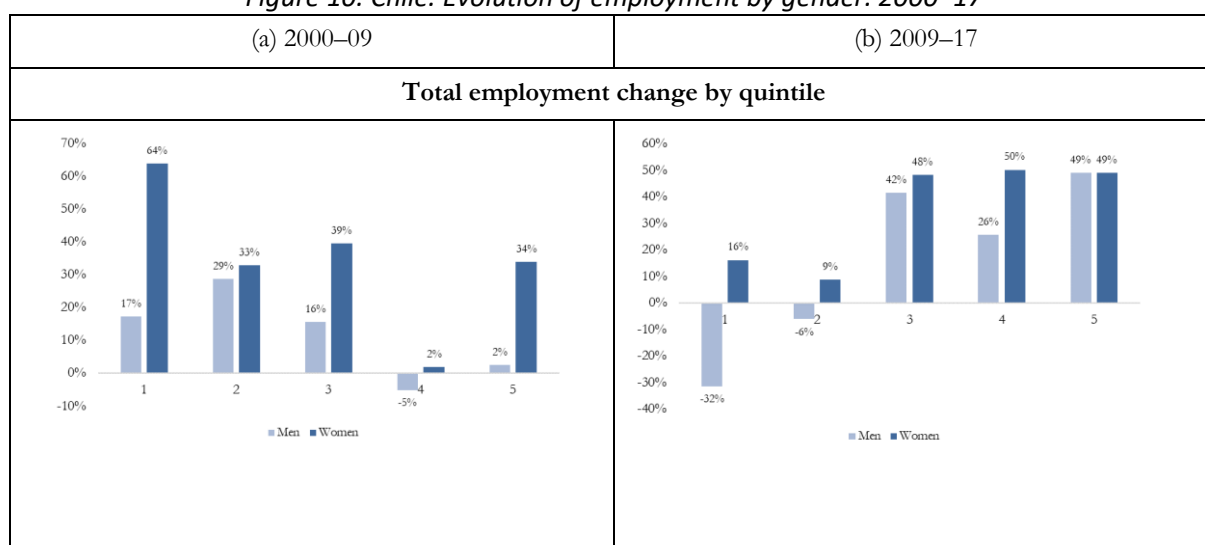
lower growth in comparison with the other quintiles (women). This was partly a result of the aforementioned decrease in domestic services and transport jobs. Both genders experienced a significant rise in the last quintile, in part as a consequence of the continued upward trend in jobs in the education and health sectors. Lastly, the increase in female-only employment in the first quintile may be a net result of both the continued increase in direct sales jobs (with a positive impact for men and women) and the strong contraction in industrial and artisanal jobs in leather and footwear production, which were male-dominated.

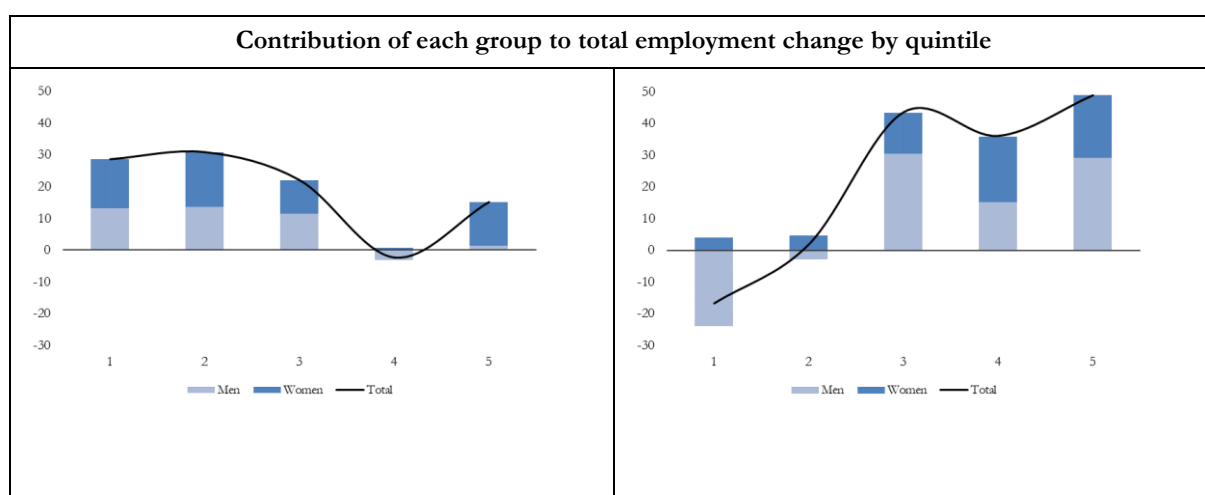
In conclusion, during the second phase of the period, which was marked by an upward trend in the share of female employment, there was employment growth for women in all the quintiles which, with the exception of the last quintile, was higher than that for men.

As previously indicated, in Chile, a sharp contrast was observed between the two subperiods considered. Figure 10 shows that, in the first subperiod, in a context of the feminization of total employment, women experienced greater increases in jobs than men in all the quintiles in the distribution. However, due to the higher proportion of male jobs in some parts of the distribution, in the first three quintiles, both genders contributed in a similar manner to the changes in total employment in each one of quintiles. Yet, the greatest increase in female employment in the highest-income quintile was consistent with the rise in secondary and arts education jobs, which are more female-dominated. Therefore, with the exception of the latter quintile, in all the other quintiles, the combination of the behaviour of jobs held by men and women resulted in both downgrading and polarization in total employment.

During the second subperiod, the trend towards a certain upgrading in employment was observed for both genders, although it was more marked for men. In fact, men contributed almost entirely to the contraction of employment in the first quintile, on the one hand, and to a significant part of the increase in the highest-income quintile, on the other. This can be explained by the greater proportion of male employment in this part of the distribution, as the percentage change in employment was similar to that for women. The strong contraction in agricultural worker and street, kiosk and market vendor jobs, located at the lowest end of distribution accounted for, at least partially, what happened with men in this quintile. The increase in mid-level professional jobs in administration services explained the changes for both genders at the top end of the distribution.

*Figure 10. Chile. Evolution of employment by gender. 2000–17*

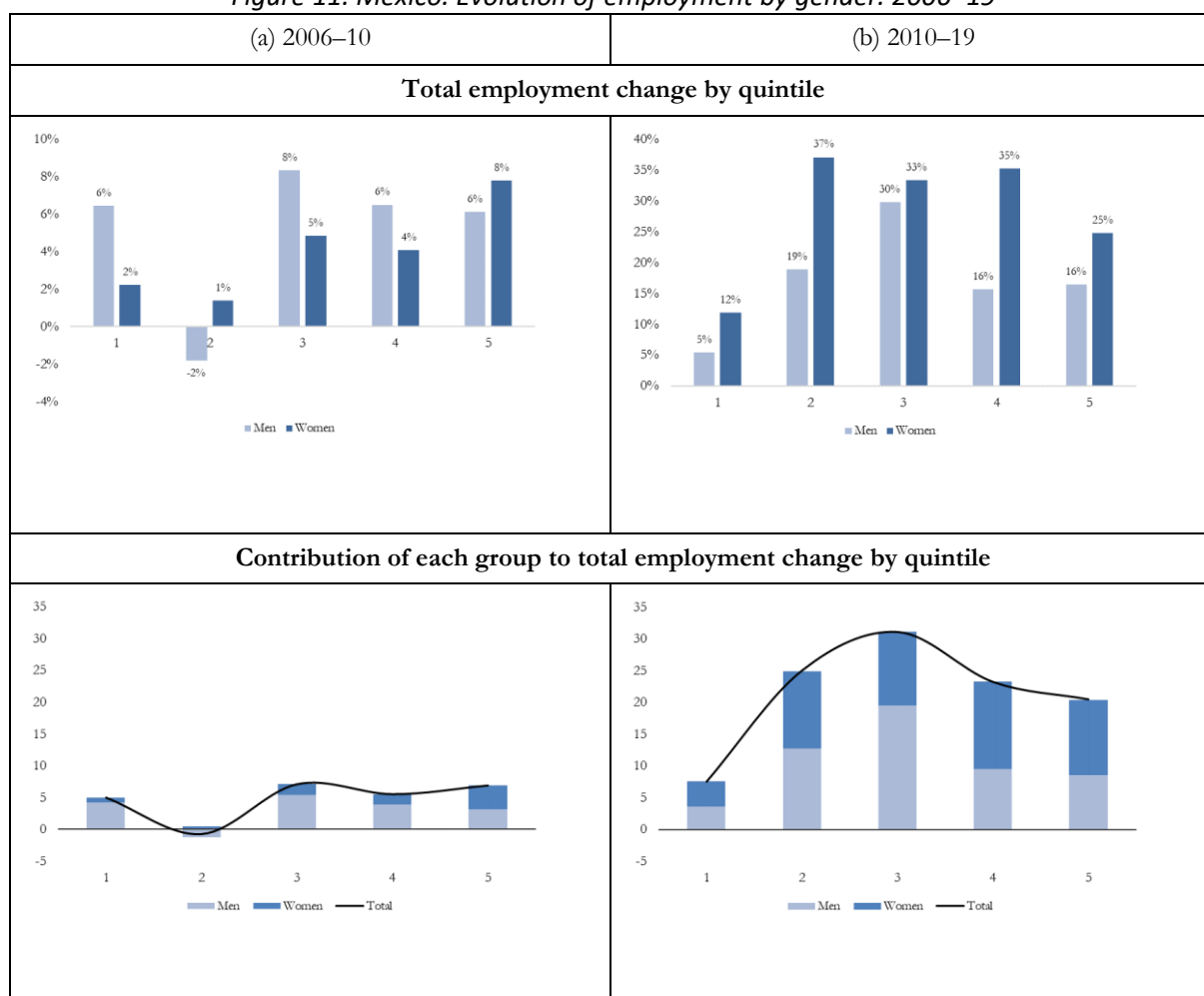




Source: Authors' own elaboration based on the Chile National Socioeconomic Characterization Survey.

Lastly, in Mexico, as mentioned above, the low growth in total employment during the first subperiod was accompanied by relatively similar growth rates across the quintiles. In all the quintiles, with the exception of the second and last quintiles, men experienced higher growth rates than women (figure 11). Women demonstrated a trend of upgrading, whereby the last quintiles registered higher positive changes than the first quintiles. The evolution of male employment, was, with the exception of the second quintile, more homogenous throughout the distribution.

**Figure 11. Mexico. Evolution of employment by gender. 2006–19**



Source: Authors' own elaboration based on the National Survey of Occupation and Employment.

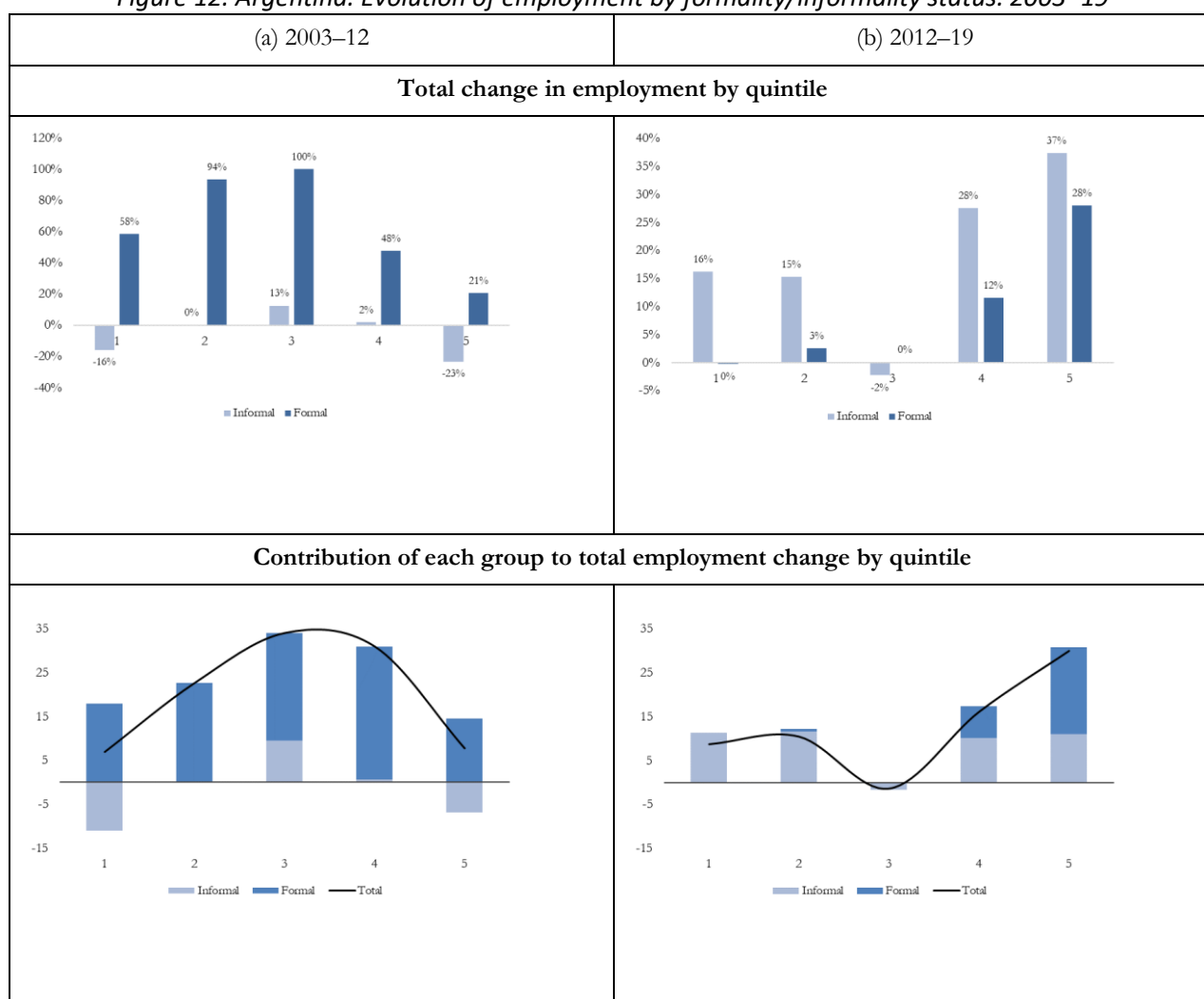
In the first quintile, the jobs with the greatest increases – agricultural and domestic services workers – contributed to the increase in male and female jobs, respectively. At the other end of the distribution, engineering, computer and telecommunications assistants, and technicians, and food preparation and processing workers, contributed to the rise in male and female employment, respectively.

During the second subperiod, both groups displayed similar behaviour, and contributed jointly to the inverted U-shaped pattern displayed by the evolution of total employment. However, in all the quintiles, the increase in employment was stronger for women than for men, which was consistent with the feminization process recorded in that subperiod.

## 6.2 By formality/informality status

As can be observed in figure 12, the employment formalization process experienced in the first subperiod in Argentina was reflected across all the quintiles. Therefore, formality shaped the behaviour of employment in each quintile and that of total employment. As demonstrated by Maurizio and Vázquez (2019), this process involved the formalization of jobs that were previously informal (which contributed to the decline in the absolute number of such jobs) and the net creation of new formal jobs.

*Figure 12. Argentina. Evolution of employment by formality/informality status. 2003–19*



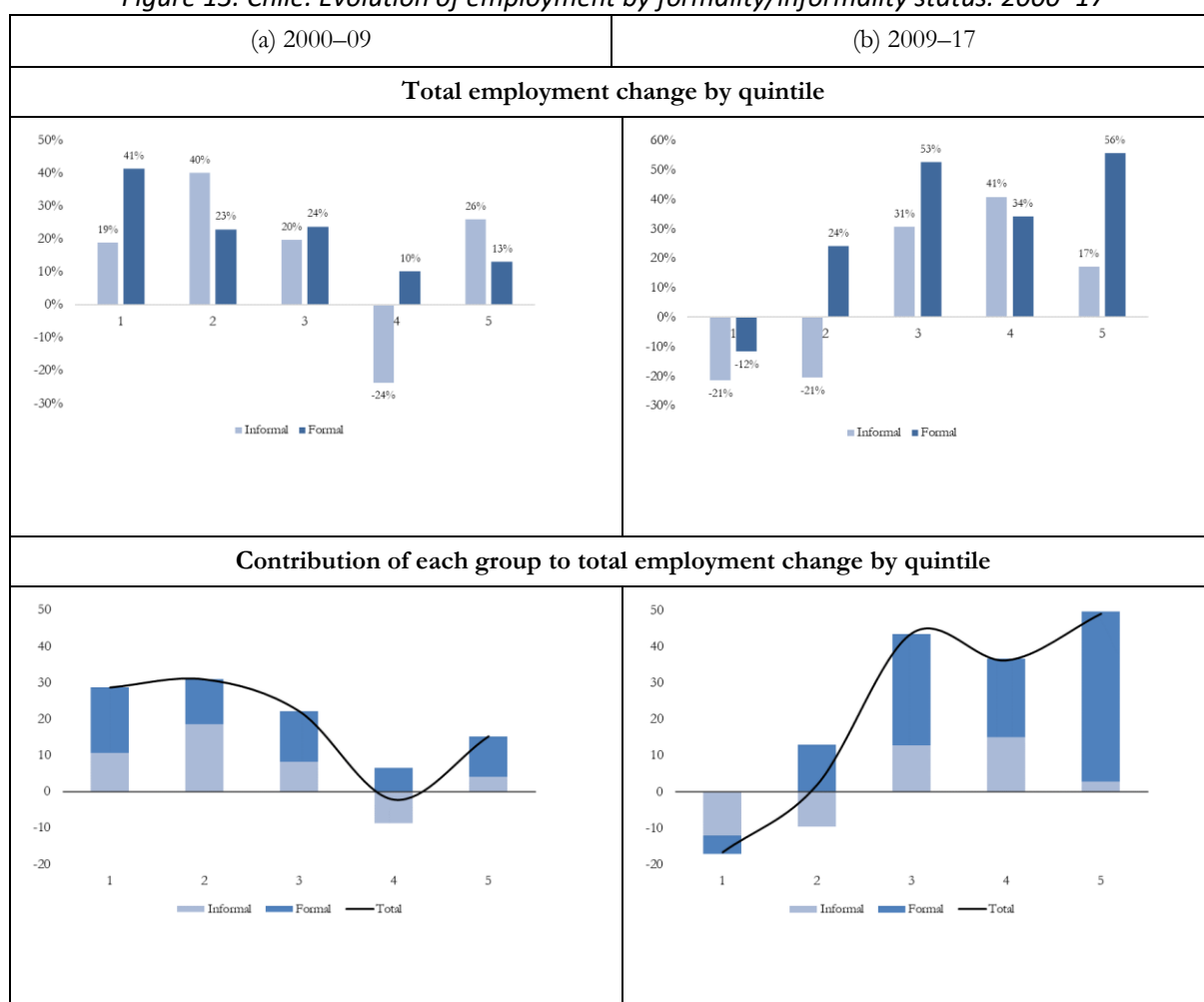
Source: Authors' own elaboration based on the Permanent Household Survey.

The opposite process occurred in the second subperiod. In the context of a significant slowdown and even reversal of the formalization process, informal jobs experienced greater increases than formal jobs across the quintiles, except in the third quintile. This contraction may be due, at least partly, to the contraction in domestic services jobs, which are characterized by an extremely high informality rate of around 80%.

Therefore, informal jobs contributed primarily to the polarization trend in this subperiod, with the exception of the last quintile. The low growth in formal jobs was concentrated in this part of the distribution, which could indicate either that most new formal jobs were created in that particular part, or that the transition process from informality to formality was more intense in this part of the wage scale. As a result of all this, it was only in the last quintile that formal jobs made a significant contribution to changes in employment. The changes in the other quintiles, and consequently in the overall employment, the change were driven by the evolution of labour informality.

In Chile, in the context of a slight increase in the formality rate during the first subperiod, the strength of the changes was different between formal and informal jobs throughout the distribution (figure 13). However, the behaviour of both types of jobs contributed to the overall evolution of employment. The highest percentage increase was experienced by formal workers in the first quintile. This may be due, at least partly, to the fact that the informality rate was higher in this part of the distribution and, therefore, also to the possibility that transitions to formality may be observed in that part.

**Figure 13. Chile. Evolution of employment by formality/informality status. 2000–17**

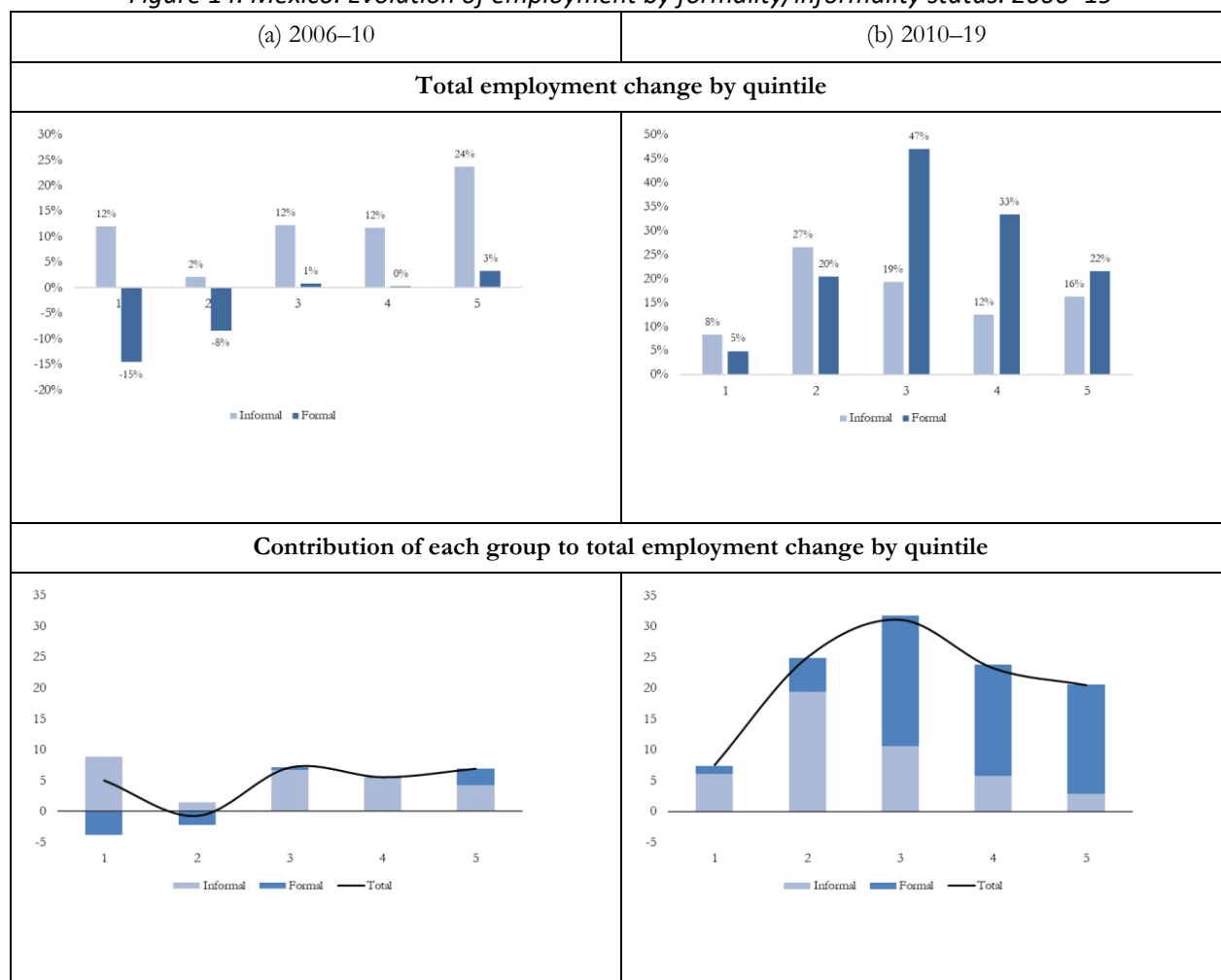


Source: Authors' elaboration based on the Chile National Socioeconomic Characterization Survey.

During the second subperiod, the certain upgrading observed was largely determined by the evolution of formal employment. As was the case for informal jobs, formal jobs contracted in the first quintile and then experienced increases of varying intensity across the rest of the distribution. In almost all the quintiles, these increases were higher than those recorded by informal jobs. This was consistent with a stronger process of formalization than that observed in the previous period. It was also reflected in a lower relative contribution of such jobs to the contraction of employment in the lower part of the distribution and in an increasing contribution to employment growth in the three higher-income quintiles.

In Mexico, the fall in the formality rate during the first subperiod was reflected in a contraction of formal jobs in the lower part of the distribution, together with a certain stability in the middle and upper part of the distribution (figure 14). However, informal employment registered significant growth in almost all the quintiles in the distribution. In relative terms, informal jobs accounted for most of the changes in each quintile and, therefore, for the overall evolution of employment throughout the subperiod.

**Figure 14. Mexico. Evolution of employment by formality/informality status. 2006–19**



Source: Authors' own elaboration based on the National Survey of Occupation and Employment.

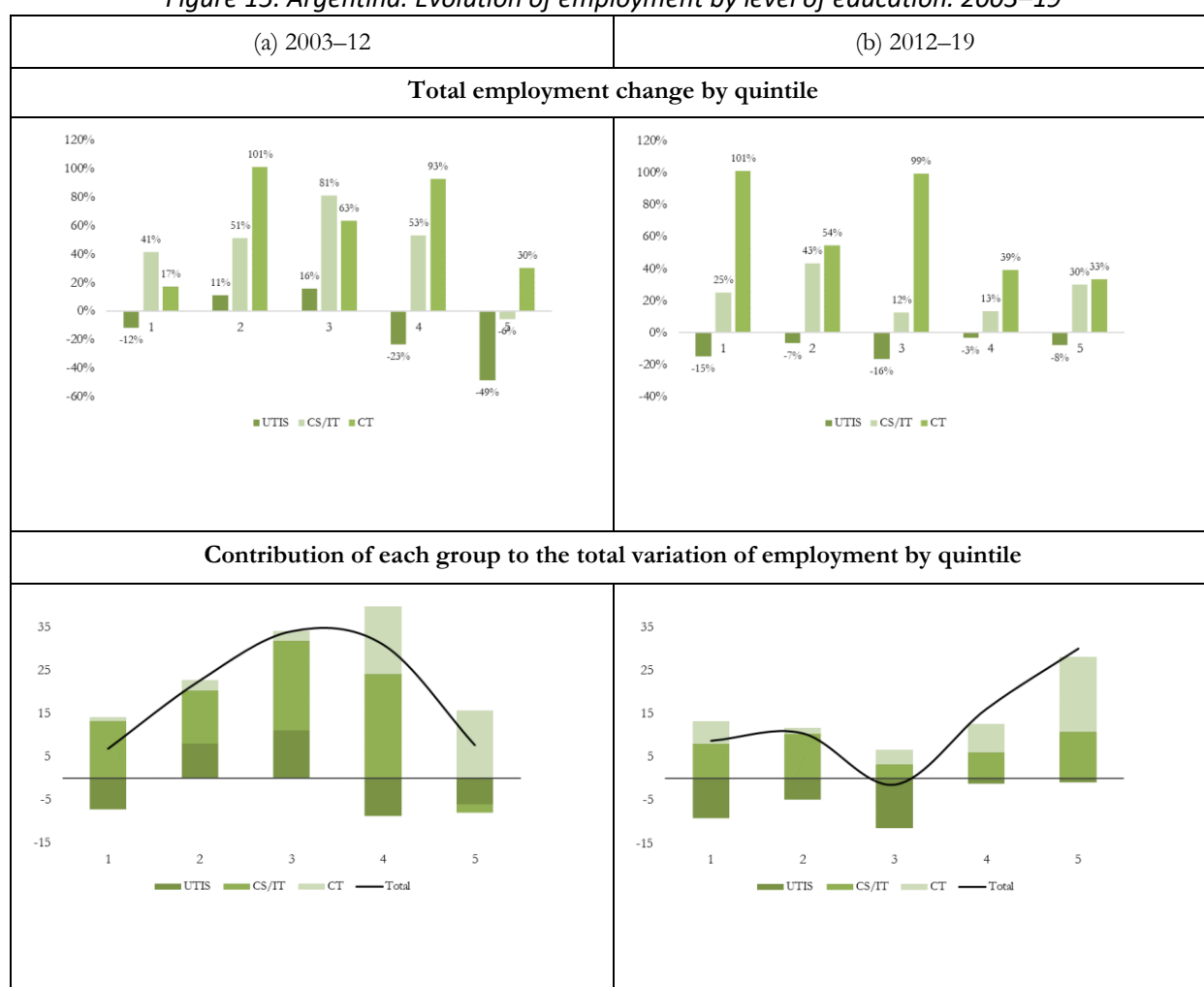
The formal jobs increased during the second subperiod. This resulted in growth in formal jobs throughout the distribution, especially in the middle and top part. In absolute and relative terms, the inverted U-shaped behaviour observed for total employment was solely due to the rise in formal jobs.

### 6.3 By level of education<sup>9</sup>

In Argentina, the upward trend in the supply of workers with higher levels of education, together with certain changes in labour demand, were reflected in decreases or slight increases in jobs held by workers with an incomplete secondary education or lower. This was offset throughout the entire period by increases in the other two levels of education in almost all the quintiles (figure 15).

During the first subperiod, the strength of the increase in middle- and higher-education jobs varied throughout the distribution. However, due to high share of workers with a completed secondary/incomplete university education in total employment, these workers contributed significantly to the growth of jobs in all the quintiles, except the last quintile. In that quintile, the only group that increased was that of workers with a completed university/technical education. In overall terms, medium-skilled workers were those who contributed most to the inverted U-shaped behaviour of total employment.

Figure 15. Argentina. Evolution of employment by level of education. 2003–19



Source: Authors' own elaboration based on the Permanent Household Survey. Note: UTIS: Up to incomplete secondary; CS/IT: completed secondary/incomplete tertiary; CT: complete tertiary.

During the second subperiod, the negative changes in low-skilled jobs continued throughout the distribution, while the opposite was still observed for the other two levels of education. However, the

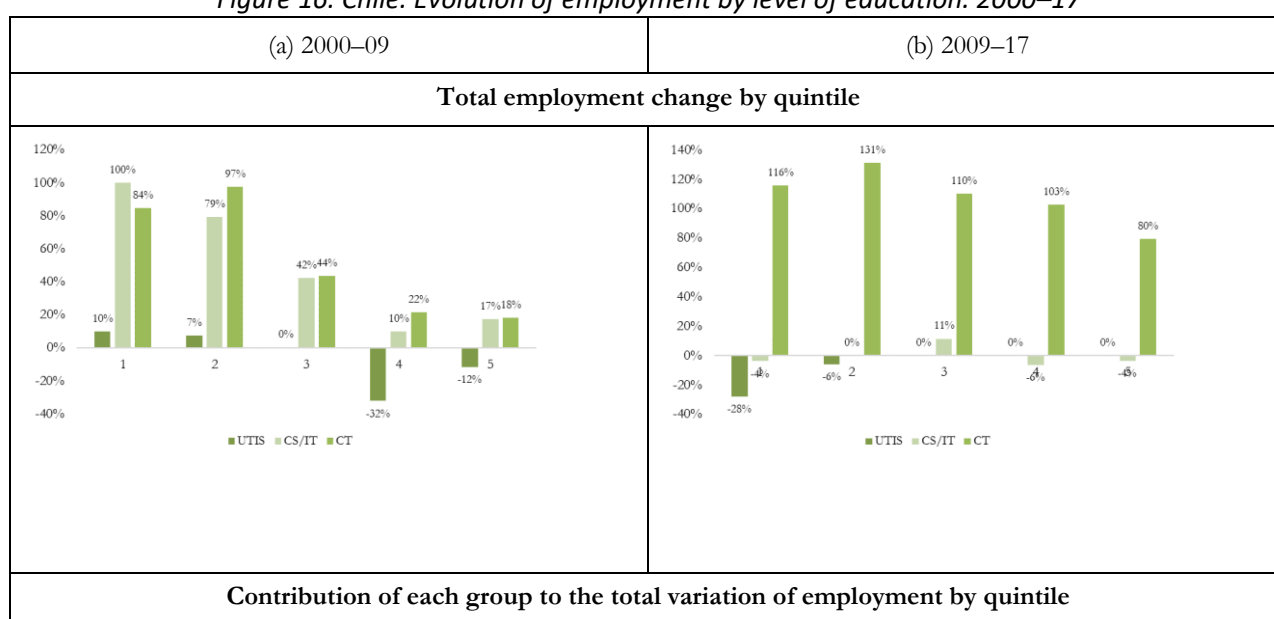
<sup>9</sup> The analysis was not carried out for Mexico due to the fact that, as mentioned above, the quintiles were ordered based on the average level of education of each job.

increased contribution of medium-skilled jobs to employment growth was no longer observed. For example, jobs with a low level of education were those that created a “collapse” in the middle part of the distribution. This was associated, at least partly, with the contraction of employment in domestic service that occurred in the second subperiod in the country. The continuity of the upward trend of jobs in the education and health sector accounted for the increase in workers with a completed university/technical education in the last quintile.

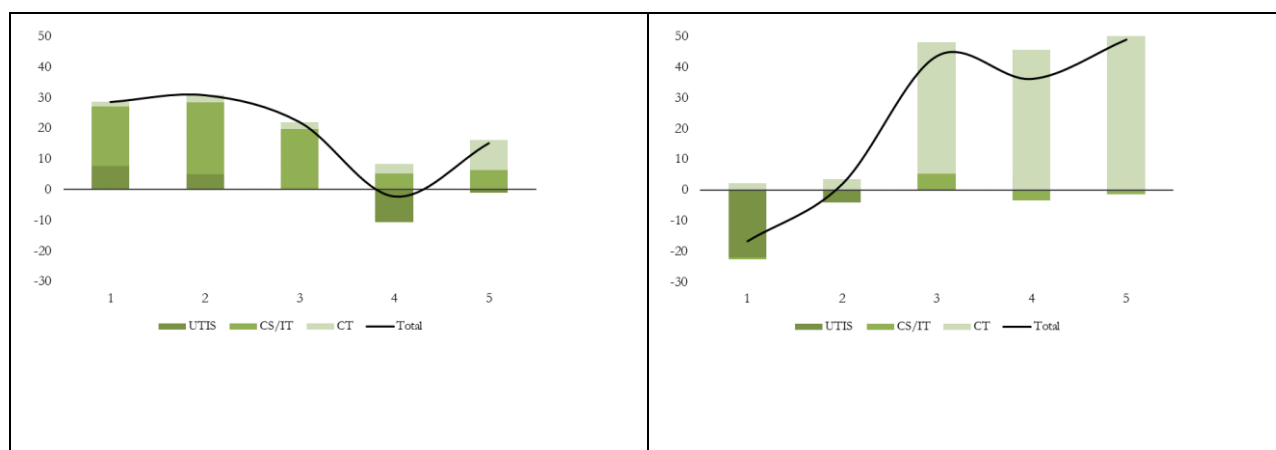
In Chile, as mentioned previously, an upward trend in the level of education of the employed population was observed (figure 16). During the first subperiod, this was reflected in a slight increase in the number of low-skilled employed persons in the lower part of the distribution, and in decreases in the upper part, particularly in the fourth quintile. These trends were responsible for the contraction in total employment in this part of the distribution. The increase in the first three quintiles was driven mainly by the changes in the number of employed persons with an intermediate education level. In the top quintile, while the increase registered in this category of workers was similar to that observed in employed persons with a high level of education, the latter group of workers contributed more comparatively to employment growth due to their higher share in this part of the distribution.

The acceleration in the percentage growth rate of workers with a completed university/technical level of education, to the detriment of workers with an intermediate level of education, which was registered during the second subperiod in Chile, was observed throughout the distribution. The relative share of workers with a lower level of education remained unchanged, except in the bottom quintile, in which it decreased. This, together with the contribution of the rise in workers with a university education in the three upper quintiles, resulted in the upgrading behaviour observed in total employment in the subperiod.

**Figure 16. Chile. Evolution of employment by level of education. 2000–17**







Source: Authors' own elaboration based on the Chile National Socioeconomic Characterization Survey. Note: UTIS: Up to incomplete secondary; CS/IT: completed secondary/incomplete tertiary; CT: complete tertiary.

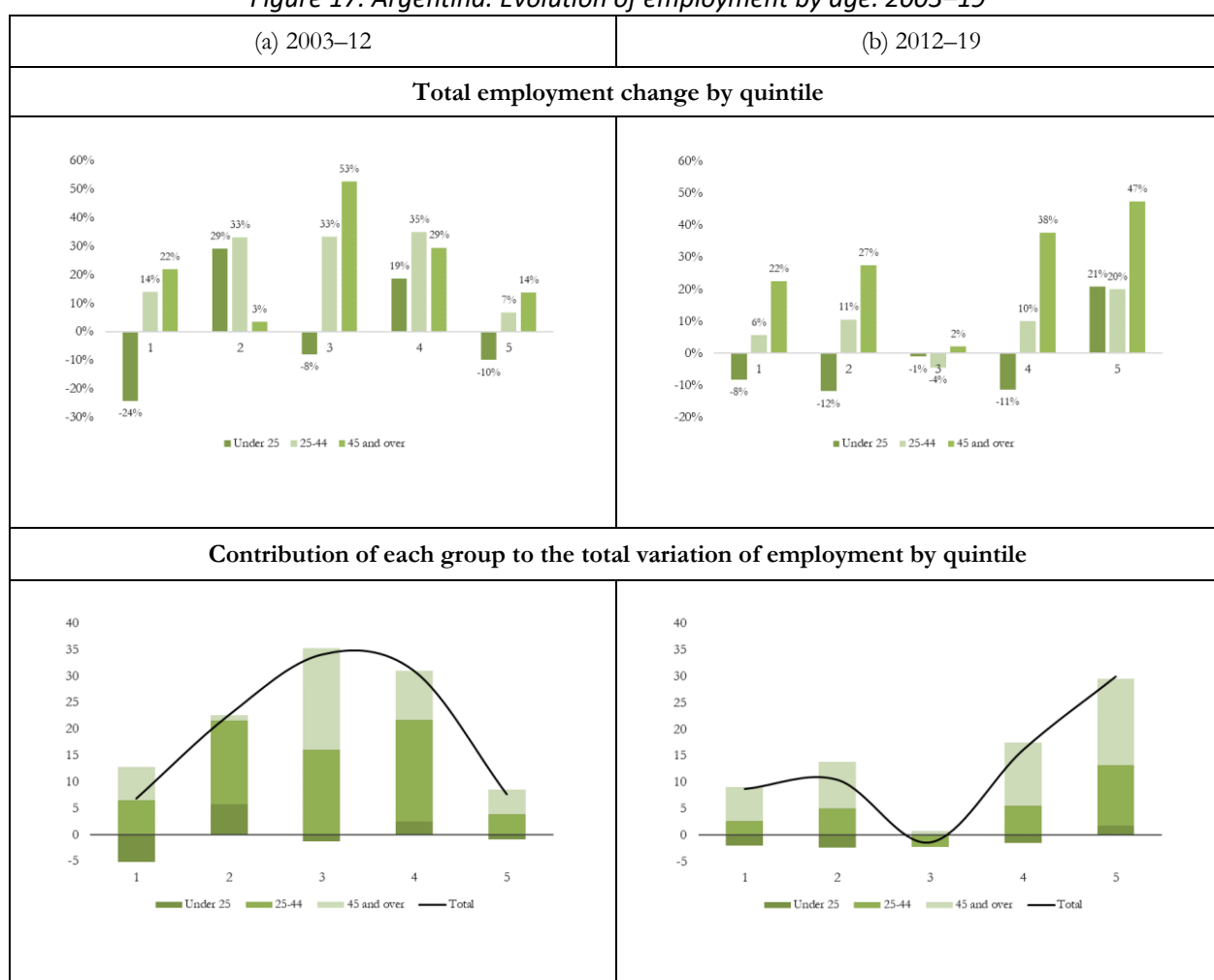
## 6.4 By age

The inverted U-shaped employment pattern in the first sub-period in Argentina was primarily reflective of what happened among individuals in their middle ages and, to some extent, among those aged 45 and older (Figure 17). Both groups experienced greater increases in the middle part of the distribution than at the extremes.

Young persons, however, demonstrated a more erratic behaviour, with decreases in three of the five quintiles. This may have been due to both supply and demand factors. On one hand, the share of young persons in total employment declined more or less systematically. On the other hand, the changes in jobs with a different age composition may also have contributed to this result. For example, the increase in jobs in construction, which explain a significant part of the employment change in the second quintile, accounted for the growth in youth employment and also in the employment of middle-aged workers.

The weakening of overall demand for employment, together with the continuity of demographic trends for the population as a whole, and of employed persons in particular, resulted in decreases in the number of young persons in almost all the quintiles during the second subperiod. However, employment growth was driven, once again, by the behaviour of the other two age groups. In particular, the most significant increase was observed in employed persons aged over 44 years at the top of the distribution. This category, together with that of middle-aged employed persons accounted for, almost equally, the increase in total employment in this quintile. This rise, in turn, was partly propelled by growth in the number of professionals in the education and health sectors.

Figure 17. Argentina. Evolution of employment by age. 2003–19

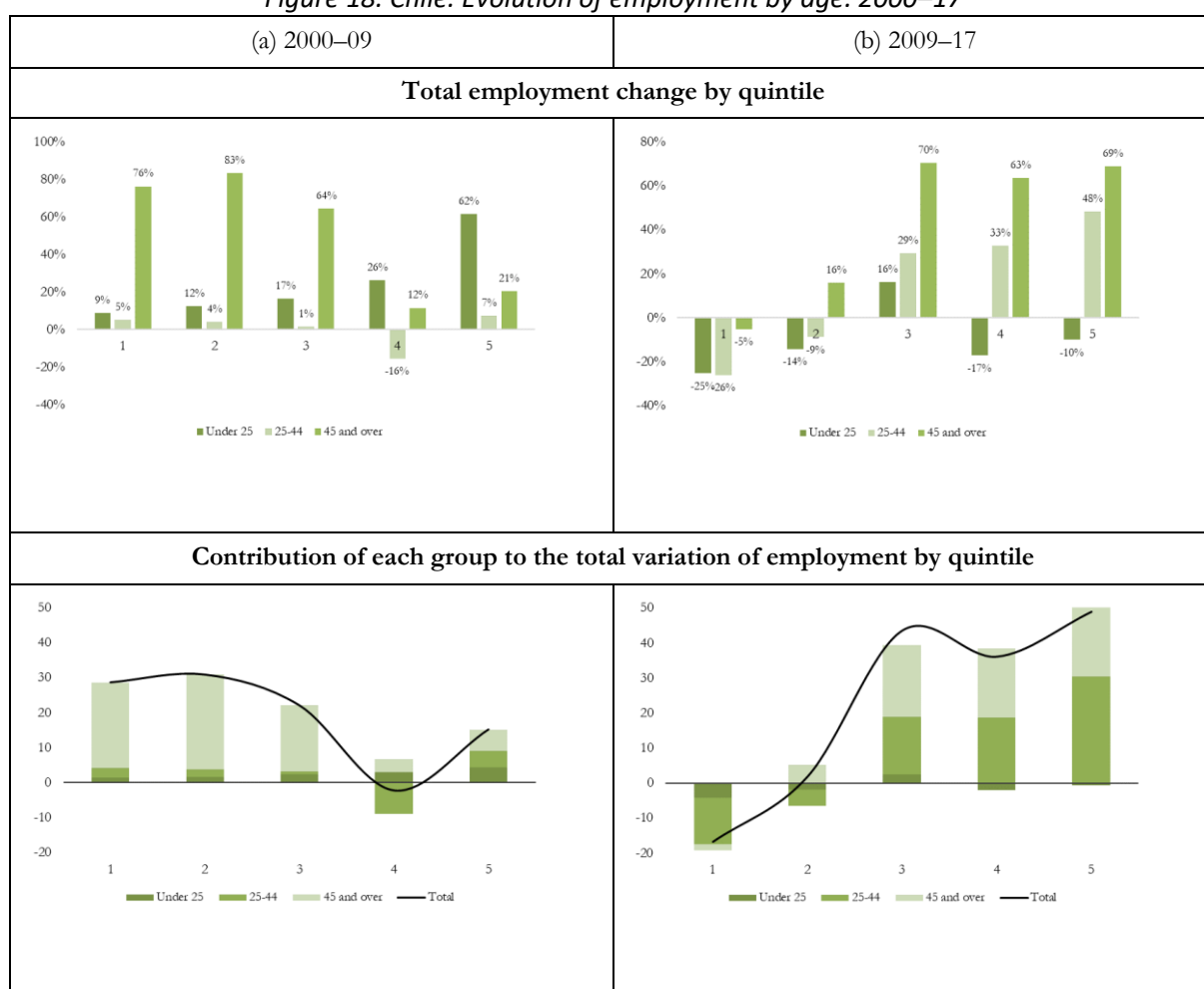


Source: Authors' own elaboration based on the Permanent Household Survey.

In Chile, the general behaviour of employment during the first subperiod was mainly determined by the behaviour in the category of workers aged over 44 years, except in the fourth quintile, in which the contribution of the three groups was more balanced. The strong increase in the share of mid-level technicians and professionals may have accounted for, at least partially, the increase in the number of employed young persons in the last quintile (figure 18).

During the second subperiod, there was an increase in middle-aged workers, which, together with workers aged over 44 years, accounted for the upgrading behaviour observed in that subperiod. However, a relative decrease in youth employment was observed in almost all the quintiles in the distribution.

Figure 18. Chile. Evolution of employment by age. 2000–17

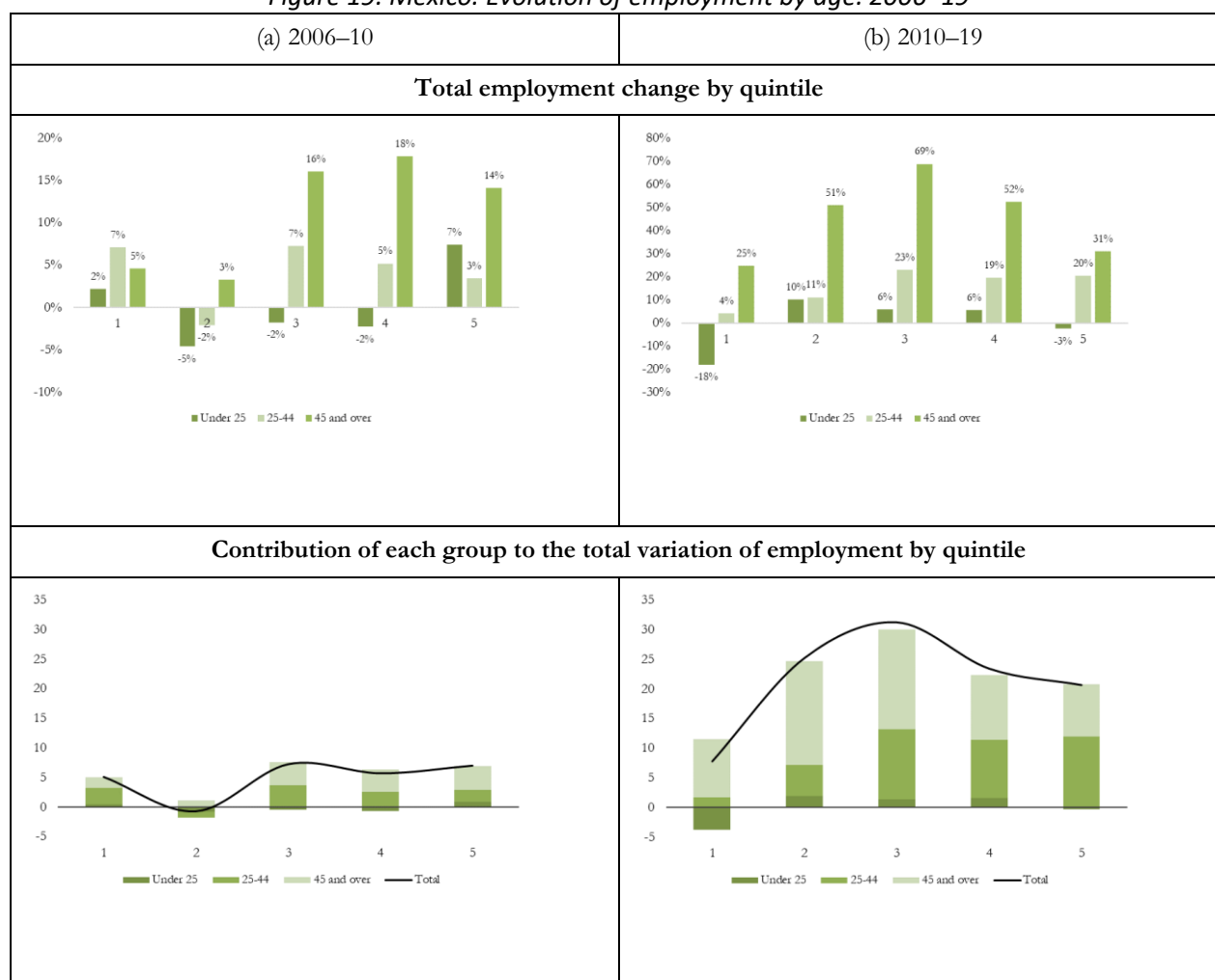


Source: Authors' own elaboration based on the Chile National Socioeconomic Characterization Survey.

In Mexico, employment growth was also lower for young persons than for the other two groups of employed persons (figure 19). Coupled with the upward trend in the average age of workers, in both periods, the upper age brackets shaped the behaviour of total employment. Young persons experienced contractions or slight increases in some quintiles.

When both subperiods are compared, it is observed that the relative share of workers aged over 44 years increased in almost all the quintiles, and that these workers were those who accounted primarily for the inverted U-shaped behaviour from 2010 onwards.

Figure 19. Mexico. Evolution of employment by age. 2006–19



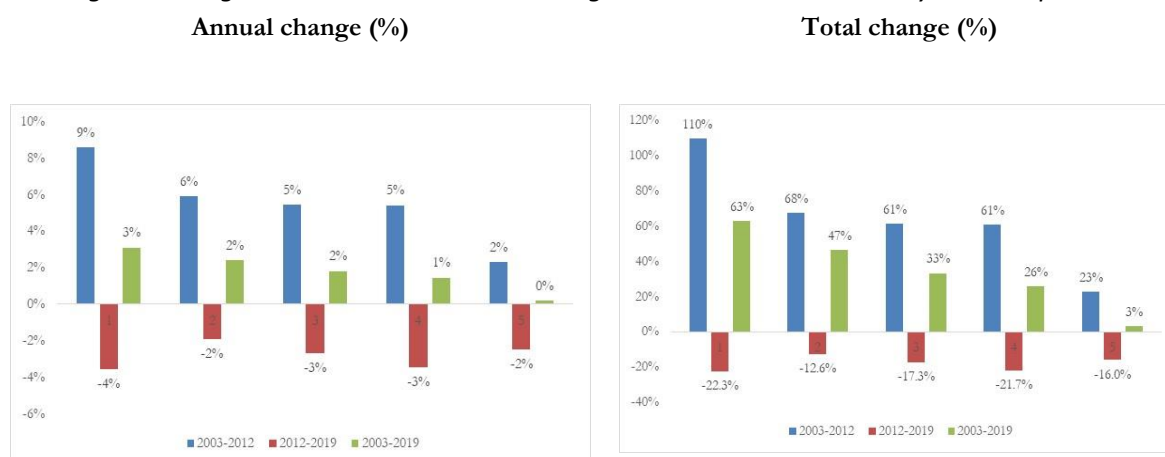
Source: Authors' own elaboration based on the National Survey of Occupation and Employment.

## 7 Changes in income in the first two decades of the twenty-first century

In this section, we evaluate whether the behaviour observed in hourly income throughout the distribution followed a pattern similar to those recorded in employment. Due to the aforementioned difficulties in using labour income information from the National Survey of Occupation and Employment, this analysis was only conducted for Argentina and Chile.

In Argentina, as shown in figure 20, during the first subperiod, widespread increases in the average hourly income of each quintile were observed, although they occurred at a monotonically decreasing rate across the distribution. This was consistent with the marked decline in inequality during this subperiod. However, these changes contrasted with the aforementioned trends in employment behaviour, as jobs for which demand was lower experienced sharper increases in real wages. As indicated in Maurizio and Monsalvo (2021), the evolution in labour income does not appear to correspond directly with the behaviour of relative supply of and demand for workers with different skill levels. Factors that may have influenced the wage trend during the first subperiod include the minimum wage and collective bargaining which, as mentioned above, increased during these years.

**Figure 20. Argentina. Annual and total change in mean labour income by income quintile**



Source: Authors' own elaboration based on the Permanent Household Survey.

During the second subperiod, in a context of inflationary acceleration, all the quintiles experienced decreases in real income. However, for the bottom 20%, the decreases were less sharp than in the rest of the distribution. Once again, this behaviour was consistent with the distributional worsening during the subperiod, and was different from the polarizing trend recorded in employment.

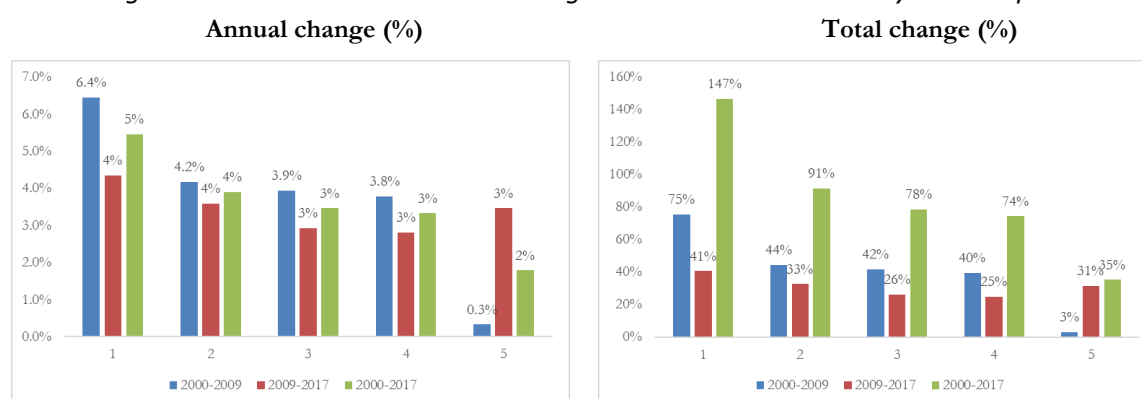
Given that the changes registered in the first subperiod were greater than those observed in the second, at the end of the almost 20 year-period considered, there was a more significant recovery in real labour income in the first quintiles, particularly the first, than in the last quintiles. This behaviour was similar to that demonstrated in figure 2, which presents the change in income across the percentiles of the distribution.

In Chile, unlike in Argentina, in both periods, average labour income increased in real terms throughout the distribution (figure 21). However, this behaviour was not always in line with that observed in employment.

In particular, during the first subperiod, it was observed that the quintiles in the lower part of the distribution experienced both higher relative growth in employment and a sharper increase in average labour income. However, in the following quintiles, the behaviour of the two variables diverged. As analysed above, from the third quintile onwards, an inverted U-shaped behaviour was recorded for jobs, while the rate of income growth continued to decline further along the distribution.

During the second subperiod, greater increases in mean income in the lower part of the distribution were also observed. However, in contrast with previous years, the last quintile also experienced significant increases, which were steeper than in the middle part of the distribution. Once again, there was a stark contrast with the trend in employment due to the fact that, as described above, the number of employed persons in the jobs in the first quintile decreased in both absolute and relative terms, while income displayed the opposite pattern. The same applied for the entire period. The trend in real income throughout the period was similar to that shown in figure 4 and is consistent with the decrease in inequality in the country.

**Figure 21. Chile. Annual and total change in mean labour income by income quintile**



Source: Authors' own elaboration based on household surveys.

The difference between employment and income trends in the lower part of the distribution suggests the presence of other factors beyond the potential net effect of relative supply and demand across the distribution. As mentioned above, during the second subperiod, the minimum wage showed an increase in real terms that was greater than in the first subperiod. This institutional factor could, at least partly, explain such a divergence.

## 8 Discussion and concluding remarks

This paper has examined the changes in employment structure and income in three countries in Latin America – Argentina, Chile and Mexico- during different subperiods throughout the first two decades of the new millennium. It used a job-based approach that combines job type with the branch of activity in which the job is performed. The study was conducted for all workers and also for different subgroups defined on the basis of gender, age, level of education and formality status.

The results show a wide range of patterns of structural change between periods and countries. In Argentina, an inverted U-shaped pattern was found in employment growth in the period 2003–12, while a certain polarizing behaviour was observed between 2012 and 2019. In Chile, no clear pattern was observed between 2000 and 2009, but a certain upgrading behaviour was noted between 2009 and 2017. In Mexico, no significant changes were seen between 2006 and 2010, although an inverted U-shaped behaviour was observed in the following decade.

In the three countries, where the almost two decades under analysis were considered together, a reallocation of jobs from the lower part of the distribution to jobs in the middle and upper quintiles was observed. This may reflect labour transitions that enabled lower-income workers to increasingly hold higher-skilled and higher-income jobs. It may also be consistent with the upward trend in the level of education of the workforce recorded in the three countries. However, it may also indicate the growing difficulties in obtaining and retaining a job for the least-skilled workers in the face of a demand for labour biased towards higher levels of education. This latter behaviour may, in turn, be a consequence of technological change.

For both options, the hypothesis of job polarization was not confirmed in any of the three countries. However, the evidence presented in this article is in line with other recently published results, which suggests that upgrading is the most common pattern, as was recently the case in Brazil (Rodrigues-Silveira 2023), the Russian Federation (Gimpelson and Kapeliushnikov 2023), several European countries (Torrejón et al. 2023; Oesch and Piccitto 2019), Canada (Willcox and Feor 2023) and India (Sarkar and Torrejón 2023), while patterns consistent with job polarization were observed only in the case of France (Torrejón et al. 2023), the United States (Dwyer 2023) and South Korea (Hong 2023).

This result raises four relevant points for discussion. The first is whether the confirmation or rejection of this hypothesis reflects the existence or non-existence of trends towards the automation of tasks in the three countries. In general, in the empirical literature, it is rare to find studies that directly identify these trends, the existence of which is determined on the basis of their expected impact on the growth in jobs and the tasks carried out in those jobs. In this study, we do not have any direct measurement of technological change, and the results obtained may, also, be a reflection of other factors.

The second aspect, which is closely linked with the first, is related to the extent to which we should expect trends towards automation, if they exist, to be replicated in least developed countries in the same way as in high-income countries. It can be expected that the scope and speed of automation depend on the initial composition of employment (where, in some countries, there is a lower proportion of middle-income workers engaged in codifiable jobs), the absorption capacity of technology, the skill level of the labour force and, in some countries, the net result between being a destination for offshoring and increased robotisation. Furthermore, the relative price of work versus capital, together with more significant macroeconomic shocks in the region than in more developed countries, may slow down the process of technology adoption and automation.

The third aspect concerns the overall impact of a change in the share of the different jobs. As demonstrated by Maurizio and Monsalvo (2021), for Argentina, the ranking of occupations by skill, income and task content does not correspond to that observed in developed countries. Therefore, even similar shifts in the share in employment of each job may have an overall impact on the distribution of income, which can differ from both polarization and inverted U-shaped patterns.

The fourth point is related to the fact that, unlike in other countries outside the region, average income behaved differently from jobs across the distribution. In particular, both in Argentina and Chile, in both subperiods, lower-income jobs, at the beginning of the period, experienced the highest increases in real terms. On one hand, this was consistent with the distributive improvements recorded in the two countries during the new millennium. On the other hand, it shows that the jobs that decreased in terms of relative share were those of which the average labour income increased the most sharply. This evidence suggests that the wage increases did not necessarily respond to the forces of labour supply and demand, or to changes potentially related to automation. It also suggests that, rather, there are other factors, for example, institutional factors, that may have shaped the behaviour of wages in the lower part of the distribution. One of these could be the increase in the minimum wage.

Overall, the results obtained for the three Latin American countries show the specific characteristics of these countries, which call for in-depth studies on a case-by-case basis. To conduct such studies, it would be necessary to obtain further information on the aspects analysed in this paper and on the task content for each job. The country-specific analyses yield valuable evidence, which makes it possible to improve the design of public policies aimed at reducing the high decent work deficits and elevated levels of wage inequality that prevail in the region.

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## **List of figures**

|  |    |
|--|----|
| Figure 1. Argentina. Labour market indicators. 2003–19 .....   | 14 |
| Figure 2. Argentina. Percentage change in real wages throughout the distribution. 2003–19.....   | 16 |
| Figure 3. Chile. Labour market indicators. 2000–17 .....   | 18 |
| Figure 4. Chile. Percentage change in real wages throughout the distribution. 2000–17.....   | 19 |
| Figure 5. Mexico. Labour indicators. 2006–19 .....   | 21 |
| Figure 6. Argentina. Annual change in the number of workers and relative changes in the<br>employment structure by income quintile ..... | 23 |
| Figure 7. Chile. Annual change in the number of workers and relative changes in the employment<br>structure by income quintiles .....    | 25 |
| Figure 8. Mexico. Annual change in the number of workers and relative changes in the employment<br>structure by income quintiles .....   | 26 |
| Figure 9. Argentina. Evolution of employment by gender. 2003–19.....   | 28 |
| Figure 10. Chile. Evolution of employment by gender. 2000–17.....  | 29 |
| Figure 11. Mexico. Evolution of employment by gender. 2006–19.....   | 30 |
| Figure 12. Argentina. Evolution of employment by formality/informality status. 2003–19.....  | 31 |
| Figure 13. Chile. Evolution of employment by formality/informality status. 2000–17 .....   | 32 |
| Figure 14. Mexico. Evolution of employment by formality/informality status. 2006–19.....   | 33 |
| Figure 15. Argentina. Evolution of employment by level of education. 2003–19 .....   | 34 |
| Figure 16. Chile. Evolution of employment by level of education. 2000–17 .....   | 35 |
| Figure 17. Argentina. Evolution of employment by age. 2003–19.....   | 37 |
| Figure 18. Chile. Evolution of employment by age. 2000–17 .....  | 38 |
| Figure 19. Mexico. Evolution of employment by age. 2006–19.....  | 39 |
| Figure 20. Argentina. Annual and total change in mean labour income by income quintile .....   | 40 |
| Figure 21. Chile. Annual and total change in mean labour income by income quintile .....   | 41 |

**List of tables**

|   |    |
|---|----|
| Table 1. Number of jobs and workers in Argentina (2003–19) .....                    | 8  |
| Table 2. Distribution of jobs and workers by quintile for Argentina (2003–19) ..... | 8  |
| Table 3. Number of jobs and workers in Chile (2000–17) .....                        | 9  |
| Table 4. Distribution of jobs and workers by quintile for Chile (2000–17) .....     | 10 |
| Table 5. Number of jobs and workers in Mexico (2006–19) .....                       | 10 |
| Table 6. Distribution of jobs and workers by quintile for Mexico (2006–19) .....    | 11 |

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