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Inclusive growth and decent jobs by gender: The case of urban areas in Bolivia

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Institute for Advanced Development Studies



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By:

**Beatriz Muriel Hernández
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Inclusive Growth and Decent Jobs by Gender: The Case of Urban Areas in Bolivia*

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Abstract

This study assesses the level of inclusiveness of the extraordinary growth experienced by Bolivia from 2006 to 2019 in terms of decent jobs generation in urban areas and by gender. We use the Ali and Son (2007) concentration of opportunities curves, the Cameron and Trivedi (2005) Bootstrap technique to estimate confidence intervals for measuring the robustness of differences in the results between years, and we establish proxies for decent jobs with five rates proposed by Muriel (2014, 2019, 2020a, 2020b); *i.e.* job stability, receiving the Christmas bonus, social protection, sufficient labor income, and labor association affiliation. The results show that growth was inclusive from 2006 to 2011, but not afterwards. The percentage of workers with the Christmas bonus, sufficient labor income and affiliation to a labor association were lower in 2019 compared to 2006. As for the gender gaps, the one associated with sufficient labor income stands out, but the main problems lie in the inequities of access to opportunities within the same female population.

Key Words: decent jobs, inclusive growth, gender

JEL Codes : D63, J16, J29, J39, J83

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Resumen

El presente estudio evalúa cuán inclusivo fue el crecimiento extraordinario que experimentó Bolivia entre 2006 y 2019 en términos de generación de empleos dignos urbanos y por género. Se utiliza la curva de concentración de oportunidades de Ali y Son (2007), se analiza la robustez de las diferencias de los resultados encontrados entre los años a partir de intervalos de confianza estimados mediante la técnica de Bootstrap (Cameron y Trivedi, 2005), y se aproximan los empleos con cinco tasas propuestas por Muriel (2014, 2019, 2020a, 2020b): *i.e.* estabilidad laboral, tenencia de aguinaldo, protección social, ingresos laborales suficientes y afiliación a alguna asociación laboral. Los resultados muestran que el crecimiento fue inclusivo entre 2006 y 2011; pero que no lo fue posteriormente. El porcentaje de trabajadores con aguinaldo, ingresos laborales suficientes y afiliación a alguna asociación laboral fueron menores en 2019 en relación a 2006. En cuanto a las brechas por género, resalta aquella asociada a los ingresos laborales suficientes, pero los mayores problemas se sitúan en las inequidades del acceso a las oportunidades dentro de la misma población femenina.

Códigos JEL: D63, J16, J29, J39, J83.

Palabras clave: empleos dignos, empleos decentes, crecimiento inclusivo, género.

I. Introduction

Since the mid-2000s and until 2019, Bolivia underwent extraordinary growth as a result, to a great degree, of a substantial increase in the international prices of its main export products. From 2006 to 2019, gross domestic product (GDP) stood at an annual average rate of 4.7%. All in all, as stated in the book titled *Evaluación de la calidad del crecimiento en Bolivia – Assessment of the Quality of Growth in Bolivia* (Muriel and Velásquez-Castellanos, 2020), the dynamic of this production is important in that it fostered improvements in terms of development and wellbeing.

In the labor sphere, decent jobs (similar to dignified work) are part of socioeconomic wellbeing and are explicitly related to growth under the Sustainable Development Objectives defined by the United Nations (UN). Specifically, SDG No. 8 states that inclusive and sustained economic growth can foster progress, create decent work for all and improve living standards (UN, 2015).

The present study seeks to empirically explore how inclusive was the growth, from 2006 to 2019, in generating decent jobs in Bolivia's urban areas, considering possible differences by gender. Inclusiveness was estimated based on the opportunity functions of Ali and Son (2007), from which we consider both the increase in decent jobs for the entire working population, as well as improvement in terms of equity, mainly for the poorest strata. Proxies are determined for decent jobs by five indicators proposed by Muriel (2014, 2019, 2020a, 2020b) for the country: Rate of Job Stability, Rate of Workers with the Christmas Bonus, Rate of Workers with Social Protection, Rate of Workers with Sufficient Labor Income, and Rate of Affiliation to a Labor Association.

The mentioned indicators were identified based on two criteria. On the one hand, a literature review was done on the conceptualization of decent or dignified jobs, which is based on the Universal Declaration of Human Rights of 1948 (see UN, 2015) and the Report presented by the International Labour Organization (ILO) at the 87th Session of the International Labour Congress in 1999 (ILO, 1999). On the other hand, consideration was given to Bolivian labor legislation related to this definition, which is based on the Political Constitution of the State (Section III), the General Labor Law of 1942 and the salary policy, which is modified annually through a Supreme Decree.

It is worth noting that empirical literature has some proxies for quantitatively studying the concept of decent or dignified jobs (see, e.g., Anker *et al.*, 2002; Diaz, 2013; Burchell *et al.*, 2013; Farné and Vergara, 2015; Moussa, 2017; Mackett, 2017; Yan *et al.*, 2023; Ferraro *et al.*, 2023); however, the variables are not standardized, and in most cases they are subject to the region being studied.

Also, research that relates decent jobs and inclusive growth – with the methodologies of Ali and Son (2007) or similar ones – is scarce. Some are related to productive jobs (see, *e.g.*, McKinley, 2010; Enang and Bassey, 2018), and others include variables such as the employment rate, the unemployment rate and remuneration indexes (see, *e.g.*, Asghar and Javed, 2011; Trivedi, 2012; Herrera, 2014; Adeosun, 2022). In the literature review, only the work of the authors of the present article (Muriel and Mansilla, 2020) is to be found, which analyzes, at the national level, the indicators of non-vulnerable jobs, with social protection, with membership in a labor association, and with income at least equal to the national minimum wage. Under this framework, the study redefines the relevant indicators and does an analysis for a more specific population group: urban areas in Bolivia, differentiated by gender.

The results of the study show that growth was inclusive in the generation of decent jobs from 2006 to 2011, but not afterwards. Even so, the percentages of workers with the Christmas bonus, sufficient labor income and affiliation to a labor association are lower in 2019 compared to 2006. In terms of gender gaps, the one related to the rate of workers with sufficient labor income stands out. All in all, the greatest differences are those of equity issues in the female population's access to opportunities.

The study has four sections apart from the present introduction. Section II describes the analysis framework, with a description of the Ali and Son (2007) methodology. Section III describes the proxy indicators of decent jobs by gender and shows the averages estimated for years 2006, 2011, 2014, 2016, and 2019, with use of household surveys of Instituto Nacional de Estadística (National Statistics Agency – INE). Section IV presents the results of growth in terms of decent jobs based on the Ali and Son (2007) methodology and the information used in the previous chapter. Lastly, the most important conclusions are presented in Section V.

II. Analysis framework

The concepts of inclusive economic growth and decent jobs are based on the need for measuring both elements from a perspective of values or quality. On the one hand, inclusive economic growth represents a response to the measure of increases in gross domestic product (GDP) per capita. Thus, its effect on socioeconomic results is internalized in its definition itself, including aspects such as “participation and benefit”, “creation of opportunities” and “wellbeing and equity” (for a literature review, see Herrera, 2014).

On the other hand, decent jobs – also related to dignified or quality jobs – are those that fulfill the aspirations of people throughout their work lives; that is, they conform to stable jobs, access to social protection (*e.g.*, health insurance, pension system, occupational risk insurance, unemployment insurance, etc.) and industry protection, with satisfactory pay for supporting

families, with freedom to create organizations for improving labor conditions, and with the exercising of other fundamental labor rights (ILO, 1999; Dharam, 2003; Muriel and Ferrufino, 2012; Muriel *et al.*, 2014; UN, 2015).

Under this framework, and following Ali and Son (2007), inclusive economic growth is determined based on the capacity to create an increasing number of decent job opportunities, or better jobs, for the entire working population, promoting at the same time equity in access to these opportunities, particularly for the poorest working population.

II.1. Concentration of opportunities curves

Ali and Son (2007)* relate inclusive growth to socioeconomic opportunities (of obtaining decent jobs) based on a social opportunity function (O) which includes the assessment of two factors: i) average available opportunities for the population; and ii) the distribution of these opportunities among the population, ordered according to income levels.

The O function is determined for n individuals with incomes x_1, x_2, \dots, x_n , where x_1 is the poorest individual and x_n the wealthiest. Every individual i ($i=1, 2, \dots, n$) having income x_i is associated to the variable y_i , which takes on the value of 0 (0%) if they are deprived of a certain opportunity associated with decent jobs, and of 1 (100%) if they are not. This function is expressed as:

$$(1) \quad O = O(y_1, y_2, \dots, y_n)$$

In terms of a function of distribution accumulated on averages, we have:

$$(2) \quad O^c \approx O^c \left(y_1, \frac{y_1 + y_2}{2}, \dots, \frac{y_1 + y_2 + \dots + y_n}{n} \right)$$

where $O^c(\cdot)$ is a proxy of the Generalized Lorenz Curve. Ali and Son (2007) call it the Generalized Concentration Curve of $O(\cdot)$. It is worth noting that the last expression of $O^c(\cdot)$

corresponds to the average of opportunities of all n individuals, $\bar{y} = \frac{1}{n} \sum_{i=1}^n y_i$. From the order of

this variable, it is equal to the percentage of the population that benefits from opportunity y .

Also, for a determined number of i individuals, the function corresponds to the accumulated

average of individual 1 up to i : $\bar{y}_i = \frac{1}{i} \sum_{j=1}^i y_j$.

* The methodology's description was extracted from Muriel (2020b).

With the aim of capturing the magnitude of changes in the distribution of opportunities and assessing whether growth has been inclusive or not in time, the authors specify an opportunities index (I^*) based on the function $O^c(\cdot)$:

$$(3) \quad I^* = \frac{1}{n} \sum_{i=1}^n \left(\frac{1}{i} \sum_{j=1}^i y_j \right)$$

which is equal to the sum of the averages of the opportunities for sub-populations 1, 2, up to n . Also, the authors propose an opportunity equity index based on I^* and the population average:

$$(4) \quad \varphi = \frac{I^*}{\bar{y}}$$

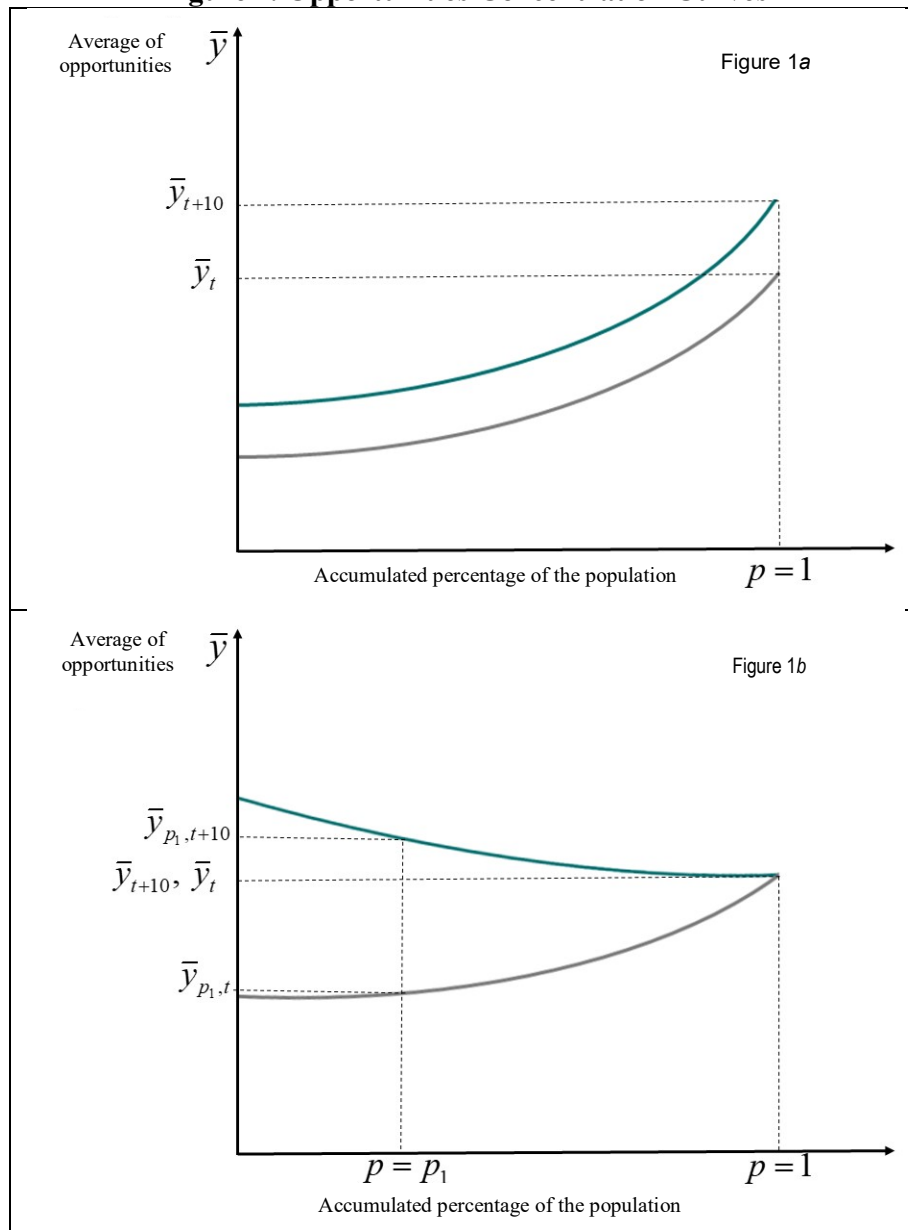
The index may be interpreted in three ways: i) if all individuals benefit from the same level of opportunity – *i.e.*, the opportunities are distributed equitably – then $I^* = \bar{y}$ and $\varphi = 1$; ii) if $I^* > \bar{y}$, $\varphi > 1$, the opportunities are distributed from a pro-poor approach (average \bar{y}_i is higher in poorer population strata and increases as the strata shift to populations that are less poor – wealthier); iii) if $I^* < \bar{y}$, $\varphi < 1$, the opportunities are distributed inequitably, favoring the wealthiest. Inclusive growth then means that I^* must increase ($dI^* > 0$) between periods, be it because the equity index (φ) and/or the population average of opportunities (\bar{y}) increases. Mathematically, I^* may be completely differentiated, obtaining:

$$(5) \quad dI^* = \varphi d\bar{y} + \bar{y} d\varphi$$

where the sign and the magnitude of dI^* assess whether growth was inclusive or not, and to what degree. The first expression on the right side of equation (5) represents the change in growth over the average of opportunities when the relative distribution of opportunities does not change. The second expression applies to the change in the distribution of opportunities when the average remains constant.

Figure 1 presents two possibilities of the Ali and Son (2007) Opportunities Concentration Curve (continuously explicit) considering positive economic growth between two periods, t and $t+1$. The horizontal axis corresponds to a normalization of p , which goes from 0 (zero, no individuals) up to 1 (one, the entire population), in ascending order according to their corresponding levels of income. The vertical axis represents the accumulated average of opportunities corresponding to each p .

Figure 1. Opportunities Concentration Curves



Source: Extracted from Muriel (2020b) based on Ali and Son (2007).

Figure 1a shows that the average of opportunities between t and $t+10$ increased from \bar{y}_t to \bar{y}_{t+10} for the entire population ($p=1$), with an ascendant shift in the curve between the two periods. However, the distribution of opportunities did not change; *i.e.*, the form of the curve is the same for both years. In this case, growth increased the average in all population strata ($d\bar{y} > 0$), but did not generate

greater equity ($d\varphi = 0$), as the poor continue to be in a situation of disadvantage in relation to the rich, with no relative improvement.

Figure 1b shows that the average of opportunities for the entire population did not change between t and $t+10$ ($d\bar{y} = 0$), but growth was pro-poor, providing greater equity through an improvement in distribution ($d\varphi > 0$). For example, for the $p=p_1$ percentage of the population, the average is higher in $t+10$ ($\bar{y}_{p_1,t+10}$) in relation to t ($\bar{y}_{p_1,t}$), and, in fact, in the last period, this value is higher than the average for the entire population ($p=1$).

Lastly, the study does a robustness analysis of the intertemporal change in the average and in the opportunities index based on confidence intervals estimated through the Bootstrap technique. According to Greene (2003), the methodology is based on obtaining the empirical distribution of estimator $\hat{\theta}$ ($= \bar{y}, I^*$), and sampling replacing the original data, with a total of M times. In this way, the statistical properties of the estimator of interest may be obtained by estimating it in each new sample, obtaining $\{\hat{\theta}(1), \hat{\theta}(2), \dots, \hat{\theta}(M)\}$. The optimal number (M) depends on the size of the original sample, but the literature coincides in indicating that several hundred repetitions are needed for obtaining robust results (see, *e.g.*, Davidson and MacKinnon, 1993; Andrews and Buchinsky, 2000).

The confidence intervals are then estimated based on the method of percentiles proposed by Cameron and Trivedi (2005), which corresponds to the calculation of a statistical element $t(m)$ in each replication m ($=1, 2, \dots, M$) of the Bootstrap:

$$(6) \quad t^*(m) = \frac{\hat{\theta}(m) - \hat{\theta}}{se_{\hat{\theta}}}$$

where $\hat{\theta}$ and $se_{\hat{\theta}}$ represent the estimator and the corresponding standard error obtained from the complete sample; $\hat{\theta}(m)$ represents the estimator in replication m of the Bootstrap. Following this, the statistical elements $t^*\left(\frac{\alpha}{2}\right)$ and $t^*\left(1 - \frac{\alpha}{2}\right)$ are chosen for calculating the limits of the confidence interval:

$$(7) \quad \hat{\theta} + t^*\left(\frac{\alpha}{2}\right)se_{\hat{\theta}}; \hat{\theta} + t^*\left(1 - \frac{\alpha}{2}\right)se_{\hat{\theta}}$$

In the present study, a total of 5,000 Bootstrap replications are done, and, taking into consideration a significance level $\alpha = 0,05$, the 125th highest t value is chosen for the lower limit, and 4,875th one for the upper limit.

III. Description of data

The information used comes from household surveys of years 2006, 2011, 2014, 2016, and 2019, performed by INE. These years correspond to noteworthy economic growth in the country, thus allowing to evaluate their quality of inclusiveness in labor terms[†].

In terms of decent jobs, following Muriel (2014, 2019, 2020a, 2020b), five proxy indicators are proposed:

- 1st. **Rate of Job Stability.** Measured as the proportion of workers who state having been working at their institution or productive unit for more than one year.
- 2nd. **Rate of Workers with the Christmas Bonus.** This equals the percentage of workers that receive the Christmas bonus, which is one of the most appreciated labor rights (Muriel and Ferrufino, 2012).
- 3rd. **Rate of Workers with Social Protection.** Measured as the percentage of jobs that have both affiliation to the Pension Fund Administrators (AFPs) – which cover labor risks and retirement pensions – and some form of health insurance (either public or private).
- 4th. **Rate of Workers with Sufficient Labor Income.** Assesses whether labor income (per hour) is at least equal to an acceptable minimum threshold, determined by the minimum hourly wage.
- 5th. **Rate of Affiliation to a Labor Association.** Freedom to create organizations for improving labor conditions is the proxy.

The mentioned indicators were delimited based on the conceptualization of decent or dignified jobs applied to Bolivian urban reality, taking into consideration the country's labor legislation (ILO, 1999; Dharam, 2003; Muriel and Ferrufino, 2012; Muriel *et al.*, 2014; UN, 2015). In the literature reviewed, it was observed that the unemployment rate is an indicator employed for assessing the labor situation under the methodology of Ali and Son (2007) (see, *e.g.*, Asghar and Javed, 2011; Herrera, 2014), and in other proxies of inclusiveness, the employment rate is considered (see, *e.g.*, Trivedi, 2012; Adeosun 2022). However, in the case of Bolivia, these measures do not accurately reflect lack of jobs, due to the high levels of informality (Muriel, 2019).

Besides this, it is worth mentioning that the Rate of Workers with Sufficient Labor Income is differentiated from the proposals of other authors who estimate access to labor opportunities

[†] That is, the COVID-19 pandemic and post-pandemic periods are excluded.

through remuneration (*e.g.*, Asghar and Javed, 2011; Herrera, 2014). On the one hand, the rate considers the population with positive labor income, as proposed by these authors, but also the population that does not receive labor income but participates in economic activities that generate value. On the other hand, the comparison is done in this case through hours of work, which allows including those who work less than full days.

The proposal approximates the study done by Muriel and Mansilla (2020) – which applies the methodology of Ali and Son (2007) at the national level for Bolivia – in the indicators pertaining to social protection, belonging to a labor association, and income at least equal to the national minimum wage.

Table 1 presents the proxy indicators of decent jobs for urban areas of Bolivia in the periods studied, considering disaggregation by gender.

Table 1. Urban areas of Bolivia: Proxy indicators of decent jobs, 2006-2019
(In percentages)

	2006	2011	2014	2016	2019
Rate of Job Stability	80.1	85.3	85.5	83.8	89.0
Men	79.6	85.5	86.1	84.4	89.0
Women	80.7	85.1	84.7	83.2	89.0
Rate of Workers with the Christmas Bonus	23.2	25.6	23.0	21.0	21.7
Men	24.5	26.6	23.3	21.2	21.9
Women	21.7	24.5	22.6	20.7	21.4
Rate of Workers with Social Protection	15.8	19.3	18.0	17.9	23.2
Men	16.7	20.7	18.9	18.5	24.7
Women	14.7	17.5	16.8	17.2	21.3
Rate of Workers with Sufficient Labor Income	67.3	72.4	63.3	56.6	56.1
Men	76.0	80.6	71.3	64.3	63.7
Women	56.2	61.9	53.3	46.6	46.5
Rate of Affiliation to a Labor Association	21.9	22.1	17.1	13.9	13.7
Men	22.8	23.6	17.6	15.2	14.7
Women	20.7	20.3	16.6	12.1	12.3

Source: Prepared by EMINPRO-INESAD based on the Instituto Nacional de Estadística household surveys from 2000 to 2019

The Rate of Job Stability presents high values across the period, beginning with 80.1% in 2006 and reaching 89% in 2019, which indicates a low level of labor mobility in the short-term both for workers who have an employer and for self-employed. The gender gap is not clear; for example, in 2006 it favors women, but in 2014 and 2016 it favors men.

On the other hand, the Rate of Workers with the Christmas Bonus is low in all years, being, on average, 22.9%. From 2006 to 2011, this rate increases from 23.2% to 25.5%, but decreases to

23% in 2014, coinciding with the adoption of the double Christmas bonus since 2013, and the rate does not recover in later years. At the gender level, the gap decreases in time, going from 2.8 percentage points in 2006 to 0.5 percentage points in 2019.

As in the previous case, the Rate of Workers with Social Protection is low in all years, though it shows improvement from 2016 to 2019, reaching 23.2%. This increase can be explained by the implementation of Sistema Único de Salud (Sole Health System – SUS), which increased health insurance coverage considerably, across the country (Alondra, 2022). The gender gap is on average 2.4 percentage points in favor of men, which is explained mainly by affiliation to the pension system, given that in the case of health, the female population had a relatively higher rate.

As regards sufficiency of labor income, the indicator measured by the minimum wage increased from 2006 to 2011 from 67.3% to 72.4%; however, it then dropped to 56.1% in 2019. This indicates that at least half of urban workers have insufficient income for supporting themselves and their families. All in all, it is worth noting that the Government of Bolivia increased the minimum wage to levels notably higher than inflation, particularly as of 2011. In 2006 the minimum wage was Bs. 500; in 2011 it reached Bs. 815, and in 2019 it stood at Bs. 2,122, with an annual average increase of 10% over the period. On the other hand, average annual inflation was 3.7%. Besides this, real labor income fell since 2014 due to the deceleration of the economy (Muriel, 2019). In this case, the gap by gender stands out as high, at 19.8 percentage points in favor of men in 2006 and at 17.1 in 2019, which is attributable, among other things, to the fact that women receive less labor income, and because they participate more in unpaid household occupations.

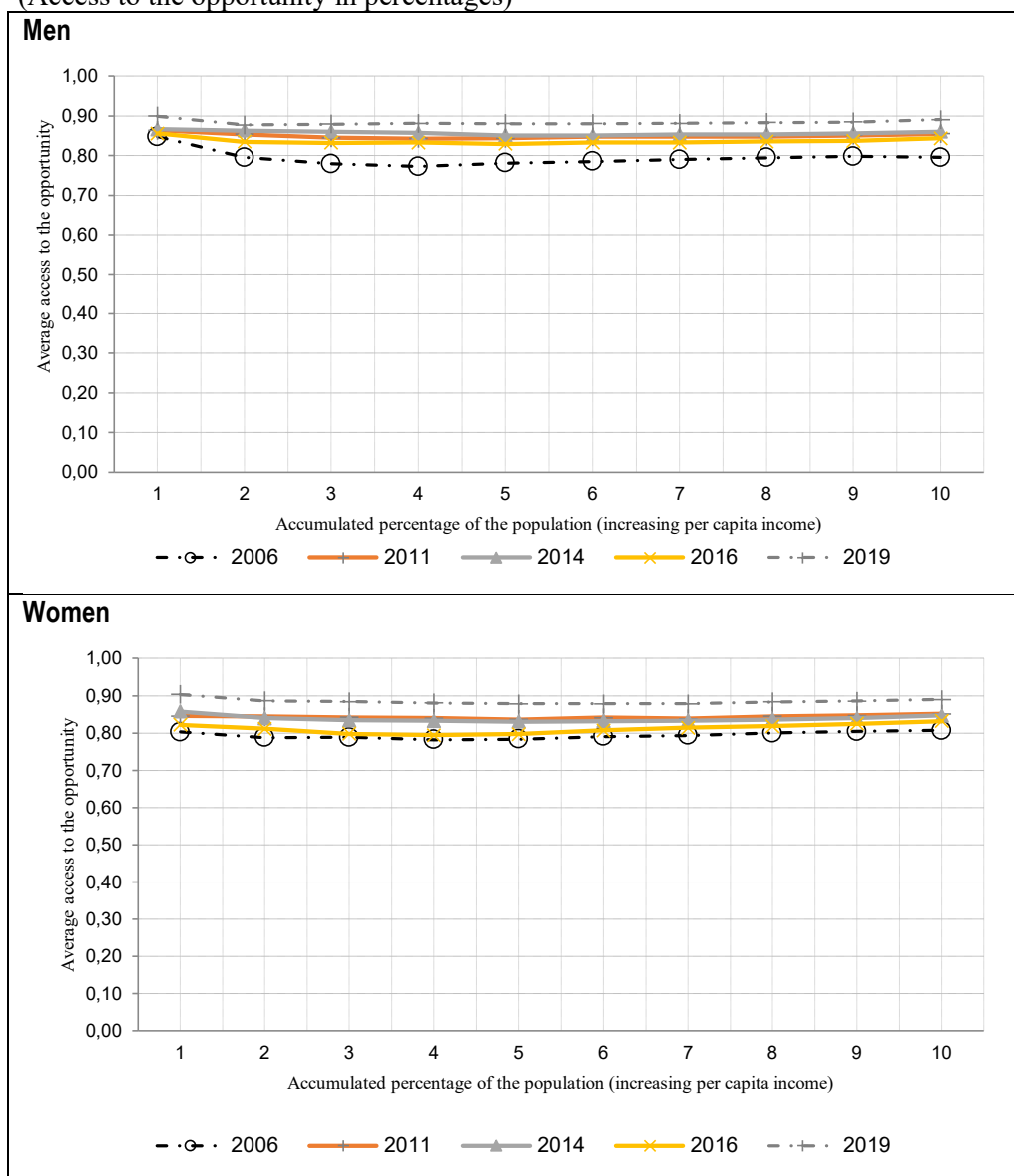
Lastly, the Rate of Affiliation to a Labor Association; *i.e.*, to a guild, union or labor association, increased slightly from 2006 to 2011, but then had a negative trend. At the aggregate level, in 2006 approximately 22 out of every 100 persons belonged to some form of association, while in 2019 this rate was at 14 out of every 100. This fall may be explained by the fact that young workers swell the economically active population every year and are, to a high degree, unrelated to these associations (Muriel and Mansilla, 2020). In all years, men have a higher rate than women, with an average gap in the period of 2.4 percentage points.

IV. Effects of growth on decent jobs

Following the sequence of the indicators presented in the previous section, Graph 1 shows the opportunities concentration curves of access to stable jobs by gender in Bolivia's urban areas.

Graph 1. Urban areas of Bolivia: Opportunities concentration curves of the Rate of Job Stability, 2006-2019

(Access to the opportunity in percentages)



Source: Prepared by EMINPRO-INESAD based on the Instituto Nacional de Estadística household surveys from 2000 to 2019

For both sexes, the curves show high levels of access in all years, with slight increases from 2006 to 2014, moderate decreases from 2014 to 2016, and then modest upward shifts until 2019. For both sexes, on average, the improvement from 2016 to 2019 is statistically significant,

according to the confidence intervals estimated by the Bootstrap technique (see Tables A1 and A3 in the Annex).

The opportunities index (I^*) has an upward trend from 2006 to 2019, both for men and women, though in a volatile manner, going from 0.79 to 0.88 (see Table 2 at the end of this section). As with the averages, the values from 2006 to 2019 are also statistically different with the Bootstrap technique (see Tables A2 and A4 in the Annex). As to the equity index (φ), it is at about 0.99 for both sexes; this reflects equitable distribution in terms of the opportunity of job stability for both sexes, indicating equitable distribution in the opportunity of having job stability, across the period. Persons with both low and high incomes remain at their jobs for more than a year.

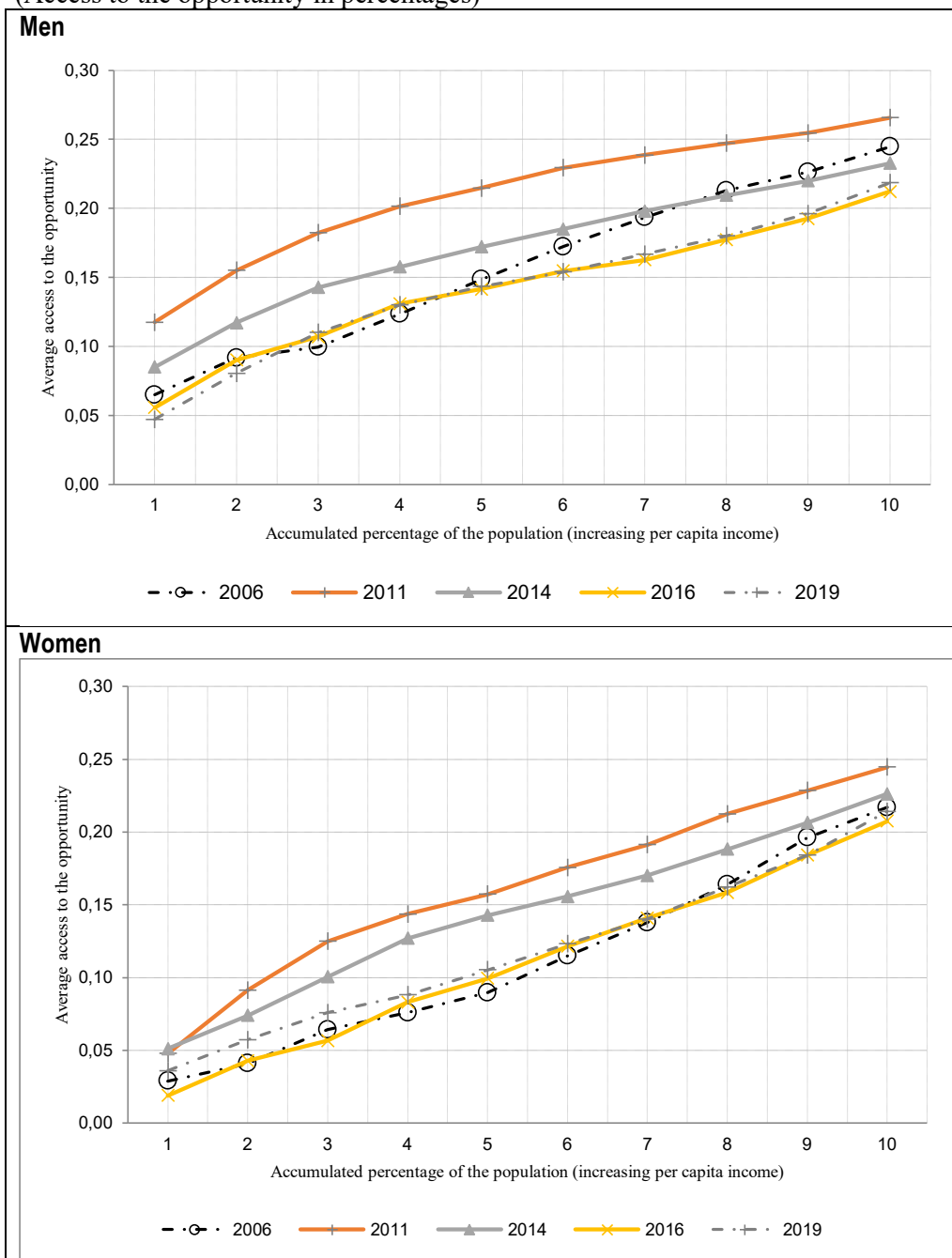
Graph 2 presents the opportunities concentration curves of the Rate of Workers with the Christmas Bonus (for both sexes). In both cases, the curve has a noticeable upward shift, with a statistically significant difference, from 2006 to 2011, indicating an improvement in access to this opportunity, particularly in the lowest income deciles. From 2011 to 2016, access for all income levels decreases, particularly in the male working population, even reaching levels of participation lower than those of 2006 in the highest income deciles. From 2016 to 2019, the curve has a slight increase in the lowest income deciles for women, and there are no noteworthy changes for men (see also Tables A1 and A3 in the Annex for the statistical significances).

In general, distribution in access to the opportunity of receiving the Christmas bonus (φ) shows problems of inequity, as it is far lower than 1 in all years (see Table 2 at the end of this section). This is also reflected in the curve's slope. For the male population, φ improves from 0.64 in 2006 to 0.74 in 2014, but falls once again in 2019 to a value similar to that of 2006 (0.65). For the female population, the φ index shows greater inequity issues, with a slight improvement from 2006 (0.52) to 2019 (0.55), and reaching its highest value in 2011 (0.66).

The changes described above are reflected in a slight increase in the opportunities index ($dI^*>0$) for the case of women (from 0.11 in 2006 to 0.12 in 2019), but which is not statistically significant (Table A4 in the Annex), and in a significant fall ($dI^*<0$) for men, from 0.16 in 2006 to 0.14 in 2019 (Table A2 in the Annex). This indicates that economic growth was deficient in terms of inclusiveness in relation to the Christmas bonus.

Graph 2. Urban areas of Bolivia: Opportunities concentration curves of the Rate of Workers with the Christmas bonus, 2006-2019

(Access to the opportunity in percentages)



Source: Prepared by EMINPRO-INESAD based on the Instituto Nacional de Estadística household surveys from 2000 to 2019

Graph 3 presents the opportunities concentration curve of access to social protection for the working urban population (by gender). As in the previous case, the curves shift upwards from

2006 to 2011 and then contract until 2016. However, in 2019 they once again shift upwards, as a result of registration of workers in the previously mentioned SUS. From 2006 to 2019, the improvements, for both sexes, are statistically significant, according to the confidence intervals estimated by the Bootstrap technique (see Tables A1 and A3 in the Annex).

Table 2 (at the end of this section) shows that the opportunities equity index (φ) is low for men, and even lower for women. This indicates that the social protection measures in the areas of analysis were excluding. However, the index improves significantly from 2006 to 2019, from 0.54 to 0.65 for men, and from 0.39 to 0.49 for women.

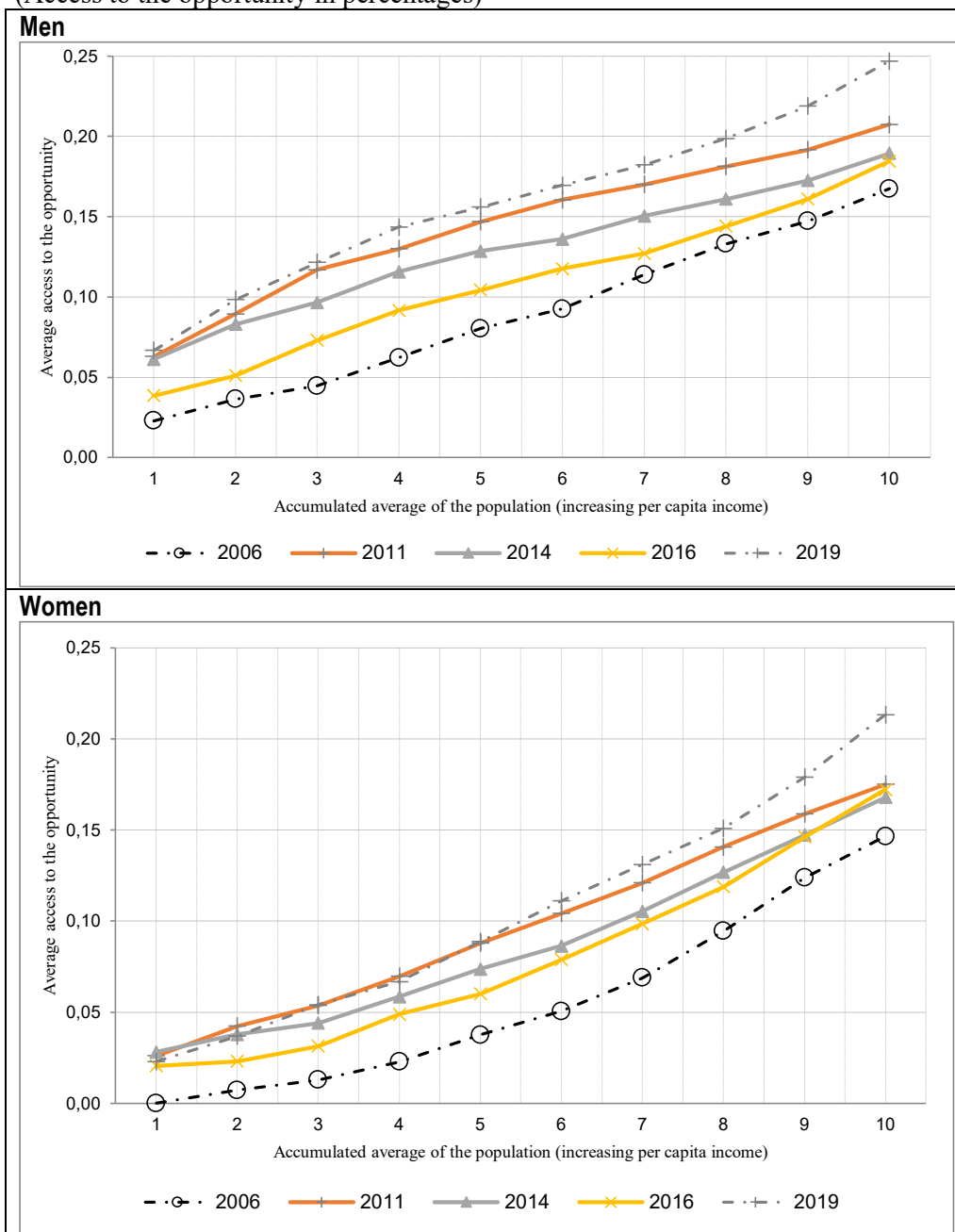
The average increase in the equity index shows that economic growth was inclusive in the period of analysis ($dI^*>0$), though the improvement from 2011 to 2019 was marginal, explained by the increase in the average.

Graph 4 presents the opportunities concentration curve of access to sufficient labor income. Similarly to the previous cases, the curve shifts upwards from 2006 to 2011, but reverts in the following years in response, as previously mentioned, both to the increase in the minimum wage and to economic deceleration. It is worth noting that from 2011 to 2019, average access dropped considerably, by 17 percentage points for men and by 15 percentage points for women, with the difference being statistically significant in both cases (see Tables A1 and A3 in the Annex).

The curve's positive trend shows, in all cases, equity issues. The poorest population is, in a greater proportion, the one most disadvantaged in terms of labor income at least equal to the minimum salary, and the distribution is worse for the female population. From 2006 to 2011, the opportunities equity index (φ) improves for both sexes, from 0.83 to 0.87 for the case of men and from 0.70 to 0.77 for women, but this situation then reverts, and in 2019 it reaches values lower than those of 2006: 0.79 for the male population and 0.67 for the female population. This result, together with the fall in the general average, leads to worse access to opportunities ($dI^*<0$) in the period of analysis, demonstrated by the statistical estimate of differences in the indicator (see Tables A2 and A4 in the Annex), thus indicating that economic growth and the minimum wage policy were not inclusive.

Graph 3. Urban areas in Bolivia: Opportunities concentration curve of the Rate of Workers with Social Protection, 2006-2019

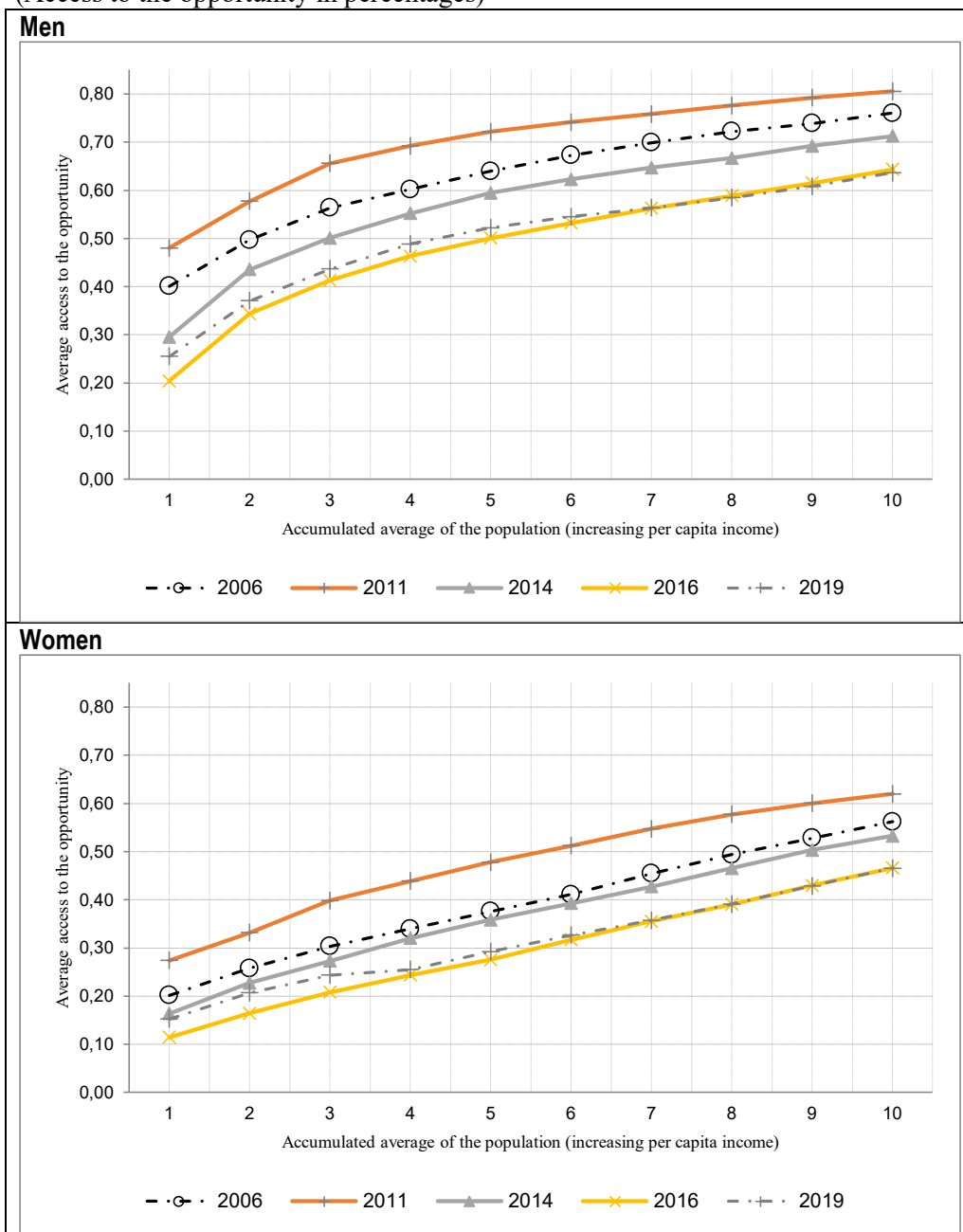
(Access to the opportunity in percentages)



Source: Prepared by EMINPRO-INESAD based on the Instituto Nacional de Estadística household surveys from 2000 to 2019.

Note: Jobs with social protection are those that have affiliation to the Pension Fund Administrators (AFPs), and having some sort of health insurance (private or public).

Graph 4. Urban areas of Bolivia: Opportunities concentration curve of the Rate of Workers with Sufficient Labor Income, 2006-2019
(Access to the opportunity in percentages)



Source: Prepared by EMINPRO-INESAD based on the Instituto Nacional de Estadística household surveys from 2000 to 2019

Note: The comparison is based on hourly income including the entire working male population in urban areas.

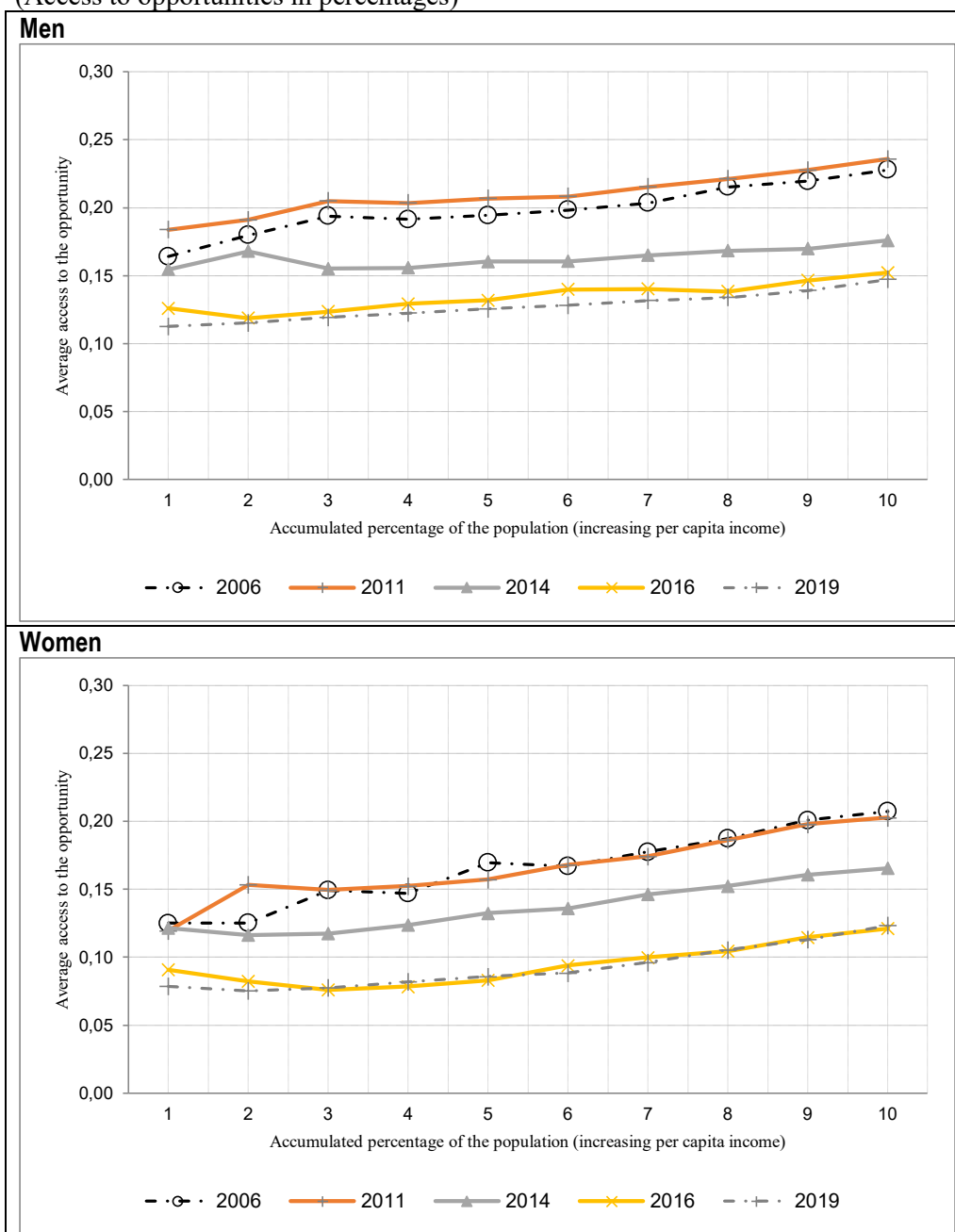
Finally, Graph 5 presents the opportunities concentration curve of affiliation to a labor association, which is the last indicator analyzed. For men, following a moderate upward shift

from 2006 to 2011, the curve drops systematically in the following years, from 2006 to 2019, with a statistically significant drop (see Table A1 in the Annex). For women, the curve does not have a considerable change from 2006 to 2011, but then also drops, significantly, until 2019 (see Table A3 in the Annex).

Accumulated distribution shows certain equity, though better for the male population (see Table 2). In both cases, 2014 stands out as having the highest φ index, both for men (0.93) and for women (0.83), and the value drops in the following years, particularly for the female population. For both sexes, the opportunities index falls significantly from 2006 to 2019 ($dI^* < 0$), which is explained mainly by the reduction in average access to this opportunity (see Tables A2 and A4 in the Annex). The result shows that although there is an opening up in society and Bolivian legislation for creating labor associations, young workers – as stated previously – do not exercise this right, and thus growth is not inclusive in relation to this access.

Graph 5. Urban areas of Bolivia: Opportunities concentration curve of the Rate of Affiliation to a Labor Association, 2006-2019

(Access to opportunities in percentages)



Source: Prepared by EMINPRO-INESAD based on the Instituto Nacional de Estadística household surveys from 2000 to 2019

Table 2. Urban areas of Bolivia: Average access, and indexes of opportunities and equity in opportunities of the proxy indicators for decent jobs, 2006-2019

	2006	2011	2014	2016	2019
Job stability					
Men					
Opportunities index	0.79	0.85	0.86	0.84	0.88
Equity in opportunities index (φ)	1.00	0.99	1.00	0.99	0.99
Women					
Opportunities index	0.79	0.84	0.84	0.81	0.88
Equity in opportunities index (φ)	0.98	0.99	0.99	0.98	0.99
Workers with the Christmas Bonus					
Men					
Opportunities index	0.16	0.21	0.17	0.14	0.14
Equity in opportunities index (φ)	0.64	0.79	0.74	0.67	0.65
Women					
Opportunities index	0.11	0.16	0.14	0.11	0.12
Equity in opportunities index (φ)	0.52	0.66	0.64	0.54	0.55
Workers with Social Protection					
Men					
Opportunities index	0.09	0.15	0.13	0.11	0.16
Equity in opportunities index (φ)	0.54	0.70	0.68	0.59	0.65
Women					
Opportunities index	0.06	0.10	0.09	0.08	0.11
Equity in opportunities index (φ)	0.39	0.56	0.52	0.46	0.49
Workers with Sufficient Labor Income					
Men					
Opportunities index	0.63	0.70	0.55	0.49	0.50
Equity in opportunities index (φ)	0.83	0.87	0.78	0.76	0.79
Women					
Opportunities index	0.39	0.48	0.37	0.30	0.31
Equity in opportunities index (φ)	0.70	0.77	0.69	0.64	0.67
Workers Affiliated to a Labor Association					
Men					
Opportunities index	0.20	0.21	0.16	0.13	0.13
Equity in opportunities index (φ)	0.87	0.89	0.93	0.88	0.87
Women					
Opportunities index	0.17	0.17	0.14	0.09	0.09
Equity in opportunities index (φ)	0.80	0.82	0.83	0.78	0.75

Source: Prepared by EMINPRO-INESAD based on the Instituto Nacional de Estadística household surveys from 2000 to 2019

Notes: i) Jobs with social protection are those with affiliation to the Pension Fund Administrators (AFPs), and having some sort of health insurance (private or public).

v. Conclusions

The present study analyzes the inclusive nature of economic growth in terms of decent jobs in urban areas of Bolivia, by gender, from 2006 to 2019, employing the methodology of Ali and Son (2007) and analyzing the robustness of the differences in results between years, based on the construction of confidence intervals by means of the Bootstrap technique (Cameron and Trivedi, 2005). Five indicators were proxies for these jobs, following Muriel (2014, 2019, 2020a, 2020b); *i.e.* Rate of Job Stability, Rate of Workers with the Christmas bonus, Rate of Workers with Social Protection, Rate of Workers with Sufficient Labor Income, and Rate of Affiliation to a Labor Association.

The data shows mixed results, which are supported by the confidence intervals estimated by the Bootstrap technique, which evaluate the statistical significances of the differences or similarities noted. On the one hand, the Rate of Job Stability has a high level of coverage that improves in time, and the value of the φ index reflects equity in access to this opportunity in all of the years analyzed. In this case, growth was inclusive for both sexes, in a similar manner.

The Rate of Workers with Social Protection also increased from 2006 to 2019, mainly due to the increase observed in the last year, with registration in SUS. Even so, the rate continues to be low, given insufficient affiliation to the pension system, which goes from 16.7% to 24.7% in the male population and from 14.7% to 21.7% in the female population. The φ index shows significant equity issues, and more so in the female population, with an improvement in 2011, and then a systematic worsening. The opportunities index (I^*) shows a certain degree of inclusiveness, with a value somewhat better for men.

On the other hand, the remaining proxy indicators of decent jobs improve until 2011, but then deteriorate, reaching averages even lower than those of 2006. From 2006 to 2019, the Rate of Workers with the Christmas Bonus fell from 24.5% to 21.9% for men and from 21.7% to 21.4% for women, although the gender gap got smaller in time. Besides this, the φ index shows inequities in access to this opportunity, particularly for the female population, which marginally improved across those years.

The Rate of Workers with Sufficient Labor Income went down considerably from 2006 to 2019: dropping from 76.0% to 63.7% in the male population and from 56.2% to 46.5% in the female population. This may be observed by a systematic downward shift of the opportunities concentration curve since 2011. The φ index reveals equity issues and reaches values even lower in the last year, with the distribution for women being worse. In this case, growth was not inclusive, and this is associated both with the increase in the national minimum wage – which

is applied to a reduced group of workers covered by the legislation – and with economic deceleration.

Lastly, the Rate of Affiliation to a Labor Association fell since 2011, reaching the lowest levels of coverage of the entire period in 2019. In 2006, the rates were 22.8% and 20.7% for men and women, respectively, and in 2019 they stood at 14.7% and 12.3%. All in all, the φ index shows certain equity, which improves in 2011, but then worsens, particularly for the female population. In this case, growth was not inclusive either, which is explained to a great degree by the fact that young workers exercise this right marginally.

In summary, the above information shows that growth was inclusive in generating decent jobs from 2006 to 2011, increasing the proxy indicators and improving equity in access to these jobs for the working population. However, in later years most of the indicators deteriorated, including the percentages of workers who receive the Christmas bonus, sufficient labor income, and affiliation to a labor association, which were lower in 2019 than they were in 2006.

Finally, in terms of gender gaps, the Rate of Workers with Sufficient Labor Income stands out, which may be explained, to a certain degree, by the fact that there are women who work in family businesses and do not receive direct remuneration. All in all, the greatest differences are in the female population, where with the exception of the Rate of Job Stability, the problems of inequity are greater compared to the male population. The high level of exclusion in access to social protection that women belonging to the poorest strata suffer is cause for particular concern, and is explained by the low rate of affiliation to the pension system.

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Annex

Table A1. Urban areas of Bolivia: Average rate of access to opportunities of the proxy indicators of decent jobs, and confidence intervals estimated by the Bootstrap technique (men), 2006-2019

	Sample annual values					Confidence intervals by Bootstrap	
	2006	2011	2014	2016	2019	Lower	Upper
Job Stability							
2006	-	0.855	0.861	0.844	0.890	0.773	0.803
2011	0.796	-	0.861*	0.844	0.890	0.846	0.864
2014	0.796	0.855*	-	0.844	0.890	0.852	0.868
2016	0.796	0.855	0.861	-	0.890	0.839	0.854
2019	0.796	0.855	0.861	0.844	-	0.877	0.891
Workers with the Christmas Bonus							
2006	-	0.266	0.233*	0.212	0.219	0.228	0.260
2011	0.245	-	0.233	0.212	0.219	0.254	0.277
2014	0.245	0.266	-	0.212	0.219	0.223	0.242
2016	0.245	0.266	0.233	-	0.219*	0.204	0.222
2019	0.245	0.266	0.233	0.212*	-	0.210	0.228
Workers with Social Protection							
2006	-	0.207	0.189	0.185	0.247	0.153	0.180
2011	0.167	-	0.189	0.185	0.247	0.197	0.217
2014	0.167	0.207	-	0.185*	0.247	0.180	0.198
2016	0.167	0.207	0.189*	-	0.247	0.176	0.193
2019	0.167	0.207	0.189	0.185	-	0.237	0.256
Workers with Sufficient Labor Income							
2006	-	0.806	0.713	0.643	0.637	0.743	0.776
2011	0.760	-	0.713	0.643	0.637	0.797	0.817
2014	0.760	0.806	-	0.643	0.637	0.704	0.724
2016	0.760	0.806	0.713	-	0.637*	0.635	0.656
2019	0.760	0.806	0.713	0.643*	-	0.628	0.649
Workers Affiliated to a Labor Association							
2006	-	0.236*	0.176	0.152	0.147	0.212	0.243
2011	0.228*	-	0.176	0.152	0.147	0.225	0.246
2014	0.228	0.236	-	0.152	0.147	0.167	0.184
2016	0.228	0.236	0.176	-	0.147*	0.144	0.160
2019	0.228	0.236	0.176	0.152*	-	0.140	0.155

* Implies that the average is within the confidence interval of the year specified in each row.

Source: Prepared by EMINPRO-INESAD based on the Instituto Nacional de Estadística household surveys from 2000 to 2019

Note: Jobs with social protection are those that have affiliation to the Pension Fund Administrators (AFPs), and having some sort of health insurance (private or public).

Table A2. Urban areas of Bolivia: Average opportunities index of the proxy indicators of decent jobs, and confidence intervals estimated by the Bootstrap technique (men), 2006-2019

	Sample annual values					Confidence intervals by Bootstrap	
	2006	2011	2014	2016	2019	Lower	Upper
Job Stability							
2006	-	0.850	0.857	0.837	0.884	0.763	0.802
2011	0.794	-	0.857*	0.837	0.884	0.839	0.862
2014	0.794	0.850	-	0.837	0.884	0.851	0.871
2016	0.794	0.850	0.857	-	0.884	0.825	0.846
2019	0.794	0.850	0.857	0.837	-	0.866	0.885
Workers with the Christmas Bonus							
2006	-	0.210	0.172*	0.142	0.143	0.143	0.173
2011	0.158	-	0.172	0.142	0.143	0.197	0.222
2014	0.158	0.210	-	0.142	0.143	0.161	0.181
2016	0.158	0.210	0.172	-	0.143*	0.133	0.151
2019	0.158	0.210	0.172	0.142*	-	0.134	0.151
Workers with Social Protection							
2006	-	0.146	0.129	0.109	0.160	0.078	0.101
2011	0.090	-	0.129	0.109	0.160	0.134	0.155
2014	0.090	0.146	-	0.109	0.160	0.121	0.138
2016	0.090	0.146	0.129	-	0.160	0.101	0.116
2019	0.090	0.146	0.129	0.109	-	0.151	0.169
Workers with Sufficient Labor Income							
2006	-	0.806	0.713	0.643	0.637	0.743	0.776
2011	0.760	-	0.713	0.643	0.637	0.797	0.817
2014	0.760	0.806	-	0.643	0.637	0.704	0.724
2016	0.760	0.806	0.713	-	0.637*	0.635	0.656
2019	0.760	0.806	0.713	0.643*	-	0.628	0.649
Workers Affiliated to a Labor Association							
2006	-	0.236*	0.176	0.152	0.147	0.212	0.243
2011	0.228*	-	0.176	0.152	0.147	0.225	0.246
2014	0.228	0.236	-	0.152	0.147	0.167	0.184
2016	0.228	0.236	0.176	-	0.147*	0.144	0.160
2019	0.228	0.236	0.176	0.152*	-	0.140	0.155

* Implies that the average is within the confidence interval of the year specified in each row.

Source: Prepared by EMINPRO-INESAD based on the Instituto Nacional de Estadística household surveys from 2000 to 2019

Note: Jobs with social protection are those that have affiliation to the Pension Fund Administrators (AFPs), and having some sort of health insurance (private or public).

Table A3. Urban areas of Bolivia: Average rate of access to opportunities of the proxy indicators of decent jobs, and confidence intervals estimated by the Bootstrap technique (women), 2006-2019

	Sample annual values					Confidence intervals by Bootstrap	
	2006	2011	2014	2016	2019	Lower	Upper
Job stability							
2006	-	0.855	0.847	0.832	0.890	0.789	0.822
2011	0.807	-	0.847*	0.832	0.890	0.842	0.862
2014	0.807	0.855*	-	0.832	0.890	0.837	0.855
2016	0.807	0.855	0.847	-	0.890	0.822	0.841
2019	0.807	0.855	0.847	0.832	-	0.881	0.897
Workers with the Christmas Bonus							
2006	-	0.245	0.226*	0.207*	0.214*	0.200	0.233
2011	0.217	-	0.226	0.207	0.214	0.229	0.253
2014	0.217*	0.245	-	0.207	0.214*	0.211	0.232
2016	0.217	0.245	0.226	-	0.214*	0.196	0.216
2019	0.217*	0.245	0.226	0.207*	-	0.203	0.223
Workers with Social Protection							
2006	-	0.175	0.168	0.172	0.213	0.132	0.161
2011	0.147	-	0.168*	0.172*	0.213	0.166	0.187
2014	0.147	0.175*	-	0.172*	0.213	0.160	0.179
2016	0.147	0.175*	0.170*	-	0.213	0.163	0.182
2019	0.147	0.175	0.170	0.172	-	0.205	0.224
Workers with Sufficient Labor Income							
2006	-	0.619	0.533	0.466	0.465	0.540	0.581
2011	0.562	-	0.533	0.466	0.465	0.605	0.632
2014	0.562	0.619	-	0.466	0.465	0.522	0.547
2016	0.562	0.619	0.533	-	0.465*	0.455	0.480
2019	0.562	0.619	0.533	0.466*	-	0.455	0.479
Workers Affiliated to a Labor Association							
2006	-	0.203*	0.166	0.121	0.123	0.190	0.224
2011	0.207*	-	0.166	0.121	0.123	0.194	0.216
2014	0.207	0.203	-	0.121	0.123	0.158	0.176
2016	0.207	0.203	0.166	-	0.123*	0.113	0.130
2019	0.207	0.203	0.166	0.121*	-	0.116	0.132

* Implies that the average is within the confidence interval of the year specified in each row.

Source: Prepared by EMINPRO-INESAD based on the Instituto Nacional de Estadística household surveys from 2000 to 2019

Note: Jobs with social protection are those that have affiliation to the Pension Fund Administrators (AFPs), and having some sort of health insurance (private or public).

Table A4. Urban areas of Bolivia: Average opportunities index of the proxy indicators of decent jobs, and confidence intervals estimated by the Bootstrap technique (women), 2006-2019

	Sample annual values					Confidence intervals by Bootstrap	
	2006	2011	2014	2016	2019	Lower	Upper
Job Stability							
2006	-	0.844	0.838	0.812*	0.884	0.772	0.815
2011	0.794	-	0.838*	0.812	0.884	0.829	0.856
2014	0.794	0.844*	-	0.812	0.884	0.826	0.849
2016	0.794	0.844	0.838	-	0.884	0.798	0.824
2019	0.794	0.844	0.838	0.812	-	0.874	0.894
Workers with the Christmas Bonus							
2006	-	0.161*	0.143	0.110*	0.118*	0.099	0.126
2011	0.113	-	0.143	0.110	0.118	0.149	0.172
2014	0.113	0.161	-	0.110	0.118	0.132	0.153
2016	0.113*	0.161	0.143	--	0.118*	0.102	0.118
2019	0.113*	0.161	0.143	0.110*		0.109	0.126
Workers with Social Protection							
2006	-	0.097	0.087	0.079	0.105	0.048	0.065
2011	0.056	-	0.087	0.079	0.105*	0.088	0.106
2014	0.056	0.097	-	0.079	0.105	0.080	0.094
2016	0.056	0.097	0.087	-	0.105	0.072	0.086
2019	0.056	0.097*	0.087	0.079	-	0.097	0.112
Workers with Sufficient Labor Income							
2006	-	0.476	0.365	0.296	0.311	0.367	0.419
2011	0.393	-	0.365	0.296	0.311	0.457	0.494
2014	0.393	0.476	-	0.296	0.311	0.349	0.379
2016	0.393	0.476	0.365	-	0.311	0.281	0.308
2019	0.393	0.476	0.365	0.296	-	0.297	0.324
Workers Affiliated to a Labor Association							
2006	-	0.165*	0.138	0.094	0.093	0.146	0.184
2011	0.166*	-	0.138	0.094	0.093	0.152	0.178
2014	0.166	0.165	-	0.094	0.093	0.127	0.148
2016	0.166	0.165	0.138	-	0.093*	0.085	0.103
2019	0.166	0.165	0.138	0.094*	-	0.084	0.101

* Implies that the average is within the confidence interval of the year specified in each row.

Source: Prepared by EMINPRO-INESAD based on the Instituto Nacional de Estadística household surveys from 2000 to 2019

Note: Jobs with social protection are those that have affiliation to the Pension Fund Administrators (AFPs), and having some sort of health insurance (private or public).