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Income inequality in Mexico, 1895-1940: industrialisation, revolution, institutions

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Abstract

This paper, building on new archival research and the social table method, presents comprehensive estimates of income inequality in Mexico in 1895, 1910, 1930 and 1940. Inequality grew from 1895 to 1910, driven by economic expansion within the context of an oligarchic economy. While real income increased for the lower classes during this period, the main beneficiaries were large landowners and entrepreneurs. In the revolutionary period from 1910 to 1930 inequality decreased especially as a result of land reforms, benefitting peasants at the expense of the large landowners. However, the economic structure of the country was not fundamentally changed, and in the 1930s inequality raised as incomes of peasants and those in the informal sector fell behind manufacturing and other high-earning sectors. The Mexican case shows the complex interaction of economics, demography and politics in determining economic inequality.

Keywords: income inequality; income distribution; Mexico; Mexican Revolution

JEL codes: D31; E01; N36; O15

Resumen

Este artículo presenta estimaciones de la desigualdad de ingresos en México en los años 1895, 1910, 1930 y 1940 utilizando nuevas fuentes de datos y el método de tablas sociales. La desigualdad creció entre 1895 y 1910 impulsada por una expansión económica en el contexto de una economía política oligárquica. Los ingresos crecieron para las clases bajas, pero los principales beneficiarios fueron los grandes terratenientes y hombres de negocios. En el periodo revolucionario entre 1910 y 1930 la desigualdad disminuye especialmente por la reforma agraria, que beneficia a los campesinos a expensas de los grandes terratenientes. Sin embargo, la estructura económica del país no tuvo grandes cambios y en la década de 1930 la desigualdad creció conforme los ingresos de los campesinos y aquellos en el sector informal perdieron terreno respecto a los ingresos en la manufactura y otros sectores. El caso de México muestra la interacción de la economía, la demografía y la política en la determinación de la desigualdad económica

Palabras clave: Desigualdad de ingresos; Distribución del ingreso; México; Revolución mexicana

1. Introduction

This paper provides new estimates of Mexican incomes and the distribution of incomes for the years 1895, 1910, 1930 and 1940. Mexico is important in itself, as both the second most populated country and second-biggest economy in Latin America. Moreover, the country is also a captivating case study for the debate on inequality, where factors such as industrialisation (Kuznets, 1955) and political revolutions (Piketty, 2014; Scheidel, 2017)—both of which occurred in Mexico during the period under study—play a major role. From the state-led liberal modernisation of the 1860s to the complex Revolution of the 1910s—marked by contradictory forces but centred on the crucial struggle over land ownership—the analysis of this period of Mexican economic history offers a compelling insight into political economy dynamics.

New archival work allows us to present fine-grained estimates of incomes per social group in Mexico in these years, involving eighteen groups over the entire 1895-1940 period. Therefore, our study presents long-run income inequality in a much more comprehensive way than previous analyses which have relied on social tables of four groups (Arroyo Abad and Astorga Junquera, 2017), on body heights (López-Alonso, 2015) and wages alone (Bleynat et al., 2021).

Our results indicate that in the late 19th century income inequality was relatively high; with a Gini coefficient of 0.52 in 1895, which increased to 0.57 in 1910. There was a break associated with the Revolution, during which the Gini coefficient decreased to 0.54 in 1930, before rising again to 0.62 in 1940. Our quantitative results for the 1930s are somewhat surprising, showing rising inequality during the more egalitarian period of the Revolution's land reforms. These results, however, are in line with the social and political history literature on the Revolution's achievements and shortcomings (Wasserman, 1993; Joseph and Buchenau, 2013).

The equalisation that emerged from the Revolution was propelled mainly by developments in the agrarian sector that led to redistribution from *hacienda* owners to peasants. Meanwhile, the urban sector witnessed much less consistent redistribution. The combination of uneven income growth between industry and agriculture along with a growing informal sector in the 1930s increased income inequality once again. This indicates that the Revolution did not achieve lasting equalisation.

Over the long run, combining our results for 1895-1940 with previous research on the post-1950 period, we find that income inequality in Mexico has remained consistently stable since the late 19th century. While there are many fluctuations, there is no overall trend. We discuss this lack of 20th-century equalisation in relation to our interpretation of the Mexican Revolution and its legacies.

2. The Mexican case

Our investigation begins with the modernising and so-called «positivist» oligarchical dictatorship of Porfirio Diaz, who had led the country since 1877. The efforts to integrate Mexico into the global economy and begin the industrialisation process were not unique to Mexico as many Latin American countries were pursuing similar goals during that period (Bértola and Ocampo, 2012, pp. 102-104).

As railroads were built and the domestic market became more integrated, the state grew stronger vis-à-vis local power brokers. However, Mexico's economy functioned as an oligarchical system characterised by monopoly rents and the repression of labour organisations (Haber, 1989, 2002; Beatty, 2002; Bortz, 2002; Kuntz, 2002). Earlier literature has pointed to the widespread growth of inequality during this period. One frequently cited finding indicates that real wages in 1910 were only one-fourth of what they had been in

1810, despite the industrial growth that took place under Porfirio Díaz (Burns, 1979, pp. 72-74). Newer research on wages has corrected this picture of the Díaz period, finding instead that wages stagnated (Challú and Gómez-Galvarriato, 2015; Arnaut, 2018). Meanwhile, overall inequality appears to have grown, as evidenced by López-Alonso's (2015) finding of rising class disparities in body height and by Bleynat *et al.*'s (2021) finding that wages grew more slowly than GDP.

Another important study that shows severe inequality at the end of the Díaz regime is Arroyo Abad and Astorga Junquera's (2017) social table study, which categorises four broad social groups. Their findings indicate that income inequality remained stable from the 1830s to 1910, with a wage Gini coefficient ranging from 0.40 to 0.45. This level of inequality is significantly higher than what they observed in Argentina and Chile during the same period and somewhat higher than in Colombia and Venezuela.

The Díaz regime was marked by numerous internal contradictions. Although the regime believed that large-scale capitalist farming would be beneficial, the privatisation of communal lands adversely affected peasants' subsistence. Conflicts between workers and employers, particularly in the northern mines, intensified in the early 1900s. Additionally, various regional powerbrokers and interest groups were also dissatisfied with the ageing dictator.

In 1910, the various sources of discontent coalesced, leading to the collapse of the regime and the emergence of a vacuum that triggered a 10-year power struggle. The new president, Francisco I. Madero, though is not significantly different from Diaz. In contrast, other revolutionary factions, such as Pancho Villa's and Emiliano Zapata's agrarian movements, pursued much broader social ambitions (Katz, 1998, pp. 267-292; Womack, 1970, pp. 394-404; Joseph and Buchenau, 2013, pp. 38-41).

The political history of the Revolution, with its myriad shifts in the presidency during the 1910s and 1920s, is far too complex to summarise here. What is relevant for our study is the role of inequality and power throughout this period. As the dominance of Villa's and Zapata's movements indicates, land reform was a powerful motivation for rural smallholders participating in the Revolution. In 1922, three million hectares of agrarian land were redistributed, followed by another five million hectares in 1925 (Joseph and Buchenau, 2013, pp. 5, 94, 98). Over the coming decades, a total of 56 million hectares were redistributed (Flores, 1969, pp. 86-87).

Working-class mobilisation was another major aspect of the Revolution (Knight, 1984; Dion, 2010; Gómez-Galvarriato, 2013). The Revolution brought about pro-worker reforms, notably Article 123 of the 1917 constitution, which allowed union organisation, collective bargaining and strikes (Joseph and Buchenau, 2013, p. 82). As one revolutionary leader argued in 1913, «We lack laws that favor workers and peasants; but these will be passed by them, since it is they who will triumph in this social and vindictive struggle» (Dion, 2010, p. 54).

The traditional explanation for Latin America's status as the most unequal region in the world traces this inequality back to the colonial period (cf. discussion in Williamson, 2015). The emphasis on the enduring influence of colonialism, combined with the upheaval of the 1910-40 Revolution, poses an interesting question for the Mexican case: how much can a political revolution change economic inequality? Political historians have examined whether the Revolution succeeded in replacing the old ruling class of *hacendados* and industrialists with a new one (Wasserman, 1993). Our investigation provides a parallel analysis of the economic impact of the revolution.

In this context, the analysis of economic inequality in Mexico between 1895 and 1940 is highly relevant. Our benchmarks cover interesting years: the 1895-1910 period is the latter part of the Porfirio Díaz era, associated with rapid growth in industry and exports, as well as increasing social polarisation. The 1910-1930 and 1930-1940 periods cover the core years of the Revolution, making them particularly pertinent for analysing inequality.

We connect our findings for 1895-1940 with existing research on inequality from 1950, when modern data sources on income distribution for Mexico become available. The extensive literature on economic inequality in Mexico since 1950 suggests that income inequality has been consistently high and increasing, with Gini coefficients ranging from 0.59 to 0.80 (Bustos and Leyva, 2017; Campos-Vazquez *et al.*, 2017; Reyes *et al.*, 2017). Our study adds historical depth to the discussion of Mexican inequality by offering a more detailed measurement than previously available, including the assessment of elite incomes. As Piketty (2014) highlights, the analysis of elite incomes is crucial for understanding overall inequality.

3. Data, sources and methods

To reconstruct Mexican incomes and their distribution in a historical setting, we created social tables for the four benchmark years. The social table methodology involves constructing comprehensive datasets that include: (a) the distribution of the population across various economic groups, such as small farmers, estate owners, metal industry workers, etc. and (b) the average income for each group. The social table methodology is an essential tool for reconstructing income distribution series for periods before 1989, when survey data on Mexican incomes became available. It has been used extensively in research on Latin America (e.g. Bértola *et al.*, 2009; Arroyo Abad and Astorga Junquera, 2017). In the Mexican case, the social table approach has been applied by Arroyo Abad and Astorga Junquera (2017), but our data are more detailed. While they assumed four broad social groups, we used eighteen, providing much more information on the incomes of the elites, such as *hacienda* owners, whose incomes are crucial for understanding overall inequality. In online Appendix D, we provide a detailed comparison of our results with theirs, as well as with an analysis of our data using a broad HISCO classification of social groups. These comparisons clearly demonstrate the advantage of the detailed social classification used in our study.

To construct the social tables for Mexico for the years 1895, 1910, 1930 and 1940, we began with the census data for these years (cf. Bértola *et al.*, 2009; Rodríguez Weber, 2014, 2016). We calculated incomes using a diverse range of primary and secondary sources. The methodology is discussed below and a more detailed presentation of the sources and approach can be found in online Appendix A.

3.1 Building the social tables

The first official census was conducted in 1895 by the General Directorate of Statistics (*Dirección General de Estadística*). Two additional censuses were carried out under the Díaz government, in 1900 and 1910. While the 1895 and 1910 censuses share the same structure, listing 149 occupational categories, the 1900 census differs by reporting more aggregated categories, making it less precise. Therefore, we prefer to use the 1895 and 1910 censuses. To align the social group calculations from these censuses with the income data, we consolidated the occupational categories into eighteen groups. This approach balances precision with feasibility.

The income data are obtained from the Institute of National Statistics, Geography and Information (INEGI) (2020), drawing on Fernando Rosenzweig's work (1965) and available in digital format. We complement this with salary information for bureaucrats and other professionals from the statistical yearbooks of 1893-1907, following Rodríguez Weber (2014, 2016). Additionally, we include recruitment advertisements from private employers, such as those from the Engineers' School of Guadalajara (*Escuela de Ingenieros de Guadalajara*).

For top incomes—paid to the large landowner class, industrialists and merchant-financiers—we used a combination of primary and secondary sources. For the large landowners, the *hacendados*, we estimated their number to be around 830-850 men and their families. We assessed their incomes based on estimated returns to land, combining these estimates with biographical studies of very wealthy families, such as the Maderos (using their archive) and the Creels (using Wassserman's biographical study of 1985). Additionally, we consulted wills that detail the wealth of the *hacendados* (Castañeda Garza and Krozer, 2023). For further details, see online Appendix A.

For the industrialists, known as *bacerlonettes*, we had to reconstruct their labour and capital incomes. To estimate labour income, we used Galán's work (2010), which provides salary data for owners of textile companies and stores in the state of Veracruz and in Mexico City. We then cross-checked this information with archives records from the Mexico City Historical Archive of Notaries (*Archivo Histórico de Notarías de la Ciudad de México*), which report salaries and firms' shares. Using the register of firms' shares and their owners, we calculated the value of capital. We then derived the capital income for this group by applying Haber's (1989) estimates of the rate of return on capital for leading Mexican firms from 1896 to 1938.

There are three important occupational groups for which data tend to be scarce: peasants (known as *jornaleros*), domestic employees and people without occupation. For peasants, we have relied on historical literature and agrarian censuses from 1930 and 1940 (see online Appendix A for details). For domestic workers, we used Goldsmith Corelly (1992), which estimates wages paid to female domestic workers from the late 19th century to 1940.

The group «without occupation» is a significant portion of our social tables, comprising 29 per cent of the population in 1895 and 35 per cent in 1910[1]. The treatment of this group is a debated issue in social table research. Some researchers, such as Bolt and Hillbom (2016), include them, while others, including Gómez León and De Jong (2019) and Rodríguez Weber (2014, 2016), choose to exclude them.

As Gómez León and De Jong (2019) argue, including the group people without occupation might lead to double counting people who live on family income, such as schoolchildren and spouses, potentially overstating inequality. Conversely, excluding them overlooks a significant portion of the population and, since we cannot distinguish between the truly unemployed and those double-counted, it might lead to an underestimation of inequality.

To address this issue, we generated two sets of estimates: one including people without occupations and one excluding them. This approach provides a lower bound (without including those without occupations) and an upper bound (including those without occupations) for inequality levels. We prefer the upper bound estimates, as they offer a more comprehensive view.

For imputing monetary income to the subsistence class (those without occupation) in 1895 and 1910, we followed Milanovic *et al.* (2011), assuming a subsistence yearly income level of 400 dollars equivalent to the 1990 value in pesos at that time.[2] This very low standard of living for a rather large share of the population seems reasonable given the evidence on body heights and material consumption (López-Alonso, 2007, 2015; Challú and Gómez-Galvarriato, 2015).

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[1] The "without occupation" group numbers are taken as reported in the censuses, with children aged 7 or younger removed. In 1907, the Díaz government signed a presidential decree forbidding child labor for those under 7 years of age. Starting in 1890, several states had passed their own regulations on child labor, each with different exceptions.

[2] The 400 dollars assumption has also been used by Bértola *et al.* (2009, p. 461) for their analysis of Uruguay.

The social group sizes and incomes are presented in Table 1. The column «population share» reveals that the peasants, or *jornaleros*[3], were a significant 43 per cent of the population in 1895 and 39 per cent in 1910. This indicates that agrarian sector inequality and the status of peasants are crucial for understanding overall inequality. By comparison, manufacturing workers made up 9 per cent of the population in both years—an important figure but still underscoring the agrarian sector's dominance in the Mexican economy during this period. In online Appendix C, we cross-check our income estimates with GDP per capita estimates from the Maddison project. This comparison demonstrates that our assumptions for groups without actual income data are reasonable, as the GDP per capita estimates derived from our social tables align closely with those from the Maddison project, despite the different methodologies used.

For 1930 and 1940, sources are more comprehensive[4]. While we continue using the same eighteen social groups, in online Appendix B we present more complex social tables with 98 groups in 1930 and 101 groups in 1940. These groups were derived from the censuses and matched with income data from statistical yearbooks and other sources.

Wages for many worker categories were sourced from the statistical yearbooks for the years 1930, 1938, 1941 and 1946, following Rodríguez Weber (2014, 2016). These were combined with data from the industrial censuses of 1930 and 1940 and the agrarian censuses of 1935 and 1940.

For the top incomes, we employed the same series of rates of returns between 1896 and 1938 (Haber, 1989). For *hacendados*, we followed the process described above, consulting the agrarian censuses for information on land holdings and production. Although *hacendados* lost some land during the Revolution (Katz, 1998; Aguilar Camín, 1996), we assume they retained the most profitable land when possible.

For domestic workers, we continue to use Goldsmith Corelly's (1992) wage estimates. For the group without occupation, we followed the same logic as in the construction of the 1895 and 1910 social tables.

To validate our estimates, we compared the per capita income derived from the social tables to Mexico's per capita income from the Maddison project (Bolt and van Zanden, 2014) (see online Appendix C). The GDP per capita estimates derived from our social tables align closely with those from the Maddison project, despite the different methodologies used. This strengthens our confidence in the reliability of our Mexican income estimates. Additionally, as a further robustness check, we used alternative estimates for the rents and earnings of large landowners to calculate an alternative social table for 1940 (see online Appendix E). This shows that even with different incomes for the *hacendado* and *ejidatorio* groups, the general trend in the estimates remains consistent with our reconstruction.

4. Results: Mexican inequality, 1895-1940

Table 2 presents our estimates of the Gini coefficient of Mexican incomes in 1895, 1910, 1930 and 1940. Our preferred estimate includes the group «without occupation»

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[3] From the 1930's social table, the group *jornaleros* also includes the newly created *ejidatarios*. The Ejido established by the 1915 Agrarian Law, introduced a form of collective land ownership where families could farm individual plots within a communal system.

[4] One special feature of the 1930 census is that it includes average incomes by region. For example, metal manufacturing workers in Mexico City earned an average of 743 pesos, while in the northern state of Nuevo León, those same workers earned an average of 1,457 pesos, and in the small state of Colima, they earned an average of 243 pesos. Since we lack such regionally differentiated income data for the other years, we do not include the regional dimension in this paper. However, it would be an interesting direction for future research to collect more data on regional variations.

Table 1. Social tables: 1895, 1910, 1930 and 1940

	Occupational group	1895		1910		1930		1940	
		Pop share	Average income	Pop share	Average income	Pop share	Average income	Pop share	Average income
1	*Hacendados*	0.01	883,852	0.01	1,760,399	0.03	190,432	1.12	32,316
2	Merchants-financiers/businessmen	0.04	119,146	0.04	191,588	0.19	94,748	0.17	85,008
3	Government top bureaucracy	0.04	29,349	0.03	44,755	0.00	35,551	0.00	49,001
4	Medium size landowners	1.17	10,348	0.09	17,918	0.85	35,955	0.65	22,072
5	Small businesses	0.20	13,503	0.19	15,189	4.48	2,031	4.80	2,745
6	Professionals	0.73	7,499	0.79	10,314	0.58	7,347	0.57	4,206
7	Small-medium cattle owners//ranchers	0.89	5733	2.07	10,256	0.77	8,679	0.71	20,202
8	Small landowners	3.57	5,957	2.43	8,401	6.26	1,280	10.44	1,117
9	Government bureaucrats	0.39	5,757	0.70	6,347	0.71	4,986	0.06	6,719
10	Transport and communications	0.92	3,354	1.26	4,157	1.22	2,929	0.90	3,491
11	Manufacturing workers	9.13	3,207	9.05	3,250	5.50	2,157	4.56	2,724
12	Business dependants	4.08	2,516	3.53	2,967	0.37	4,142	0.16	4,384
13	Miners	1.46	2,133	0.68	2,826	0.58	3,777	0.71	3,761
14	Domestic workers	3.83	1,159	2.98	1,108	2.13	1,108	1.98	1,561
15	Construction workers	0.82	1,470	1.74	1,950	0.82	3,771	1.65	2,322
16	*Jornaleros*	43.09	1,037	38.55	1,300	32.39	1,833	17.60	1,360
17	Military	0.53	967	0.45	1,358	1.01	2,542	0.95	1,900
18	Without occupation	29.09	400	35.42	400	42.10	400	52.97	400

Source: Authors' own calculations. Incomes in 1990 US dollars. Pop share = share of the total population in this group.

Note: The 1930 and 1940 *hacendado* class is derived from the agrarian censuses. After the Revolution, the *hacendado* class disappeared from public discourse. To ensure our data are comparable over time, we retain the *hacendado* label for 1930 and 1940, using large landowners as the equivalent. In the agrarian censuses, large plots of land are defined as greater than 5 hectares. The larger number of *hacendados* reported in 1940 is likely due to the intensification of land reform and the partition of large haciendas among family members to avoid the reform, resulting in a greater number of individual plots of land. Thus, there are more large landowners in the reports.

Table 2. Mexican income inequality in 1895, 1910, 1930 and 1940

	1895	1910	1930	1940
Gini, upper bound	0.5242	0.5708	0.5389	0.6219
Gini, lower bound	0.4530	0.4760	0.4214	0.5547
Theil, upper bound	0.8491	1.0988	0.9430	1.1002
Theil, lower bound	0.7399	0.9370	0.7702	0.8718
Inequality extraction ratio	67.96	70.99	68.00	79.52

Source: see discussion in the text, and Table 1.

Note. Our preferred estimate, the upper bound, includes people recorded as without occupation in the censuses. The lower bound estimate excludes this group.

Next, we analyse Mexican inequality in light of the country's social, economic and political development during the period 1895 to the 1930s.

represented as the upper bound estimate in the table. Alternatively, we also calculated inequality excluding this group, yielding the lower bound estimate.

Inequality grew between our initial benchmarks, with the Gini coefficient rising from 0.5242 in 1895 to 0.5708 in 1910, based on our preferred estimate. Subsequently, there was a notable decline in the Gini coefficient to 0.5389 in 1930, which was then followed by a pronounced rise during the 1930s, culminating in a peak of 0.6219 by 1940. The alternative estimate, which excludes the group «without occupations», shows Gini coefficients approximately 10 points lower, yet the general trends observed remain consistent.

To perform a comparative-historical analysis on Mexico's inequality during the years studied, we estimate the Inequality Extraction Ratio (IER), a concept developed by Milanovic *et al.* (2011). The IER relates measured income inequality to income per capita, indicating how unequal an economy is vis-à-vis its maximum potential inequality. The rationale is that in wealthier societies with larger surplus, higher inequality can be sustained without inducing starvation among the poor. A comparison with one of the most unequal societies ever registered, Nueva España circa 1790 reveals that Porfirian Mexico had a similar level of inequality. To be sure, in 1790 Nueva España had an IER of 63.7. By 1895, Mexico's IER had increased to 68.0, escalating further to 79.5 by 1940[5].

4.1 Mexican inequality in times of an oligarchic modernisation project, 1895-1910

The late 19th century in Mexico, as in several other Latin American countries, was a period of oligarchical modernisation (Collier and Collier, 2002, Ch. 4; Bértola and Ocampo, 2012, pp. 81-104). Hence, it is not surprising to find an increase in inequality from 1895 to 1910.

Comparing estimated levels of inequality is difficult in this historical setting, due to the varied sources available and the different methodological choices. The estimates presented here are more suitable for drawing conclusions about changes over time within Mexico rather than comparisons with other countries. However, to provide context, we will make brief comparisons with other Latin American countries. The study by Bértola *et al.* (2009) of Argentina, Brazil, Chile and Uruguay similarly finds an increase in income inequality in all four countries from 1870 to 1910. While comparisons of levels must be

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[5] To provide additional context, we compare our findings to Milanovic's (2009) analysis of global income distribution between 1820 and 2000. Milanovic estimated the global IER for 1913, 1929, and 1950 at 75, 73, and 75, respectively. Our results indicate that Mexico's IER was slightly below the global level in 1910, decreased further by 1930, but surged above it by 1940. These findings combined suggest that while Mexican inequality was already severe, it reached unprecedented heights following the tumultuous early decades of the 20th century.

taken cautiously due to varying sources and methods, the inequality found for Mexico in 1895 (a Gini coefficient of 0.52) falls within the range of the countries surveyed by Bértola *et al.* in 1870 (Argentina 0.52, Brazil 0.39, Chile 0.59 and Uruguay 0.48). The levels in 1910 are also similar: we find a Gini coefficient of 0.57 in Mexico, while the above authors estimate 0.57 for Argentina, 0.60 for Brazil, 0.64 for Chile and 0.56 for Uruguay.

Mexico's inequality level is notably high for an agrarian and relatively poor country. Over 70 per cent of the Mexican population lived in rural areas (*Estadísticas Históricas de México, Tomo I*). According to the Maddison dataset, Mexico's GDP per capita in 1910 (in 1990 US dollars) was $1,694, compared to $3,822 in Argentina, $769 in Brazil, $3,000 in Chile and $3,136 in in Uruguay (Maddison Project Database, see Bolt and van Zanden, 2014). Given that wealthier economies can distribute larger surpluses, Mexico, with an inequality level similar to Argentina's Gini coefficient, was closer to its maximum feasible inequality than Brazil, a poorer nation (adapted from Milanovic *et al.*, 2011).

Which were the primary drivers of Mexican inequality?[6] Figure 1 provides a more disaggregated perspective, illustrating group-by-group changes in average real income between 1895 and 1910 (cf. Lakner and Milanovic's (2016) growth incidence curves). Figure 2 complements this information with Lorenz curves for incomes in 1895 and 1910.

As Figure 1 demonstrates, real incomes increased between 1895 and 1910. Yet, these gains were unevenly distributed across groups. Hacienda owners (*hacendados*), medium-sized landowners and cattle ranchers (*rancheros*) experienced the most significant income growth. Business owners and high-ranking government officials also prospered. Conversely, small business owners, manufacturing workers, peasants (*jornaleros*) and construction workers witnessed considerably smaller improvements. This disparity contributed to increased inequality.

The substantial increase in inequality, driven primarily by significant gains for elites such as businessmen and *hacendados*, aligns well with the historical literature. This literature emphasises that during this period, the mining sector expanded, and the years leading up to 1905 were a «gilded age» for the «creole aristocracy» and foreign investors, particularly in mining (Joseph and Buchenau, 2013, p. 24). The prosperity of the *hacendados* is understandable, given the Díaz administration's hacendado-friendly policies, including the infamous privatisations of communal land in the 1880s. While these privatisations aimed to increase land use efficiency, they impoverished indigenous rural populations and heightened social tension (Coatsworth, 1981; Haber, 1989)[7]. The gains of entrepreneurs were further bolstered by the «crony capitalism» of the Díaz regime, characterised by political arrangements of rents and protectionist policies that defended the interests of the regime's allies (Haber, 1989; Beatty, 2002; Kuntz, 2002).

Capital income growth outpaced average income growth, in line with Piketty's (2014) $r > g$ argument. Rates of return were around 7 per cent from 1896 to 1910, while GDP growth was only 3.2 per cent per year (Haber, 1989; Bolt and van Zanden, 2014). It is important to acknowledge that this $r > g$ dynamic was politically enforced in a crony capitalist setting. While rents were high, working conditions for the agrarian population were harsh and

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[6] We do not aim to conduct a causal analysis, examining the impact of variables x, y, or z on income inequality. In a simple social tables framework, income inequality is determined by (a) social group sizes and (b) average social group incomes. Our income growth figures (Figures 1, 3, and 5) reflect changes in (b), while Table 1 presents data for (a) across all years. Consequently, our subsequent discussion of income inequality components constitutes an informal decomposition analysing (a) and (b) as fundamental elements of the inequality estimates.

[7] Arroyo Abad (2013, p. 50) finds decreasing ratios of land rent to wages from 1870 to 1900, suggesting decreasing inequality. The discrepancy may be due to the slightly different time frames: the first decade of the twentieth century saw a decline in real wages in Mexico due to high inflation (Knight, 1984; Arnaut, 2018). Another source of discrepancy is the lack of information on top incomes in Arroyo Abad's study; see the comparison in Online Appendix D.
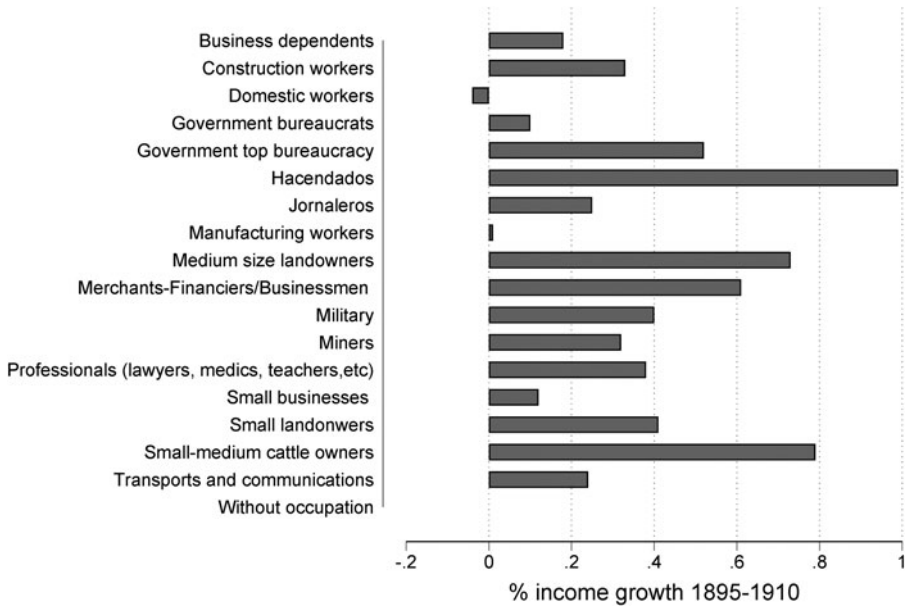
Figure 1. Winners and losers, 1895-1910.
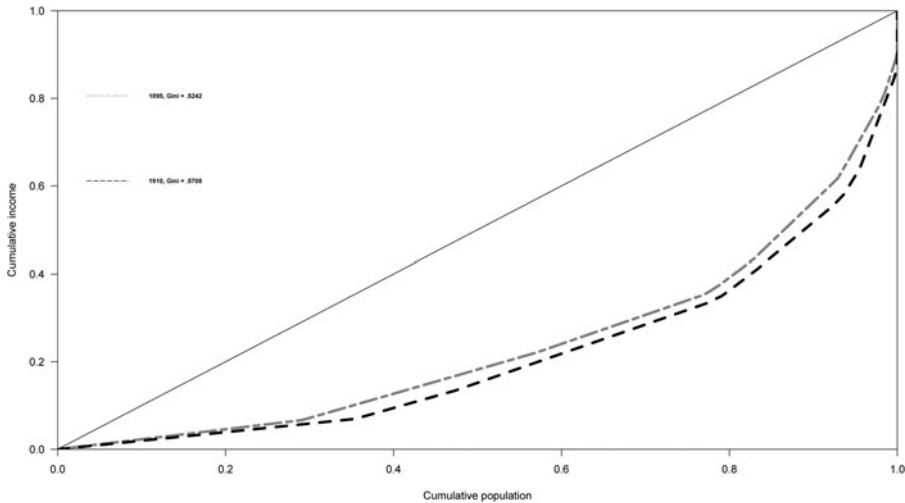*Sources*: see discussion in the text, section 3.

Figure 2. 1895 and 1910 Lorenz curves.
Sources: see discussion in the text, section 3.

wages were low. The German agronomist Karl Kaerger (1902), on a research mission from the German Kaiser, studied Mexican agriculture to determine if Germany could replace imports from the United States with Latin American imports in case of war. In his report, he mentions the low wages paid to Mexican peasants and illustrates how these labour conditions, along with low labour costs and potential high profits in agricultural exports, were favourable for German investments.

The older literature tended to portray a very negative view of the evolution of peasant and working-class living conditions during the Díaz years (e.g. Burns, 1979, pp. 72-74). However, we do find improvements for *jornaleros* from 1895 to 1910, in line with recent findings of some real wage growth during these years (cf. Arnaut, 2018). Despite these gains for workers, inequality grew as their improvements did not match the overall economic gains.

As Arnaut (2018, p. 60) asks in his recent study of real wages for this period: «where did all the fruits of economic growth go if Mexican laborers did not capture it in its entirety?» The Lorenz curves for 1895 and 1910 in Figure 2 further illustrate this development, revealing the social pyramid of winners and losers from the liberal modernisation project of the Díaz government. The left-hand side of the 1910 curve, symbolising the shares of the relatively poor, was pushed down compared to the 1895 curve, indicating growing inequality. This reflects what we have already seen in Figure 1: workers and *jornaleros* did not gain as much from the economic development 1895-1910 as the middle and upper-class groups did.

Standard economic theory, such as the Stolper–Samuelson theorem and the Heckscher–Ohlin model, would predict that global economic integration—like the integration into international trade and capital flows experienced by Mexico before 1910—would lead to a more intensive use of unskilled labour, the abundant factor of production in a country like Mexico. Hence, unskilled labour would gain from trade, while nationally scarce factors such as skilled labour and capital would lose (Williamson, 1999). However, this is not what occurred in Mexico during the so-called period of external growth (Knight, 1999).

Most likely, government intervention prevented the free market's distributional forces from taking effect. Historical literature indicates that the regime protected well-connected industrialists and repressed workers' organisations. The internal contradictions of the Díaz regime intensified in the first decade of the 20th century, particularly in 1906-1907 when strikes in the mining and textile industries ended in massacres (Knight, 1984, pp. 69-70; Gómez-Galvarriato, 2002; Joseph and Buchenau, 2013, pp. 25-37).

This growth of inequality under an oligarchic regime is very similar to what Rodríguez Weber (2017, pp. 54-55) has found for Chile in the same period, which also saw the repression of unions and violent strike-breaking in the mining sector. The growing inequality in Latin America from 1870 to 1910 has prominently been related to commodity booms (Williamson, 2015). However, in the Mexican case, increasing inequality occurred within the context of Porfirio Díaz's oligarchical modernisation project.

4.2 The revolution and income inequality, 1910-1930

Inequality was high from 1895 to 1910, but then fell to 1930: the Gini coefficient decreased from 0.5708 to 0.5389. What accounts for this movement? The Mexican Revolution is the obvious starting point of the analysis. As our discussion of the 1895-1910 highlighted, social tensions were growing in the final years of the Díaz regime, when many people had reasons for discontent. Although the revolution overthrew the Díaz regime, it did not have a unified ideological agenda or goals. For this reason, the country's development during and after the Revolution was contradictory and multi-faceted (Knight, 1992; Gómez-Galvarriato, 2002)[8].

The stages of the Revolution resembled a civil war, with weak governments rapidly succeeding one another. In the 1920s, the so-called Sonorans, broadly liberal leaders from the

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[8] The Mexican arguably revolution ended in 1921, after most revolutionary leaders were dead and one faction had claimed victory. However, soon after this conflict ended a minor religious war erupted, enduring until 1929.

emerging capitalist north of the country, took control. In contrast, the 1930s saw more radical leadership under President Cárdenas (cf. Fowler Salamini, 1980; Wasserman, 1993; Joseph and Buchenau, 2013, Chs. 5-6). The outcomes for economic inequality from 1910 to 1930 are not a foregone conclusion. Figures 3 and 4 break down the change of inequality—from a Gini coefficient of 0.57 to 0.54—using group-by-group analysis and the Lorenz curve.

Figure 3 shows that «medium size landowners» were the major beneficiaries from 1910 to 1930, along with construction workers, the military, *jornaleros*, miners and construction workers. The major losers of the period were *hacendados*, followed by small landowners and small businesses; merchants–financiers were also losers in this period. The distribution pattern had a slightly pro-equality profile, but not consistently so; for example, manufacturing workers were among the losers. As we have seen, the Gini coefficient dropped by only four points, from 0.5708 to 0.5389.

Regarding the revolution, the most significant equalising factor appears to be the redistribution of land, which reduced the incomes of the *hacendados* while benefiting *jornaleros* and medium-size landowners. Scheidel (2017, pp. 241-242) cites the Mexican revolution and its agrarian reform as a case that demonstrates the importance of revolutionary violence in reducing inequality. We agree that these reforms were crucial for reducing inequality and we see a strong similarity in this process of political concessions to the lower classes and the concessions to working-class demands in European countries during the First World War (cf. Scheve and Stasavage, 2010).

In Mexico, peasants and landless actively campaigned for access to land, with prominent movements led by Pancho Villa and Emiliano Zapata. During the 1910s and 1920s, various presidents oversaw the redistribution of 25 million acres of land. Under President Cárdenas, from 1932 to 1940, an additional 49.6 million acres were redistributed (Joseph and Buchenau, 2013, p. 127). This land redistribution significantly impacted income distribution between groups such as *hacendados* and *jornaleros*. As a result, the share of the population classified as «small landowners» grew from 2.4 in 1910 to 6.3 per cent in 1930 (see Table 1).

Significant changes were also implemented in tax policy. Income and inheritance taxes were introduced in 1924 and 1926, respectively. The initial top marginal rate for income tax was 2 per cent for individuals and 4 per cent for businesses, which was later increased to up to 12 per cent in subsequent reforms under the government of Lazaro Cárdenas (Flores Zavala, n.d.). The inheritance tax, on the other hand, was highly progressive, ranging from 4 per cent up to 64 per cent depending on the size of the bequest and level of kinship between the proprietor and the heirs (Lozano Noriega, 1963).

However, as highlighted in Cárdenas' 1933 electoral manifesto and government plan, both the income and inheritance taxes needed to be revised to achieve true progressivity. The aim was to «avoid only taxing the waged labourers» and to «prevent the perpetuation of great fortunes» (Partido Nacional Revolucionario, 1933, pp. 333-334). The issues of tax avoidance and lack of progressivity also contributed to regional fiscal inequality and economic divergence (Campos Vazquez et al., 2017).

For the working class as a whole, the evidence is mixed. While the trends for miners and construction workers are positive, those for manufacturing workers are slightly negative. This is surprising given the pro-labour reforms of the period, notably the 1917 Constitution, which guaranteed the rights to unionise and strike. Additionally, the labour movement saw advancements in industries such as textiles and regional concessions were made by state governors, including Luis F. Domínguez from Tabasco and Candido Aguilar from Veracruz. These governors implemented minimum wage increases, regulated maximum working hours per day, abolished debt peonage and prohibited physical punishment at factories (Bortz, 2002).
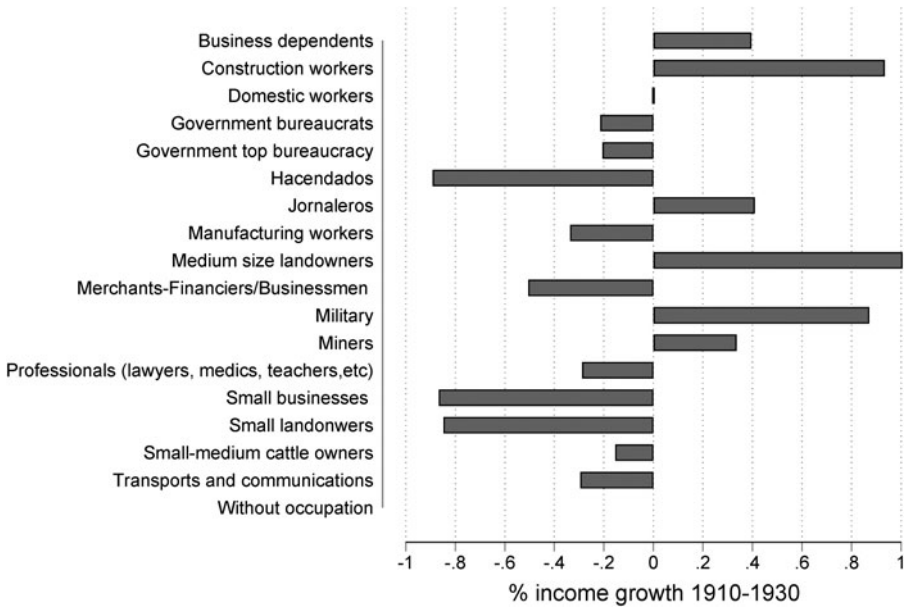
Figure 3. Winners and losers, 1910-1930.
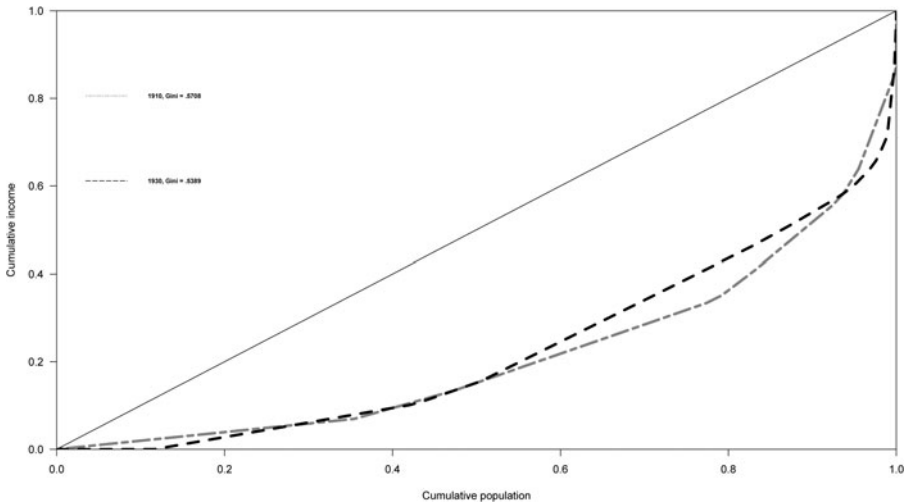*Sources*: see discussion in the text, section 3.

Figure 4. 1910 and 1930 Lorenz curves.
Sources: see discussion in the text, section 3.
Note. The 1910-1930 Lorenz curves do not show Lorenz dominance, as the curves cross each other at different points. This indicates that different groups at the bottom and top of the income distribution made gains. Meanwhile, some groups in the middle of the distribution suffered income losses. Despite this, the Gini and Theil measures confirm that the income distribution in 1930 was less unequal than in 1910, indicating weak Lorenz dominance.

It seems, however, that these pro-labour policies were not sufficient to significantly impact the inequality statistics. Although real wages for manufacturing workers increased, especially in the 1920s (cf. Gómez-Galvarriato, 2002), the overall growth from 1910 to 1930 was not remarkable and the manufacturing worker population remained relatively small.

The limited growth of the manufacturing worker group has implications for inequality. Keesing (1969, p. 723) argues that while Mexican manufacturing expanded in the decades leading up to 1930, the labour-saving technology used did not result in a significant increase in demand for workers. Gómez León (2019) found that Brazil experienced a «rise of the middle class» in the early 20th century, driven by the expansion of the urban non-agrarian sector and economic diversification.

In Mexico, the situation was different due to its turbulent political and social climate. While the small business owner group expanded substantially, both the professionals group and the *ranchero* groups stagnated (see Table 1). The evolution of income distribution from 1910 to 1930 is scattered, with notable gains among the agrarian lower classes and corresponding losses at the top, rather than significant changes in the middle (see Figure 3). This is also reflected in the lack of Lorenz dominance shown in Figure 4.

4.3 Inequality in the 1930s

Between our 1930 and 1940 benchmarks, we observe an increase in inequality, with our preferred measure of the Gini coefficient rising from 0.54 to 0.62. This increase occurred during a period of expanding social rights and public services. To be sure, the presidency of Lazaro Cárdenas from 1934 to 1940 has been described «without a doubt the most progressive phase of the Mexican revolution» (Joseph and Buchenau, 2013, p. 118). Cárdenas accelerated land reform and nationalised the oil industry in 1938 (for a detailed narrative, see Gilly, 1994). His administration also increased welfare state expenditure on education and health (cf. Campos-Vázquez *et al.*, 2017). However, organised labour was less central to the Cárdenas coalition than it was, for example, in Perón's similarly populist regime in Argentina in the 1940s. In the Cárdenas coalition, peasants were at least as important as workers (Collier and Collier, 2002, pp. 232-247, 332-344).

The increase in income inequality during the 1930s, despite the progressive political tendencies in Mexico, can be explained by economic and demographic factors. Industry's share of GNP rose from 13.6 per cent in 1930 to 16.3 per cent in 1940, compared to 11.28 per cent in 1910 (Bank of Mexico, 1989). However, the share of manufacturing workers in our social tables remained stagnant (Table 1), while the group «without occupation» grew by 10 percentage points in the 1930s.

Figure 5 shows that the income gains from 1930 to 1940 were not particularly skewed towards the wealthy. Instead, the increase in inequality was driven by the changing relative sizes of social groups, particularly the growth of the group «without occupation» (Table 1). The main winners in the income race in the 1930s were the small businesses and manufacturing workers. Although peasants, especially the newly created *ejidatarios* made significant gains, these were overshadowed by the income gains in industrial occupations[9].

The issue, as Keesing (1969) noted, was that not enough manufacturing jobs were created. Bértola and Ocampo (2012, p. 46) have pointed out that during this period, inequality decreased in Argentina, Chile and Uruguay, but not in countries like Brazil and Mexico, which had large rural labour surpluses and strongly segmented labour markets. In these countries, inequality only fell when the rural labour surplus had diminished and education levels had risen.

The pattern observed in Mexico during the 1930s aligns well with this argument. During the Great Depression, a significant number of Mexicans were forcibly expelled from the United States to Mexico; recent estimates suggest about 500,000 people were affected (cf.

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[9] Cattle owners and ranchers also saw significant gains during the 1930s. This might be similar to the situation in Argentina, where growing inequality in the 1930s was partly driven by food exports, the benefits of which accrued to the landowners (Alvaredo *et al.*, 2018, pp. 6–7).
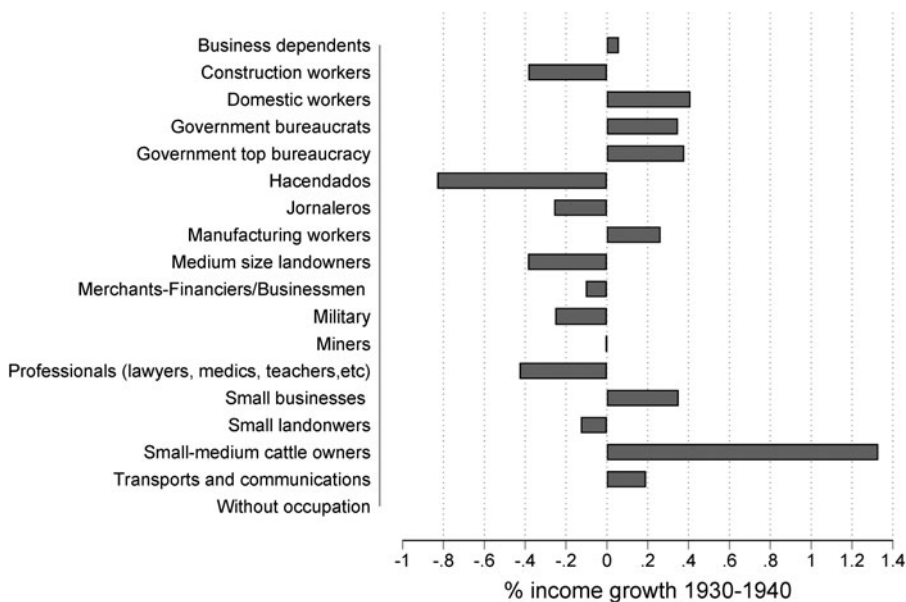
Figure 5. Winners and losers, 1930-1940.
Sources: see discussion in the text, section 3.

Lee *et al.*, 2017)[10]. In the 1930s, the population of the three largest cities—Mexico City, Guadalajara and Monterrey—grew by an average of 35 per cent (Joseph and Buchenau, 2013, p. 128). The increase in the group «without occupation», a group reasonably assigned low incomes in the social tables, is likely related to this combination of urbanisation and adjustments to U.S. policies during the Depression. In 1942, the Mexican state began encouraging labour migration to the United States as a part of its national development strategy (cf. Sandos and Cross, 1983), reflecting the ongoing issue of labour surpluses in Mexico.

The Lorenz curves for 1930 and 1940 shown in Figure 6 reveal that inequality increased during the 1930s due to a reduction in income shares among the middle-class—roughly percentiles 50-90—while the elites benefited. This pattern underscores the erosion of the middle class and the relative scarcity of well-paying jobs in sectors like manufacturing, as previously discussed. The strong performance of the elite can be attributed to their ability to weather the turbulence of the revolution. As Wasserman (1993) notes, the old agrarian elite employed several strategies to survive, such as dividing their lands to avoid land reform, selling property to foreign investors, diversifying their investments and marrying into the new regime. These strategies likely contributed to the rise in inequality between 1930 and 1940. We will revisit this discussion in the concluding remarks.

5. Conclusions and further discussion

Mexican income inequality between 1895 and 1940 exhibited a volatile pattern. It began at high levels and increased from 1895 to 1910, followed by a decline after the Revolution, only to rise again during the 1930s. From our estimate for 1940 to Székely's (2005) estimate for 1950, when the Revolutionary Party (PRI) regime had been stabilised, inequality decreased slightly to approximately 0.55.

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[10] While other estimates are more conservative, suggesting around 250,000 individuals (Gratton and Merchant, 2013), his still represented a significant influx in a country with fewer than 20 million inhabitants.
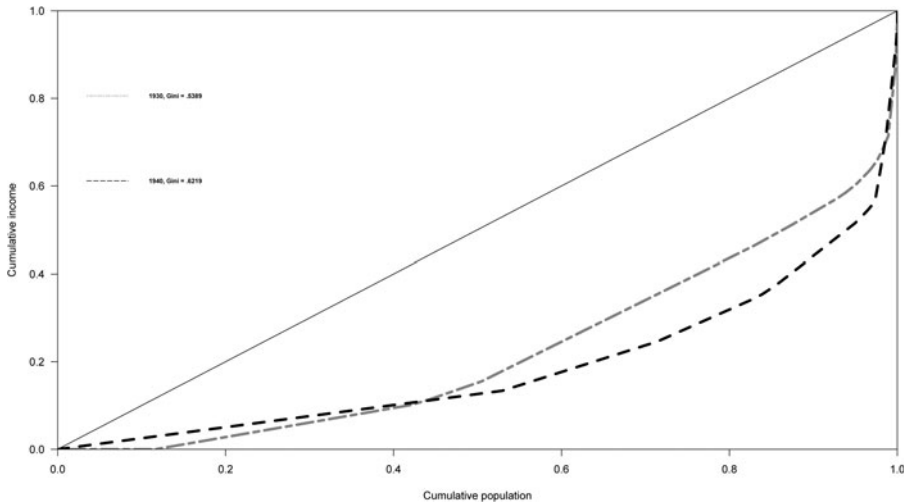
Figure 6. 1930 and 1940 Lorenz curves.
Sources: see discussion in the text, section 3.
Note. The Lorenz curves for 1930-1940 show no clear dominance, as the curves intersect at various points. This indicates that different groups experienced income losses both at the bottom and top of the income distribution in 1940, while those in the middle saw gains. Despite these fluctuations, the Gini and Theil measures confirm that income distribution in 1940 was more unequal than in 1930, reflecting weak Lorenz dominance.

Consequently, the Revolution did not significantly and permanently reduce inequality. As previous studies, including Székely's, have emphasised, inequality remained high and persistent in the decades following 1950. While a comprehensive explanation for the fluctuations in Mexican income inequality is beyond this paper's scope, we will conclude by examining several key factors. This discussion can serve as inspiration for further research.

Politics, economics and demography all influenced Mexican income inequality during this period. The failure of unskilled labour, the abundant factor of production, to benefit substantially from the 1895-1910 liberalisation likely stems from the oligarchic and repressive political regime, which ultimately precipitated its downfall in the 1910s. The Revolution, however, did not radically depart from the past (cf. Gilly, 1971). Among historians, the notion of a revolutionary tabula rasa has lost credibility (Knight, 1992; Wasserman, 1993, pp. 67-69). Although agrarian elites in states like Morelos suffered significant economic losses due to the land reforms of the 1920s and 1930s, their influence in the local community, bolstered by their authority as local power brokers, did not disappear. In fact, the various revolutionary regimes depended on negotiating with local elites to maintain power (cf. Joseph, 1980; Wasserman, 1993, Ch. 5).

Even more critical to the inequality patterns measured here for 1930 and 1940 was that inequality reduction in Mexico, during times of reform, was held back by the dualism of the economy. The large pool of available, low-skilled, low-paid or informally paid labour created a significant disparity between this group and the highly paid individuals in more dynamic sectors (cf. Pinto, 1973; Bértola and Ocampo, 2012, p. 46).

Ironically, despite Mexico's revolution characterised by peasant mobilisation and peasant-friendly reforms, it did not achieve a lasting decrease in inequality. In contrast, Chile, which did not experience a revolution, significantly reduced inequality from 1940 to 1970, as noted in Rodriguez Weber's nuanced analysis (2017, pp. 57-59). Thus, while the Porfiriato demonstrates the necessity of considering political, as well as economic

factors, in the historical analysis of inequality, the experience of the 1930s reveals that even during revolutionary periods, the forces of labour supply and demand cannot be disregarded.

The lack of lasting equalisation during and after the Revolution presents an intriguing avenue for further study, particularly with more disaggregated social tables. As explored by Hidalgo (2018), the failure after the Revolution to improve the rights of domestic workers, in contrast to those of industrial workers, serves as a particularly relevant example. Additionally, Dion (2010, Ch. 3) underscores the stark contrast between the expanding rights of public sector workers, who enjoyed political influence over working conditions, pensions and related issues, and the stagnant conditions in the private sector, where employers resisted such changes.

The inequality between the formal and informal sectors, as well as between high-paid and low-paid positions, during and immediately after the Revolution, merits further research. Other aspects that have not been sufficiently explored here include gender and regional inequalities. Previous research indicates that economic gender inequality was widespread and saw little improvement after the Revolution (Joseph and Buchenau, 2013, pp. 113-114). While the sources used in this study do not provide sufficient information to comprehensively analyse gender disparities, this remains a critical area for further historical research on Mexican inequality. Additionally, a more in-depth examination of regional disparities should be incorporated into future research.

Sources and official publications

Sources are from Departamento de la Estadística Nacional, Dirección General de Estadística, Instituto Nacional de Geografía, Estadística e Información, as well as other government institutions and private archives, such as the Francisco I. Madero archive in Mexico City. For a detailed list and discussion of the sources, please see online Appendix A.

References

Aguilar Camín H. (1996) *La frontera nómada: Sonora y la Revolución Mexicana*. Mexico City: Fondo de Cultura Económica.

Alvaredo F., Cruces F. and Gasparini L. (2018) A short episodic history of income distribution in Argentina. *Latin American Economic Review* 27(7), 1-45.

Arnaut J.L. (2018) Mexican real wages before the revolution: a reappraisal. *Iberoamericana-Nordic Journal of Latin American and Caribbean Studies* 47(1), 45-62.

Arroyo Abad L. (2013) Persistent inequality? Trade, factor endowments, and inequality in Republican Latin America. *Journal of Economic History* 73(1), 38-78.

Arroyo Abad L. and Astorga Junquera P. (2017) Latin American earnings inequality in the long run. *Cliometrica* 11(3), 349-374.

Banco De México (1989) *Indicadores Económicos.* México: Acervo Histórico.

Beatty E. (2002) Commercial policy in Porfirian Mexico: the structure of protection. In Bortz J and Haber S (eds), *The Mexican Economy, 1870-1930: Essays on the Economic History of Institutions, Revolution, and Growth*. Palo Alto, CA: Stanford University Press, 205-252.

Bértola L. and Ocampo J.A. (2012) *The Economic Development of Latin America since Independence.* Oxford: Oxford University Press.

Bértola L., Castelnovo C, Rodríguez Weber J. and Wilebald H. (2009) Income distribution in the Latin American Southern cone during the first globalization boom and beyond. *International Journal of Comparative Sociology* 50(5-6), 452-485.

Bleynat I., Challú A. and Segal P. (2021) Inequality, living standards and growth: two centuries of economic development in Mexico. *The Economic History Review* 74(3), 584-610.

Bolt J. and Hillbom E. (2016) Long-term trends in economic inequality: lessons from colonial Botswana, 1921-74. *The Economic History Review* 69(4), 1255-1284.

Bolt J. and Van Zanden J.L. (2014) The Maddison project: collaborative research on historical national accounts. *The Economic History Review* 67(3), 627-651.

Bortz J. (2002) The legal and contractual limits to private property rights in Mexican industry during the revolution. In Bortz J and Haber S (eds), *The Mexican Economy, 1870-1930: Essays on The Economic History of Institutions, Revolution, and Growth.* Palo Alto, CA: Stanford University Press, 255-288.

Burns E.B. (1979) Cultures in conflict: the implication of modernization in nineteenth-century Latin America. In Burns EB and Skidmore TE (eds), *Elites, Masses, and Modernization in Latin America, 1850-1930.* Austin, TX and London: University of Texas Press, 11-78.

Bustos A. and Leyva G. (2017) towards a more realistic estimate of the income distribution in Mexico. *Latin American Policy* 8(1), 114-126.

Campos-Vázquez R., Domínguez C. and Márquez G. (2017) Long-run human development in Mexico: 1895-2010. In Bértola L and Williamson J (eds), *Has Latin American Inequality Changed Direction?* Cham: Springer International Publishing, 89-112.

Castañeda Garza D. and Krozer A. (2023) Life on the edge: elites, wealth and inequality in Sonora 1871-1910. *Revista De Historia Económica/Journal of Iberian and Latin American Economic History* 41(1), 7-38.

Challú A.E. and Gómez-Galvarriato A. (2015) Mexico's real wages in the age of the great divergence, 1730-1930. *Revista de Historia Económica/Journal of Iberian and Latin American Economic History* 33(1), 83-122.

Coatsworth J. (1981): *Growth against Development: Economic Impact of Railroads in Porfirian Mexico.* De Kalb, IL: Northern Illinois University Press.

Collier R.B. and Collier D. (2002) *Shaping the Political Arena: Critical Junctures, the Labor Movement, and Regime Dynamics in Latin America*, 2nd ed. Notre Dame, IN: University of Notre Dame Press.

Dion M.L. (2010) *Workers and Welfare: Comparative Institutional Change in Twentieth-Century Mexico.* Pittsburgh, PA: University of Pittsburgh Press.

Flores E. (1969) From land reform to industrial revolution: the Mexican Case. *The Developing Economies* 7(1), 82-95.

Flores Zavala E. (n.d) Trayectoria del impuesto sobre la renta en México. Revista de la Facultad de Derecho de México. https://revistas-colaboracion.juridicas.unam.mx/index.php/rev-facultad-derecho-mx/article/view/26984/24334

Fowler Salamini H. (1980) Revolutionary Caudillos in the 1920s: Francisco Múgica and Adalberto Tejeda. In Brading DA (ed.), *Caudillo and Peasant in the Mexican Revolution.* Cambridge: Cambridge University Press, 169-192.

Galán E. (2010) Estrategias y redes de los empresarios textiles de la Compañía Industrial de Orizaba S.A. 1889-1930 (Tesis Doctoral). Universidad Veracruzana.

Gilly A. (1971) *La Revolución Interrumpida México, 1910-1920: una guerra campesina por la tierra y el poder.* México: Ediciones el caballito.

Gilly A. (1994) *El Cardenimso una utopía mexicana.* México: Ediciones Era.

Goldsmith Corelly M. (1992) Sindicato de trabajadoras domésticas en México: (1920-1950). *Política y Cultura* 1, 75-89.

Gómez-Galvarriato A. (2002) Measuring the impact of institutional change in capital-labor relations in the Mexican Textile Industry, 1900-1930. In Bortz J and Haber S (eds), *The Mexican Economy, 1870-1930, Essays on The Economic History of Institutions, Revolution, and Growth.* Palo Alto, CA: Stanford University Press, 289-323.

Gómez-Galvarriato A. (2013) *Industry and Revolution: Social and Economic Change in the Orizaba Valley, Mexico.* Cambridge, MA and London: Harvard University Press.

Gómez León M. (2019) The rise of the middle class in Brazil, 1850-1950. *European Review of Economic History* 23(4), 482-498.

Gómez León M. and De Jong H.J. (2019) Inequality in turbulent times: income distribution in Germany and Britain, 1900-50. *The Economic History Review* 72 (3), 1073-1098.

Gratton B. and Merchant E. (2013) Immigration, repatriation, and deportation: the Mexican-origin population in the United States, 1920-1950. *International Migration Review* 47(4), 944-975.

Haber S. (1989) *Industry and Underdevelopment: The Industrialization of Mexico 1890-1940.* Palo Alto, CA: Stanford University Press.

Haber S. (2002) The commitment problem and Mexican economic history. In Bortz J and Haber S (eds), *The Mexican Economy, 1870-1930: Essays on The Economic History of Institutions, Revolution, and Growth.* Palo Alto, CA: Stanford University Press, 324-334.

Hidalgo S. (2018) The making of a 'Simple domestic:' domestic workers, the supreme court, and the law in Postrevolutionary Mexico. *International Labor and Working-Class History* 94(1), 55-79.

Inegi (2020) Encuesta Nacional de Ingresos y Gastos de los Hogares, 2005-2016. Available at https://www.inegi.org.mx/temas/hogares/

Joseph G.M. (1980) Caciquismo and the revolution: Carrillo Puerto in Yucatán. In Brading DA (ed.), *Caudillo and Peasant in the Mexican Revolution*. Cambridge: Cambridge University Press, 193-221.

Joseph G.M. and Buchenau J. (2013) *Mexico's Once and Future Revolution*. Durham, NC and London: Duke University Press.

Kaerger K. (1902) *Landwirtschaft und Kolonisation im Spanischen Südamerika*. Leipzig: Duncker & Humblot.

Katz F. (1998) *The Life and Times of Pancho Villa*. Palo Alto, CA: Stanford University Press.

Keesing D. (1969) Structural change early in development: Mexico's changing industrial and occupational structure from 1895 to 1950. *Journal of Economic History* 29(4), 716-738.

Knight A. (1984) The working class and the Mexican revolution, c. 1900-1920. *Journal of Latin American Studies* 16(1), 51-79.

Knight A. (1992) Revisionism and revolution: Mexico compared to England and France. *Past and Present* 134(1), 159-199.

Knight A. (1999) Export-led growth in Mexico: 1900-30. In Cárdenas E, Ocampo JA and Thorp R (eds), *An Economic History of Twentieth-Century Latin America Volume 1: The Export Age*. Basingstoke: Palgrave, pp 133-165.

Kuntz S. (2002) Institutional change and foreign trade in Mexico, 1870-1911. In Bortz J and Haber S (eds), *The Mexican Economy: Essays on The Economic History of Institutions, Revolution, and Growth, 1870-1930*. Palo Alto, CA: Stanford University Press, 161-204.

Kuznets S. (1955) Economic growth and income inequality. *American Economic Review* 45(1), 1-28.

Lakner C. and Milanovic B. (2016) Global income distribution: from the fall of the berlin wall to the great recession. *The World Bank Economic Review* 30(2), 203-232.

Lee J., Peri G. and Yasenov V. (2017) The employment effects of Mexican repatriations: evidence from the 1930s. NBER Working Paper No. 23885. Cambridge, MA: National Bureau of Economic Research.

López-Alonso M. (2007) Growth with inequality: living standards in Mexico, 1850-1950. *Journal of Latin American Studies* 39(1), 81-105.

López-Alonso M. (2015) *Estar a la altura: Una historia de los niveles de vida en México, 1850-1950*. México: Fondo de Cultura Económica.

Lozano Noriega F. (1963) Reforma Fiscal Mexicana que Deroga los Impuestos sobre Herencias y Legados y Donaciones. *Revista de Derecho Notarial Mexicano* 23, 57-63.

Milanovic B. (2009) Global inequality and the global inequality extraction ratio: the story of the past two centuries. Policy Research Working Papers. Washington, DC: The World Bank.

Milanovic B., Lindert P.H. and Williamson J.G. (2011) Pre-industrial inequality. *Economic Journal* 121(551), 255-272.

Partido Nacional Revolucionario (1933) *Plan Sexenal, December 1933*. México: Senado de la República.

Piketty T. (2014) *Capital in the Twenty-First Century*. Cambridge, MA: Harvard University Press.

Pinto A. (1973) Heterogeneidad estructural y modelo de desarrollo reciente de la América latina. In *Inflación: raíces estructurales*. México: Fondo de Cultura Económica, 104-140.

Reyes M., Teruel G. and López M. (2017) Measuring true income inequality in Mexico. *Latin American Policy* 8(1), 127–148.

Rodríguez Weber J.E. (2014) La Economía Política de la Desigualdad de Ingreso en Chile, 1850-2009 (Tesis de Doctorado en Historia Económica). Montevideo: Universidad de la República.

Rodríguez Weber J.E. (2016) Desigualdad y desarrollo en Chile: Historia Comparada de la Desigualdad en Chile y Uruguay. Serie Documentos de Trabajo PNUD—Desigualdad, vol. 2016/01. New York: United Nations Development Programme.

Rodríguez Weber J.E. (2017) The political economy of income inequality in Chile since 1850. In Bértola L and Williamson J (eds), *Has Latin American Inequality Changed Direction? Looking Over the Long Run*. Cham: Springer, 43–64.

Rosenzweig F. (1965) El desarrollo económico de México de 1877 a 1911. *El Trimestre Económico* 33, 405-454.

Sandos J.A. and Cross H.E. (1983) National development and international labour migration: Mexico 1940-1965. *Journal of Contemporary History* 18(1), 43-60.

Scheidel W. (2017) *The Great Leveler: Violence and the History of Inequality from the Stone Age to the Twenty-First Century*. Princeton, NJ: Princeton University Press.

Scheve K. and Stasavage D. (2010) The conscription of wealth: mass warfare and the demand for progressive Taxation. *International Organization* 64(4), 529-561.

Székely M. (2005) Pobreza y Desigualdad en México entre 1950 y 2004. *El Trimestre Económico* 72(288), 913-931.

Wasserman M. (1993) *Persistent Oligarchs: Elites and Politics in Chihuahua, Mexico, 1910-1940*. Durham, NC: Duke University Press.

Williamson J.G. (1999) Real wages, inequality and globalization in Latin America before 1940. *Revisita de Historia Económica* XVII, 101-142.

Williamson J.G. (2015) Latin American inequality: colonial origins, commodity booms or a missed twentieth-century leveling? *Journal of Human Development and Capabilities* 16(3), 324-341.

Womack J. (1970) *Zapata and the Mexican Revolution.* New York: Vintage Books.