

INCOME INEQUALITY IN CHILE SINCE 1850

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Income inequality in Chile since 1850

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Abstract

This paper is a synthesis of the author's Ph.D. dissertation. It studies the relationship between income inequality and the development process, understood as the combination of economic, social and political changes produced over time based on the case of Chile between 1850 and 2009. It aims to describe and explain the tendencies in income distribution over time signaling their causes and some of their consequences. In the empirical area, the main contributions of the dissertation are the estimates of historical series of salaries, wages, and different measures of income distribution –Gini index, Theil, labor share and the income of the top 1%. These estimates relied on the methodology of ‘social tables’, which aggregates income earners in categories such as occupation, having estimated the number and earnings for each category every year between 1860 and 1970. In spite of the problems arising from the use of assumptions to obtain an annual estimate, which implies an immeasurable but undoubtedly large margin of error for each year, this methodology allows us to analyze medium-term trends with relative confidence. In the fields of theory and methodology, the paper makes two major contributions. First, it shows the potential of in-depth case studies as a means to analyze the relationship between development and inequality. Second, its focus on the political economy of inequality overcomes the problem of oversimplification. Most studies tend to focus on a single factor –usually either on the market or institutions- and analyze the impact on inequality in a timeless or ahistorical manner. But, as this work shows, trends in inequality are always the consequence of a set of factors -economic, social, political and institutional- which interact, so that each one reinforces or overrides the influence of the other. The combination of these factors, which is an outcome of the historical process, is what determines the trends in inequality over time.

Key words: inequality, income distribution, development, Chile, institutions

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La desigualdad de ingreso en Chile desde 1850

Javier E. Rodríguez Weber²

Resumen

El presente documento es una síntesis de la tesis doctoral del autor, en la que se estudia la relación entre la desigualdad de ingreso y el proceso de desarrollo en Chile entre 1850 y 2009. Éste se entiende como una combinación de transformaciones económicas, sociales y políticas que se producen en el tiempo. Su objetivo es tanto describir como explicar las tendencias de la desigualdad de ingreso, señalar sus causas y alguna de sus consecuencias. En términos empíricos, la principal contribución del trabajo realizado es la estimación de series históricas de sueldos, salarios, y diversas medidas de distribución del ingreso –índice de Gini, de Theil, retribución al factor trabajo, e ingreso del 1%. Dichas series se obtuvieron mediante la metodología de las tablas sociales, lo que supuso construir categorías de perceptores de ingreso, calculando el número y los ingresos para cada una entre 1860 y 1970. Más allá de los problemas que sobrevienen del imprescindible uso de supuestos, -que conducen a un inestimable pero seguramente importante margen de error para cada año concreto- la metodología permite mostrar tendencias de mediano plazo con un razonable grado de confiabilidad. En los terrenos teórico y metodológico, el documento realiza dos contribuciones principales. En primer lugar, muestra el potencial que brinda la metodología de estudios de caso en profundidad a la hora de estudiar la relación entre desarrollo y desigualdad. En segundo lugar, al enfocarse en la economía política de la desigualdad, evita el problema de la simplificación excesiva que se aprecia en muchos estudios sobre el tema. Efectivamente, si bien muchos estudios se concentran en un único factor explicativo –habitualmente el mercado o las instituciones-, en este documento se muestra –una vez más- que las tendencias que asume la desigualdad en el tiempo son el resultado de la interacción un conjunto de factores –económicos, sociales, políticos e institucionales- cuyos efectos se refuerzan o anulan entre sí.

Palabras clave: desigualdad, distribución del ingreso, desarrollo, Chile, instituciones

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1. Introduction

The problem of inequality is again at the centre of the political and economic agenda. At the beginning of 2014 the President of the United States Mr. Barack Obama called it “the defining challenge of our time.”¹ Soon after that, the publication of the English version of *Capital in the 21st Century*, by Thomas Piketty (2014), aroused a deep debate on the role played by inequality in developed countries since the eighteenth century and the challenges it poses to the future.

In Latin America inequality has always been a matter of concern. This is the most unequal region of the world, and many believe that inequality is the most important obstacle to development. Chile, which is often noted as an “economic success story,” is one of the most unequal countries in the world. Shortly after President Obama’s speech and, while assuming for a second time for the presidency of Chile, Michelle Bachelet said that inequality was the biggest opponent of her country.²

The present article summarizes a five-hundred page dissertation on the political economy of inequality in Chile between 1850 and 2009 (Rodríguez Weber, 2014). The thesis aims to contribute to understanding of the role of inequality in the development process and it is among the growing literature that aims to study the relationship between inequality and economic growth in the long run.

I analyze the relationship between inequality and economic growth as a result of the interaction between market forces and institutions, which develop over time and in a changing context. As a consequence, the preeminence and the role of each one are historically situated. The outcome comes from the combination of general processes –like globalization- and context specific environment. The aim is to highlight the mutual influences of market forces and institutions and to unravel the relationship between the overall process, historical specificities and contingencies. This is what I call a political economy approach to inequality.

¹ Barack Obama: State of the Union Address, on <http://www.whitehouse.gov/the-press-office/2014/01/28/president-barack-obamas-state-union-address>.

² “¡Chile tiene un solo gran adversario, y eso se llama desigualdad!”, see Michelle Bachelet, takeover address, <http://www.gob.cl/2014/03/11/presidenta-michelle-bachelet-en-su-primer-discurso-al-pais/>

In the remainder of this paper I present the leading evidence and the main arguments for a brief economic history of income inequality in Chile between 1850 and 2009. The second section discusses issues related to the design of a methodological strategy capable of measuring the main trends of income inequality in the long run, and capturing at least part of the complexities of the relationship between the market forces and the institutions which led to the mechanisms that cause these trends. In section three, the core of the paper, I analyze the changing trends of income inequality over time and summarize the central aspects of its relationship with the general development process. Section 4 concludes with some reflections on the past, the present and the future of Chilean inequality.

2. The problem, the approach, the method and the data

2.1 Inequality and development in Chile

Regardless of where someone lives, his or her life is very different today to what it was two centuries ago. The place they live, the way they earn their living, the way of all of us relate to each other, the political system that makes the laws that rule our behavior –and the characteristics of such laws-, every single aspect of our lives has been radically transformed by the process of development that occurred in the last two centuries. Nevertheless, saying that every part of the globe has been affected by the transformation is not the same as saying that all have been affected in the same way. In economic terms, this transformation has two main characteristics. First, the process of modern economic growth has multiplied the capacity to produce goods and services by several times. Secondly, however these goods and services have been unevenly distributed. The problem of economic inequality has two dimensions: between regions and/or countries, and between people and/or groups inside each country. In terms of the inequality between countries, it can be said that the process of development has generated three different groups. First, the countries that lead the process of transformation, which are usually called developed countries. Second is the small group of countries which, like South Korea, were able to close the gap. Third and the biggest group, we can find the “underdeveloped” countries. Chile, like every Latin American country, belongs to this group, but it is a very heterogeneous group. The reason Chile is in this group is not because of its extreme poverty, but it is due to other characteristics that have “frustrated” –as said in an influential book written in the fifties (Pinto 1959)- the development process. Chile is an OECD

member, but its GDP per capita is a half of the mean of the OECD countries. Furthermore, with a Gini coefficient of 0.53,³ it is its high inequality which makes Chile a typical Latin American country.

As said above, the transformations which characterize the development process also affect the way that goods and services are distributed within a country, and it is the main task of this paper to study the way in which that occurs. The goal is to identify the mechanisms which mediate between the development process –seen as a process of historical change that affects the different aspects of human life: social, economic, institutional, political and cultural- and the distribution of income which allows people to buy the goods and services –which are also more abundant and diversified as a consequence of the same development process. I decided to study this relationship in the case of Chile for two reasons. As I will explain below, I do not think that the complexity of this subject can be studied in the aggregated way that characterized the literature of the Kuznets Curve. In second place, the history of Chile is rich enough to study all of the problems that the literature has posed as central to comprehending the relationship between development and inequality. In the last century and a half, Chile has been beneficiary of and prejudiced by the international economy and has gone through many different political regimes and development strategies. Therefore, the same case presents a large diversity of experiences that can be used to test different theories and hypothesis on how income inequality and development are related.

2.2. A political economy approach

Most of the attempts to analyze the relationship between inequality and development derive a hypothesis from a general theory and use empirical data to test it. For instance, some have studied the impact of globalization on factor retribution; others the effects of collective bargaining on wage inequality, or the impact of a change in the institutional regime –say democratization- on income inequality, and so on. Interested in testing a general theory, usually these works assume the *ceteris paribus* clause. If I want to measure the effect of market integration on wage inequality, it is necessary to make the assumption that nothing else has changed. But the problem is that the main characteristic of the development process is that it transforms every aspect of human life, and changes in

³ According to PNUD (2013).

one area usually affect others. Certainly it is simply not possible to study all of them at the same time, so there is a need for simplification. But there are alternatives in the assumptions to be made in this process of reductionism, and different choices will highlight different aspects of reality and will lead to different outcomes. I chose to highlight the interaction between institutions and market forces, the way that each one influences the other, and how both of them influence income distribution. This is what I call a political economy approach to inequality, and it has three main characteristics:

-Firstly, it rejects the possibility of building an authentic general theory that explains the relationship between development and inequality applicable to every place in every time. Instead, the political economy approach uses middle range theories, more modest but capable of both capturing the interaction between general process and historical specificities.

-Secondly, and related to the first one, it rejects the ahistorical supremacy of one factor over the others. The tendencies that income distribution assumes over time are sometimes led by the institutions and other times by the market forces.

-Thirdly, and as said above, the main goal of a political economy approach to inequality is to highlight and capture the mechanisms that mediate between both market forces and institutions, explaining the changes of income distribution as an outcome of the interaction and the evolving role of both sides of the story.

2.3 In depth case-study

The relationship between inequality and development was heavily studied by the literature inspired by the Kuznets Curve (Adelman & Morris 1973; Ahluwalia, 1976a; 1976b; Robinson 1976; Adelman & Robinson 1989). In order to do that, they conducted cross sectional studies using many cases to relate the level of GDP per capita and some measure of inequality. Nevertheless, as they recognized, this was not the right methodology to study a complex relationship which develops over time.⁴ Therefore, a few years after the studies of Deninger & Squire (1996, 1998) showed that the Kuznets Curve was absent in most cases, authors like Kanbur (2000), Fields (2000) and Bértola (2005) advocated for a methodological shift to in-depth case studies and comparisons between

⁴ See Ahluwalia (1976b: 337) and Saith (1983).

them, a more appropriate methodology for capturing the complexities which define the relationship between inequality and development.

I aim to do exactly that, tell “an overall story which incorporates a range of influences” (Kanbur 2000: 810) through an in-depth case study of the way that inequality was related to the whole development process in Chile between 1850 and 2009, signaling and analyzing the different mechanisms that linked the economic, social and political changes which transformed that country with the different patterns and tendencies that income distribution assumed over time.

2.4 Estimates: dynamic social tables

To study the way that inequality was related to the development process in Chile it was necessary to know what happened, what the main trends were. In other words, it was necessary to build a methodological strategy to measure inequality from 1850 to 1970.⁵ Income tax data was unavailable and using ratios between income per capita and wages was unsatisfactory, so I opted to follow the more solid, but also arid and hard, strategy of dynamic social tables. A social table is constructed by ordering people with income in different categories –usually occupational categories. Two kinds of data are needed for each category: how many they are and how much they earn. Sometimes, this methodology is used to estimate income inequality at a specific point in time.⁶ Authors who want to study the evolution of inequality over time usually build more than one social table for different benchmark years (Lindert & Williamson, 1982, 1983, 2013; Londoño 1995; Bértola et al. 2009). A “dynamic” social table differs from that strategy in the fact that the number of people and their income for each category are estimated for every year during a period of time.⁷ Therefore, what makes a social table “dynamic” is the fact that it covers a *period of time*, not just a year –or a set of years. Within that period, the categories remain constant, but the number of people included and their income change every year. Metaphorically speaking, if the use of different social tables enables the derivation of inequality trends from a set of “pictures”, a dynamic social table allows us to “see the whole movie”. For this reason, dynamic social tables are better suited to study the impact

⁵ Since 1957 households surveys for Santiago and the metropolitan zone are available.

⁶ See Milanovic (2010)

⁷ The term “dynamic” was proposed by Branco Milanovic in a workshop in Montevideo on 2011.

on inequality of different processes which develop over time, such as structural change or changes in relative prices.⁸

In order to estimate income inequality and other related variables in Chile, I built two dynamic social tables, one for the period 1860-1929 and the other for 1929-1970. The first one has 49 categories (9 in agriculture -7 of landowners, from peasant to big landlords, and 2 of workers-, 3 in mining, 10 in industry, 20 of civil servants, 5 in transport and 2 in others –professionals and domestic service). The second one (1929-1970) has 116 categories. The different sectors and branches represented include agriculture, mining (3 branches), industry (23 branches), commerce, transport, public and private services (3 branches), and they were segregated between employers, self-employed, employees (white collar) and workers (blue collar). Sometimes one of these categories was also disaggregated, like employers in the agriculture sector who were divided in 9 categories according to the size and quality of their properties. Another problem is that the sources allowed us to measure pre-tax income inequality between income earners only. To estimate inequality after taxes and transfers or between households is impossible (at least for the whole period).

The main sources of data were population and economic census, statistical yearbooks, and a myriad of secondary sources –mainly historical statistics,⁹ but also “traditional” history books. Many assumptions were necessary, and I grounded them on theoretical and historical knowledge –e.g., the composition of peasant incomes, or the share of utilities in the mining sector appropriated by foreign capital. Sometimes there were alternative sources –e. g., rural wages between 1880 and 1925 (Bauer 1975; Matus 2012), and I used what I thought were the best examples.

It is impossible to describe here the entire methodology applied, but some decisions that were taken are important enough to be presented in some detail.¹⁰ This is specially the case for the top income earners. If the estimation of the incomes of the top centiles presents several problems in the present, these are even more pronounced in the case of historical statistics. In order to deal with these problems, the two tables were created following

⁸ A similar strategy was carried forward by Lindert and Williamson (2014) and Astorga’s paper in this book.

⁹ For example: Haindl (2007), Díaz et al. (2010), and Matus (2012).

¹⁰ The reader will find a full description of the methodology in Rodríguez Weber (2014: chapter 3).

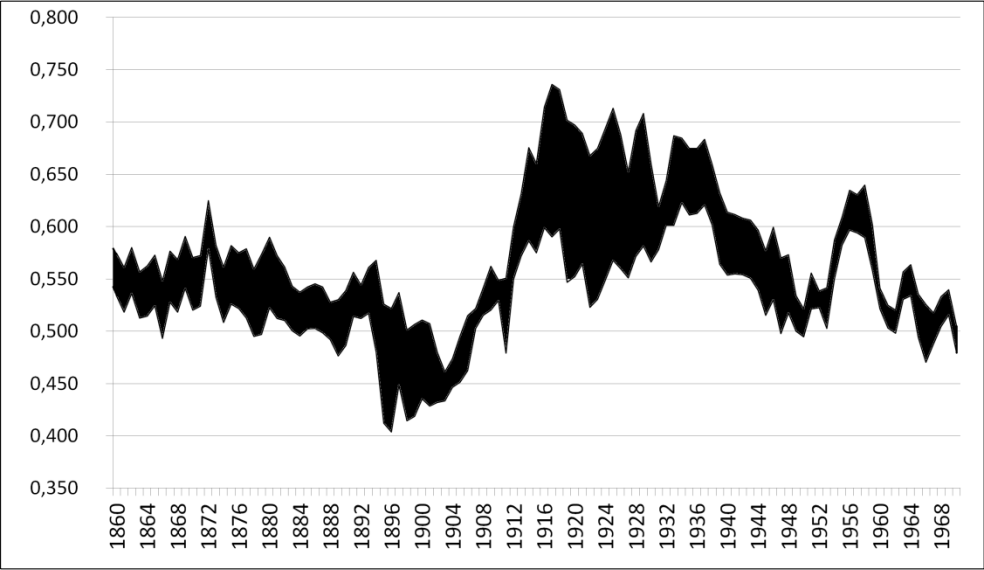
different procedures. In the first table, which covers the years between 1860 and 1929, there are four categories of high income earners. The first one is composed by the elite of civil servants (president, ministers, governors, etc.) so in this case I used their salaries. Regarding the seven categories of landowners and the category of industrialists, I estimated their income for a base year in which I had a reliable source and then projected it by an index which takes account of the evolution of prices, productivity and wages. Finally, in the case of mining owners, first I estimated the GDP at current prices for the whole period and then calculated the operating surplus which belonged to Chilean capitalists.¹¹ The procedure of estimating the operating surplus was also used in the second table (1929-1970), but in this case I used the series of GDP at current prices estimated by Haindl (2007). The total profits were then distributed between employers through different procedures -for example, in the case of the seven categories of landowners they were assigned to them according to the distribution of property and capital which was estimated from the agricultural censuses.

Many assumptions are controversial and other selections could have been made. To evaluate the way the decisions made could affect the final result, different series were estimated, changing sources or assumptions. Figure 1 presents the maximum and minimum Gini estimates for each year between 1860 and 1970. Two assertions can be made. First, using different sources or assumptions implies different results –sometimes, like in the interwar period, the differences are very important. Second, this is valid only for each year individually considered; medium term trends are consistent within all estimates.¹²

¹¹ Note that foreign capital was very important in the mining sector. See Figures 4 and 6.

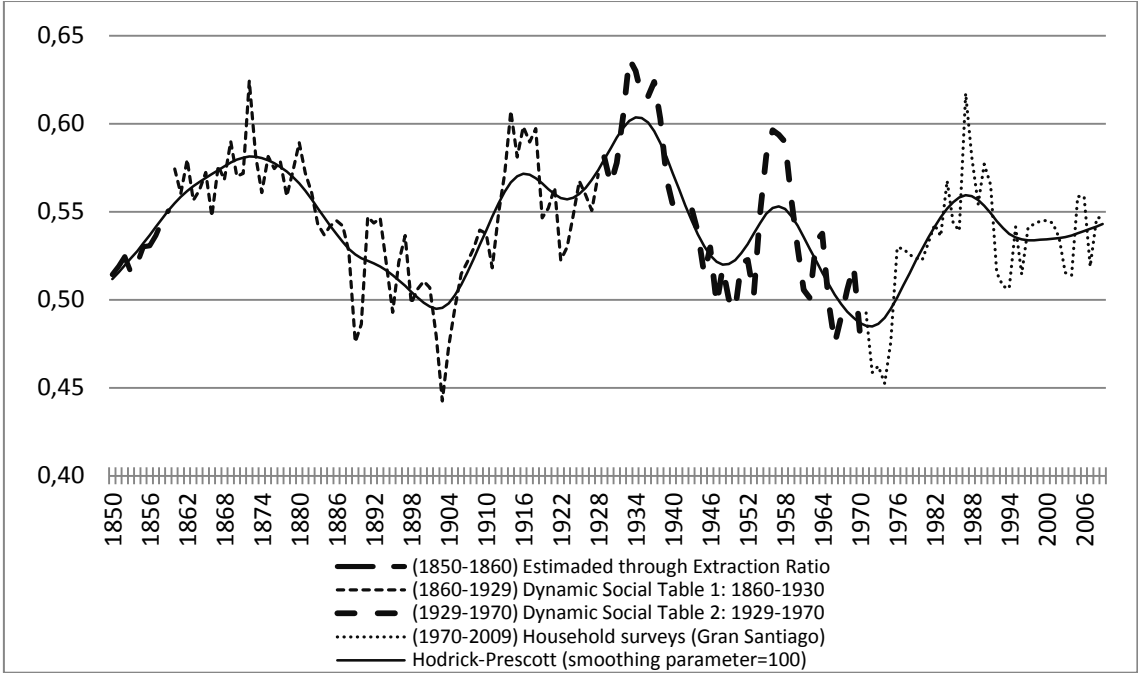
¹² The reader will find a deeper analysis of the reliability of the estimated data in Rodríguez Weber (2014: 110-123).

Figure 1: Income distribution estimates, Chile 1860-1970. Maximum and minimum estimations obtained through different sources and methods



Source: Own estimate. The estimates differ in their sources and/or assumptions

Figure 2: The “best estimate” of income earners inequality in Chile, 1850-2009. Gini coefficient



Source: Own estimate. The different lines and dots represent different estimation methods. The pitfalls of each methodology and the splice of estimations obtained through different methodologies implies that only the midterm tendencies, obtained through the Hodrick-Prescott filter, will be used in the historical analysis.

Nevertheless, as said before, there are assumptions and sources that are, in my opinion, better than others. These lead to what I consider “the best” estimate, according to

the limitations imposed by the methodology and sources.¹³ This “best possible” estimate is presented in Figure 2 and is the one I will use in the remainder of the paper. It is the result of splicing different series obtained through different methodologies, each one with its own limitations. For this reason, the original estimates have been smoothed using the Hodrick-Prescott filter. The aim is to be explicit regarding the fact that only mid-term tendencies are reliable enough to be used in the historical analysis.

3. A brief history of income inequality in Chile

3.1 Globalization and institutions, 1850-1873

Unlike what happened in most Latin American countries after independence, the Chilean State was rapidly consolidated. Despite the civil wars of the 1850s, it is possible to say that the post-independence conflicts had ended in 1830. In this context of institutional stability, Chile benefited from the growing international demand for copper and wheat. The first one was driven by the expansion of the industrial revolution, the second one by the mining booms in Australia and California. This led to an early process of export-led growth in the context of the First Globalization.

Thus began the modern era of Chilean economic history, characterized by a virtuous cycle between exports, imports and state revenues. The increasing demand stimulated the production of tradables, the increase in the value of exports allowed increased imports, and the tariffs on foreign commerce -the main source of tax revenues- allowed the expansion of public spending, especially on infrastructure. As a result, Chile's economy became more dynamic and open to foreign trade¹⁴ (Cariola & Sunkel 1982; Collier & Sater 1998; Salazar & Pinto 2002; Ortega 2005).

In this context, between 1850 and the mid-1870s, inequality arose. This was the outcome of two related processes. On the one hand, the globalization forces which impacted the Chilean economy. The exports of wheat to California and Australia during the gold fever in the 1850s, and to Great Britain the decade that followed, promoted the use of land that was previously idle. But this land, although unused, had owners. So there was

¹³ For the period after 1970 I used household surveys. The period 1850-1859 was estimated by a procedure adapted from van Zanden et al. (2011) which was inspired, in turn, the concept of Inequality Possibility Frontier (Milanovic et al. 2007).

¹⁴ Between 1850 and 1873 the annual growth rate for GDPpc, exports, imports and fiscal revenues were 3,8%, 6,2%, 5,9% and 4,1% (Rodríguez Weber 2014: table 5.2).

a peculiar process of frontier expansion –new lands were placed into production- but inside the *haciendas*. In a process which has been compared to the “second serfdom” of Eastern Europe, the globalization forces tended to reinforce the archaic institution of the *inquilinos* (Bauer 1975, 1992; Bengoa 1988). Part of the labor force of the *haciendas* since the seventeenth century, the *inquilinos* were paid with the right to use a piece of land, and them and their families had the obligation to work in the landlords’ fields. During this period, the value of land rose as a consequence of the increased demand for Chilean wheat (Gay 1863), and the obligations of the *inquilinos* increased as their rights reduced (Bauer 1975). Pushed by external demand, the economy grew, but the institutional framework which had the *Hacienda* system at its core –which affected the lives of 80% of the Chileans at that time-, assured that growth went almost exclusively to the elite. Most people maintained a living standard barely above subsistence level. As a consequence, income distribution worsened.

3.2 Crisis, frontier expansion and foreign investment, 1873-1903

According to our estimate, income inequality fell between 1873 and 1903. Nevertheless, this tendency obscures the fact that beyond the period there are two different situations. The period 1873-1880 was a time of crisis. The years which follow the Pacific War (1879–1883), instead, were a time of expansion. Behind these differences in the development performance laid different process which had the same outcome: a fall in income inequality.

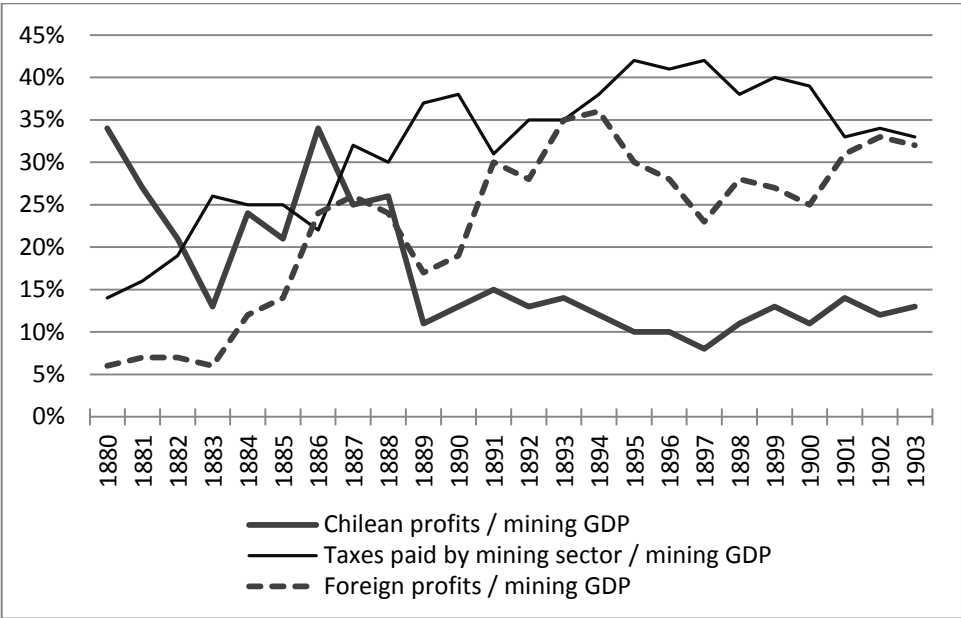
The same mechanism that led to growth in the decades that followed the gold fever of the 1850s provoked a serious crisis in 1873. The quantity and the prices of exports fell strikingly, fiscal incomes collapsed, and the whole economy sank (Sater 1979; Ortega 2005). The elite, and perhaps some “middle” sectors like the civil servants –in any case part of the upper decile-, were the only ones who could be affected by the crisis, because 80% of the people had barely enough income to survive. Reduced incomes in the top, even though it remained stable for the poor, implied a reduction in income inequality.

But things changed after 1880, when Chile initiated a second cycle of export-led growth, this time driven by the nitrates exports. This cycle was characterized by a process of frontier expansion in which the area of land controlled by Chile increased in almost 50%. This was a consequence of two military victories. The first one over Peru and Bolivia in the North, which allowed Chile to gain control over the nitrates fields; the second one

over the *mapuches*, in the South, which allowed Chile to expand its agricultural frontier. As a result, the land/labor ratio increased by 30%. The incorporation of natural resources, above all the nitrates fields, led to the second growth cycle of nineteenth century, which ended in 1913 (Cariola & Sunkel 1982).

Income inequality fell in the 1870s as a consequence of the crisis, but the same trend is seen after 1880, in a context of high growth led by nitrate exports. Why did this happen? The answer consists of two parts. First, the elite, weakened by the crisis, could not preserve the nitrate business for themselves. Instead, it was rapidly controlled by foreign capitals –mainly British. Therefore, an important share of the profits from the core industry during this period went to foreigners (Figure 3).

Figure 3: Distribution of mining GDP between foreign investors, local investors and the state, 1880-1903



Source: Own estimate. See Rodríguez Weber (2014: Cuadro AE 16)

In other words: foreign control of the industry and the burden of taxes collected by the state over the nitrate activity, implied that a significant portion of income which in another case would went to Chilean elite -if it had kept control of activity- ended up in other hands.

The other process which explains the counterintuitive tendency of falling income inequality during this period of export led growth was the impact of frontier expansion on wages. During the last two decades of the century, Chile expanded its territory both to the north and to the south. In the north, salaries were high enough to attract the labor force to

work on the inhospitable environment of the nitrate fields. In the south, after the Chilean government won a war against the *mapuches*, thousands of people from the Central Valley migrated and occupied a piece of land –which had no owners, except, of course, the *mapuches* itself. As a consequence, between 1880 and 1900 many people abandoned the rural sector of the Central Valley –the mainland of the *Hacienda* system (Table 1).

Table 1							
Population structure by regions and average growth rates between censuses							
	Population by region (%)				Population growth. Annual rate by period (%)		
	1875	1885	1895	1907	1875-1885	1885-1895	1895-1907
“Big” north	0,1	4	6	8	48,9	3,9	4,0
“Small” north	11	10	8	7	0,6	-0,9	0,7
Central Valley	68	61	60	54	0,9	0,9	0,5
Concepción	13	14	12	11	2,8	-0,5	0,9
Frontera	0,9	4	6	10	13,9	6,1	5,9
The Lakes	4	5	5	7	3,1	2,0	4,0
Austral	3	3	3	3	1,3	0,6	1,1
Total	100	100	100	100	2,0	1,0	1,5
Sources: Population census (1907) and Hurtado (1966, Cuadro 2). The Big North includes the provinces of Tacna, Tarapacá and Antofagasta. The “Small” North the provinces of Atacama and Coquimbo. The Central Valley the provinces of Aconcagua, Valparaíso, Santiago, O’Higgins, Colchagua, Curicó, Talca, Linares, Maule, y Ñuble. Concepción is formed by the provinces of Concepción, Arauco and Bío-Bío. Frontera region by Malleco and Cautín. The Lakes by Valdivia and Llanquihue, and Austral zone by provinces of Chiloé and Magallanes territory.							

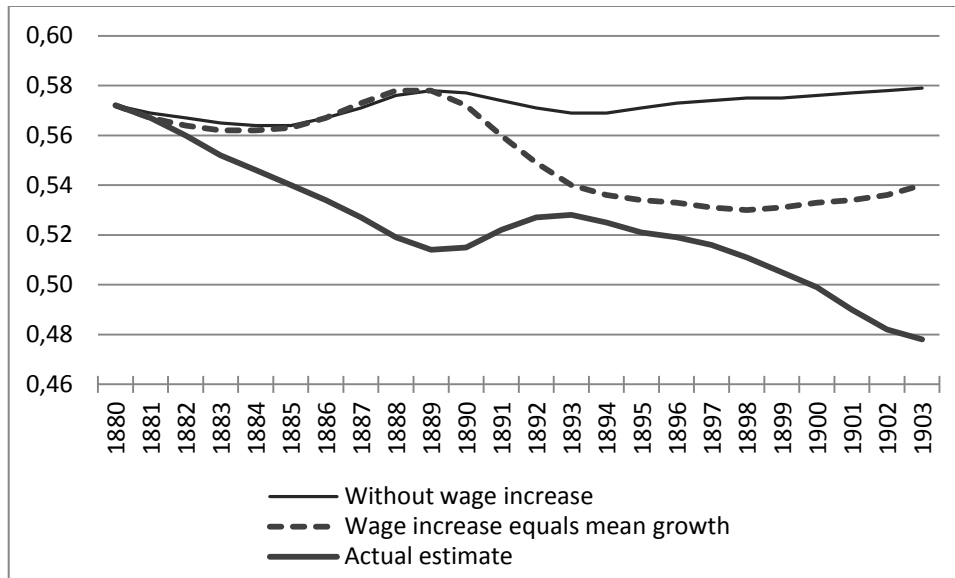
Therefore, as the demand of labor was increasing as a consequence of the emerging nitrates industry, its supply diminished, especially in the rural zone of the Central Valley. Meanwhile, the growth of public education -enabled by state revenues collected over nitrates- initiated a slow but constant process of expansion of the middle sectors and an increase in the supply of skilled workers (Rodríguez Weber 2014: Cuadro AE 12). All of this led to a bigger increase in unskilled wages –especially in rural wages- than in the mean income and elite income (Table 2).

Table 2 Annual income by categories of income earners. Constant Shields of 1960								
		Total	Elite	Unskilled Labor		Skilled Labor	Workers	
		Mean	Top 1%	Urban	Rural	Total	Total	Total
1880-1884	Shields of 1960	298	7.425	299	121	214	1.735	311
1900-1904	Shields of 1960	428	8.183	412	231	324	1.811	445
1880-84/ 1900-04	Total Growth	43,9%	10,2%	37,7%	91,1%	51,4%	4,4%	43,4%

Source: Own estimate. See Rodríguez Weber (2014: Cuadros AE3, AE4, AE6 and AE7)

As the counterfactual exercise shown in Figure 4 demonstrates, the increase in unskilled wages was big enough to have an important equalizing effect.

Figure 4: Estimating the effect of the increase of wages on inequality. Gini coefficient, 1880-1903



Source: Own estimate

Why is it that we do not see the same evolution in other examples of frontier expansion during the same period like Argentina, New Zealand or Australia? Because in these cases the expansion of the frontier went hand in hand with a population explosion due to an important immigration process. In Argentina, for example, between 1875 and 1914 the supply of agricultural land increased from 55 to 83 million of hectares. But population growth was even more important, from 1.7 to 7.8 million in the same period. As a consequence, the hectares per capita decreased from 31 to 11. The same process is seen in New Zealand (Álvarez 2012). That is to say, in both cases it followed the opposite tendency than in Chile, when hectares per capita increased from 18 to 23 between 1875 and 1885.

The analysis of two Australian colonies enables us to take a closer look at the dynamic race between the frontier expansion and population growth and its consequences over the wage/rental ratio (Table 3). In Chile, on the other hand, the frontier was occupied –at least in this period- by the poor rural workers of the Central Valley, population barely grew, land became abundant relative to labor, and wages rose.

Table 3						
The race between frontier expansion and population growth and its distributional consequences in two Australian colonies						
	Victoria			South Australia		
	Hectares per capita	Hectares per capita (Index)	Wage/Rent (Index)	Hectares per capita	Hectares per capita (Index)	Wage/Rent (Index)
Circa 1861	27,5	234	568	107,3	100	117
1871	20,3	173	345	98,6	92	106
1881	17,1	146	184	188,4	176	199
1891	15,9	135	118	140,9	132	115
1901	15,2	130	105	86,9	81	81
1911	11,7	100	100	106,8	100	100
Sources: Álvarez (2012), Shanahan & Wilson (2007: Appendix I)						

In sum, unskilled wages increased at the same time that most of the profits generated in the nitrate sector went outside the country. As a result, inequality was reduced in a context of economic growth led by exports of natural resource intensive goods.

3.3 Zenith and decay of the “oligarchic republic”, 1903-1938

Between 1903 and 1913, the real mean income grew at an annual rate of 1.9%, the real income of the top 1% did it at a rate of 8.0%, and the wages of unskilled workers decreased at a rate of -1.5% (Rodríguez Weber 2014: Tabla 7.1). As a result, the total real income increased by 33%, the income of the top percentile rose 137%, and that of the ninety-nine remaining increased by 17%. In other words, the top 1% appropriated the 55% of the total growth of the period. How could this happen?

The crisis of 1873 affected the income of the elite, but not its power. Their control over the state was so total that it is accurate to talk about an “oligarchic republic” (Vial Correa 2010) or “aristocratic regime” (Reinsch 1909). When the effects of frontier expansion and internal migration passed, the elite could turn into almost the unique

beneficiary of the last decade of growth in the nitrate era.¹⁵ When growth declined after 1913, the elite could keep their privileged situation, unless until the effects of the crisis facilitated a social alliance between urban workers and middle sectors which in turn overthrew the oligarchic republic.

To talk about an “oligarchic republic” while studying the political economy of income inequality implies to take a theoretical stance. One can expect that under such a regime the state will promote policies beneficial for the elite in their conflicts with others social sectors. Hence, while much has been written and discussed lately about the implications that the oligarchic institutions can have on economic growth in the long run,¹⁶ the consequences for inequality are –I think- much more clear.

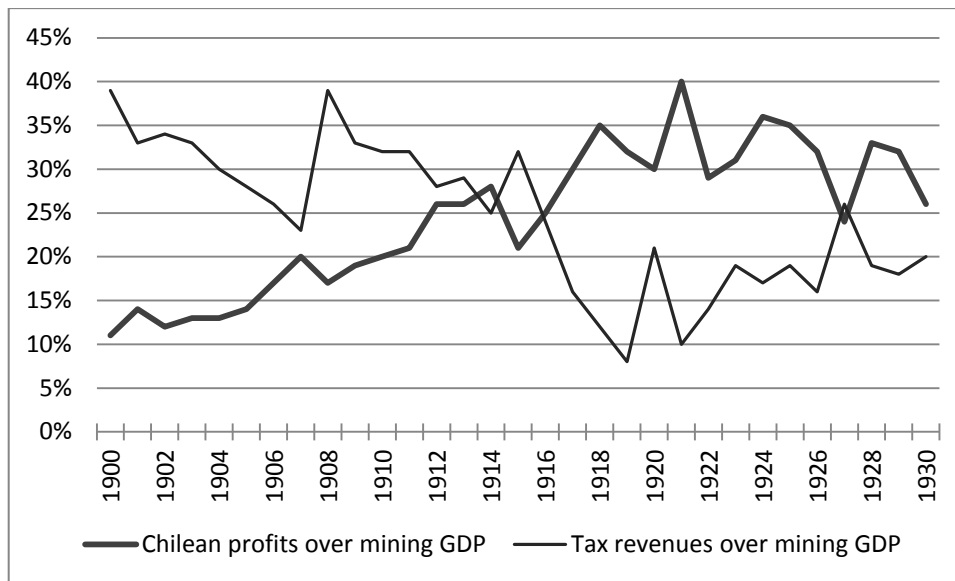
There were three causal mechanisms derived from the elite’s political control over the state, which allowed them to become the main beneficiary of the economic growth at the end of the nitrate era and which explain the rapid increase in income inequality between 1903 and 1913 shown in Figure 2.

Firstly, the elite took control over the nitrate industry. In fact, between 1901 and 1925 the participation of the Chilean capital in the industry increased from 14% to 68%. Meanwhile, the British share was reduced from 55% to 23% (Cariola & Sunkel 1982: Cuadro 16). At the same time, and this is a very suggestive coincidence, the portion of the mining GDP collected by the state as tax revenues was significantly reduced (Figure 5).

¹⁵ This time growth was led in the first place by increasing prices. Nitrates were used in the army industry, so demand increased in the decade before the Great War.

¹⁶ See Acemoglu et al. (2005), Coatsworth (2008), Bértola (2011), Dobado (2009) and Mahoney (2010).

Figure 5: Chilean profits and tax revenues collected in the mining sector as a percentage of mining GDP



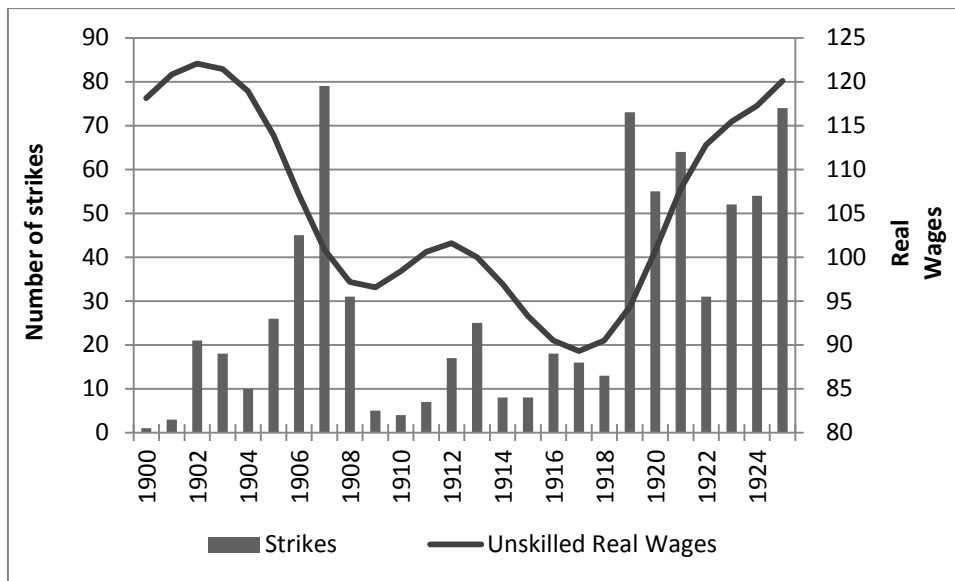
Source: Own estimate. See Rodríguez Weber (2014: Cuadro AE 16)

Secondly, during the decade before the Great War, a bad monetary policy led to increased inflation¹⁷ which affected the real wages in a context of income growth. When urban and mining workers organized in their recently formed unions and demanded an increase in nominal wages to match with inflation, as well as other improvements in labor conditions, they were wildly repressed. The massacre of 1907 in Iquique, when more than 2.000 mining workers and their families were strafed in a school by the army, became the bold symbol of the period.¹⁸ After that, the union activity fell obstreperously, as well as real wages (Figure 6). In sum, the unions could not prevent the fall in real wages and the economic growth directly benefitted the elite. But this was not the result of “impersonal market forces”. It was, instead, the direct consequence of the policies carried forward by the oligarchic republic in favor of the elite.

¹⁷ The increase in the Consumer Price Index was 10% in 1905, 17.3% in 1906, 24.4% in 1907 and 12.2% in 1908 (Matus 2012).

¹⁸ The number of workers dead as a consequence of state repression during this period was similar to the Chilean casualties during the Pacific War.

Figure 6: Index of real wages for unskilled workers (1913=100) and number of strikes in Chile, 1900-1925



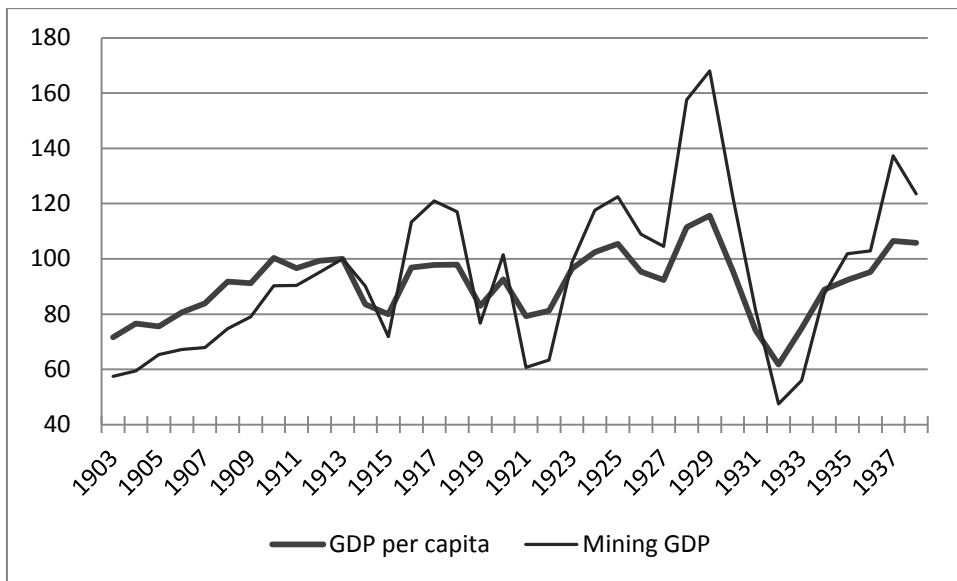
Sources: Strikes: Pizarro (1988: cuadros 2 y 7). Real wage tendency: own estimate.

Thirdly, the property rights over the land taken from the *mapuches* in the South were now regularized in a way that systematically benefited the great landowners in detriment to the *mapuches* and the people who had settled there in the previous period. At the end, the control of the elite over the state guaranteed that the *Hacienda* system expanded to the frontier (Solberg 1969; Bengoa 1988; Almonacid 2009).¹⁹

These are the fundamental mechanisms that explain the rapid increase of income inequality between 1903 and 1913. After that, inequality remained high, but the economic context changed radically. Between 1913 and 1938, the economic growth rate was barely above 0%. This was the net result of a spasmodic style of growth characterized for a succession of periods of expansion followed by deep recessions, caused by the exhaustion of the nitrate-led growth cycle (Figure 7).

¹⁹ See also Rodríguez Weber (2014: 227-232).

Figure 7: The end of the nitrate cycle. GDP per capita and mining GDP. Index 1913=100



Source: Díaz et al. (2010)

This situation of stagnation with volatility, if not affected the privileged place of the elite in economic terms, at least undermined its political role. The fiscal crisis provoked by the war and the crash of 1929 affected, first, the middle urban sectors –much of them civil servants-, which saw their incomes fall, coming near that of the blue collar workers (Figure 8). This, together with the increase in the strikes –by that time the unions had recovered from their defeat of 1907- fed social turmoil and the crisis of the aristocratic regime.

Figure 8: Skilled Real wages and its gap with unskilled wages in the decay of the oligarchic republic



Source: Own estimate

The oligarchic republic was in steep decline. After 1920 different presidents acceded to the government against the elite’s desires -something unthinkable a few years earlier. In 1938, after two decades of strong turbulence in the political sphere –which included two dictatorships and a first attempt to set up a socialist republic- the elections were won by the *Frente Popular*, a left-wing alliance formed by social democrats, socialists and communists. With it, the mesocratic republic was born.

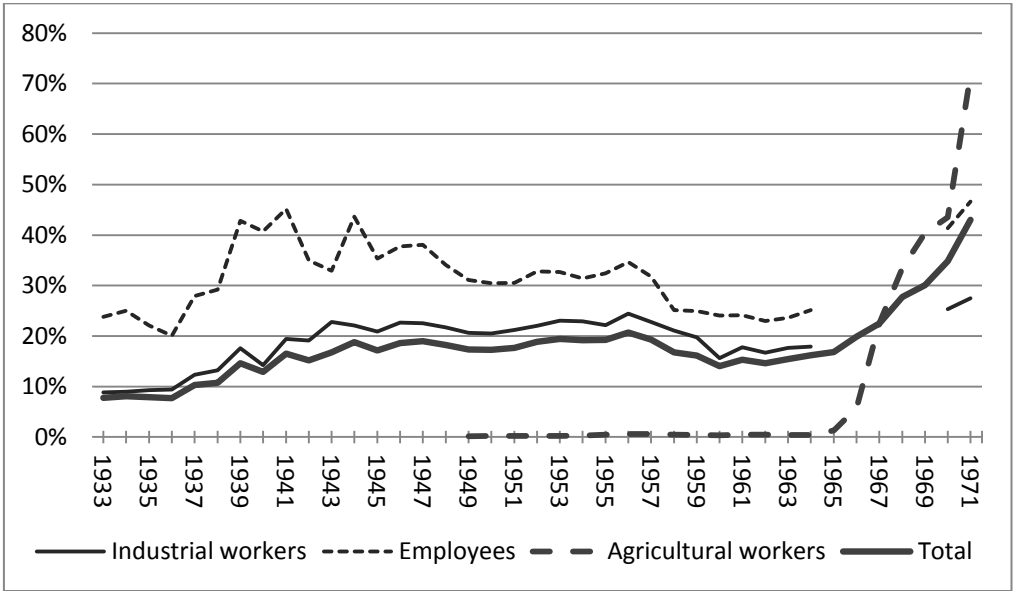
3.4 Achievements and pitfalls of the mesocratic republic, 1938-1973

The period 1938-1973 was one of an increasing role of the state regulating economic activity. Its influence was particularly important in the promotion of industry and affecting relative prices. This, jointly with the new international context, led to a structural change in three important and related fields. First, it accelerated the urbanization process. Between 1940 and 1970 urban population increased from 53% to 75%. Second, it was a structural change in the productive structure. This can be analyzed both in terms of sectorial GDP or working force. As elsewhere in Latin America, this was an era of industrialization (Thorp 1998; Bértola & Ocampo 2012). Between 1935 and 1970 the industrial share in GDP increased from 12% to 23%. Meanwhile, agriculture and mining fell from 9% and 15% to 4% and 6% respectively. In terms of the labor force, the structural change was characterized by the fall in agriculture and the expansion of services. Third, there was the structural change between categories of workers due to the expansion of the

employees. Between 1940 and 1970 white collar workers increased from 14% to 39% of the total labor force, and from 21% to 47% of the urban workers (Rodríguez Weber 2014: Cuadro AE 12).

At the same time, the political scene was increasingly dominated by left-wing parties and unions. The center-left controlled the executive between 1939 and 1952, and again between 1964 and 1970, first under the Popular Front, and later under the Christian Democratic Party. Furthermore, between 1971 and 1973, Chile passed through a revolutionary process under the presidency of Salvador Allende. As can be seen in Figure 9, the new political context of the forties and sixties was correlated with an increase in the union activity.

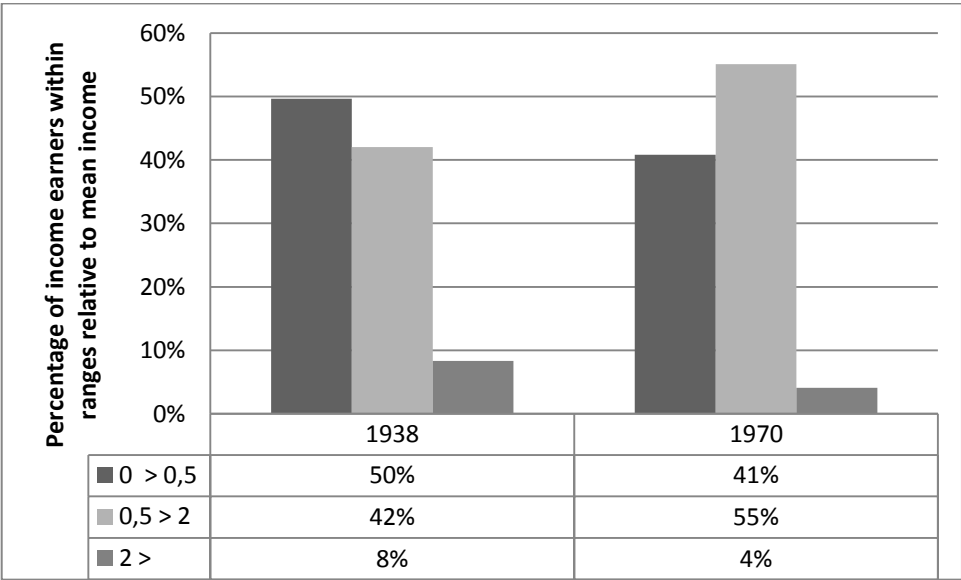
Figure 9: Unionized workers as a percentage of total labor force by category, 1933-1971



Source: Own estimate. See Rodríguez Weber (2014: Cuadro AE 19)

During these years, inequality fell as a consequence of various acting forces. Only in the fifties was this trend partially reversed (Figure 2). The mechanisms by which distribution was improved were of two types. First, the process of structural change, which undermines the importance of a sector being highly unequal (agriculture) in favor of the urban economy, where inequality is lower. More important was the increase in the middle sectors -mainly employees-, which meant that an augmented portion of workers earned salaries nearer the mean of the distribution (Figure 10).

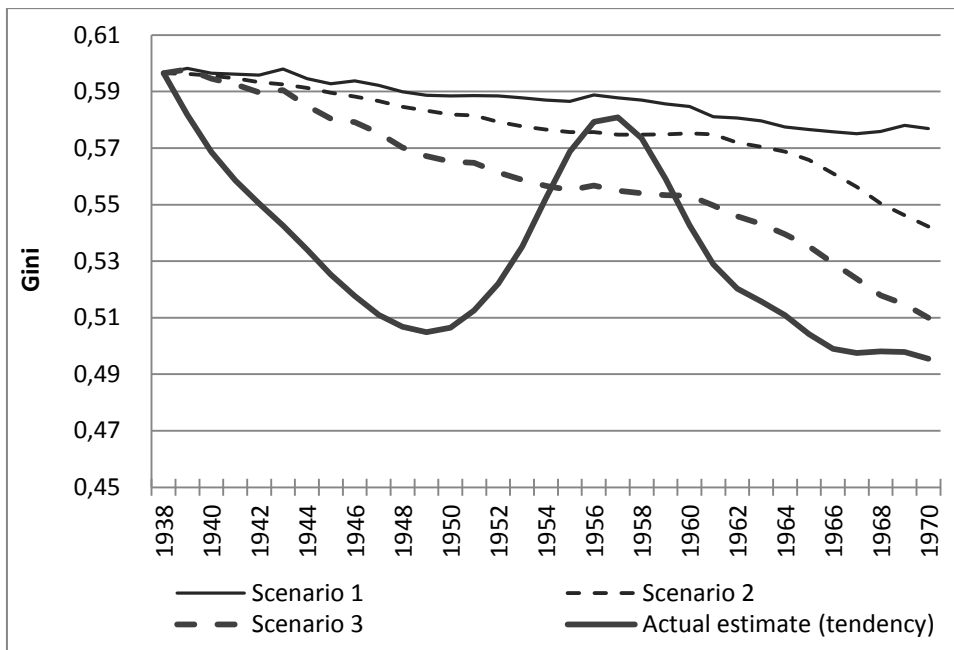
Figure 1: The expansion of the middle sector. Percentage of income earners within ranges relative to mean income



Source: Own estimate.

The combination of both processes of structural change, between sectors and between categories of workers (that is, the increased importance of employees) had a strong equalizing effect, especially in the forties and sixties when the process accelerated. This can be seen from the counterfactual scenarios presented in Figure 11. The purpose of the exercise was to capture the effect of the different aspects of structural change on income inequality, so the level of income for each category was maintained constant at its level of 1938. In the first scenario, income inequality was estimated assuming that the structural change was only due to the migration of unskilled workers between sectors. Thus, scenario 1 captures the effect of the rural workers moving on to urban unskilled jobs. In scenario 2, inequality was estimated assuming no structural change between sectors but only between categories of workers, i.e. between blue collar workers and white collar employees. Thus, this scenario captures the effect of the expansion of the middle sectors. Finally, in scenario 3 income inequality was estimated assuming shifts between sectors and categories of workers but, as in the others scenarios, income level remained constant for all categories. As can be seen, if only this had occurred, then income inequality would have fallen in the whole period in a magnitude that is similar to what is seen in the actual estimate.

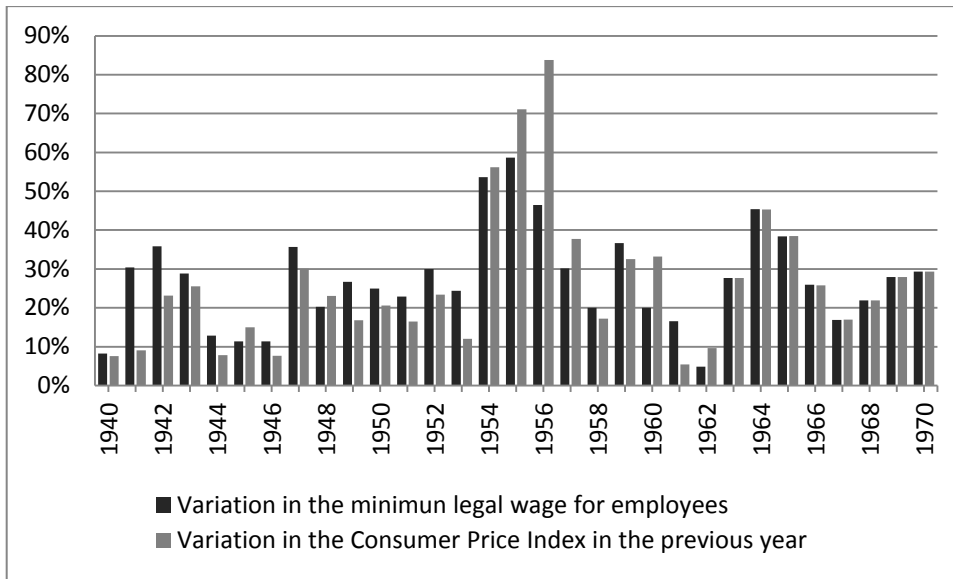
Figure 2: Estimating the effect of structural change on income inequality reduction



Source: Own estimates. See text for descriptions of the different scenarios

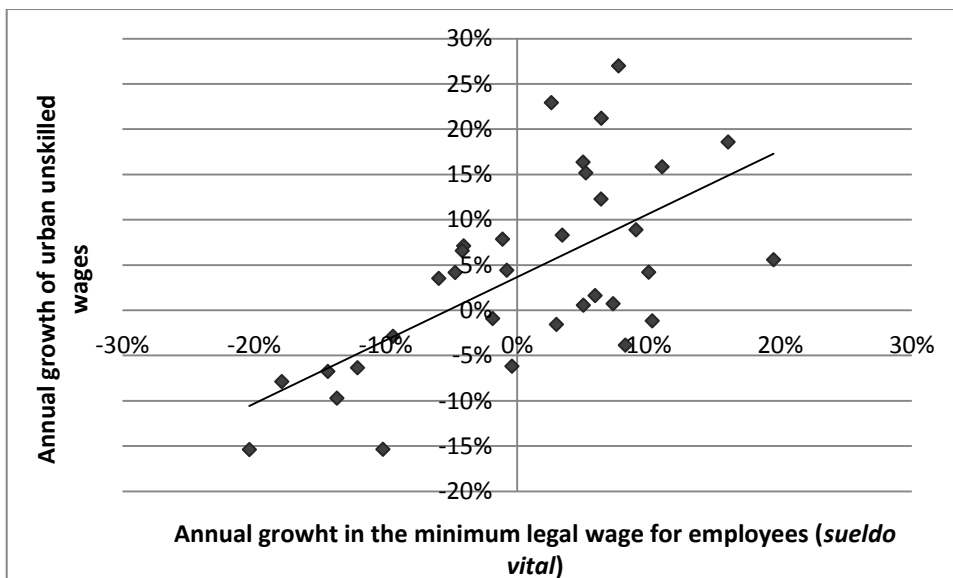
The second kind of mechanisms was related to the effect that the new political context had in the labor market institutions. During the forties, both government intervention –especially through the implementation and increase of the minimum wage for employees- and union activity, favored an increase in the income earned by the poorest of the white collar workers. Between 1940 and 1953, minimum wage systematically increased above the inflation rate of the previous year (Figure 12), a policy that not only reduced inequality within employees –the Gini coefficient for employees fell from 0.40 in 1939 to 0.28 in 1950 (Rodríguez Weber 2014: Cuadro AE 22)-, but also affected blue collar wages (Figure 13).

Figure 12 Percentage of variation in the minimum legal wage for employees and past inflation, 1940-1970



Sources: minimum wage for employees (sueldo vital): CPI: Díaz et al. 2010

Figure 3: Correlation between variation in the minimum legal wage for employees and urban unskilled wage growth, 1939-1971



Sources: minimum wage for employees (sueldo vital): INE Chile s/f. Unskilled urban wages: own estimates.

Nevertheless, the redistributive goal was put in second place as inflation became the first policy concern. As it accelerated, the minimum wage lost its role as a redistributive tool during the fifties; real wages fell, and income distribution worsened for a while (Figure 2).

During that time, conservative forces gained influence and a monetarist adjustment was attempted.²⁰ The goal was to freeze wages at the reduced level that they were after the inflation accelerated. Whereas during the forties the increase in the legal minimum wage for employees was a tool to promote real wage growth, now it was used as a way to contain the growth of prices. Nevertheless, this policy was impossible to implement under the institutional conditions of the mesocratic republic. The white and blue collar unions fought against the monetary policy, and it was progressively abandoned (Figure 12).

In the sixties, the redistributive agenda took a new impulse, and it now reached the countryside. The agrarian reform led by the Christian Democratic government was the last attempt to transform the structure of inequality under capitalism. It ended with the *Hacienda*, the ancient institution which had its origins in the *encomienda* system of the colonial times (Loveman 1976; Santana Ulloa 2006; Rodríguez Weber 2013). This path of transformation was reinforced by Allende's victory in 1970. In that election, a vast majority of Chileans –those who elected Allende, but also who voted for the Christian democrat candidate Radomiro Tomic- opted to deepen the structural reforms. However, the permanent riots, the social convulsion -both in the city and the countryside-, and the attempt to build a socialist economy, alarmed a vast part of the middle sectors, which by 1973 sided with the elites in opposition to the government. The final step was taken by the military coup which overthrew Allende on September 11th of 1973.

3.5 The legacy of repression and the debt of democracy, 1973-2009

While the period 1973-2009 exhibits a unique style of development, characterized by the return to a strategy of export-led growth, the withdrawal of the state of the economy and the centrality of the market in allocating resources, it is useful to distinguish between two different stages when analyzing the main trends. These differ, firstly, in the form of government. Between 1973 and 1989 Chile was under the dictatorship of General Pinochet, whose regime was guilty of massive violation of human rights. Those years the state repressed organizations which -like political parties and trade unions- play a central role in the distributive conflict. This was also a period of high economic turbulence - marked by two deep recessions in 1975 and 1982/83- and modest economic growth.²¹ It

²⁰ Due to the Klein-Sacks mission.

²¹ 1.5% per year between 1973 and 1989.

was under such circumstances that inequality reached the high level that it has until today (Figure 2). Since 1990 Chile is governed by a democratic political system in which, beyond the limitations that we will discuss later, the government is elected by citizens who have all the rights that we usually associate with democracy. This period was characterized by greater stability and higher levels of investment, which resulted in a higher growth rate.²² Nevertheless, the Centre-left coalition that ruled Chile between 1990 and 2009 – formed mainly by Socialists and Christian Democrats, the same parties that led the redistributive policies under the mesocratic republic- was incapable to reduce the extreme level of inequality which inherited from the authoritarian regime. If inequality is the main legacy of Pinochet and the Chicago boys²³, it's also the main debt of Chilean democracy.

The high level of inequality that Chile faces today arose in a highly repressive political context, characterized by the prohibition of political parties and the repression of the trade unions and -more generally- any kind of opposition. It was under these circumstances that the military dictatorship led by General Pinochet and his advisors promoted a radical transformation of the economy and society of Chile (Gárate Chateau 2012). Inequality arose because the policies carried forward by the Chicago boys tended to redistribute in favor of the elite. This was evident both in the structural reforms they boosted as well as in the short-term measures they adopted in response to the crisis of 1975 and 1982. As any kind of opposition was wildly repressed, nobody could face the fierce adjustment that followed the crisis of 1975 and 1982. The combination of high inflation, unemployment and repression sank real wages. Poverty rocketed²⁴ and income distribution worsened radically in few years (Table 4).

²² 3.7% per year between 1989 and 2010.

²³ This is the name adopted by the technocrats who studied in Chicago University and headed the neoliberal economic policy during the Pinochet dictatorship.

²⁴ In 1989 39% of population was under poverty line.

Table 4							
Repression, economic turbulence and inequality							
	Workers under strike	GDPpc growth rate	Real wage index	Real wage growth	Inflation rate	Unemployment rate	Gini
1973	920.737	-7%	100	-35%	606%	nd	0,46
1974	0	-1%	79	-21%	369%	9%	0,45
1975	0	-14%	76	-5%	343%	16%	0,48
1976	0	2%	79	5%	199%	19%	0,53
1977	0	8%	87	9%	84%	18%	0,53
1978	0	7%	91	6%	37%	17%	0,53
1979	10.895	7%	100	9%	39%	17%	0,52
1980	18.256	6%	109	9%	31%	17%	0,52
1981	24.504	5%	117	8%	10%	15%	0,53
1982	1.070	-15%	117	0%	21%	26%	0,54
1983	5.605	-4%	105	-10%	23%	31%	0,54
1984	3.685	4%	105	0%	23%	25%	0,57
1985	4.468	0%	100	-5%	26%	22%	0,54
1986	3.816	4%	102	2%	17%	17%	0,54
Sources: Jadresic (1990: Cuadro 2), Meller (1998: Cuadros 3.3 and 3.27), Díaz et al. (2010), and Rodríguez Weber (2014: Cuadro AE 1)							

But the legacy of inequality that Pinochet and the Chicago boys left to Chilean democracy was settled in its structural transformations. First, the privatization of public enterprises and services –made in a highly opaque context (Mönckeberg 2001, Gárate Chateau 2012)- implied that profits could now be made from selling services that were considered rights few years before. Instead of the perfect competition markets that were promised by the Chicago boys who led the transformation, these services were increasingly provided by oligopolies which extracted huge profits by providing services that were once provided by the state (Solimano 2012).²⁵

Secondly, the liberalization of the labor market, where a reform was introduced with the explicit aim of debilitating union’s bargaining power (Coloma & Rojas 2000), left the vast majority of workers unarmed to face the power of the huge economic groups born under the dictatorial rule. And that is the third structural change provoked by the dictatorship that anchored inequality until 2009. The extremely rich elite,²⁶ whose

²⁵ Even *The Economist* admitted that Chilean capitalism had several problems on this subject. See <http://www.economist.com/node/21552566>

²⁶ According to the population of their country, Chilean billionaires are overrepresented in the Forbes list. Related to Chile’s GDP, their fortunes are also bigger than in most countries.

economic and political power is similar today to what it was during the oligarchic republic at the beginning of the twentieth century,²⁷ impose formal and informal rules that undermine the Chilean democracy (Garretón 2003; Gárate Chateau 2012). Even under democracy, the elite have been able to stop the timid attempts made by the government to improve income distribution. These, jointly with the fears of the parties which ruled between 1990 and 2009 that progressive policies like labor reform could destabilize the economic and political system, explain why inequality did not improve after twenty years of Centre-left governments. Inequality still is, as Michele Bachelet recognized, the major debt of democracy.

4. Income inequality in Chile: past, present, future

One of the main arguments of this paper is that to achieve a better understanding of the relationship between inequality and development, it is necessary to acknowledge the fact that we are dealing with a historical problem which develops over time. This implies that the factors that drive inequality and shape its evolution over time develop in a changing context. Institutions or “the market” have always been important, but their role has changed as the relationship between inequality and development has altered itself.

Chilean inequality has changed over time because it is part of the broader historical process. Among the market forces that have had an impact on income distribution it is useful to distinguish between those affecting the supply side from those acting over the demand of productive factors. The former include the frontier expansion, which in turn increased the land/labor ratio, and the expansion of education, which fueled the supply of skilled labor. Among the latter, of most importance were the changes in the market for Chilean exports. Finally, the processes of structural change -industrialization, urbanization and the expansion of the public sector-, have affected both the demand and supply of labor, resulting in a reallocation of labor between sectors and categories of workers. However, changes in supply and demand of productive factors have never acted separately, and its consequences for inequality have always been mediated by the institutional environment. For example, the capacity of collective actors to build organizations like trade unions in defense of their interests, as well as the relationships –usually conflictive- they built with

²⁷ Between 1913 and 1937 the 28% of income went to top 1% of income earners. In the first decade of twentieth one century the proportion was about 30% (Rodríguez Weber 2014: Tabla 9.5).

others players in the distributive conflict influenced the development of redistributive policies carried forward by the state, as well as the institutions governing property rights and factor markets. On the other hand, state intervention as a relatively autonomous player influenced not only the capacity of the agents to succeed in the distributive conflict, but it also affected the prices of relative factors. In other words, markets and institutions were the two sides of the same coin. It was the development of their relationship as a part of the general historical process which shaped inequality trends.

Nevertheless, to say that history matters implies not only that things changed over time, but also its persistence, a fact whose importance over the present and future of Chilean inequality is difficult to overestimate. At first sight, the fact that Chile is nowadays one of the most unequal countries in the world is due to the policies carried forward by the Chicago boys under the dictatorship. But a closer scrutiny shows that this was the last – although the nastiest- episode of a series in which the state assumed a role in promoting inequality. And this is, in turn, a consequence of a long term trend: the control of the elite over the state, which allows it to shape the economic and political institutions in its favor. The mere fact that the only period in which attempts to erode the power were made -the mesocratic Republic- ended in a brutal dictatorship, and that the center-left governments who ruled Chile between 1990 and 2009, did not even make the attempt is proof of this persistence. In this sense, and similarly to the argument developed by Sánchez-Ancochea in his chapter for this book, to achieve a better understanding of Chilean inequality today, but especially to forecast what might happen with it in the future, it is essential to analyze how the actual economic and political power of the elite evolves. A power that is rooted in the high concentration of wealth and the oligopolistic market structure -especially in the export sector and the privatized areas- and that has a great influence over political parties and state agencies²⁸ not only promotes high inequality of wealth and income, but also undermines democratic institutions. This is well understood by those in the civil society who are claiming -like the Chileans who lived in first quarter of twentieth century-, for a better democracy.

²⁸ The scandals which exploded at the beginning of 2015 over the role of the PENTA Group –a holding which has its origins in the privatizations made under Pinochet- in political financing, tax evasion and bribery, is the most recent –and evident- example of this “incestuous relationship between money and politics” as Marta Lagos called it. See “Executives Are Jailed in Chile Finance Scandal”, the *New York Times*, March 8, 2015, page A9.

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