

# Growth, inequality and extraction in Ibero-American democratizations\*

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## Abstract

Will democracy improve the distribution of economic welfare? Do dictatorships leave long-run legacies behind? In this paper we explore four Ibero-American countries with some common historical traits, but also different contexts: Spain, Portugal, Brazil, and Chile. The two Iberian nations suffered long periods of autocratic regime in the 20th Century, while our south American cases had relatively later and shorter dictatorships.

We intend to assess the extent to which democratization brought about improvements in societal welfare, combining indicators of inequality and economic performance. We propose the applicability of the concept of Inequality Extraction Ratio, initially suggested for ancient societies but adapted by Milanovic (2013b) to the analysis of contemporary economies. Our hypothesis is that democratizations, while probably not able to achieve reductions in inequality, could have promoted decreases in relative extraction.

**Keywords:** democratization, income inequality, inequality extraction ratio, welfare

**JEL codes:** I31, N33, N36, D31

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# 1 Introduction

Expectations on democracy are high. If we look at several historical events, there is always hope in the transition from a dictatorship to a democratic regime. These expectations are not only related with freedom of speech, independent judiciary or periodical elections; normally there are also aspirations of a more prosperous future in economic terms. Growth, equality and increasing welfare for all are expected to come along with democracy. In July 1977, a Spanish weekly journal titled one editorial "Time for economic democracy", and wrote:

*"Never in this country has there been so much anticipation before the announcement of economic measures as now. [...] What may now be decided in Spain, through debate and confrontation between all groups interested in firmly establishing democracy, is not just replacing a political model, but also to establish the basis for a deep social reform, aimed at something more than to remedy evils inherited from Francoism".<sup>1</sup>*

But how do these expectations match with reality? Are there real and tangible improvements in income equality after democratizations? For example, the Gini coefficient in Brazil during the authoritarian period fluctuated between a lower level of 56 and a maximum of 60. In the subsequent democratic period these figures were 53 and 62 respectively.

The two Iberian countries, Portugal and Spain, suffered long authoritarian periods and their almost peaceful transitions from dictatorship to democracy were fuelled with expectations in welfare improvement. The dictatorship in Portugal lasted almost fifty years, and was defeated by an internal *putsch* developed by young officials. Meanwhile, in Spain a brutal Civil War (1936-1939) was followed by forty years of dictatorship personalized in the figure of Francisco Franco, who died in 1975. Two Latin American countries, former colonies of the aforementioned European states, Brazil and Chile are characterized by quite particular dictatorships. In the case of Brazil, a *sui generis* authoritarian regime (1964 - 1985) with elections and political parties; meanwhile, Chile was ruled by a dictatorship (1973 - 1990) which transformed the economic system from a state planning model to an almost entirely free market framework.

The departure point for this research is an initial observation of cases where inequality did not decrease significantly after transitions to democracy (Torregrosa, 2016, 2015b; Guilera, 2010; Rodríguez Weber, 2015). This seems counter-intuitive at first, according to classical political

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<sup>1</sup>*Cuadernos para el Diálogo*, 220, 16 to 22nd July 1977, p. 11, "La hora de la democracia económica". Authors' translation of: "Nunca ha existido en este país tanta expectación ante el anuncio de medidas económicas como se registra ahora. [...] Lo que ahora puede decidirse en España, a partir del debate y la confrontación entre todos los grupos interesados en establecer sólidamente la democracia, es no sólo la sustitución de un modelo de funcionamiento, sino también, las bases de una reforma social profunda dirigida a algo más que a remediar los males heredados del franquismo".

economic models in the Meltzer and Richard tradition. A way to try to make sense of it is hypothesizing that a persistent level of inequality (measured by the Gini index) could coexist with decreasing levels of extraction, understood as the appropriation of national economic surplus by the country's elites. Democratization, in this sense, would be having a positive distributive outcome (measured by Milanovic, 2013b's Inequality Extraction Ratio), but this would not be picked up in conventional measures of the income distribution. This would be the case if democracies at the same time triggered significant increases in economic growth (or just coexisted with them), pushing up the availability of surplus and therefore the frontier of "possible" inequality. The basic exercise of the paper is to contrast the trajectories of these four countries in the period 1945-2000, specifically looking at the periods of transition to democracy. In each case, we will assess the results in comparison with similar groups of countries (European periphery and South America), to avoid using the most developed Western countries as a reference, which may be less revealing.<sup>2</sup> We first look at growth, then at state finances and income redistribution, finally at the resulting levels of inequality and extraction. We aim to also include, in further versions of the paper, dimensions such as human development and political participation.

The paper is organised in the following way. We first briefly review the literature on democratization and inequality, introducing our theoretical framework and hypotheses (section 2). Then, we examine the production area (economic growth and structural change, section 3), which will determine the level of incomes, the distribution arising from the market, and the maximum attainable levels of inequality. In section 4 we introduce the redistributive policies of the national governments. Section 5 subsequently places the focus on the resulting income distribution, presenting the levels of inequality and extraction. We develop some modifications to Milanovic (2013b)'s indicator, to improve its applicability to our objective. Finally, section 6 concludes, presenting some preliminary reflections and also pointing towards work envisaged for the near future.

## **2 Theoretical framework and previous literature**

Political economy literature has normally depicted democratizations as a result of distributive conflicts, therefore expecting reductions in inequality after these episodes. This is the basic approach in Acemoglu and Robinson (2001) and Boix (2003). Income inequality would be reduced in a more democratic context, as an effect of voting on redistributive politics – even though Boix also suggests that too high redistributive pressure may hinder democratization.

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<sup>2</sup>In the case of Latin America, there has been a continuous attempt to compare with the USA (Engerman and Sokoloff, 2012), but this analysis often misunderstands the American exceptionalism in economic history (Allen, 2014).

Gradstein and Milanovic (2004), in an extensive survey of the literature, provide some evidence on increased redistribution after democratic transitions. This goes in the same line as Lindert (1994)'s assessment of voting rights (specially women's) to have exerted a positive push for increases in social spending in the period 1880-1930 – although his main explanatory factor is population ageing. On the other hand, (Rodrik, 1999) has provided evidence on democratic institutions positively impacting on the level of manufacturing salaries – i.e., on “pre-distribution” in the market.

Does this increase in redistribution, and probably other policies like labour market regulations, lead to a corollary of decreasing inequality? While the literature has pointed this for some cases (e.g. Justman and Gradstein, 1999), this is not an empirical regularity. Indeed, in the historical cases of Portugal (Guilera, 2010) and Spain (Torregrosa, 2016, 2015b) income concentration did not reduce itself significantly after regime change. On the contrary, Gini indices remained more or less unchanged and top income shares show an increasing trend in the last decades of the 20th Century. This occurred in spite of significant tax reforms which introduced progressive elements, and of an expansion of social expenditures in the new welfare states.

Acemoglu et al. (2013) suggest several reasons as to why there is no robust negative relation between democratization and inequality: capture of the decision-making process by elites (Acemoglu and Robinson, 2008), targeting of the redistributive benefits towards the middle class (Director's law), or increased structural change because of extension of economic opportunities, leading to widening market inequalities. We are particularly interested in the possible persistence of dictatorship effects during democracy, an "*authoritarian legacy*". To identify this kind of effect we need to make a more localized research, because cross-country regression studies may fail to capture historical particularities.

In relation to the third point, that of increases in growth, the influence of political regimes on economic development (or the other way around) has been a recurrent research topic. The literature has abounded on the expected positive effects of democratic or "inclusive" institutions on growth (North, 1990; Acemoglu et al., 2002; Easterly and Levine, 2003; Rodrik et al., 2004). The debate is not set, since some scholars, in the tradition of Lipset (1959), argue for the opposite direction of causality being more prominent (Barro, 1999; Przeworski et al., 2000; Glaeser et al., 2004; Przeworski, 2004).

If we turn to our cases, we will see that in some of them periods of high growth took place under dictatorship, while democracy coexisted with comparatively disappointing performance. This has been previously noted for example by Freire Costa et al. (2016):

*"Growth in the post-war period up to 1973 occurred in countries under different political environments, including full democracies, socialist regimes closed to the more dynamic West and closely linked to the Soviet Union, or, as was the case of Portugal, Spain and, partially, Greece, market - oriented dictatorships increasingly integrated within Western Europe. From this range of experiences, it is clear that the nature of political regime can only partially explain the speed of growth and convergence in this period" (p. 325).*

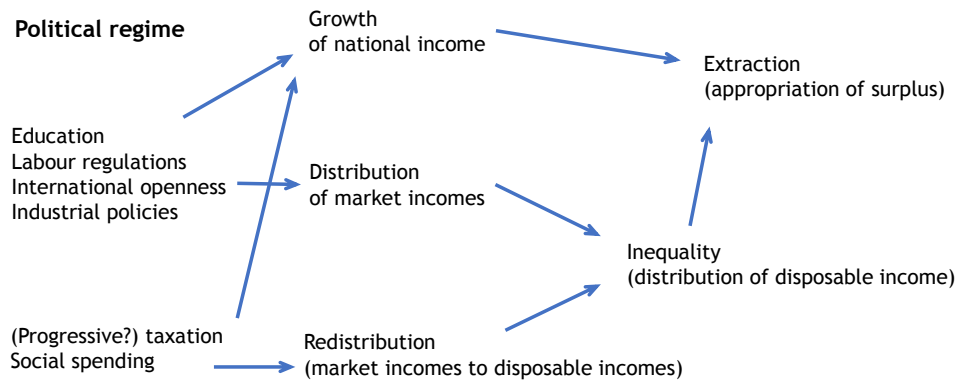
In this paper we propose a framework for thinking about the impacts of regime type on the general welfare of the population, which is arguably the result of both the income level and its distribution. We depart from the concept of extraction, understood as the appropriation of surplus over the basic subsistence of the population. This is an interesting indicator, since it relates existing inequality to the "maximum attainable" in a given society, which makes sense in the context of modern economic growth (it was introduced to facilitate comparisons between countries at different levels of income). In this sense, it is an approximation to the idea of "inclusiveness" in growth. We will make use of the Inequality Extraction Ratio, an indicator suggested by Milanovic et al. (2011) for the study of pre-industrial inequality. Milanovic (2013b) expanded on this idea and tried to apply it to contemporary societies.

Ultimately, the evolution of observed inequality and extraction in a society is the result of multiple, potentially counter-acting forces. The political regime might have an impact on several of them (see figure 1). We could expect it to make a difference in the growth and distribution of market incomes, by means of education, labour regulations, openness, industrial policies.<sup>3</sup> We certainly would also expect it to change how the public budget redistributes resources from gross to net incomes by means of progressive taxation and, especially, social spending. It is the combination of these two dimensions, both influenced by the public sector, that will lead to given levels of inequality. And extraction.

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<sup>3</sup>The paper does not tackle the issue of market income distribution, but rather takes it as given. Of course, the elements shown in the figure are also influenced by exogenous variables, such as endowments, the international trade regime, and so on.

Figure 1: The possible distributive impacts of the political regime



Source: authors' elaboration.

### 3 Economic growth and structural change

Several studies on the economic performance of Brazil, Chile, Portugal and Spain show relevant and deep structural changes during the authoritarian regimes. For example, in the case of Portugal, the economic effects by *Estado Novo* are expressed in the radical change on the exports and import baskets after decades of protectionism (César das Neves, 1996). The present section describes the stylized facts of economic growth in our cases with their respective international comparison.<sup>4</sup> The indicators chosen to describe the economic performance are GDP per capita, share of manufacturing on GDP, and rates of capital formation.

#### 3.1 GDP per capita

During the period 1945 to 2010, average GDP per capita growth rates in our countries range from a lower bound of 2% in Chile to a higher figure of 3.6% in Spain. The Latin American countries display lower growth (see table 1).

Both Spain and Portugal had their best performance under the first sub-period shown (1945-1973), which coincides with the Western European “Golden Age” (Prados de la Escosura and Sanz, 1996; César das Neves, 1996), suggesting that the role of external and regional factors could have been more prominent than national policies in Iberian countries. After the oil crises growth decelerated substantially, following the pattern in other neighbouring countries, even though

<sup>4</sup>In Spain and Portugal with the European Periphery, and in Brazil and Chile with some other Latin American economies.

convergence in levels of GDP per capita had not been attained.<sup>5</sup>

Table 1: GDP per capita growth rates. Selected periods

	Brazil	Chile	Portugal	Spain
1945 - 2010	2.37	2.00	3.54	3.61
1945 - 1973	3.11	1.67	4.57	4.79
1973 - 1990	1.34	1.44	2.53	2.15
1990 - 2010	1.54	3.55	1.60	2.17
10 years before dictatorship	3.44	1.61	2.36	0.23
Authoritarian period*	3.85	1.44	3.00	4.26
10 years after democratization	0.08	4.84	2.32	1.81
20 years after democratization	0.62	3.55	2.83	2.52

Source: Bolt and van Zanden (2013).

\*1964-85 in Brazil, 1973-90 in Chile, 1926-74 in Portugal, 1938-77 in Spain.

Our Latin American cases had very different behaviours, both with respect to each other and when compared with their former colonizers. In Brazil, the dictatorship begun in the middle of intense structural transformation, already underway since the 1940s. Economic performance was very disappointing after democratization, but does not stand out when compared with other countries of the region.<sup>6</sup> Chile was one of the most prosperous countries in Latin America until the Great Depression and the Second World War. After the conflict, growth rates lowered and immediately before the 1973 *coup d'état* the industrialization model was clearly exhausted. From an economic point of view, the dictatorship had two different stages, the first one being characterised by strong and faster liberalization with positive results until the debt crisis arrived in 1982. Recovery started two years later, but some of the liberal policies were softened or even reversed.

Having seen so different experiences, can it be sustained that democratizations had an effect on growth? At least in the four cases presented, the rates before and after the authoritarian periods don't point towards clear answers to the question.

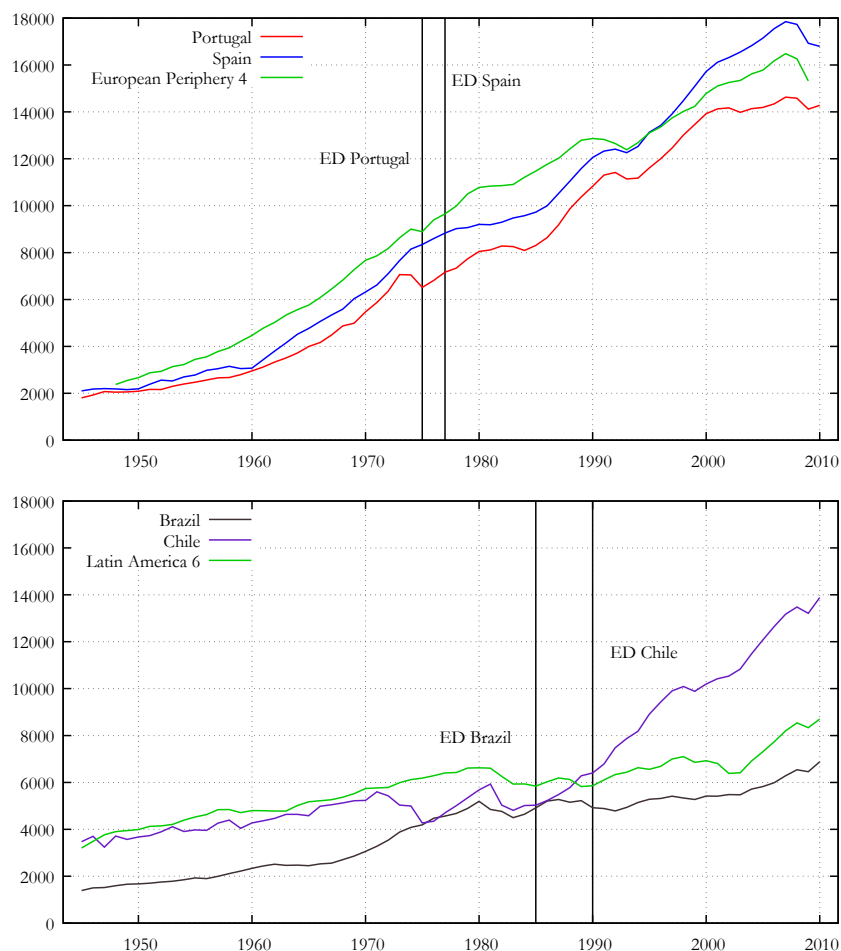
In figure 2, we compare each of our countries with a benchmark of their similar neighbours. We take a population-weighted average of four European periphery countries to contrast the Iberian growth experience: Italy, Greece, Ireland, and Yugoslavia. Brazil and Chile, in turn, are compared with the trajectory of Argentina, Colombia, Mexico, Peru, Uruguay, and Venezuela (also weighted average).

In our European group, Portugal and Spain do not stand out. They generally followed similar paths to the other countries in the continent's periphery (until the last half of the 1990s, when

<sup>5</sup>It is worth mentioning that GDP per capita is a potentially misleading measure for economic performance if there are changes in the periodization used to calculate growth rates.

<sup>6</sup>As is well known, the 1980s was the "lost decade" in Latin America and also in Africa (Bértola and Ocampo, 2012).

Figure 2: Regional experiences compared. GDP per capita (1945-2010)



Source: Bolt and van Zanden (2013).

'European Periphery 4' (Italy, Greece, Ireland, Yugoslavia) and 'Latin America 6' (Argentina, Colombia, Mexico, Peru, Uruguay, Venezuela) are population-weighted averages.

'ED': End of the Dictatorship.

Spain forges ahead). Something similar can be observed for Brazil, that has a trajectory quite parallel to that of its benchmark almost across the whole period. On the other hand, Chile lies at the average until 1973, but then lags behind under extreme volatility in the next one and a half decade. Recovery since the mid 1980s initiated a period of sustained growth, placing the country today as the richest in Latin America.

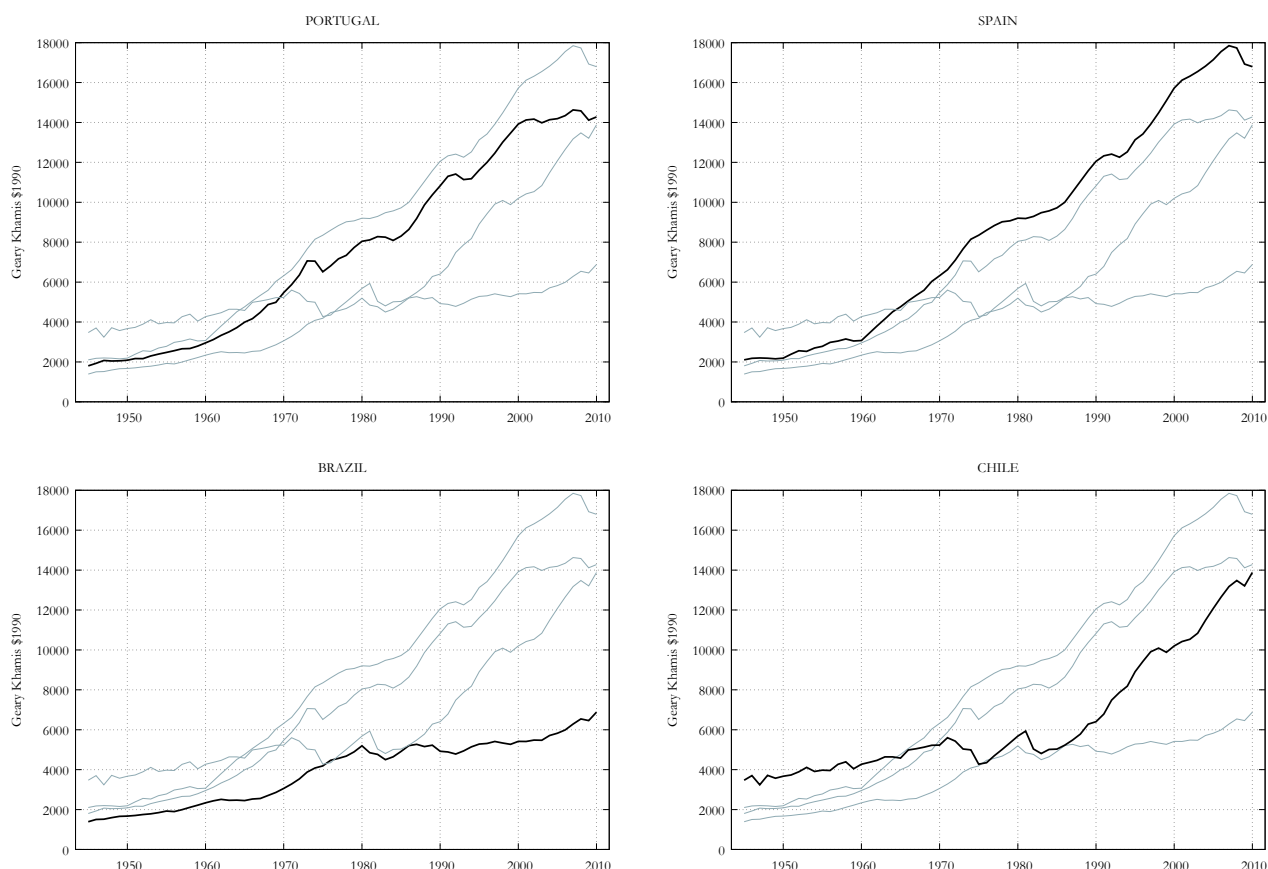
Similar to what was seen from the growth rates, in neither of the four cases can we see a clear break related to the democratic transitions. Maybe the economic inheritance of dictatorships were strong, or there have been stronger effects of the international context and the responses to external incentives, such as commodity prices and investment flows. Several tests looking for structural breaks in democratization periods have failed to find significant changes between authoritarian



regime and the transition to democracy<sup>7</sup>

Our selected countries around 1950 were in a interval of 1,700 - 3,700 GK \$ 1990 per capita (Brazil the poorest and Chile the richest one, see figure 3).

Figure 3: GDP pc GK\$1990. Brazil, Chile, Portugal and Spain. 1945 - 2010



Source: Bolt and van Zanden (2013)

## 3.2 Industrialization and capital formation

### Industry

One of the main aspects in the debate around dictatorships and economic development has been the industrial sector role. In Latin American countries, the deep impact of the Great Depression brought deep changes in regional economic model, from the primary-exports pattern to inward-looking industrial development (Bértola and Ocampo, 2012). In Spain, the initial attempts to

<sup>7</sup>As example, a previous work on Chile has founded outliers and structural breaks in years linked to crisis, showing a prevalence of economic volatility than effects of political regime. However, some of the outliers are present in Pinochet's autocracy (Metz, 2009).

promote industrialization were made under an autarkic frame, and had very limited success; by contrast, after 1959 economic reforms established a more market oriented model which eased integration and convergence with Western Europe (Prados de la Escosura and Sanz, 1996). The Portuguese experience displays some similarities, but industrialization levels attained were lower.

The weight of the manufacturing industry in GDP by subperiods is shown in table 2. Spain was the most industrialized country at the beginning, with a share of 25-30% of GDP in 1950-55. Brazil, Chile and Portugal had very similar percentages until 1960, when the latter started to industrialize steadily, reaching a peak of 30.6% in 1965.

Table 2: Manufacturing industry as percentage of GDP. Selected periods

	Brazil	Chile	Portugal	Spain
1945 - 2010	24.56	22.66	23.29	25.69
1945 - 1973	23.15	24.87	26.97	28.70
1973 - 1990	28.53	23.78	26.06	28.26
1990 - 2010	23.47	18.76	17.51	19.56
10 years before dictatorship	23.89	27.97	-	-
Authoritarian period	28.34	23.78	26.97	27.75
10 years after dictatorship	25.75	20.00	25.83	27.92
20 years after dictatorship	23.46	17.38	25.24	24.76

Source: Spain 1950-90 from Prados de la Escosura (2003), Portugal 1950-95 from Banco de Portugal (2016). Brazil and Chile from [Montevideo-Oxford Latin American Economic History Data Base \(MOXLAD\)](#) (accessed June 2016). For the period 1995-2010, all countries come from the World Bank (accessed June 2016).

## Capital formation

Several studies have shown the importance of capital formation for sustained growth in the long run, and we believe that our countries are not the exception. There are some comparative studies available on capital formation for Latin American countries (Tafunell and Ducoing, 2016), and national studies for the Iberian economies (Prados de La Escosura and Rosés, 2010; da Silva and Lains, 2013).

In the period 1950 - 1973, as pointed out in Tafunell and Ducoing (2016), capital formation rates were pretty similar in Spain (6.4), Portugal (5.8), Brazil (5.7) and Chile (4.6); see table 3. During the dictatorial period, fixed investment in the Iberian countries was particularly accelerated; however, this phenomenon is quite closely related to their low initial level. This is very clear in the case of Spain, where capital stock was affected by severe destruction during the Civil War (1936-39). In the other hand, Latin American countries have extremely different histories: Brazil had its fastest

capital stock growth rate during the dictatorial period; by contrast, Chile's best years in this respect were after the dictatorship (Tafunell and Ducoing, 2016).

To sum up, the three indicators analysed in this section show some interesting elements to consider. In the first place, growth rates, industrialization levels and capital formation seem quite related to external factors in Chile, Portugal and Spain, but to a lesser extent in the case of Brazil (probably determined by its size). Secondly, there are no significant structural changes in GDP growth between the authoritarian and democratic periods in Chile and Portugal, but in Brazil and Spain growth was higher under their dictatorships. And finally, industrialization and capital formation were promoted during authoritarian periods in all countries but Chile; however, trends in these variables did not exhibit huge differences between political regimes and could be related to changes in the world and regional markets as much as to internal economic policies.

Table 3: Capital Stock growth rates. Selected periods

	Brazil	Chile	Portugal	Spain
1945 - 2010	3.08	2.26	4.99	5.43
1945 - 1973	3.01	2.22	5.61	4.40
1973 - 1990	2.58	0.50	3.98	4.77
1990 - 2010	0.68	5.89	4.74	4.71
10 years before dictatorship	2.41	1.34	2.62	2.61
Authoritarian period	6.12	0.50	5.28	4.28
10 years after dictatorship	0.47	7.45	4.10	3.96
20 years after dictatorship	0.65	5.89	4.15	4.45

Sources: Brazil and Chile from Tafunell and Ducoing (2016), Spain from Prados de La Escosura and Rosés (2010), and Portugal from da Silva and Lains (2013).

## 4 Public sector redistribution

In our framework, an increase in redistribution is one of the expected effects of democratization. This section provides an overview of some indicators of this enhanced role of governments, via social spending, income and wealth taxation, and the joint distributive impacts of both. Nevertheless, this is an area of research where a lot is left to be done before we have comparable accounts.

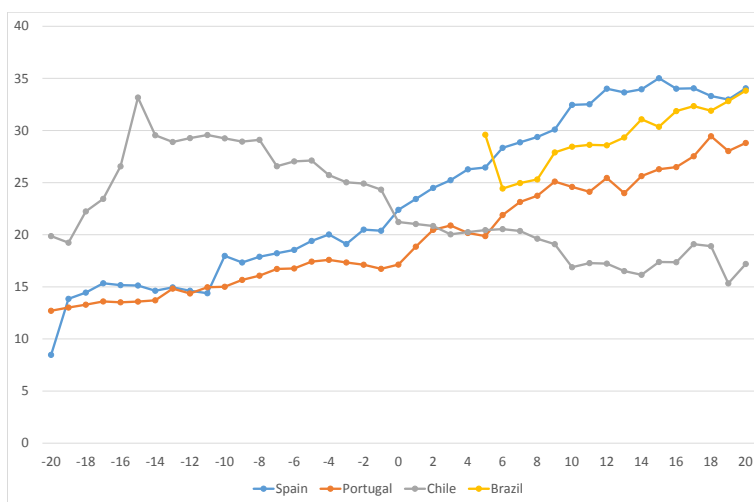
Democratization in some of our cases – and in other episodes of the "third wave" transitions – coincided with increases in economic openness in the context of the second globalization.<sup>8</sup> Two distinct theories have emerged regarding the relationship between international openness and

<sup>8</sup>Chile is an exception in this respect, since the liberalization of international trade was undertaken before, as part of the switch to neoliberalism during the Pinochet era.

social security systems: that of the "race-to-the-bottom" because of international competitiveness pressures versus the "compensation hypothesis" that posited an increased demand for insurance as a result of globalization (Rodrik, 1998).<sup>9</sup>

Figure 4 depicts the evolution of tax revenue in our countries, relative to the years of dictatorship (negative values) and democracy (positive values). Portugal and Spain show a steady increase, towards convergence with their Western European neighbours, which seems to have accelerated after their democratic transitions. The lack of data in Brazil prevents us from exploring the consequences of regime change. Chile's case is particularly interesting because of its decreasing trend, originated in the early Pinochet years. With the advent of democracy, the level has stabilized at near 20%.

Figure 4: Tax revenue as percentage of GDP



Sources: see Appendix.

The data are expressed relative to the year of the democratic transition in each country: 1977 in Spain, 1974 in Portugal, 1990 in Chile, 1985 in Brazil.

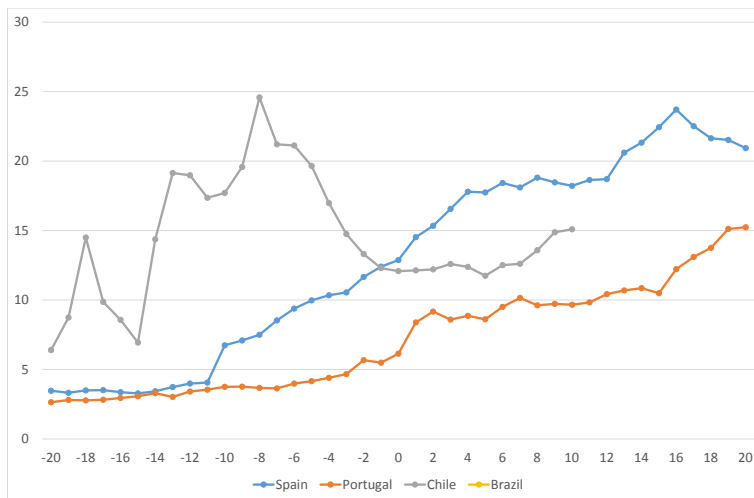
Several previous works have approached the evolution of social spending in our four countries. Espuelas (2013), for example, thoroughly studied the case of Spain, and in Espuelas (2012) extended the scope to compare the Southern European dictatorships with their neighbouring democracies in 1950-80. One of his main results in this paper was that dictatorships had lower levels of social spending (after controlling for economic factors such as GDP level and population age). Similar conclusions have been reached by Avelino et al. (2005) for Latin American countries in the period after 1980, although in Kaufman and Segura-Ubiergo (2001) the positive effect of democratization would be limited to public expenditure in education.

The series of total social expenditure and total public expenditure in education are shown in

<sup>9</sup>Huberman and Lewchuk (2003) confirmed this in a study of European countries during the first globalization.

figures 5 and 6, also relative to the periods of dictatorship and democracy. Concerning social expenditure, Spain and Portugal show an upward trend, more intense in the first case. In both countries, pensions represent the most important component. The figures for Chile, in contrast, reflect the privatization of the pension system occurring in the early 1980s. Regarding education spending, it remained quite stagnant in Chile and Brazil during their dictatorships. Meanwhile, there is a clear increase in expenditure in this item after democratizations in Spain and Portugal. This is in accordance to the general pattern indicated by the above-mentioned studies.

Figure 5: Social spending as percentage of GDP



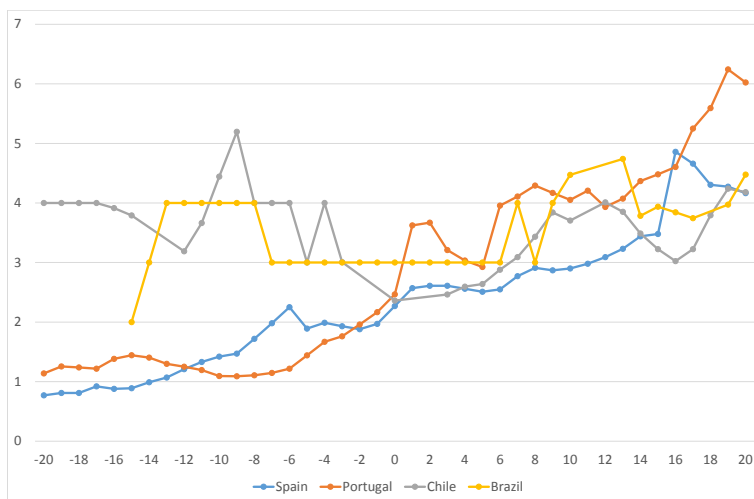
Sources: see Appendix.

The data are expressed relative to the year of the democratic transition in each country: 1977 in Spain, 1974 in Portugal, 1990 in Chile, 1985 in Brazil.

Several things should be taken into account when interpreting this information. On the first hand, social security systems in these countries are of Bismarckian type, which tends to reproduce the inequality in labour market outcomes and even intensify it. Inequalities are high between the covered and the uncovered population (which is very relevant in Latin American countries, far from full coverage and with extensive informal markets); within the covered population, there are also huge differences in the generosity of benefits and how they are funded. Secondly, the pension systems were introduced long before the analysed dictatorships in Brazil and Chile, and their development in purely quantitative terms has something of "path dependence": Mesa-Lago (1992) called this process the "massification of privilege", casting doubt on its progressive nature as well as on its financial soundness (p. 85).

In this sense, pensions could be differentiated from other kinds of more progressive social spending (such as health services), specially where informality is very high. For example, Huber (1996) depicts an increase of the weight of pensions in total social expenditure of Latin American

Figure 6: Public education spending as percentage of GDP



Sources: see Appendix.

The data are expressed relative to the year of the democratic transition in each country: 1977 in Spain, 1974 in Portugal, 1990 in Chile, 1985 in Brazil.

countries during 1975-86, which would be evidence of an increasingly conservative profile.

However, one important aspect often overlooked is that of the sources of state finance. Where do the resources come from, to pay for these social policies (and the rest of state functions)? The joint impact of taxes and transfers is what will determine the effects of state flows on the income distribution. Frequently, state expenditure and even social security benefits were funded to a considerable extent out of regressive taxation, which would limit the equalising effect of social security. For the case of Latin America during the import substitution period, Bulmer-Thomas (1994) has written that “*Even where fiscal policy played a positive role, it was usually not sufficient to outweigh the negative effect on distribution of regressive indirect taxes, which remained the most important source of government revenue*” (p. 319).

The distributive impact of taxes is sometimes very elusive to establish, because of statistical deficiencies and the unresolved problem of their economic incidence. We therefore have very few accounts of the joint redistributive effects of tax and transfer systems. The limited evidence we have points to a rather scarce or negative impact of taxation on inequality (Engel et al., 1999; BID-Eurosocial, 2010; Torregrosa, 2015b).

The only tax instrument that has historically had significant positive redistributive effects is the personal income tax as it became in rich countries – not as it has worked, when it exists, in the developing world (Zolt and Bird, 2005). It can be said that an increase in the taxes raised from individual income and property would point towards enhanced progressivity in the tax system. This is certainly what we find in Spain and Portugal after their transitions to democracy,

but additional work is needed before we can compare the four countries in this respect.

## 5 Inequality and extraction

In the beginning of the paper, reference was made to the theories which relate democracy with reduced inequality – i.e., an equalization of political rights with a similar equalization of economic capacities. It was already advanced that such a parallel evolution does not seem occur in our cases under study. In this section, we review the evolution of inequality (Gini coefficient)<sup>10</sup> and extraction (Inequality Extraction Ratio) in our four countries, focusing on their respective periods of transition to democracy.

Our initial hypothesis was that democracies did not bring about reductions in inequality, but did have some positive distributive effects, ultimately decreasing extraction. This would be the results of “inclusive growth” as well as redistribution policies (figure 1). It will be seen that this idea does not hold clearly when inspecting the data.

The evolution in the Gini coefficient can be seen in figure 7. For most of the period, Spain and Portugal have had lower levels of inequality than Chile and Brazil, and the distinction is specially intense after the mid 1970s.

Only in Portugal there is a significant, abrupt reduction in inequality during democratization, which can be related to the revolutionary process of 1974. It did not, however, have a permanent effect, from what we can see here. In all the other countries, democratization is not visible from the graphs. Inequality seems pretty stable in the Iberian countries during the last decades (with ups and downs reflecting short-term economic fluctuations), and displays a somewhat cyclical pattern in the Latin American ones, with levels slightly lower at the end of the period than during the 1990s. It is thus hard to read any consequences of the transitions to democracy.

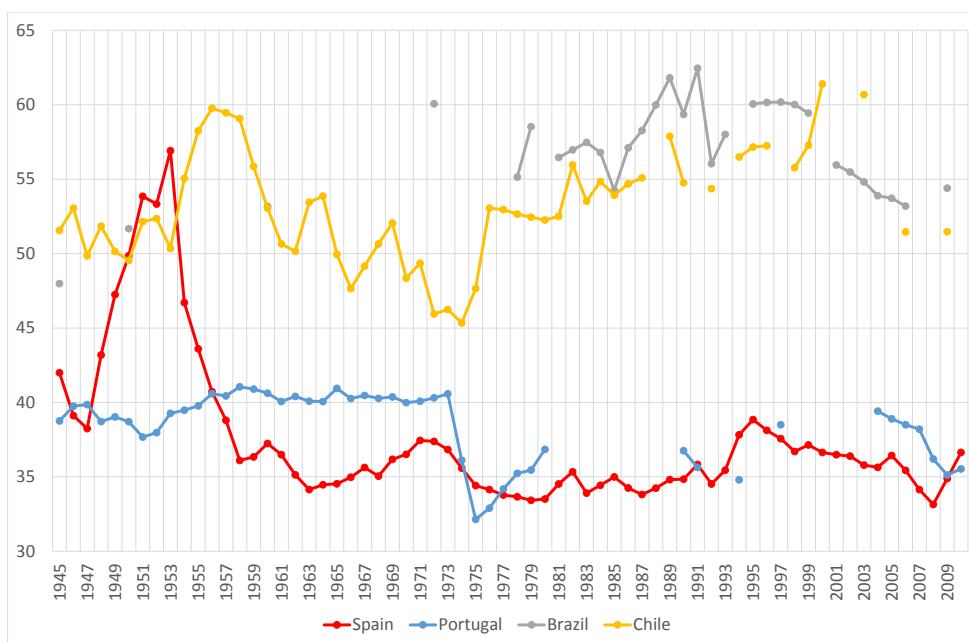
Top income shares series can also be used as an alternative indicator of inequality, although their availability is more restricted. In Spain, the top 1% data starts after the transitions to democracy, since before that the personal income tax affected a lower segment of the population. In Brazil and Chile, only recent years are currently available. See the top 1% income share in figure 8 and the top 0.01% share in figure 9.

Three main conclusions may be extracted from this figure. The first is the lack of any solid positive development when it comes to de-concentration of incomes at the top in the Iberian

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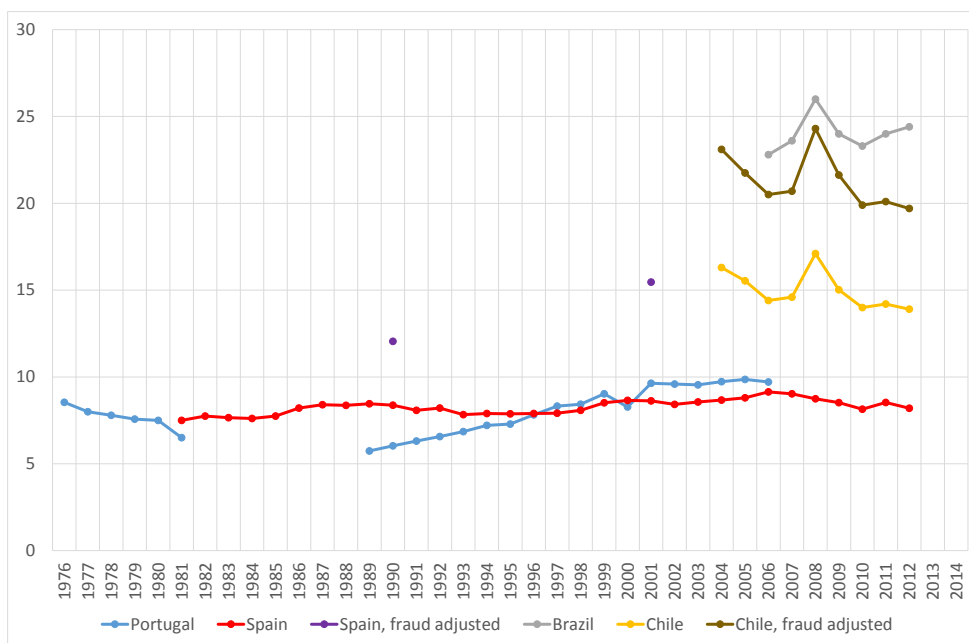
<sup>10</sup>The Gini index has been very criticised for expressing a higher sensibility to changes in the middle part of the distribution. We are aware of this, and other, problems. However, it is also an indicator with some interesting properties, namely its bounded nature (0-1) and its comparatively wide availability over different countries and periods. The range of inequality indicators may be extended in further versions of the paper.

Figure 7: Inequality in disposable per capita income (Gini index)



Sources: see Appendix.

Figure 8: Share of the top 1% of population in gross incomes

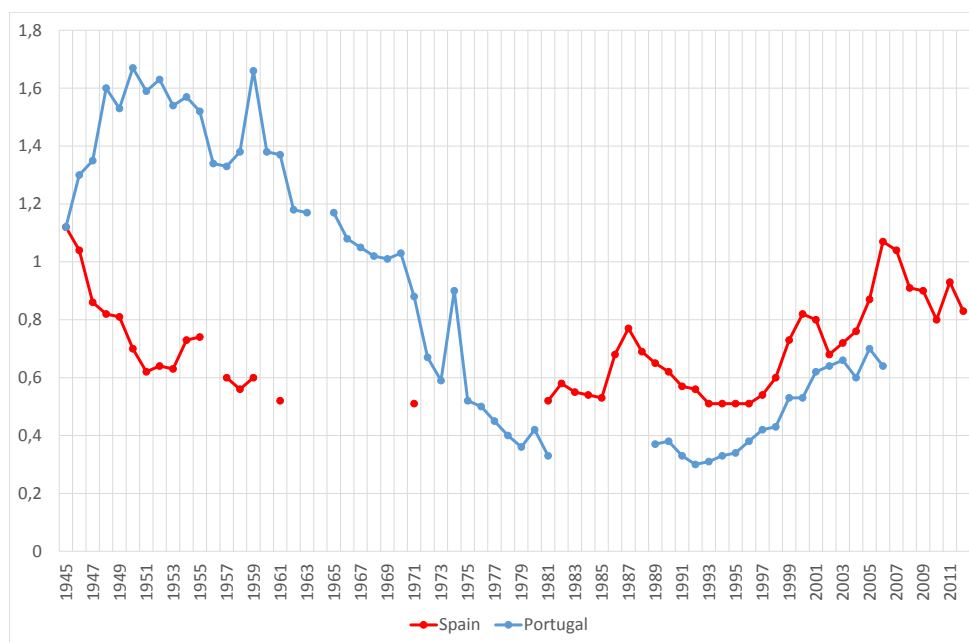


Sources: Spain from Alvaredo et al. (2016). Portugal from Guilera (2010). Brazil from Souza and Medeiros (2015); Souza et al. (2015). Chile from Fairfield and Jorratt (2014).

countries. In Portugal, the top 1% lost ground during the initial years of democracy, but they quite soon recovered their position and even attained higher shares in the beginning of the 21st Century



Figure 9: Share of the top 0.01% of population in gross incomes



Sources: Spain from Alvaredo et al. (2016). Portugal from Guilera (2010).

(Guilera, 2010). The levels are similar in Spain, which displays less of an oscillation here. We still do not have this data for the transition years in Spain, but an intense fall is not to be expected. Longer series are available for more extreme groups of the population, such as the top 0.01% (figure 9). This elite underwent a U-shaped trajectory both in Spain and Portugal: losing relative position between 1945 and the late 1970s, then increasing again their shares (levels in Spain at the end are similar to those at the beginning).

The second clear idea is that top income concentration is much higher in the Latin American countries. This comes as no surprise, since it arises also when other indicators of inequality are used. The number of observations is too low to observe a clear evolution in Brazil and Chile.

Thirdly, we are showing two different series for Spain and Chile, with very significant distances between them. The lower ones, under 10% and around 15% respectively, are the ones comparable to those from the other countries. Top incomes are here taken from the tax return data and following the taxable income definition. The second calculation attempts to correct for under-reporting of incomes in tax data. The Spanish estimation uses the results in Torregrosa (2015a), where evasion was calculated with an equation exploiting charitable donations, while the one for Chile is the result of adjustment to National Accounts in Fairfield and Jorratt (2014). Income concentration at the top is higher in both cases when using these approximations to “real incomes”: the shares

increase between 3 and 6 percentage points in Spain, and similarly around 6 in Chile.<sup>11</sup> We would expect changes in the same direction to take place in other countries, if the data were similarly adjusted for fraud and avoidance.

To sum up, our brief inspection of these two income inequality indicators does not show any clear reduction trends that can be related to the political changes. We propose to look at this issue using the related concept of extraction. Will it tell us anything different?

## 5.1 The Inequality Extraction Ratio: original proposal(s) and our extensions

The original approach in Milanovic et al. (2011) is about pre-industrial societies and how to relate developments in inequality and growth. Their argument is that comparing the levels of inequality in societies at very different stages of development (i.e. distant in GDP per capita terms) might be very problematic. They argue that higher levels of inequality are only made feasible by the generation of economic surplus, and therefore it would be more relevant to assess inequality in relation to the maximum levels it could attain in a given country. This maximum inequality is calculated under the restriction that all individuals in the economy get at least a subsistence income  $s$  (set at 300 GK \$ 1990).

$$IER = Gini_{ACTUAL}/Gini_{MAX_s} \quad (1)$$

This initial formulation has been used in several studies, including application to today's affluent economies. Among those, Guilera (2013) and Gómez-León (2015) for Portugal and Brazil respectively. Guilera compares Portugal with other countries, including Spain; we will refer to how our new estimations nuance the picture.

Milanovic (2013b) extended on the concept, proposing a more useful application to modern societies, where the "subsistence minimum" no longer means physiological survival, but is replaced by a "social minimum" ( $\sigma$ ). This would capture the idea that the threshold for human dignity in a society will grow with mean income: in a modern economy today, the lowest level acceptable does not mean any longer to maintain bare bones subsistence, to use Allen's words. It means access to a certain minimum standard. Poverty, even absolute poverty, is always a relative concept.

$$IER = Gini_{ACTUAL}/Gini_{MAX_\sigma} \quad (2)$$

Milanovic's new formulation relates the social minimum to the subsistence minimum in the

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<sup>11</sup>Fairfield and Jorratt (2014) perform an even higher estimation for Chile, further including an imputation of accrued profits, which according to the authors is an important vehicle for avoidance in this country.

following way:

$$\sigma = s\alpha^b \quad (3)$$

$\alpha$  being the mean income per capita of the country normalized by  $s$ , and  $b$  the elasticity of the social minimum to  $\alpha$  – i.e., the sensitivity of social basic needs to the increase in the general societal output.  $b$  is a crucial parameter, and its value has to be thought about carefully. Milanovic (2013b) uses  $b=0.5$ , after some discussion on the basis of poverty lines.

In what follows, we build on this concept of inequality extraction ratio, and on how it has been so far calculated in the literature, with the following points:

### **Income concept of the Gini index**

When talking about income inequality plainly, the literature normally refers to disposable income: i.e., after direct taxes and transfers. This is the measure most extensively used, since it might be closer to what households think of as their revenue, and it is the most readily available from survey data (e.g. OECD, 2008). Therefore, this should be the income definition used as well in the studies of inequality extraction ratio.<sup>12</sup>

The Gini index will be calculated in per capita terms. Ideally, equivalent incomes would provide a better indicator, but comparing across countries with a common equivalence scale could be rather arbitrary.<sup>13</sup>

Previous studies have in general not paid much attention to these issues. We think, however, that it is important to undertake some kind of transformation or at the very least be aware of the biases involved if using different income definitions. Gross incomes tend to be more unequally distributed than disposable incomes, and indices of inequality with the household as unit of analysis will normally be higher than those using individuals.

Our adjustments are further explained in the data appendix.

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<sup>12</sup>However, as a measure of *net consumption capacity* this concept has problems, and net incomes, also after indirect taxes are extracted, would be superior. This indicator is nonetheless very infrequently available, only from scattered tax redistribution studies (e.g. Torregrosa, 2015b; Lustig et al., 2014). Neither does disposable income reflect the state action in health and education expenditures, which are normally progressive: thus potentially, both insufficiencies act in opposite directions.

<sup>13</sup>Equivalent disposable incomes serve to compare standard of living across households of different size, acknowledging that total income is not appropriate for this, and neither per capita income given the sharing of resources. These equivalent incomes are obtained dividing the total disposable income of the household by its number of 'equivalent adults', which is the result of some assumptions about economies of scale in family consumption. For example, the classic OECD equivalence scale gave the weight 1 to the first adult, 0.7 to subsequent adults and 0.5 to members of the family under 14 years of age; the more recent version of this scale changed these weights to 1, 0.5 and 0.3 respectively. There are also a number of others, such as using the square root of household size. See a discussion e.g. in Vos and Zaidi (1997).

## Household income instead of GDP

As a measure of  $\alpha$  in equation 3, studies have normally used GDP per capita. This relates also to the wide availability of the data. However, arguably the best indicator for our purpose would be total household disposable income.<sup>14</sup> The reason is simple: this is the definition closest to consistency with the Gini indices to be used. When we contrast inequality in disposable incomes with the gross income levels of the whole economy, we are introducing a wedge in the middle. Incomes of corporations and the public sector will make part of the second one, but not of the first.

National accounts estimates of household flows are, unfortunately, not available for the whole period under study here. The earliest data we have corresponds to 1970, and it is not until the 1990s for most of our countries. We therefore use also GDP per capita for the whole period, allowing to see the difference between both alternatives.

## Stickiness of social minimum

It can be argued that social minimums would adapt to changes in income with a time lag, and also adapt less to falls than to increases in income (because of adapting expectations and the social remorse in the presence of falling living standards). We think that taking this into account will enrich the analysis. It could be done in several ways – at this point, still not included in our shown calculations.

A first option is to use the moving average of the five previous years to establish the social minimum. This would reflect the "stickiness" of the social minimum, reflecting the values attained before a recession – but also the corresponding enhanced well-being when living standards increase rapidly and aspirations take time to adjust.

Alternatively,  $b$  could vary with income growth or  $\sigma$  could relate directly to empirical poverty lines.

## 5.2 Results of Inequality Extraction Ratio

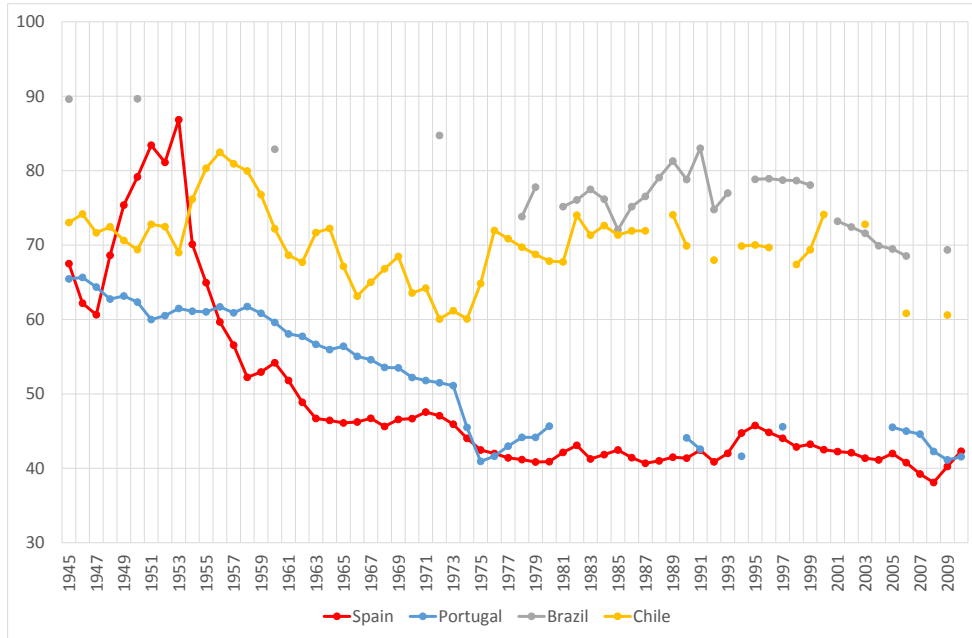
Figure 10 shows the Inequality Extraction Ratios calculated for the four countries, using Milanovic (2013b)'s formulation and GDP per capita as the income reference. The individual country trends here look similar to what is seen in the Gini index (recall figure 7), but there are some interesting changes, specially in the comparison between countries. IERs in our four cases are quite similarly high at the beginning of the period, over 60%. This is because Spain and Portugal's lower apparent inequality correspond to lower income levels than that of Chile in the period just after World War

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<sup>14</sup>Total gross household disposable income (*Renta disponible bruta de los hogares, Rendimento disponível bruto das famílias*), corresponds to the concept B.6g in the European System of Accounts 2010.

II. During the 1960s, our cases embark on a decreasing trajectory, with the exception of Brazil. The downward path continues in Spain and Portugal till the late 1970s (with a steep reduction in Portugal during the revolutionary years), but subsequently the IER remains stagnant. We thus cannot see any direct effect of democratization on extraction, since the reduction in the latter came *before* the transitions in both countries.

Figure 10: Inequality Extraction Ratio with GDP



Sources: see Appendix. Using Milanovic (2013b)'s formulation.

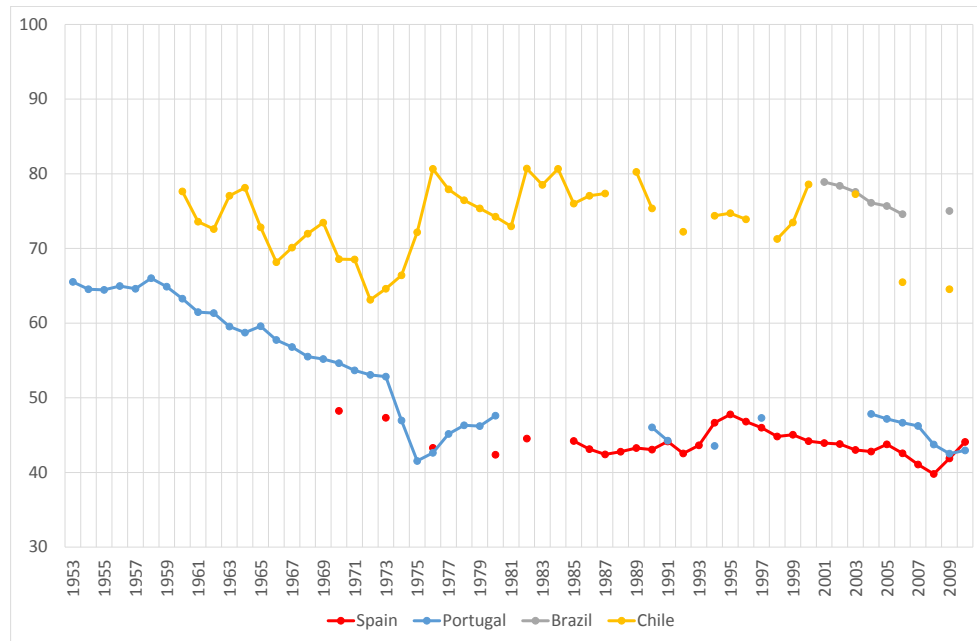
Chile experienced a dramatic turn during Pinochet's dictatorship, coming to join Brazil with an IER around and over 70% in the 1980s and 1990s. But Brazil was democratizing at this time, which again cannot be seen in any reduction of extraction in the years immediately after 1985. The figure suggests more of a regional pattern, with both Latin American countries experiencing reductions in the index at the very last part of the period, in the beginning of the 21st Century. This coincides in Brazil with the advent to power of the *Partido dos Trabalhadores* (2003).

Both Guilera (2013) and Gómez-León (2015) provide earlier estimations of IER for Portugal, Brazil, and Spain. Both of them, however, use the initial formulation given in Milanovic et al. (2011), where the subsistence income is set at 300\$ PPA of 1990. This entails that minimum income is near physiological survival, which makes extraction look really low in modern economies, and dampens the distributive improvements at these levels. In Guilera (2013)'s calculations, the IER for Portugal is situated below 40% already in 1950 (after having increased during the three previous decades), and decreases smoothly, only to start growing again in the 1990s. Its level in the end is similar to

that of the mid-Century. Therefore, the difference between both alternative calculations affects the comparisons we make across income levels, be it between countries or within them. In figure 10, extraction in Portugal looks fairly stable since 1975, at levels below those of the 1950s. The same happens with the Spanish data that Guilera presents in his thesis as one of the additional countries to compare with: with the minimum at 300 1990 GK \$, the country looks as extractive in the year 2000 as in 1960, at around 35%. Our data show stability since the mid 1970s, and at slightly over 40%.

We have argued in section 5.1 that Household disposable income is preferable to GDP for IER calculations. We show the results using this income aggregate in figure 11. At this point, we only have comparable time series for Portugal (since 1953) and Chile (since 1960); our data for Spain start fragmentarily in 1970 and also allow quite a time span.

Figure 11: Inequality Extraction Ratio with Household Disposable Income



Sources: see Appendix. Using Milanovic (2013b)'s formulation.

Using disposable income generally leads to estimating higher IERs than those obtained with GDP – which follows from household disposable income being lower than GDP (usually around 70% of it). The general trends, however, are similar.

What can be then said about the relationship between the political regime and the extraction of economic surplus by the elites? Table 4 attempts to summarize our results.<sup>15</sup> The table confirms our impressions: in three of our countries, extraction was reduced significantly before democratization,

<sup>15</sup>For the moment, with the estimation using GDP.

while it increased thereafter – and then decreased slightly again, showing levels near those of the transition period after 15 years of democracy. Brazil, Portugal and Spain look quite similar in this respect. It might be said that “more inclusive growth” provided a basis for democratization, instead of the other way around. This argument has previously been used for inequality in Prados de la Escosura (2008) and can be related to Boix (2003)’s theory.

Table 4: Changes in the Inequality Extraction Ratio around democratization

	Brazil	Chile	Portugal	Spain
Last 15 years of dictatorship	-15.0%	7.8%	-31.3%	-15.2%
Last 5 years of dictatorship	-7.4%	-2.1%	-21.6%	-12.0%
First 5 years of democracy	9.4%	0.2%	11.6%	4.0%
First 15 years of democracy	1.6%	-13.0%	7.8%	-1.3%

Source: authors’ calculations.

Note: in some cases, neighbouring years are taken for the calculation when no data point was available for the specific period range (Brazil 1979 instead of 1980 and 1972 instead of 1970, Chile 2006 instead of 2005). Precisely because the observations of the Gini index are not annual, these data should be approached with additional caution.

Chile is an exception to this pattern, in reflecting our initial expectations: extraction was increasing in the early years of the dictatorship, while it stagnated and then decreased after the regime change. This responds to the deep changes in the economic model during Pinochet’s years, and in the end to different experiences in income growth across the countries.

## 6 Final remarks

Our main results from this data exploration do not point towards the initial hypothesis. There are no clear trends in economic performance, inequality or extraction, that undergo significant changes after democratization.

Concerning economic growth, Spain and Portugal follow quite closely their comparative benchmark of European peripheral countries, consistent with previous research on convergence (César das Neves, 1996; Prados de la Escosura and Sanz, 1996; Freire Costa et al., 2016). Brazil also represents an average Latin American experience in the so called "lost decade"; Chile, however, departs from this with higher income growth in the more recent period (Bértola and Ocampo, 2012).

The industrialization process seems to follow trends established previously, without apparent jumps related to regime changes. In general we see a loss of weight of manufacturing, which responds to generalized economic policy reforms, where liberalization holds a prominent place. The relevant issue here, however, is what kind of activities were taking over. In the Latin American

countries, extraction of natural resources have played a significant role.

With respect to inequality, only in Portugal there is a noticeable reduction in the transition years, but it was not a permanent one. Decreases in extraction took place in both Iberian countries before their democratizations, while the democratic periods have displayed stability. In Chile, a parallel decrease in extraction was aborted by the 1973 coup and did not resume until democracy in the 1990s. The appropriation of economic surplus in Latin America only seems to be decreasing significantly in the beginning of this 21st Century, in what could be a regional pattern.

All evidence showed in this paper is of course of a descriptive nature. We have depicted what happened in these countries around the years of their democratization, and related it to political events. An econometric causality analysis is beyond the scope of this paper. It could be ventured that a positive impact of the new democracies on economic extraction (via increased redistributive policies, for example) was counteracted by unequalising market forces (which would be related to the integration in the international economy). This hypothesis is to be addressed with a panel estimation, looking for the possible effect of a democratization dummy on extraction ratios. It is our intention to pursue further work in this area, but gathering of data for additional country cases is a prerequisite.

What can be observed so far, all in all, is that decreases in extraction only seem to have been possible when there was considerable income growth. Without a general increase in incomes, redistributive policies are socially very conflictive. That growth has been the main factor in reducing extraction can also be related to Piketty (2014)'s insight about the role of capital incomes, and particularly those with an origin in inheritance. This leaves us with some additional questions. Has growth been more "inclusive" when it has been higher? And how should this be reconciled with aspirations for a sustainable future?

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# Appendices

## A Data sources for IER calculations

We have used per capita GDP data in constant terms from Bolt and van Zanden (2013), and from Prados de la Escosura (2003), for Spain. Population numbers and GDP series in nominal terms come from the countries' statistical offices and *OECD Statistics*. Here we detail the sources for total household disposable income and the Gini index.

### Spain

- Total disposable household income: compiled from the National Accounts in INE's publications.<sup>16</sup> The official series starts in 1980, with an additional data point in 1973. Previous and intermediate years have been estimated on the basis of these.
- Gini index: the values for 1970, 1973, 1980, 1982 and 1990 come from Torregrosa (2016) and Torregrosa (2015b). Previous years have been estimated using these benchmark levels and the variation in Prados de la Escosura (2008). Prados de la Escosura's Ginis would correspond to gross income from the adult population: it would thus supposedly be higher than inequality in disposable incomes – with the difference being very small at the beginning of the period (since the wedge is basically explained by progressive taxation and household transfers, which develop at the end). For later years, we have used the variation in inequality of disposable equivalent income or consumption from household surveys collected in Milanovic (2013a).

### Portugal

- Total disposable household income: obtained from Banco de Portugal (2016) until 1994, and since 1995 from the Portuguese statistical office.<sup>17</sup> There is a jump between both series of 8%.
- Gini index: from Milanovic (2013a) since 1980, and for the previous years using the variation in the indices given by Guilera (2013). Guilera's indices correspond to the distribution of earnings among the active population, and he argues that they would be an overestimation of inequality because of excluding non-monetary incomes, being in gross terms, and not

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<sup>16</sup>1973, from Pena and Callealta (1996). 1980-82, base 1980. 1970 and 1976 have been calculated by the author with some assumptions about the distribution between firms and households using the nearest available years. 1985-94, base 1986. 1995-98, base 1995. Since 1999, base 2010 (provisional data since 2012).

<sup>17</sup>[INE Portugal Contabilidad Nacional](#).

including economically inactive population. However, the direction of this last impact is debatable, while the second is not necessarily very important quantitatively in such an early period (considering the development of the welfare state): indeed, Guilera's Gini index for 1980 is lower than the one of disposable income given in Milanovic (2013a). For the post 2004 period we have also used the variation in inequality of equivalent disposable income across individuals as given by the OECD (2016).

## **Brazil**

- Total disposable household income: from IBGE (*Instituto Brasileiro de Geografia e Estatística*), *Diretoria de Pesquisas, Coordenação de Contas Nacionais*.<sup>18</sup>
- Gini index: the data come mainly from Milanovic (2013a); Lustig et al. (2014) and Lustig (2015). For years not covered in these sources for disposable incomes, we have used the variation in inequality of gross incomes given by Milanovic (2013a). 1950 and 1945 were estimated using the backward variation in Prados de la Escosura (2007) (1960-50) and Gómez-León (2015) (1950-45, the value for 1945 resulting from linear interpolation with her estimates for 1940 and 1945).

## **Chile**

- Total disposable household income: 1996-2003, from National Accounts available online (chapter 2). Since 2004, it has been approximated from the account of households and non-profit private institutions, subtracting the percentage corresponding to these in 2003 (12%).
- Gini index: the most recent years come from Milanovic (2013a), which mainly correspond to gross income, and OECD (2016), which refer to equivalent disposable income. We have taken the average of both for the years 2006, 2009 and 2011. 1987-2000 are disposable income Ginis from Milanovic (2013a). For the earlier period, we have used the variation in Rodríguez Weber (2014)'s index, which would correspond to gross income between active individuals.

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<sup>18</sup>IBGE.