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Abstract

From a long-term perspective little is known about income inequality in Venezuela. This is regrettable as the country offers a unique opportunity to study distributional dynamics in an economy dominated by oil richness since the 1920s amid an accelerated process of structural change amid demographic and institutional transformations. The main reason for this lacuna is scarcity of data. Consistently-defined household surveys are available from 1974 and cover only labour income. The paper benefits from a new set of Ginis based on dynamic social tables with four occupational groups defined by their skill level, and National Accounts data. This evidence sheds light on inequality in two contrasting periods shaped by the interplay of external forces linked to international oil markets and endogenous transformations: one from 1920 to the 1970s of a rapidly growing economy driven by the consolidation of the oil industry, the rise of the middle class, increasing real wages, and industrialisation; the other, ending in 2013 characterised by economic stagnation, a collapse in real wages, the hollowing out of the middle class, declining oil production, volatile oil rents, and de-industrialisation. Altogether, income inequality has been primarily oil driven, first, by a steady rise in oil production and fiscal revenues influencing the pace and nature of endogenous transformations; and, since 1973, by the timing of oil-price shocks. Overall inequality widened during the 1970s and 2000s booms, but also during the slump of the 1980s and 1990s. Prosperity favoured most those in the top group; adversity impacted worst those in the bottom group.

JEL Codes: O10, O15, J3, Q32, Q43
Keywords: Economic Development, Income Inequality, Wage Structure, Non-renewable Resources, Oil Prices

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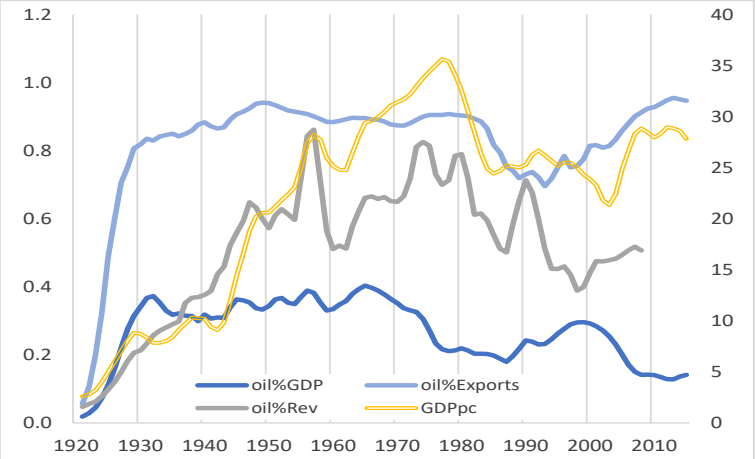
1. Introduction

Venezuela offers a unique opportunity to study distributional dynamics over the long term in an economy dominated by oil richness since the 1920s. Has this abundance been a force for a more equal sharing of income among Venezuelans? Or, has it been another opportunity to reinforce deep-rooted historical disparities emanating from a high concentration of assets´ ownership? A major obstacle in the way of answering this pivotal question is scarcity of data informing on the inequality outcome, particularly of capital income. Easing such a hurdle is the first task of this work; answering the question its ultimate purpose.

The country is a text-book example of an oil economy. As Figure 1 shows, the contribution of oil to total exports, fiscal revenues and GDP over the 1920-2013 period has averaged 80%, 50% and 30% respectively. Moreover, it is one of the few developing oil economies - if not the only one - that offers the opportunity to study income distribution over the very long term. Oil richness and oil dependency can be two sides of the same coin. The former offers a unique developmental opportunity; the latter, under limited economic diversification, makes the economy highly vulnerable to external shocks. The trajectory of real GDP per capita reflects both realities with a turnaround in the late 1970s.

FIGURE 1: OIL SHARES OF GDP, EXPORTS, & FISCAL REVENUES PLUS GDP PER CAPITA



All series in percentages except GDP per capita in 000's Bs. at 1984 prices - plotted on the right axes. *Sources*: Baptista (2006a) for *oil%GDP* and *GDPpc*; Manzano (2014) for *oil%Exports* and *oil%Rev*.

The selection of 2013 as the end year for the core of the analysis is justified on two grounds: first, it coincides with the ending of the first oil boom of this century; secondly, it is the year of the death of President Hugo Chávez who was in power since 1998. He was replaced by Nicolas Maduro whose incumbency opened a new period characterised by institutional destruction, an economic collapse,

oil sanctions since 2019, political repression, social unrest and mass emigration.[1] In addition, another casualty of Maduro's presidency has been the collection and publication of macroeconomic, labour-market statistics and household surveys (Bello Rodríguez 2023), making it difficult to assess income inequality during those years using official data. However, in the conclusions I discus developments during 2014-2025.

To make inroads in my quest, it is essential to address the data shortcomings both in terms of sources of income and temporal coverage to have enough inequality evidence informing about trajectories and, importantly, turning points over the long term. To that end I construct dynamic social tables which categorises the labour force into four occupational groups defined by their level of skills adapted from Astorga (2024).[2] The top group (employers, managers and professionals) concentrates capital income, whereas labour income dominates occupations in the lower three groups (for example, clerks, masons, and labourers). Crucially, this breakdown facilitates the measurement of the income share of high earners. I rely on three Ginis to track inequality between groups: the overall Gini (*G4All*) which includes all incomes of the four occupational groups; and two labour Ginis including only labour income in the four groups (*G4Lab*) and in the lower three wage-based groups (*G3Lab*).[3] Despite the small number of occupational groups, they are characterised by significant disparities in average income across them and by relatively homogenous incomes within the groups – except the top one. This means that the Ginis based on these four groups can offer a good proxy for trajectories of income inequality. I support further this claim at the end of Section 4.[4]

Regarding the drivers of inequality, the paper looks at the connection between the oil industry and structural transformations in the non-oil economy. I pay special attention to the interplay of external factors linked to the international oil markets and endogenous dynamics associated with an accelerated process of urbanisation and industrialisation with the demographic transition as a backdrop. By doing that, the work sheds light on income inequality in two contrasting periods, in a

[1] Rodríguez (2025) offers a comprehensive analysis of the country's developmental catastrophe since 2014.

[2] A social table is constructed by assigning earnings to a number of categories of recipients, typically members of different occupations (e.g., landlords, capitalists, civil servants. day labourers, peasants, etc.). The calculations require for each category the numbers of people and their earnings. Standard social tables estimate income inequality in a number of benchmark years. By contrast, a dynamic social table makes yearly estimates in a given period (Rodrguez Weber 2023).

[3] *G4All* and *G3Lab* are an improvement over previous estimates as part of a multi-country study; *G4Lab* is a new measure. Working on Venezuela on its own allowed me to relax some restrictions imposed by the search of comparability across countries and to extend the use of data sources. In particular, I use remunerations (fringe payments plus basic wage) in the calculation of labour income. Also, the availability of long series of remuneration for white collars in the oil sector and manufacturing allowed me to estimate average remunerations in the top group. And, when possible, I calculated capital income separately using National Account data rather than as a residual as in the previous version.

[4] For the skeptical reader about the reduced number of groups, note that the skilled-to-unskilled wage ratio, perhaps the simplest inequality measure, can offer a good match of trend changes in labour inequality calculated with full HBS data over the whole distribution in Latin American economies (De la Torre et al. 2017, Figure 3).

nutshell: Period 1 (1920 to the late 1970s) defined by a rapidly growing economy driven by the consolidation of the oil industry and increasing oil production, steadily rising real wages, the emergence of the middle class, industrialisation, and macroeconomic stability; followed by Period 2 characterised by volatile oil rents (since 1973), declining oil production, collapsing real wages, the hollowing out of the middle class, de-industrialisation and economic stagnation.

As to the main findings of the paper, the study of the occupational Ginis reveals that trajectories of the overall and the labour Ginis tend to differ, making conclusions largely contingent on the measure used. Moreover, the two periods are distinct in terms of their inequality outcome, including contrasting patterns in overall and labour inequality. Period 1 is dominated by a narrowing trend in *G4All* driven by a consolidation of the middle class, and a rise in *G4Lab* reflecting increasing wage skill premiums; whereas Period 2 shows more in-tune trajectories across the Ginis with the exception of the boom of the 1970s which was dis-equalising in the overall Gini, and equalising in the labour Ginis. The general conclusion is that income inequality has been primarily oil driven; first, by a steady rise in oil production and fiscal expenditure influencing the pace and nature of endogenous transformations; and, since 1973, by the timing of oil-price shocks. Overall inequality widened during the bonanzas of 1970s and 2000s, but also during the slump of the 1980s and the 1990s. Prosperity favoured most those in the top group; adversity hit worst those in the bottom group.

The remainder of the paper is organised as follows: Section 2 reviews the relevant literature; Section 3 introduces the oil-inequality nexus summarising developments in the oil industry and key structural transformations in the non-oil economy; Section 4 describes the methodology adopted to measure income inequality; Section 5 presents and discusses the inequality evidence together with comparisons with alternative estimates, and gives an insight on the distributional impact of social spending; Section 6 gathers the conclusions. Appendix A includes additional figures and tables; Appendix B offers methodological and estimation details, and shows the results of robustness' checks on changes in key assumptions.

2. Literature review

There are two key messages of the broader inequality literature guiding this work. First, that the source of income matters. In particular, that it is necessary to separate labour and capital income when analysing inequality. Conceptually, they can behave differently with distinctive distributional dynamics. Labour income is driven by demand and supply in the labour market (influenced by technology and skills formation), as well as by labour-market institutions and policies; whereas capital income is primarily influenced by factors such as savings and investment decisions, the rate of return on wealth, and inheritance laws. In practice, capital income tends to be concentrated at the

top of the distribution (e.g., top 10% or higher up),[5] whereas labour income is the main source for the middle and bottom sections.

Empirically, top incomes present an estimation challenge in Latin America as they are grossly underestimated in household budget surveys - HBS (Sekely and Hilgert 1999). Recent research shows that the use of tax and National Accounts data to correct for such underestimation since the year 2000 results in significant upward revisions in both trajectories and levels (De Rosa et al. 2024). Another relevant issue is the level of aggregation of the evidence. Owing to a strong link between top-income shares and income inequality over the whole distribution (Leigh 2007), an assessment based on measures such as Gini coefficients may fail to reveal salient patterns in labour income.

Secondly, that the pattern of trade specialisation matters, particularly in commodity-dependent countries. Hence, it is necessary to distinguish between oil and minerals (non-renewable resources with, in most cases, capital-intensive production) and agricultural commodities (renewable resources dominated by labour intensive production). There are two main reasons for this: one related to the ownership of the resource; the other to price stability in the commodity markets. Regarding ownership, a large portion of the value output of oil and minerals represents an economic rent - the proceed in excess of payments to labour and a normal return to capital. And, in countries where the state owns the underground resources, a substantial proportion of this rent can be readily tapped to boost public revenues; whereas with agricultural products any rent goes to private landlords. As to price stability, non-renewable resources, and oil in particular, have experienced a much higher price volatility compared to other commodities.[6]

Of particular interest to this work is the inequality impact of oil shocks. In theory, the direction of the relationship is not obvious. A sustained price rise in capital-intensive oil is likely to benefit primarily oil multinationals and/or the state as owner of the resource. In general, the internal spending of the oil windfall is likely to generate a move in relative prices favouring non-tradable over tradables goods and their respective factors of production. The final distributional impact on labour income will depend on the relative skill intensity in the production of both goods. If non-tradable activities demand fewer skills (e.g., labouring jobs), the skill premium should fall in the wake of a positive price shock - an equalising effect (Galiani et al. 2010). Because dissimilar channels can impact inequality differently, the question needs to be settled empirically.

I summarise two representative contributions of multi-country studies adopting an econometric approach. Mohtadi and Castells Quintana (2021) found in a panel of 80 countries across global

[5] This is supported by the long-term evidence in developed economies (Piketty 2014); and, almost certainly, this is also true in Latin America owing to a historically high concentration of assets (Frankema 2009).
[6] During the period 1970-2010 the standard deviation of the price of oil was 4.5 times that of copper, 5.3 of cacao, and 7.1 of coffee and corn (MOxLAD 2025).

regions covering the 1990-2016 period that positive price shocks in capital-intensive commodities are associated with a rise in inequality as measured by the HBS, whereas those in labour-intensive ones are associated with a fall. Their analysis also suggests that price hikes in oil and minerals favour capital income over wage income. Meanwhile, Goderis and Malone (2011) develop a two-sector growth model to analyse the inequality path following a commodity boom. Assuming that the non-tradable sector is relatively intensive in the use of unskilled labour, they predict a symmetric response: after a price hike, a fall in income inequality in the short term and then a steady rise over time; after a commodity slump, a higher inequality in the short term and a steady fall afterwards. This is tested using a dynamic panel data covering 90 countries – largely commodity exporters - from 1965 to 1999 using HBS. Their findings support the prediction for booms in oil and minerals. However, the coefficient associated with negative shocks lacked significance, hinting at an asymmetric inequality response.

Some reasons behind the apparent contradiction in the findings of both papers are differences in methodology, country sample and time coverage. But, leaving that aside, notice that, according to the first message, the use of HBS in both studies means that their findings largely inform about labour income inequality and may not capture well overall income inequality. A more serious limitation of panel data studies is scarcity of survey or tax data informing on income inequality in the majority of oil countries in the Middle East - with the exception of Iran - since 1980 or earlier (Adams & Page 2003). This is compounded by the fact that when household surveys are available in oil producers in South-Sahara Africa they tend to measure consumption (Gasparini & Tornarolli 2009).

The ambiguity of the results in panel-data studies and their data limitations call for focusing on country experiences in oil and mining economies. One example is Bhattacharyya and Williamson (2016) who look at the inequality implications of commodity price shocks in Australia between 1921 and 2008 using tax data to capture capital income. They found that the very top end of the income distribution benefited disproportionately during non-renewable booms. Also, that a sustained increase in the price of oil and minerals widened inequality over the long term; whereas the opposite happened with renewable resources. Meanwhile, Farzanegan and Krieger (2019) examine the response of income inequality measured with HBS data to positive shocks on oil and gas revenues in Iran from 1973 to 2016. They reported a widening of income inequality in the short term driven by private-sector credit growth, a construction boom and lucrative import licenses that benefited above all those at the top of the distribution. However, these contributions do not offer results related with the inequality outcome during slumps.

In Venezuela the oil-inequality nexus has been the focus of attention of a number of works (e.g., Urdaneta 1977; Musgrove 1981; Bourguignon 1980; Valecillos 1989; Freije 2014) largely using

consistently-defined household surveys since 1974. The Gini coefficients calculated with these data show an inequality decline during the boom years of the 1970s and early 1980s, large fluctuations during the rest of the 1980s. rising inequality in the 1990s, and a steady narrowing trend during the boom of the 2000s (see Figure 5). However, importantly, these surveys routinely only collected data on labour income.[7]

The alternative to capture the contribution of capital income to overall inequality was to look at functional inequality. A key contribution was the pioneering work of Asdrubal Baptista (1980 & 1985). Baptista developed a theoretical framework to the analysis of the distribution of oil revenues and conjectured that an oil boom would result in a significant rise in the return to capital in the non-oil economy, particularly in sectors sheltered from foreign competition. He examined the evidence of manufacturing over the years between 1953 and 1978 dominated by import substitution. He found that a large fraction of oil rents ended up as abnormal profits, a result that, if extrapolated to the wider economy, suggests that the boom of the 1970s was dis-equalising. Another important finding is that the main channel by which oil revenues benefited labour was a substantial rise in the purchasing power of imported consumer goods.

The 1971-1997 period was the focus of Rodríguez (2000) who studied functional inequality calculated as the share of Gross Operating Surplus (GOS) on GDP. He found a dis-equalising effect up to 1982, and a further rise in functional inequality up to 1997 amid a collapse of real wages. Finally, the most comprehensive study in both temporal (1975 to 2004) and income coverage is Baptista (2006b), using national income at factor cost and total remunerations to estimate capital income. This contribution is discussed further in Section 5 and in Appendix B.

3. The oil-inequality nexus in Venezuela

During the period under analysis there have been various channels of transmission between developments in the oil industry and income distribution. Directly, via investment and labour demand of largely unskilled workers required to develop the oil fields. This channel was particularly important during the early decades of Period 1 when there was the need to create a vast infrastructure in transport and communications.[8] Many of those workers came from the coffee producing areas of the Andean region in the west of the country (McBeth 2003). Also, oil workers' pay levels have been significantly above the average wage in the non-oil economy, with managers

[7] Capital income was included in 1994 - grossly underestimated (Rodríguez 2000), 1997 and 2005 (Fernández Bujanda et al. 2008).

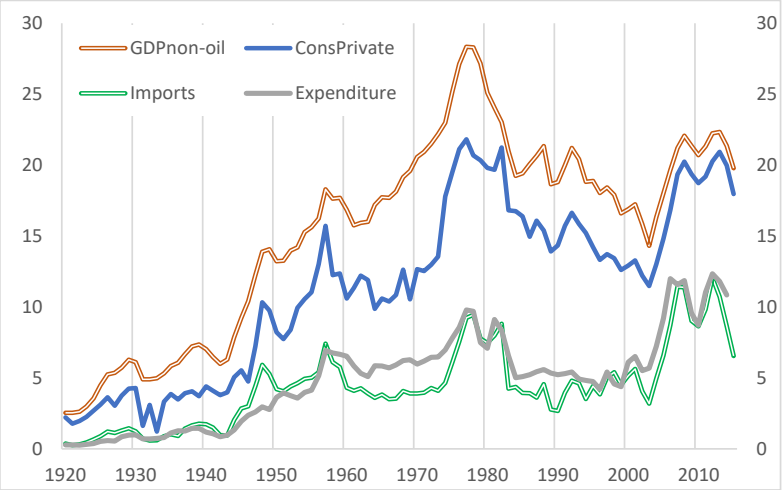
[8] The following impression of a contemporary illustrates the difficulties faced during the initial steps of the oil industry: 'Development since that time [1912] has been greatly retarded, principally by the lack of transportation facilities. In the solution of the problem of getting machinery to the well site and of getting the oil to market lies the key to the oil industry in Venezuela. There are no roads, or even tracks, in those parts of the country where oil is found.' Bell (1922, p.94).

and professionals likely to have been in the top ten decile of the income distribution. Meanwhile, the organisation of the labour movement and unionisation in the oil industry provided a blueprint for a gradual transfer of labour rights (e.g., social security) to workers elsewhere in the formal sector (e.g., manufacturing).

And, indirectly, via the spending of oil revenues in the non-oil economy. Since the 1950s the oil sector can be seen as an enclave highly intensive in capital and with a limited labour demand.[9] Its main linkage with the non-oil economy has been via its contribution to fiscal revenues and expenditure as well as the provision of foreign exchange to pay for imports and consumption.

However, a close association between such variables (see Figure 2) created a situation where non-oil activity was highly dependent upon, and vulnerable to, oil shocks. The crux of the problem is that since the import content of production is high, the non-oil tradable sector does not create its own demand and relies on the oil sector for the provision of the foreign exchange to finance its import needs. The cycle is completed through the government spending that rises internal demand enabling the firms to sell their products profitably. As a consequence of this *modus operandi*, changes in oil revenues explain much of the short to medium-term fluctuations in the non-oil economy.

FIGURE 2: CO-MOVEMENTS IN KEY MACROECONOMIC VARIABLES



All series are in per capita terms at constant 000's Bs. of 1984 prices.
Sources: Baptista (2006a) for *GDPnon-oil*, *Private consumption*, and *total imports*; MOxLAD (2025) for expenditure using the CPI as deflator.

Beyond macroeconomic dynamics, oil-driven expenditure had important long-term effects on structural transformations such as the demographic transition, internal migration and urbanisation, (de)industrialisation, advances in education and institution building. These endogenous processes are characterised by gradual changes and path dependency (so that current values are often

[9] By 1950 employment in the oil sector represented 2.9% of the total and 5.5% of salaried workers. These shares came down to 0.8% and 1.2% respectively by 1970. Owned calculations using Baptista (2006a).

determined by past values) with significant distributional implications which are the focus of attention of the main inequality narratives.[10] Although these transformations were also present in many Latin American countries during the last century (Astorga, Bérges, FitzGerald 2005), in Venezuela their timing, pace and nature were influenced by its unique oil richness. In addition, the inequality impact originating in the oil industry was dictated by developments in the international oil market (including geopolitical factors) with the capacity to trigger sudden changes in oil prices and production. Therefore, the interaction of endogenous transformations and the random timing of external oil shocks is crucial to understand the inequality outcome in Venezuela. Next, I offer a brief account of developments in the oil sector and the structural transformation in the country.

3.1. *The oil sector*

The evolution of the oil sector in Venezuela can be equally divided into two periods with 1973 as the watershed (Manzano 2014). The cutting point is the result of the Yon Kippur war: an external geopolitical event that brought about fundamental changes in the international oil market. Figure 3 includes the oil sector's key variables. Period 1 is characterised by a steady increase in oil production - particularly since the early 1940s - largely at the hands of oil multinationals, relatively stable oil prices (except in the 1930s) under their control, and a gradual increase in the fiscal contribution to the Venezuelan government (Baptista & Mommer 1987). Real oil revenues per capita rose 2.2 times between the early 1930s and c.1960.[11] But, despite a steady rise in the government's claim on oil profits (Manzano 2014), the 1960s saw a 30% decline in this variable reflecting a fall in the real oil price and strong population growth.

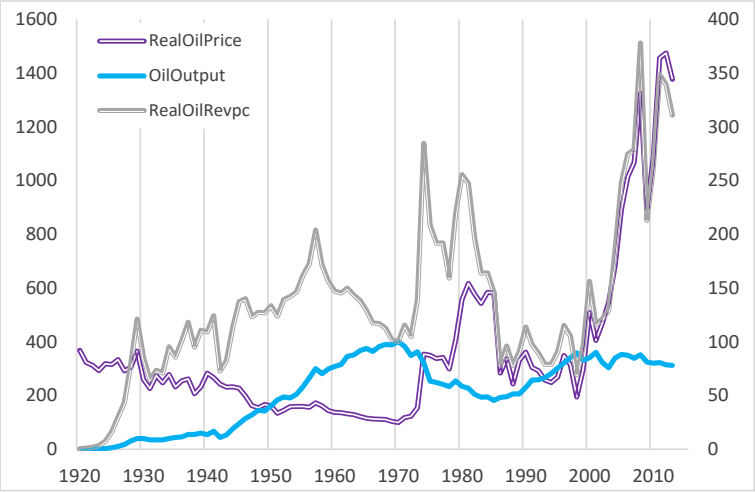
In October 1973 the Organization of the Petroleum Exporting Countries (OPEC) – of which Venezuela was a founding member in 1960 - implemented an oil embargo that triggered a four-fold hike in international oil prices. This event marks the start of Period 2. The surge in oil rents boosted domestic income and, in turn, consumption and imports (see Figure 2). It also provided the resources needed to pay out the oil multinationals and nationalise the oil industry in January 1976, transferring its control to the newly created stated-owned firm *Petróleos de Venezuela Sociedad Anónima* (PDVSA). This made the country the direct recipient of all oil revenues.

The second period in the oil industry is characterised by medium-term fluctuations in oil production and highly volatile oil prices. In March 1983 OPEC assumed an active role in controlling international oil prices by the adoption of production quotas (a voluntary reduction in oil

[10] Structural change (Kuznets 1955, Lewis 1954), the ins-and-outs of the global economy (Heckscher-Ohlin model), education and technology (Tinbergen 1975, Goldin & Katz 2008), and institutional and political changes (Piketty 2014).

[11] A surge in revenues in 1956/57 reflects the selling of new oil concessions to oil multinationals during the dictatorship of Marcos Pérez Jimenez.

FIGURE 3: REAL OIL PRICE, OIL PRODUCTION, REAL OIL REVENUES PER CAPITA



All variables are indices, 1970=100. *RealOilPrice* is plotted on the right axe. MOxLAD (2025) for oil prices, Manzano (2014) for oil output and oil revenues. Deflators: unit value of imports index (MOxLAD 2025) for real oil prices, and consumer price index (BCV 2000) for real oil revenues.

production). The aim of its members became maximising oil rents to the detriment of production. In Venezuela this resulted in a decade of declining or stagnant oil production, reaching an historical low between 1986 and 1989. Also, given its large share in the country's GDP (see Figure 1), it exacerbated the fall in economic growth.

Oil production reversed its decline in 1992 when the government of Carlos Andrés Pérez reopened the oil sector to international companies, using joint-ventures and service contracts (the so-called *Apertura Petrolera*). This reform added more than a million barrels of production capacity compensating for the fall in PDVSA's production and led to a sustained increase in production during the rest of the 1990s. Later in 2001 the government of Hugo Chávez passed a new hydrocarbon law that reinforced state control over the oil sector by mandating a 51% minimum majority stake for PDVSA in all exploration and production projects. Oil output remained constant during the 2000s and began a decline in the 2010s.

While the ups and downs in oil production over the longer term provided the baseline for oil revenues and economic activity, oil-price volatility was the overriding factor in Period 2. These included bonanzas in 1974/75, 1979-1981 (this time triggered by the Iraq-Iran war), and in 2003-2013 driven by a rise in oil demand from China. On the downside, there was a collapse in the oil price in 1986-1989 caused by a glut in the international oil market, and sudden price drops in 1998 and in 2009 during the Global Financial Crisis. As shown in Figure 3, such instability resulted in sharp fluctuations in government revenues and, in turn, expenditure. To make matters worse, the rapid accumulation of external debt during the bonanza years meant that during the outbreak of the 1982

debt crisis and its aftermath a substantial amount of government spending was devoted to the service of the public external debt.[12]

Because of the high oil dependency, there was an immediate impact on the labour market in both job losses and lower wages with important implications for income distribution (see Section 5). Although the 2010s oil boom boosted economic growth and led to a moderate rise in real wages, physical private investment remained subdued (Figure A.1) amid heightened legal insecurity and, consequently, the bonanza was not enough to reverse the structural problems affecting the labour market. A key difference between the use of the windfalls of the 1970s and the 2000s is that the former was largely invested in human and physical capital, whereas the latter was largely use to finance consumption (see Figure 2 & Figure A.1).

3.2. *Structural transformations*

The general picture of the country around 1920 was one of a largely rural and poorly educated society, at an early stage of the demographic transition with a slow population growth amid high fertility and mortality rates, with limited economic diversification with an incipient manufacturing base, and a high concentration of exports on a handful of agricultural commodities (e.g., coffee and cocoa). This was also the time when Venezuela started to tap in its oil richness. The decades that followed witness a profound structural, demographic and institutional transformation.

The country went through its demographic transition supported by improvements in sanitation and health (e.g., eradication of malaria and vaccination campaigns). As mortality rates fell, population expanded rapidly during the middle decades of the last century, and slowed down in the closing decades reflecting a fall in fertility rates. The delayed impact of such changes into the labour market was felt in those closing decades. Participation rates rose from 44% in 1970 (PREALC 1982) to 56.1% in 1980, 58.7% in 1990, and 61.4% in 2000 (ECLAC 2025)[13]. This created the conditions for a rise in labour informality - increasingly important post 1980, undermining real wages particularly of unskilled workers.

The spending of oil revenues intensified the pace of internal migration during 1920-1950 primarily towards the country's capital Caracas and the oil capital Maracaibo. The urbanisation rate went from 16% in c.1920 to 42% in 1950 and 72% in 1980 (Baptista 2006a). Newcomers were mostly searching for relatively unskilled jobs in construction and services. The expansion of industry became a main pull factor during 1950-1980. Whereas in 1950 46% of the economically active population (EAP) was rural based, it was down to 19.5% by 1980 (PREALC 1982). Meanwhile, the ratio of urban-rural

[12] The ratio of external debt to GDP stood at 7% in 1974, 20% in 1980, a 70% peaked in 1989 and 53% in 1994. Meanwhile, the ratio of debt service to exports stood at 4.9% in 1974, 20% in 1980, a 40% peaked in 1988, and 17% in 1994 (Karl 1997; Statistical Appendix, Tables A-11 and A-14).

[13] This was driven by a rapidly growing female participation rate from 32.4% in 1980 to 44% in 2000.

literacy fell from 2.52 in the 1940s to 1.42 in the 1980s (Astorga, Bérges, FitzGerald 2005). Consistent with the Kuznets-Lewis narrative, this evidence indicates that during those 30 years or so most of the labour surplus would have been absorbed, and that a reduction in the literacy gap created the conditions for a decline in urban-rural wage gaps. Indeed, the average income in construction, manufacturing, commerce and transport relative to agriculture first rose from 4.1 to 5.5 between 1936 and 1959 and, then, fell to 4.5 in 1971 and 2.7 in 1982 and remained around that level up to 2001 (Valecillos 2007; pp.194,289, 395).

Education underwent a major transformation in the second half of the last century, especially after the restauration of democracy in 1958. During this period there was a rapid acceleration of school enrolment in primary education, reaching stability after the late 1960s. Then universities mushroomed and by 1975 the number of students registered in higher education was about nine times the value of 1960 (from 26,000 to 222,000 students). This explosive increase in enrolment was matched by rises in government resources. The average share of education of total expenditure for the period 1940-58 was about 6% which contrasts with an average of 13% during the next two decades. Meanwhile, funding for higher education rose from 3.8% of the total education budget in 1946 to 42% in 1978 (Kornblith & Maingón 1985) reinforcing a bias towards university studies and boosting the supply of highly-skilled workers. The upward trend continued up to the early 1980s when education expenditure peaked and started a rapid decline. As early as 1986 per-student real spending came down to a level similar to that of 1974 at the start of the oil boom (Astorga 2000).

The average years of schooling of the labour force rose from 2.9 years in 1960 to 6.6 years by the end of the 1990s. Increases in schooling persisted well beyond the turnaround in economic growth. But the quality of education deteriorated dramatically between 1987 and 2003 so that a year of schooling conveyed fewer skills (Ortega & Pritchett 2014). The quality loss was in tune with a significant decline in the support of public resources. Public spending on education as a share of GDP dropped from an average 4.8% in 1970-83 to 3.9% in 1984-1994, and a similar rate in 2006-07 (ECLAC 2025). These percentages translated into a fall of 35% in per-capita spending in real terms.[14]

Other salient developments were related to the organisation of labour and the introduction of labour rights. The first unified trade union in the country (*Unión Sindical Petrolera*) was created in the oil industry in 1936 (Salazar Said 2021). This union played a crucial role in advocating for the rights of oil workers and fighting for better working conditions. These pro-labour institutions served as a blueprint for improving the conditions of workers in the non-oil formal sector in the 1950s and 1960s. Unionisation peaked at 45% around 1978 (Valecillos 1986). However, it - and the political

[14] According to my calculations using data from Baptista (2006a), at 1984 prices this represented a per-capita fall from about Bs1500 to about Bs1000.

influence of unions – began to erode rapidly after 1980 reaching 14% in 2002 (Lucena 2005) amid a rapidly expanding informal sector. Minimum wage legislation was introduced in 1945 for specific industries, but it was not until 1974 that a general minimum wage was in place (Méndez 1950). The real official minimum wage fluctuated around a moderate rising trend until 1986, then fell steadily by 25% until 1996. By the end of the 2000s it was only 70% of the 1974 value (Riutort & Balza 2001).

Oil richness did not always spur structural changes. Indeed, in the case of industrialisation, it acted as an inhibiting factor. In economies experiencing a booming oil sector there is a tendency towards the appreciation of the real exchange rate with negative effects on activity of the non-oil tradable sector and manufacturing in particular.[15] In Venezuela, when industry was in its incipient stage, a strong currency hindered its expansion. The policy of 'Sowing the oil' was a way to reach a balance, to pull both sectors in the same direction with public expenditure as the mechanism of transmission. The expansion of manufacturing started the 1950s and accelerated in the 1960s with the build-up of capital-intensive industries such as chemicals and transportation under an explicit import substitution strategy led by the State. During the 1970s the diversification strategy shifted its focus towards an ambitious resource-based industrialisation centred on basic metals with export potential.[16] But, after the turnaround in physical investment in 1978, the country witnessed a steady decline in industrial activity (Vera 2009). In particular, the downturn in world markets in the 1980s and managerial weaknesses severely affected the competitiveness of the newly installed steel and aluminium plants (Bourguignon 1988, p.317).

The modernisation and diversification of the industrial base and, more generally, the non-oil economy, brought about skill-biased technological change. This is consistent with the education-technology inequality narrative, where advances in technology and the expansion of capital-intensive activities favour the demand of skills. The final effect on relative wages (and wage premiums) will depend on the balance between demand and supply. It is expected that shortages of skilled workers would widen wage premiums, whereas its relative abundance would narrow them.

In sum, by the end of the 1970s, urbanisation was largely complete, the demographic transition entered its maturity stage, public resources to education peaked, and pro-labour institutions were well established. But this also was the time of the drastic slowdown in capital accumulation as the economy was unable to absorb the ongoing oil windfall and the government tried to cool off the

[15] This is the focus of the Dutch-disease literature (e.g., Corden 1984). However, the Dutch-disease standard model is not suited to the study of the direct implications for income inequality during and after the commodity boom. Also, it assumes that the country is already industrialised and that the appreciation of the real exchange rate results in a decline in manufacturing.

[16] In 1936 the traditional industries of food and textiles represented more than 60% of manufacturing employment and capital, and accounted for more than half of its value added. In 1981 they accounted for less than 20% of employment and capital, and around 27% of total value added (Astorga 2000).

overheated economy (Moreno & Shelton 2014). The onset of the Debt Crisis of the 1980s was around the corner and during the following two decades the economy experienced a continuous decline, with a reversion of industrialisation, the collapse of real wages and the informalisation of the labour force. Economic hardship and the perception among Venezuelans that the oil windfall had been largely misused or embezzled fed political instability, social unrest and undermined public trust in democracy. The key ingredients of the political resource curse (Ross 2012).

4. Measuring income inequality

My first measure is functional inequality which looks at the relative shares of capital and labour of net National Income at factor cost of the National Accounts.[17] The former includes returns to ownership of assets; the latter covers payments for human effort. The separation is straightforward for employees but complex for mixed-income households and individuals as their income combines both rewards to capital and entrepreneurship as well as labour. Separating these is a matter of convention. In Venezuela between 1950 to 1968 an estimated labour component of mixed income was added to total remunerations and the rest to capital income. In this case, remunerations equate labour income. But from then onwards all mixed income was included in Gross Operating Surplus (Rodriguez 2000), so that total remunerations were equivalent to compensation of employees (i.e., salaried workers). To minimise the underestimation of total labour income during those years, I estimated the labour component of the income of own-account workers and add it to remunerations as published by the Banco Central de Venezuela (BCV). Also, I assumed that that employers' income is largely business or entrepreneurial income. See Appendix B.1.

Income inequality can be measured as the capital share of national income:

(1) $CI\% = CI/NI*100$,

where *CI%* stands for the capital share of income; NI for net national income; LI for labour income, CI for capital income calculated as a residual (CI=HI-LI).

The capital share of income has two main limitations when the purpose is to capture income inequality across individuals or households. First, it implicitly assumes that they only receive income from a single source. And, secondly, it fails to capture inequality within both capital and labour

[17] This is the income concept used in the Distributional National Accounts (DINA) methodology (Piketty et al., 2018). The DINA integrates national accounts data with fiscal records and household surveys to offer a comprehensive picture of economic inequality. Under the assumption that all business and government incomes eventually flow to individuals, retained earnings of companies as well as government income are allocated to individuals as part of factor incomes. An alternative methodology was developed by the Expert Group on Disparities in a National Accounts Framework (EG DNA) led by OECD-Eurostat (OECD 2024). The EG DNA uses the narrower Household Income of the National Accounts combined with household surveys data. As part of the robustness checks (Appendix B.4) I compare the overall inequality outcome using both income concepts.

components. To address such shortcomings, I rely on dynamic social tables of four occupational groups. The economically active population (EAP) is divided into: Group 1 (employers, managers, and professionals); Group 2 (technicians and administrators); Group 3 (semi-skilled workers, and other urban workers in low productivity sectors such as retailing and transport); and Group 4 (urban and rural unskilled, including domestic servants). See Table A.1. These groups are themselves an aggregation of the categories used in ECLAC's Social Panorama (2000) and are standard categories in the statistics of the International Labour Organization. To ensure consistency with the total EAP series, the labour force in Group 3 is calculated as a residual.

Based on this occupational structure of the labour force, I calculate a Gini coefficient to capture income inequality between the four groups.[18] I call this the overall between-group Gini (*G4All*), which is the inequality that would result if everyone in each of the four groups receive the mean income of the corresponding group. *G4All* is calculated from the groups' relative income ratios and their corresponding EAP shares in a given year (see Appendix B.3):

(2) $G4All = \sum_{i=2}^{4} \sum_{j=1}^{i-1} e_j e_i |r_j - r_i|,$

where e_i is the EAP share of group *i*; r_i is the ratio of the mean income of group *i* to the mean income for the whole EAP (income per person engaged); and $e_i r_i$ equals the income share of each group (s_i).

To obtain the mean income of each group I need to add up the capital and labour components. To estimate the mean capital income per group, the starting point is the aggregate capital income estimated in (1) which makes allowances for the capital component of mixed income. This is allocated across the four groups according to proportions calculated with detailed data c.1960 from Urdaneta (1977). See Appendix B.1.

Finally, for the calculation of *G4All* it is necessary to conciliate series of average remuneration per worker from labour-market statistics and total remunerations of the National Accounts. To that end, the average real labour income per group is recalculated by applying the labour-income share of each group (s'_i) obtained with average remuneration series – see eq. 3 bellow – to total remunerations of the National Accounts adjusted upwards with the estimated mixed income of own-account workers (Appendix B.1.2, Figure B.2). Such a transformation reduces average labour-income per group (compared to the average calculated with wage data), but preserves labour inequality.

4.1. *Labour Ginis*

There are two additional occupational Ginis which include only labour income. The between-group labour inequality Gini for the four groups (*G4Lab*), which is the inequality that would result if

[18] Note that the groups' shares change over time in response to developments in skills formation, demography, and living standards. This is a departure from standard Ginis calculated with fixed quantiles of the labour force.

everyone in each of the four groups receive the mean labour income of the corresponding group. It is calculated in a given year as:

(3) $G4Lab = \sum_{i=2}^{4} \sum_{j=1}^{i-1} e'_j e'_i |r'_j - r'_i|$,

where, e'_i is the EAP share of group *i*; and r'_i is the ratio of the mean labour income of group *i* to the mean labour income of all four groups; and $e'_i r'_i$ equals the labour-income share of each group (s'_i).

The average labour income for Group 1 is calculated for the component of managers and professionals only. Earnings of employers are assumed to be all capital income.

A narrower between-group Labor Gini for the three lower groups (*G3Lab*) is the inequality that would result if everyone in a given group received the mean labour income for that group.

(4) $G3Lab = \sum_{i=3}^{4} \sum_{j=2}^{i-1} e''_j e''_i |r''_j - r''_i|$,

where, e''_i is the EAP share of group *i* out of the total for three lower groups; and r''_i is the ratio of the mean income of group *i* to the mean income of the three lower groups; and $e''_i r''_i$ equals the labour-income share of each group (s''_i).

Calculating these labour Ginis is of interest because they can reveal inequality patterns that otherwise could be hidden in the overall Gini. For instance, skill-biased technological change is likely to be a key factor influencing trajectories of *G4Lab* via changes in wage premiums (reflected in the income ratios); whereas *G3Lab* could better capture potential effects associated with internal migration and labour regulations. In particular, developments in the official minimum wage are expected to influence the mean income of the bottom group and to impact premiums.

Regarding the calculation of the average labour income per group, I rely on representative series of remunerations per worker assembled to reflect differences in skills. The average labour income in Group 1 results from combining series of white collars in the oil industry and in manufacturing excluding the low productivity activities of food, textiles and footwear. This assumes that the salaries of managers and professionals and the mixed income of self-employed professionals in the wider economy are reasonable proxied by such an average. Group 2 uses a weighted average of the mean remuneration in the public sector and in manufacturing excluding food, textiles and footwear activities. This group is primarily composed of salaried (formal) workers with a relatively small number of self-employed professionals which mixed income can be well proxied by the group's average remuneration. Group 3 combines average remunerations in the construction sector with those in the manufacturing activities of food, textiles and footwear. Group 4 uses information on unskilled wages differentiating, when possible, between urban and rural areas. The mixed income of the relatively unskilled self-employed workers in the two bottom groups is proxied by the groups' mean remuneration. See Appendix B.2.

4.2. *Key estimation issues*

Before presenting the evidence, some clarifications are in order. First, I use the concept of 'well-apportioned' groups to examine the extent to which the four occupational groups offer an appropriate EAP breakdown that minimizes the potential for income overlap. For a group to have a separate identity the income differences within the group should be less than the differences across the groups, and the weighted sum of within-group Ginis should not be larger than the between-group Gini (Modalsli 2015; Milanovic et al. 2010). Under this concept, my four occupational groups are well-apportioned, and this should translate into limited income overlaps between groups improving the accuracy of the occupational Ginis.

Secondly, for the sake of simplicity, my occupational Ginis exclude income dispersion within the groups. I took that decision because the calculation of similar Ginis including both between-group and within-group components in six Latin American countries over 1920-2011, shows that although the inclusion of the within-group component raises the inequality level, it does not have a significant impact on trajectories (see Astorga 2024) which are the main concern of this study. The same conclusion is reached using Venezuela's percentile structure of the official household surveys available from 1985 to 2013 (Maldonado 2021), and comparing the Gini calculated with the full data with a between-fractions Gini that would result if every percentile in each of four given fractions (c.1-c.40, c.41-c.70, c.71-c.90, c.91-c.100) receives the mean income of the corresponding fraction. These fractions are broadly in line with the EAP shares of my groups during those years.

Thirdly, all my income series are at constant prices using the general Consumer Price Index (CPI) as deflator. Therefore, my Ginis are identical to the one that would result if calculations were made with the income series at nominal prices. Owing to a lack of CPIs per groups or quantiles of the income distribution, it is not possible to calculate real inequality. However, having income at constant prices makes it possible to relate the inequality outcome with times of prosperity and those of adversity, as well as to calculate income gaps in absolute values. Finally, all my Ginis are calculated with pre-fiscal income. Natural resource rents – largely from oil - are included to the extent that they are reflected in monetary income, but not when they were used to finance publicly provided goods and services such as education, health and housing. This in-kind provision was very significant particularly during the boom years of the 1970s and the 2000s.[19] I address the implications of the distributional impact of social spending at the end of Section 5.

[19] According to Valecillos (2007, p.465), in 1967 social spending represented 22% of the average remuneration per worker, a percentage that reached 29.1% in 1981 and then fell to 24.6% in 1990.

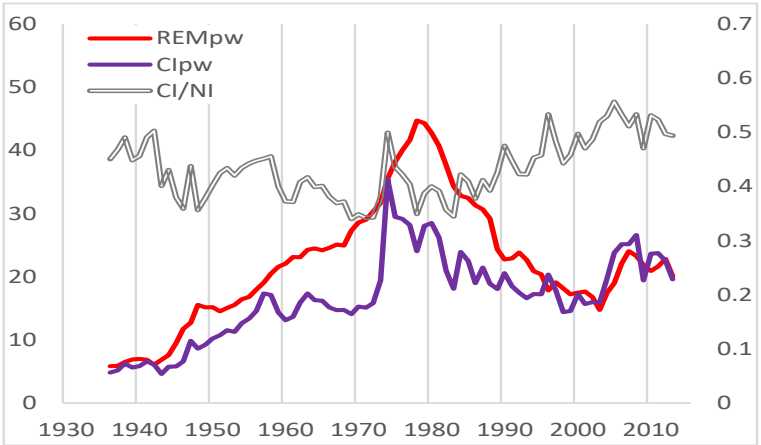
5. Inequality evidence

In what follows I offer a detailed account of the inequality outcome. As I discuss the evidence, I highlight those factors associated with structural and institutional transformations as well as policy changes and external events which are likely to have played an important role in each period. Notice that because of potential differences in the direction, intensity and timing of the impact of such factors, a priori, the net inequality output is ambiguous. For instance, whilst a high unionisation rate and widespread collective bargaining are expected to bring about equalising pressures, protected industrialisation amid skill-biased technological change and shortages of skilled labour are likely to favour incomes at the top and to widen wage premiums.

As shown in Figure 4, a crucial difference across Period 1 and Period 2 is a contrast between: i) rising trends in real remuneration per worker and, to a lesser extent, capital income per worker in the first period; and ii) a sharp increase in both income series from 1973 to c.1980 followed by a steady contraction up to 2000 and, then, by a moderate rising trend in both income variables up to 2013. Figure 4 also includes the capital share as in (eq. 1).

During Period 1 a faster rise in remunerations relative to capital income resulted in an underlying declining trend of functional inequality between 1936 and the end of the 1960s. This largely reflects the surge and consolidation of the middle class supported by urbanisation, education improvements and increases in urban wages (Valecillos 2007). Also, the equalising trajectory is consistent with pro-labour institutional developments such as unionisation and collective bargaining.

FIGURE 4: REAL REMUNERATION AND CAPITAL INCOME PER WORKER



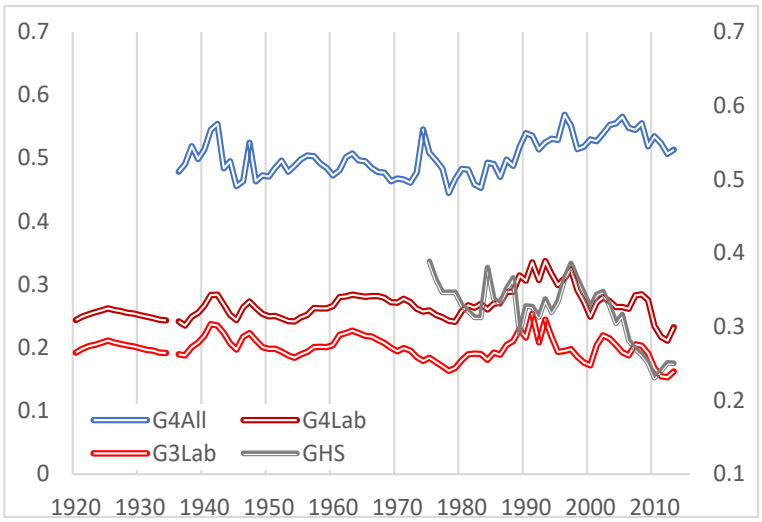
REMpw = real remuneration per worker; *CIpw* = real capital income per worker. Both series at Bs. per year at 1984 prices. *CI/NI*= capital share of national income, plotted on the right axe. Series sourced from BCV post 1950; between 1936 and 195, Remuneration grows in line with private consumption (De Corso 2013) and CI uses Baptista (2006a).

In contrast with the dominance of a largely uniform inequality pattern in the first period, the second one features an alternation of inequality changes amid a steady fall in real national income

up to 2000 and, then, a moderate recovery. Inequality rose in the aftermath of the 1973 oil shock; and moved up further in the 1980s driven by the combination of the Debt Crisis, a slump in the oil price in the mid-1980s and the implementation of the neo-liberal reforms in 1989. But importantly, this time the inequality widening occurred amid rapidly falling real wages.

Figure 5 shows the trajectories of *G4All*, *G4Lab* and *G3Lab*, together with the standard Gini coefficient based on household surveys (*GHS*). Significant differences in levels and trajectories across my three Ginis are primarily explained by the decisive role played by the top group's income share in shaping income inequality. As shown in this figure, trajectories in functional inequality closely match those in overall income inequality. This is to be expected because of the concentration of capital income at the top of the income distribution.

FIGURE 5: INCOME INEQUALITY IN VENEZUELA



GHS = Ginis based on household surveys using people employed CEPAL (1988) in 1975-1985 based on deciles; Maldonado (2021) thereafter based on percentiles.

The banking crisis of 1994/95 brought about an inequality decline that was partly reversed in the early 2000s as the commodity boom boosted remunerations particularly in the public sector. (Mateo Tomé 2010). A key message of Period 2 is that drastic and unexpected changes in the price of oil – and oil revenues – had an asymmetrical impact on income inequality. It widened during the booms of the 1970s and the 2000s but also during the slump of the 1980s.

The inequality outcome post-1973 is the result of a confluence of various underlying forces. First, a sustained fall in physical investment since the late 1970s (Figure A.1) dragging economic activity and labour demand. Private investment in real terms fell by 80% between 1978 and 1986, and its ratio to GDP came down from 0.29 to 0.08. Secondly, the delayed impact of the demographic transition boosting the supply of better educated workers. Thirdly, a rapid erosion of the power of

unions. This backdrop, together with high oil-price volatility, set in motion the distributional dynamics that dominated the final two decades of the last century.

Rodríguez (2000) offers an explanation for the rise in functional inequality between the early 1980s and the mid-1996. As his argument goes, a sustained fall in the accumulation of physical relative to human capital (a fall in the capital-labour ratio) boosted returns to capital (profits) relative to labour (wages). Under the logic of the standard growth model, the effect on the capital share of income depends on the elasticity of substitution between both factors. The combined evidence during those years of a rising capital share, an unprecedented collapse in real wages amid structural rigidities and limited economic diversification is consistent with a very low elasticity of substitution. As a consequence, the downward adjustment of wages was insufficient to produce the required reallocation of labour triggering a rise in unemployment and labour informality.[20]

5.1. *Labour inequality*

After discussing functional inequality and the overall Gini, I focus my attention on the two labour Ginis. The average remuneration per worker in each of the four groups is shown in Figure A.2. They follow a similar pattern as the overall remuneration per worker in Figure 4: a steady rise from 1936 up to the late 1970s followed by an equally steady but falling trend up to the early 2000s, and a moderate recover thereafter. For the early years I use the partial evidence offered by salaries and wages paid by the central government in 1920, 1925, 1930 and 1935 (Carrillo Batalla 2003). Occupations are grouped according to the four skill levels. Despite the small relative share of government employment in the labour force during those years,[21] the average wage earned in each group broadly matches comparable mean incomes in the 1936 Economic Census (BCV 1949). Therefore, changes in the skill premiums calculated with this evidence should offer a reasonable approximation for those in the wider economy. See Appendix B.2.

Both labour Ginis show similar trajectories between 1920 and the early 1960s and, then, between the mid-1980s and 2013 (with also a coinciding trend in *G4All*). The World War Two brough about an across-the-board rise in inequality, indicating that the impact of that major external shock was more severe on the labour income of the bottom groups. The years between the early 1960s and the later 1970s are dominated by narrowing inequality, with a faster decline in G3Lab. To shed light on these trends I look at developments in skill premiums and the likely factors shaping them over the two

[20] The informality rate (reflecting unskilled self-employed and employed in micro firms) went up from 35.6% in 1989 to 45.3% in 1995 and 50.5% in 2000 (Gasparini & Tornarolli 2009).

[21] Employees in the public sector represented 7.5% of the salaried total in 1936 (Valecillos 2007, p.175)

periods. Figure A.3 shows the ratio of the average remuneration per worker of Groups 1, 2 & 3 relative to that of Group 4.[22]

During the first period, the equalising trend in overall inequality contrasts with a rise in *G4Lab* driven by higher and rising premiums in Group 1 up to the mid-1960s, levelling off until the early 1970s. Regarding *G3Lab*, rising premiums for skilled workers (*ratio24*) up to the mid-1960s, followed by a decline up to the mid-1970s is consistent with the evidence of sectoral income gaps during a period of rapid internal migration (see Section 2). Moreover, remunerations in the bottom two groups also benefited by the implementation of pro-labour policies after the late 1950s and the agrarian reform of 1960.[23]

There is no salient rise in *G4Lab* during the 1970s. This means that the dis-equalising move during those years captured in *G4All* was driven by a more than proportional increase in capital income relative to labour. Premiums in Groups 1 and 2 rose strongly by the end of the 1980s and mid-1990s underpinning rises in *G4Lab* and *G3Lab*. This indicates that the relative impact of the underlying income contraction was less severe in Group 1 and, to a lesser degree, in Group 2. The real minimum wage fell between mid-1980s and mid-1990s, primarily undermining income of Group 4 (Riutort & Balza 2001). The banking crisis of 1994/95 set in motion a race to the bottom in the labour market up to the early 2000s with sharp falls in premiums for workers in the top two groups. As noted earlier, this was driven by excess supply of relative skilled workers.[24]

Wage premiums are also expected to be driven by skill-biased technological change. Its influence should be reflected first of all in the disaggregated evidence in manufacturing. Astorga (2025) examines the combined evidence of the share of white collars and their wage premiums in each of the 20 divisions of the International System of Industrial Classification version 1, in eight benchmarks equally divided across the two periods. The share of white collars on total employees was comparatively low in 1953 and increased all the way until the 1991 benchmark. This is particularly noticeable in the capital-intensive industries such as chemicals, basic metals and electric machinery. This evidence is consistent with increasing demand for skilled workers. Another salient pattern is a clear contrast in the behaviour of premiums by activities across the periods. In Period 1 there is a

[22] Trends in premiums between 1975 and 2003 are largely in line with estimated wage premiums in Ortega and Pritchett (2014) for primary, secondary and tertiary education, though the increase in premiums in the early 1990s is stronger in my series.

[23] Although the reform had limited results in the longer term, in its initial years it offered support for a rise in output and income. Value Added in agriculture grew at an annual rate of 6.4% in the 1960s, compared to 3.5% in the 1970s (Baptista 2006a). And real earnings in agriculture grew at an annual rate of 5.1% 1960-1972 vs. 3.4% 1973-82 (Valecillos 2007).

[24] Although this is not captured in my data, another factor undermining premiums in the top two groups was a significant wage compression in the public sector. In 1991 the salary of an employee in the top level of the "professional and technicians" category was 8.35 times the salary of an employee in the lower level in the "supporting employees" category. The same ratio in 2006 was down to 4.1 (González 2006, p.545).

widening of premiums; whereas in Period 2 there is a narrowing of wage gaps as well as a significant reduction in fluctuations across activities. A plausible explanation is that during the initial stages of industrialisation pressures associated with technological change amid skills shortages were dominant. However, post 1973 the increasing relative supply of educated workers started to put downward pressure on premiums. In addition, stronger union power up to early 1980s may have also kept them at bay.

In sum, during the 1970s real remunerations were growing, and the average worker in all four groups of the labour force was better off, especially in Group 1; by contrast, during the 1980s and 1990s there is an across-the-board decline in labour income, but it was more acute in the lower three labour groups. Hence the rise in *G4Lab* and an earlier decline in *G3Lab*. Skill premiums in the 2000s were dominated by a falling trend amid an across-the-board recovery in real wages made possible by the oil boom of that decade. Generous transfers as part of President Chavez's *misiones* [25] and the recovery of the real minimum wage (Mateo Tomé 2010) supported the falling trend in *G3Lab*. Another likely underlying factor helping to reduce premiums was the accumulated impact of a relative rise in the years of education in the bottom quintile of the income distribution (associated with Group 4).[26]

5.2. *Comparisons with alternative Ginis*

During Period 2 it is possible to compare my occupational Ginis with alternative series (Figure A.5). First, my overall Gini with that calculated by Baptista (2006b) from 1975 to 2004 and by Vallez (2018) from 2005 to 2014 adopting the same methodology. These authors estimate capital income separately from the National Accounts as the difference between National Income at factor cost and total remunerations, and allocate the resulting amount across the population according to the distribution of labour income based on the household surveys using households as the unit of analysis. This means that trends in *GBap* tend to reflect those in the *GHS-house* and, to a lesser extent, *GHS*. See more details in Appendix B.1.1. Despite methodological and data differences, changes in trajectories in *G4All* and *GBap* are broadly in tune during the second half of the 1970s and after 1993. But there are discrepancies in the slump years between 1986 and 1992 driven by the contrasting behaviour of labour inequality.

A second comparison of interest is between my *G4Lab* and, specially, *G3Lab* with the Gini calculated with the household surveys using people employed. During the critical years between

[25] Social programs targeting specific areas such as literacy campaigns, housing, food provision for low-income households and health modules in shantytowns.

[26] This supported a steady fall in the Gini of years of education (age group 25-65) from 0.357 in 1989 to 0.309 in 1998 and 0.284 in 2006. Schooling in the bottom income quintile rose from 4.3 years in 1989 to 6.6 years in 2006; whereas of those in the top decile rose from 10.8 year to 11,7 in the same period (CEDLAS 2024).

1974 and 1978, all three measures display a decline. The oil boom of the 1970s was clearly equalising. However, my labour Ginis show a turnaround in 1979 whereas the *GHS* keeps falling until 1983. Co-movements are in tune in all three measures from 1984 to the mid-1990s (rising trends) and during the 2000s (falling).

A close scrutiny of the decile structure of the *GHS* (CEPAL 1988) shows that the falling trend during the second half of the 1970s is the result of relatively strong growth in the average real wage in deciles 1 to 4 (d1-4) of 30.1% between 1975 and 1978 and in d5-7 (16.1%). By contrast there is an income decline in d10 (-3.3%) and a modest rise in d8-9 (4.2%). From 1978 to 1979 all deciles experienced real growth, but the early 1980s shows generalised falls (and average yearly growth of -4.4% between 1980 and 1981) led by the top decile (-9%). This means that, surprisingly, at the time of the oil bonanza of the 1970s and early 1980s those at the top of the labour income distribution saw a decline of their real income. However, wage evidence from industrial surveys shows that the real salaries of white collars in manufacturing rose between 1975 and 1978 (up 5%) and experience only a modest fall rose in the early 1980s (-1.5%). And data on wage contracts subjected to centralised collective bargaining for both white collars and relatively unskilled workers saw a similar 15% rise in real wages between 1975 and 1978 and of 17% and 21% respectively in the early 1980s (Valecillos 1993, Cuadro 32). Altogether, this alternative evidence points to a significant underestimation of top incomes in the household surveys which may have resulted in an overestimation of the fall in the official Ginis during the second half of the 1970s and the early 1980s.

Finally, there are a number of inequality estimations at specific years informing about the direction of trends over relatively short periods which can offer additional comparisons.

The fall in functional and overall inequality in the 1960s is consistent with calculations of personal income concentration in 1960 and 1967 by Urdaneta (1977, Cuadro III-23) incorporating data on tax returns and the size distribution of bank accounts. She found that the top 12.1% of the labour force received 53% of total income in 1960 whereas the top 16.4 % received 51.7% in 1967, indicating a drop in concentration.

The move from a lower functional and overall inequality in the mid-1960s to a higher level in the aftermath of the 1973 oil shock is consistent with the estimations of Musgrove (1981, Table 3) based on HBS including capital income conducted in Caracas (at the time housing a fifth of the country's population) in 1966 and 1975. The Gini of individuals rose from 0.451 to 0.489, whereas the share of the top decile rose from 31.5% to 37.1% between both years.

Fernández Bujanda et al. (2008) examined comparable household budget surveys in 1997 and 2005 which include capital income. They reported Ginis showing a decline from 0.487 to 0.457. This

is at odds with the trend of my overall Gini which shows a modest rise, but is in tune with movements in my labour Gini covering the four groups.

5.3. *Distributional impact of social spending*

This study concentrates on pre-fisc monetary income inequality leaving aside the distributive impact of social spending and its financing (tax incidence). This is an important omission as oil richness benefits society by providing generous resources in key areas such as education, health, housing and social security and assistance. In addition, petrol subsidies have been a substantial in-kind benefit as the price charged to consumers has not been economically significant prices since 1945. Therefore, the distribution of this additional in-kind spending has the potential to partly reinforce or offset pre-fisc inequality trajectories. After a decline of social real spending per capita between the mid-1980s and the late 1990s, under President Chavez (1998-2013) social spending expanded significantly surpassing the level of the 1970s (Figure A.4). The main beneficiaries were those at the bottom of the distribution and, more generally, the working class (De Luca et al. 2013). This outcome reinforces the equalising trend observed in my Ginis.

Although rigorous studies on inequality within the beneficiaries of social spending in the last century are scarce, there is information on the composition of spending in education and health (Kornblith & Maingon 1985) and on labour informality as well as on the tax structure that can shed light on the matter. Also, it can be safely assumed that petrol subsidies were regressive. The years between 1936 and the mid-1960 are characterised by an emphasis on primary education, preventive medicine (e.g., vaccination) and sanitation (e.g., anti-malaria campaigns). These spending priorities were likely to benefit above all those at the lower sections of the distribution, particularly in rural areas. In addition, those were times of advances in labour formalisation and the expansion of social security, adding another equalising influence. Regarding tax incidence, the financing of public expenditure relied increasingly on taxes paid by the oil multinationals operating in the country (see Figure 1). This means that its redistributive role was relatively small and that any regressive effect was minimised. Altogether, these developments reinforce trends in *G4All*, whilst partly offsetting those in the labour Ginis.

The end of the 1960s and, especially, the 1970s were marked by a bias towards tertiary education (which largely benefited the middle and upper classes) and a shift of health spending away from prevention and sanitation into curative medicine. Meanwhile, the oil windfall brought about an across-the-board increase in social spending and assistance, although with a limited impact in terms of its progressiveness (Bourguignon 1980). Altogether, developments during these years are likely to have made social spending less progressive, partly offsetting trends shown in the labour Ginis. During the 1980s and 1990s there was a rapid increase in labour informality affecting above all those at the

bottom of the distribution. In addition, there was the continuation of the tertiary-education bias and the emphasis on curative medicine. Regarding tax incidence, the fall in oil revenues lead to the introduction of indirect taxes such as VAT and a tax on financial transactions. This shift in the tax structure away from direct taxes was likely to have undermined the progressiveness of the tax burden.[27] Altogether, these two decades were likely to be dominated by a dis-equalising outcome reinforcing rises in pre-fisc inequality.

6. Conclusions

The main purpose of this work is to study income inequality in Venezuela over the long term so as to clarify whether oil richness has been a force to create a more equitable society, or another opportunity to reinforce deep-rooted historical disparities. A major obstacle in the way of addressing this pivotal question is scarcity of income data. Standard sources such as comparable household surveys start in 1974 and only cover labour income; and the availability of tax records is historically very poor. Therefore, the first task at hand was the construction of a set of occupational Ginis consistently defined over time.

The methodology and data sources used to construct these new measures have their limitations, particularly the lack of direct estimates of capital income before 1936, the inevitable relatively narrow sectoral coverage of remuneration series, and a reduced, though well-apportioned, number of occupational groups. Also, there is insufficient wage data over the whole period to produce a consistent estimation of within-group inequality; therefore, the analysis relies on between-group Ginis. However, the calculation of similar occupational Ginis covering both between-group and within-group components in six Latin American countries (Astorga 2024) and calculations made with the percentile structure of household surveys during 1985-2013, shows that, although the inclusion of the within-group component raises the inequality level, it does not have a significant impact on inequality trajectories.

In addition, during the estimation work it was necessary to make a number of assumptions of varying quality with the potential to introduce biases. Thus, it cannot be ruled out that changes in some of them could alter the reported outcomes. However, inequality trajectories are robust to changes in the income concept, the adjustment for the labour-income component of the own-account workers post 1968, an alternative allocation of capital income across groups, and the split of Group 1's employees between employers, managers and professionals (See Appendix B.4). Reassuringly, trajectories in overall inequality roughly match an alternative Gini available in the 1960s

[27] In 1990 direct and indirect taxes represented 15% and 2% of GDP respectively. In 2013 both shares were around 4% and 10% (Vera 2017).

and between 1966 and 1975, and movements in my labour Ginis post 1974 tend to be consistent with those in household surveys.

The first finding to report is that income inequality was primarily oil driven but that there is no simple answer as to the direction of its influence. The complexity arises because of the different dynamics associated with capital and labour incomes, as well as by the contrasting trajectories across two distinct periods, making conclusions largely contingent on the measure used and the period covered.

During Period 1 oil revenues were largely determined by quantities rather than by prices. Inequality was influenced by a steady rise in oil production and government spending shaping the pace of structural transformations. There is a narrowing trend in overall inequality reflecting the surge and consolidation of the middle class, with increases in real remunerations outpacing those of capital income. By contrast, labour inequality was dominated by a widening trend, particularly when all four groups are included. Skill shortages and a significant labour surplus are the main likely drivers of this outcome. But the narrow labour Gini shows a decline during the 1960s which is consistent with a tighter labour market for unskilled labour in cities and an agrarian reform improving income in rural areas.

Developments in Period 2 are more varied. Now oil revenues primarily depended on the fate of oil prices in international oil markets rather than on production decisions in the country. The country's high oil dependency made the economy highly vulnerable to external oil shocks. Venezuela benefited with substantial oil windfalls between 1974 and 1981, and then by another oil boom in the 2000s. On the downside, a glut in the oil market in the mid-1980s led to a steep fall in oil prices that was only partly reversed by the end of the 1990s. According to my estimates, overall inequality rose during the two bonanzas of the 1970s and the 2000s. In the former reflecting a more than proportional rise in capital gains relative to labour income; in the latter by rising skill premiums. However, somehow unexpectedly, inequality widened during the slump, driven by growing premiums. As to labour inequality, it fell during the 1970s and the 2000s driven by rising skill premiums. By contrast, it rose during the slump. Th evidence of Period 2 shows that changes in the price of oil had an asymmetric impact on overall income inequality, but a symmetric one in labour inequality. This is an interesting result for the broader literature that looks at the oil-inequality nexus (dominated by labour income) where a symmetric impact seems to be the norm.

This study concentrates on pre-fisc income inequality leaving aside the distributive impact of social spending and its financing. The allocation of this additional source of in-kind income has the potential to partly reinforce or offset pre-fisc inequality trajectories. Although, there is a lack of studies offering a rigorous and comprehensive analysis of the historical distribution of social

spending, partial information on the composition of expenditure on education and health, as well as developments in the formal-informal divide and the tax structure suggest that social spending tended to reinforced the estimated pre-fisc trajectories.

This work shows that the confluence of endogenous transformations and the timing of external oil shocks – and the 1980s Debt Crisis - is crucial to understand the income inequality in the country during the second period. In particular, the sustained fall in physical investment post 1978 and the oil slump after 1986 dragged activity and labour demand at a time when the delayed impact of the demographic transition and previous efforts to improve education were boosting the supply of better-educated workers in the 1980s and 1990s. The relative capital intensity of the industrial sector and the reduced economic diversification created the conditions for an expansion of labour informality. Also, there was a rapid erosion of the power of unions undermining further the position of labour versus capital.

The long-term analysis of Venezuela is also of interest for the discussion of the role of natural resources in economic development. The evidence shows a clear contrast in inequality dynamics between times of prosperity and adversity. During the years of plenty, income rose at all levels supported by relatively strong economic growth. Up to the early 1970s, remunerations grew faster than capital income resulting in narrowing overall (and functional) inequality, together with falling within-labour inequality in the 1960s and 1970s. This offers a good example of the growth and developmental potential that natural-resource richness can bring to a country.[28] The arrival of the lean years came completely unexpected. The turnaround was sudden and drastic, particularly for real income (both capital and labour) which went into freefall and recover only partially in early 2000s. Amid growing discontent and corruption scandals decisions on the use of the oil windfall were put into question. Political instability and social unrest ensued and the public trust in institutions weakened. This is illustrative of a political resource curse.[29] All in all, prosperity favoured above all those in the top group; whereas adversity impacted most those in the bottom group.

I end this paper with comments on the last eleven years under President Maduro. Economic activity and income generation have experienced an unprecedented collapse, largely driven by the institutional destruction, legal uncertainty and the incompetence of the Maduro regime. Pervasive extreme poverty and political repression have triggered massive emigration flows.[30] The exit of more

[28] In the tradition of the Staple Theory (Innis 1930; Myng 1958).

[29] This also resonates with Terry Karl (1997) warning that high oil dependance leads to a disproportionate fiscal reliance on petrodollars and public spending, at the expense of statecraft. According to him, oil booms, which create the illusion of prosperity and development, actually destabilize regimes by reinforcing oil-based interests and further weakening state capacity.

[30] Venezuela's economic collapse matches that of Haiti, yet without the occurrence of a devastating natural disaster. Meanwhile, its emigration was estimated at around 6mn in 2022 (Zambrano et al. 2022), a figure not far from that of Syrians, yet without a protracted civil war.

than 6 million Venezuelans since 2014 have resulted in a hollowing out of the working age population with the potential to exacerbate labour shortages and upward pressures on skill premiums. Moreover, low participation rates combined with rising dependency ratios can undermine productivity, raise labour costs and strain the already embattled social security system.[31] The publication of official household surveys since 2014 has been rare and unreliable. In response to this information blackout, a new survey *Encuesta Nacional de Condiciones de Vida* (ENCOVI) has been undertaken by private institutions. ENCOVI shows three fundamental changes affecting household income: a rapidly rising trend in inequality (a Gini of 0.407 in 2014 to 0.539 in 2024); a significant increase in extreme poverty from 23.6% to 70.6% in 2024; [32] and the emergence of remittances as one of the main sources of income. Remittances in US dollars are estimated in the 3bn-5.4bn range during 2023, compared to US$6.4bn of oil revenues.

Under these new conditions, households rather than being largely dependent on government spending, have found an alternative and direct source of income. A new divide has appeared between, on the one hand, households with access to remittances or/and with assets abroad and, on the other, households which rely on local jobs and government subsidies to get by. In a largely dollarized economy, the former enjoy a much higher purchasing power and are likely to be located in the upper and middle sections of the income distribution. But those at the very top, in all probability, are to be found among the high-ranking officials of Maduro's regime and in the military.

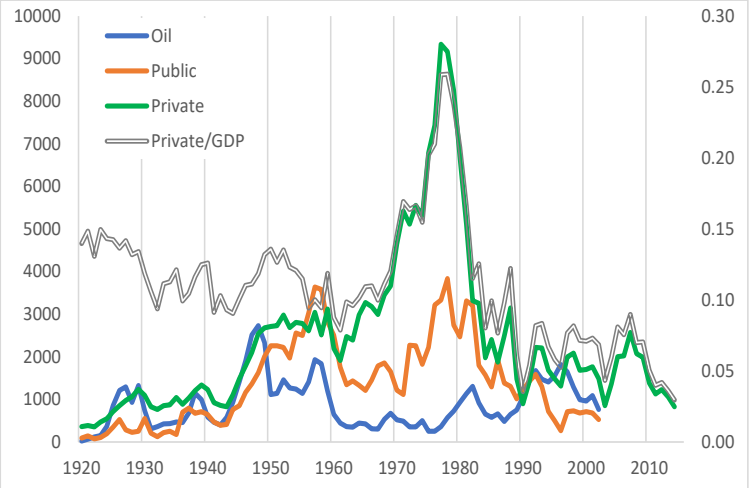
Venezuela had a unique opportunity over a century to use its oil richness to became a prosperous and more equalitarian society. But the high expectations created by the oil windfall of the 1970s and early 1980s soon vanished amid questionable decisions as to when and how to use it. The experiment failed. The population was suddenly impoverished amid rising inequality and rampant corruption. The blessing became a curse. Inevitably this brought into question the political class and democracy itself. President Chavez' Bolivarian revolution was the answer. But, in retrospect, it was the wrong one which eventually led into an unparallel developmental catastrophe. Oil, after all, proved to be the devils' excrement.

[31] Venezuelan outmigrants in 2021 is estimated to be concentrated in the 20-50 years age range. With the mean age for woman at 30.8 years and for men at 31.9 years. Outward migration has resulted in the current Venezuela's population having 20% fewer women of reproductive age and 17.8% fewer individuals of working age. Consequently, the share of the population aged 60 or older has increased (Garcia Arias 2024).

[32] In 2024 oil-rich Venezuela had the undesirable position of suffering the highest income inequality and extreme poverty of Latin America.

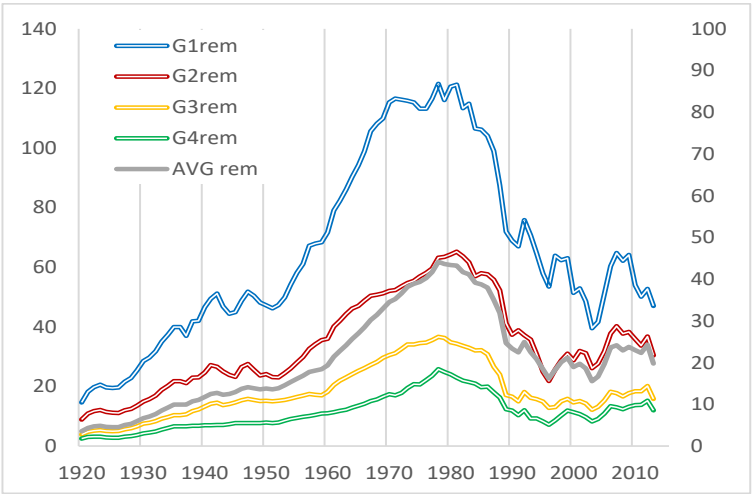
APPENDIX A: Additional Figures and Tables

FIGURE A.1: INVESTMENT RECORD: 1920-2013



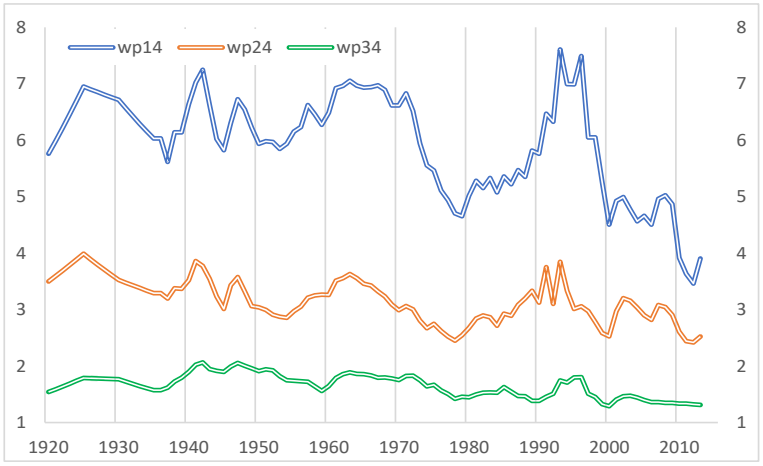
Investment in the Private, Public, and Oil sectors are per capita at 1984 prices. Priv/GDP = private investment as % of GDP plotted on the right axe. Source: Baptista (1993, 2006a).

FIGURE A.2: AVERAGE REMUNERATION PER WORKER BY GROUPS



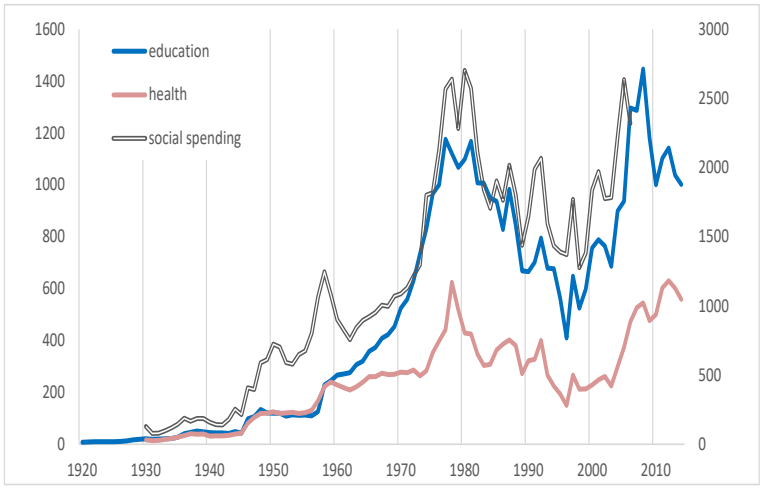
All series at 000' Bs of 1984. AVGrem = weighted-average remuneration per year.G#rem = average remuneration in group #.

FIGURE A.3: WAGE SKILL PREMIUMS



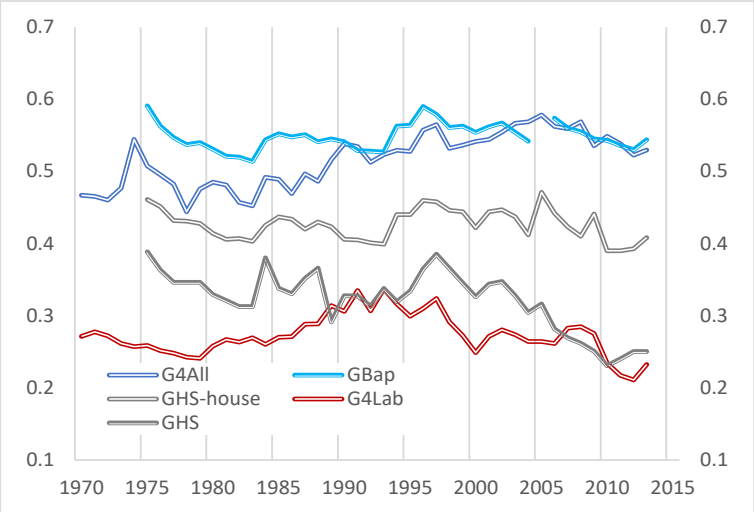
wp#4 = wage premium between group # and group 4. All series are ratios of mean income of the top three groups relative to the unskilled income. Own calculations. For details on sources see Appendix B.2.

FIGURE A.4: REAL SOCIAL SPENDING PER CAPITA



All series are in Bs. of 1984 per capita, per year. Total social spending plotted in the right axes. Own calculations using Aponte (2006) in 1968-2006 and ECLAC (2025) thereafter. It goes back to 1930 using a series which includes spending on education, health and public works (Ministerio de Hacienda 1933). Spending on health and on public works in 1933-1935 are interpolations.

FIGURE A.5: ALTERNATIVE GINIS



G4All = overall Gini; *G4Lab* = labour Gini, four groups; *GBap* = Gini calculated by Baptista (2006) and Vallez (2018); *GHS* = Ginis based on household surveys (HS) using people employed (Maldonado 2021). *GHS-house* = Gini based on HS using households (Baptista 2006, Vallez 2018).

TABLE A.1: OCCUPATIONAL GROUPS AND INCOME SOURCES

Categories	occupations	features (*divides*)	Labour income (*rem.*)	Ginis	All inc.	Gini
Group 1	employers, managers, & professionals	Largely formal, urban, high earners, most property income + labour	oil & manuf. white collars	G4Lab	prop. + labour	G4All
Group 2	technicians and administrators	Largely formal, urban, some prop. inc. + labour income	public sector, manf blue collars	G3Lab	prop. + labour	
Group 3	urban workers, artisans	mixed formal/informal, urban, mostly labour income	low wage/prodvity *food/text b-c* ; construction		prop. + labour	
Group 4	rural & urban unskilled workers	Largely informal, rural, mostly labour income/subsitance	minimun urban/rural wages, agriculture, personal services		prop. + labour	

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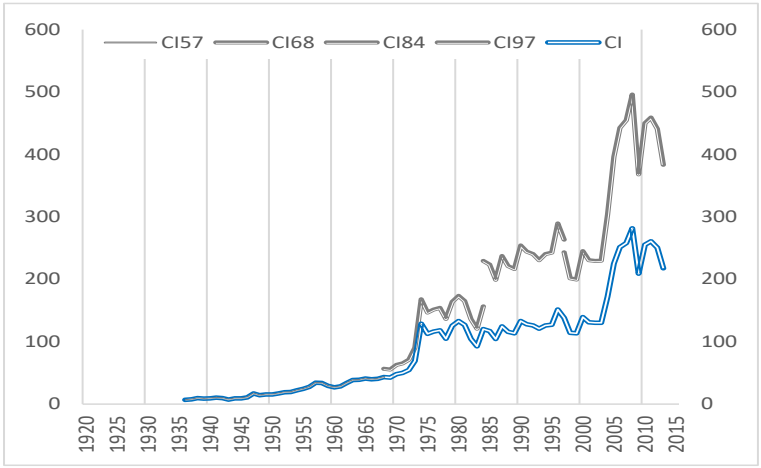
APPENDIX B: Estimation Procedure and Sources

B.1. Capital and Mixed Income

For the calculation of capital and labour income from 1950 to 2013, I use the series of National Income at factor cost (NI) and of total Remunerations (REM) from the National Accounts. To move back to 1936, NI grows in line with similar series from Baptista (2006a); for REM I use series of private consumption from De Corso (2013). The latter proxy series shows a pair correlation of 0.99 with REM in the period 1950-1968. Capital income (CI) is calculated as a residual (CI=NI-REM). Changes in methodology and data sources during base-year updates in 1968, 1984, and 1997[33] generate discontinuities in the levels of NI and REM at current bolivars. As shown in Figure B.1, to construct continues series, I splice the partial series anchoring the initial levels in the 1950-1968 period.

FIGURE B.1: CAPITAL INCOME USING NATIONAL ACCOUNTS



CIj# = Capital income in year base #. CI = spliced series of capital income. All series in billions of Bs. at 1984 prices. Post 1950 it uses original series from the BCV (2000).

On important methodology change is the treatment mixed income. Between 1950 and 1968 the Banco Central de Venezuela (BCV) estimated its labour and capital components and allocated the former to remunerations and the latter to capital income.[34] However, after 1968 the National Accounts´ statistics do not distinguish between incorporated and unincorporated (family owned) enterprises. And, by convention, all income of the latter together with the income of the self-employed are included under Gross Operating Surplus (Rodríguez 2000), so that remunerations are equivalent to compensation of employees (CE) – salaried workers.

Therefore, to estimate total labour income post 1968 it is necessary to raise the level of remunerations – and to lower that of capital income - by making allowances for the labour component of mixed income. To calculate the total mixed income of own-account workers after 1968, I rely on data on their mean income, their corresponding labour shares, and the total labour force. The sources used are as follows: the mean income in 1978-1984 is from Valecillos (1985), and in 1989-2006 from CEDLAS (2024) and ECLAC (2025) thereafter. The gap is filled with interpolations.

[33] In 1968 the System of National Accounts (SNA) of 1953 was adopted, in 1984 the SNA of 1968, and in 1997 the SNA of 1993.

[34] This was done by imputing own-account workers with a wage similar to that they would receive had they be employees and allocating the difference to capital income (Urdaneta 1977, p.250).

To move back to 1968, I use changes in series of average remuneration of in construction from Baptista (1993). For labour shares I use CEDLAS (2024) in 1989-2006 and ECLAC (2025) thereafter. To move back to 1968, I use PREALC (1982) in 1970 and 1980. Otherwise, I use interpolations. Finally, the total labour force 1968-1993 is sourced from Baptista (2006a) and ECLAC (2025) thereafter.

According to the evidence on self-employment in 2000 in Venezuela, there is a drop of 10 percentage points of the labour share on GDP after accounting the entrepreneurial income of own-account workers (Amarante et al. 2014). The combination of that information and my estimate of the total mixed income of these workers, indicates that about 60% of their income can be attributed to labour income. The resulting series is then deducted from CI (see Figure B.1) and added to REM (see Figure B.2 bellow) during the 1968-2013 period. These "mixed-income adjusted" are my preferred ones, and, unless otherwise indicated, are used in the calculations of my Ginis.

The next task is to allocate capital income across the four occupational groups. Ideally, this requires full information on the per-group distribution of capital income over time. In reality, I am fortunate to have useful data in 1960 to make the allocation. Next are the details.

B.1.1. *Allocation of capital income*

I follow four steps to allocate total capital income across the four occupational groups:

1. As a benchmark I use the information offered by Urdaneta (1977, pp.129/131/155) based on income data of 1960 from the BCV and employment data from the 1961 population census. She distributed non-labour income across five classes defined according to given remuneration intervals: Classes I & II (encompassing 35.7% of the labour force and 9.0% of total non-labour income), Class III (29.8% & 13.6%), Class IV (22.6% & 20.6%) and Class V (11.9% & 56.8%). The items covered are interests and dividends, housing rents (including imputations), *utilidades*,[35] pensions, transfers and self-consumption. Class V concentrates 98% of interests & dividends, 69% of rents, 45% of *utilidades*, and 48% pf pensions. The corresponding percentages for Class IV are 5%, 12%, 29%, 30%. Transfers are concentrated in the bottom three classes. Housing rents, *utilidades* and pensions are the items more evenly distributed among the five classes. To approximate better capital income, in my calculations I am excluding transfers and self-consumption.

2. I equate Classes I & II with Group 4, Class III with Group 3, Class IV with Group 2 and Class V with Group 1. But because the labour shares of my four groups (see B.3 below) do not necessarily match the shares of the four rearranged classes, I need to reallocate part of the labour force of the classes and their corresponding income in order to match my labour-force shares in 1960.[36] To that end, it is necessary to use a particular probability function to simulate the distribution of income within the four rearranged classes. It is reasonable to assume that the allocation of capital income within the Class V follows a Log-Normal distribution, and a Normal distribution in the rest (see Astorga 2024). The assumed income shares of a quartile income structure from top to bottom of Class V are 0.67, 0.17, 0.11, 0.6 and 0.40, 0.25, 0.19, 0.15 in the remaining classes. Table B.1 summarises the details.

3. I use the 1960 benchmark to illustrate the procedure. The EAP % of Group 1 is 5.2% vs. 11.9% of Class V. That means that about half of Class V's labour share (=6.7%) needs to be moved to Class IV. Its corresponding income share is calculated by multiplying the income share of Class V (76.0%) times the income share of the bottom two quartiles under a Log-Normal distribution

[35] The concept "*utilidades*" refers to a profit-sharing bonus that employers are legally bound to pay their employees in addition to their regular wage.

[36] I only do apply this reallocation in cases where the mismatch is greater than 10% either way.

(76.0%*0.17 = 12.9%), so that the income share of Group 1 equals 63.3%. The remaining 6.7% of the Class V's EAP% and its 12.9% income share is added to that of Class IV. To complete the 11.1% EAP% of Group 2, I need to add 4.4% from Class IV (about the top quartile). The corresponding income share is 12.9% plus 0.4*11.4% = 17.3%). The remaining 18.2 EAP% and 18.2 CI% is move to Class III which acts as a residual. Finally, the EAP% difference between Classes I&II (35.7%) and Group 4 (37.8%) is within the 10% margin of error, so no reallocation is needed.

4. I use the 1960 benchmark to estimate income shares for matching labour shares in 1940 and 1990 following a similar procedure. Implicitly, I am assuming that the distribution of capital income within the classes did not change significantly overtime. The gaps between the resulting income shares per group in the three benchmarks are filled in with extrapolation prior to 1940 and after 1990 and interpolation otherwise. I then allocated total capital income according to the resulting annual income shares per group.

TABLE B.1: ALLOCATION OF CAPITAL INCOME

		Class V	Class IV	Class III	Class I&II
1960	*EAP %*	*11.9%*	*22.6%*	*29.8%*	*35.7%*
	CI %	76.0%	11.4%	6.7%	5.9%
	CI (Bs mn)	218.0	32.6	28.5	27.5
		Group 1	Group 2	Group 3	Group 4
1940	*EAP %*	*4.0%*	*7.0%*	*38.7%*	*50.3%*
	CI %	54.9%	21.1%	15.8%	8.2%
	CI pw	108799	12650	374	23
1960	*EAP %*	*5.2%*	*11.1%*	*45.8%*	*37.8%*
	CI %	63.3%	17.3%	13.6%	5.9%
	CI pw	166154	13453	446	31
1990	*EAP %*	*11.8%*	*17.6%*	*47.3%*	*23.4%*
	CI %	76.0%	9.7%	12.3%	2.0%
	CI pw	219676	14503	662	28

EAP% = Share of Economically Active Population; CI% = Capital Income share; CI pw = Capital Income per worker Bs. per year at 1984 prices.

The resulting series of capital income per group are divided by each group's EAP to obtain average per-worker values. These are then added to the estimated labour income per worker of each group (see below) to obtain total income per worker in each of the four groups. This procedure to allocate capital income has the advantage of being based on data. This is a key difference with the one adopted by Baptista (2006b, p.53) based on an assumed allocation. I used this alternative to check for robustness of overall inequality in Section B.4.

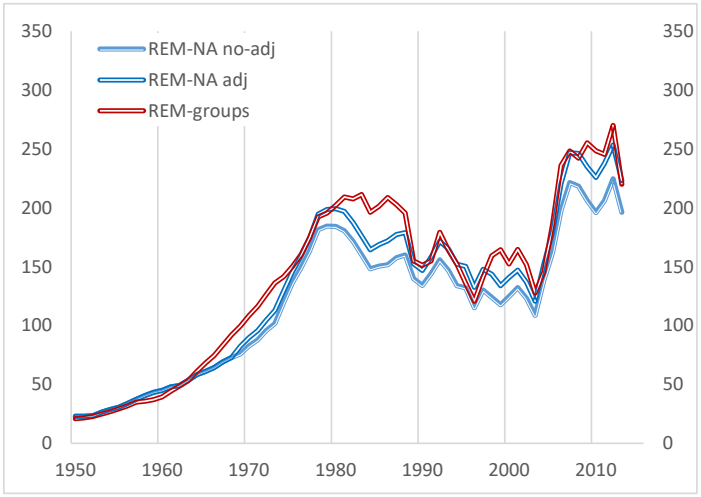
B.1.2. *Conciliation of labour-income data at the macro level*

I use two data sources when calculating labour income: total remunerations reported in the National Accounts; and remunerations paid in different sectors or occupations sourced from labour market statistics, which I use to calculate average remunerations per group. Combining the latter with the labour shares per group and the total labour force, a second measure of total remunerations is obtained. See Figure B2.

Following Baptista (2006b), to ensure consistency at the aggregate level in the calculation of overall inequality, I take the mixed-income adjusted total remunerations (National Accounts) as the

total, and disaggregate it with the use of the labour-income shares per group to recalculate the average real remunerations per group. This transformation reduces the latter series' level, but preserves the labour Gini calculated with the four groups.

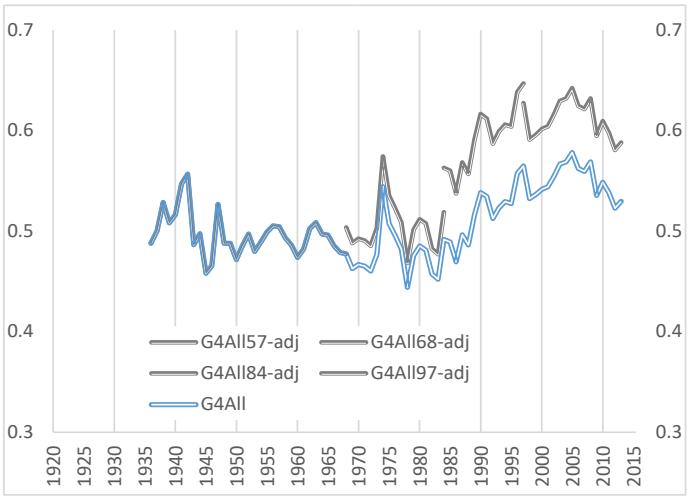
FIGURE B.2: ESTIMATES OF TOTAL REMUNERATIONS



REM-groups = total real remunerations calculated using average series per group. REM-NA no-adj & REM_NA adj = total remunerations of the National Accounts "without" & "with" the mixed-income adjustment. All series in billions of Bs. at 1984 prices.

Finally, after implementing the mixed-income adjustment, allocating capital income among the four groups, and reconciling labour income, the overall inequality series is calculated.

FIGURE B.3: OVERALL GINI, MIXED-INCOME ADJUSTED



G4Alladj# = Overall Gini mixed-income adjusted, year base #. G4All = spliced series of overall Gini.

B.2. Labour Income by group

1920-1935

I use annual wage data from the Venezuelan central government in 1920, 1925, 1930 and 1935 from Carrillo Batalla (2003) to estimate average wages that could reflect the mean income received in my four occupational groups. Where possible, I offer comparisons between these average wages and the

mean income in occupations with matching skill levels reported in the Economic Census of 1936 (BCV 1949, Apéndice I).

Group 4. There is a total of 7 observations in each year in the *Ministerio de Hacienda* (Finance), the *Poder Legislativo* (Legislative Power) and the *Hospital Militar* (Military Hospital) of unskilled occupations such as *sirvientes, lavanderos,* and *cocineros*. The annual wage calculated in 1935 is Bs. 752, which is not far from the average income of *obreros* (blue collars) in the restaurants and hotels sector (Bs.600) and domestic services (Bs. 483) in the 1936 Census.

Group 3. There is a total of 15 observations in each year from *Hacienda*, *Correos* (Postal services) and *Sanidad* (Health) of semi-skilled occupations such as *motorista, archivero, empaquetador, repartidor de planillas, cartero segundo, enfermera*, *inspector sanitario* and *chofer*. The annual wage in 1935 is Bs.2136, which compares well with the average income of Bs.1857 in blue collars in land-transport services in the 1936 Census.

Group 2. There is a total of 15 observations in each year in the *Hacienda*, *Correos* and *Sanidad* of relatively skilled occupations such as *jefe de estadísticas*, *interventor*, *liquidador, contador, cajero, tenedor de libros, guarda de almacén, fiscal de valijas, bacteriologo, cirujano bucal, jefe de servicios,* and *vacunador público.* The annual average wage of Bs.5208 in 1935 is close to an average income of Bs.5823 in *empleados* (white collars) in banks and insurance services in the 1936 Industrial Census.

Group 1. There is a total of 15 observations in each year in *Hacienda*, *Correos* and *Sanidad* of jobs occupied by m*anagers and professionals* such as *fiscal de hacienda*, *administrador de aduanas*, *jefe de estadística*, *director general*, *inspector general*, *ingeniero*. The annual wage of Bs.12841 in 1935 compares with the mean income of Bs.13625 and Bs.8308 of white collars in air transport services and the oil sector respectively (and simple average of Bs.10832) in the 1936 Census.

1936-2013

When estimating income in the lower three groups, own-account workers implicitly receive the group's average income. Regarding Group 1' workers, I assume that the income of employers (usually also the owners) of unincorporated enterprises is largely composed of entrepreneurial profits. And that the income of self-employed professionals can be reasonably proxied with the income of salaried professionals. Any underestimation of employers' labour income is likely to be offset by any underestimation of the entrepreneurial income of the self-employed professionals.

Group 4. Levels are set between 1970 and 1981 with the average remuneration of *obreros* (blue collars) in three low productivity activities (shoemaking, hotels, and laundry and cleaning services) from *Ministerio del Trabajo* (1977 & 1981). To move back to 1936 and forward to 1999, I use changes in wage series of unskilled workers in Astorga (2023); and to move further on to 2013, the simple average of series of monthly labour income of unskilled self-employed workers and domestic servants from CEDLAS (2024).

Group 3. The mean remuneration per worker in this group between 1936 to 1999 is the simple average of two series:

- First, average remunerations in the construction sector. In the 1959-1989 period I use series of monthly remuneration in construction based on increases in employment contracts from Baptista (1991, Cuadro V-8). To move back to 1936 and forward to 1999, I use the wages series for semi-skilled workers from Astorga (2023).
- Secondly, average remuneration of blue collars in relatively low-productivity manufacturing activities. Levels are set in 1953, 1961, 1966, 1971 1974, 1976, 1978, 1982/83, 1985/86, 1989-1992 with remunerations of food, textiles and footwear activities from industrial surveys

(Astorga 2025). I use series of hourly male wages paid in Caracas in 10 occupations in 1941, 43, 45, 47, 50, 52, 54 from ILO (1936-1964) to move back to 1941. And to estimate the 1936 value I use the ratio of monthly wages paid in manufacturing in 1936 & 1959 (= 2.63) from Valecillos (2007, p.194). To move forward to 1999, I use series of blue collars' mean remuneration from industrial surveys assuming that the white-collar premium equals the value in 1992 (= 2.34). Gaps between observations are filled in with interpolations.

- From 2000 to 2013 I use changes in the simple average of salaried workers in large and small (informal) firms from CEDLAS (2024).

Group 2. The mean remuneration per worker between 1936 to 1999 is the weighted average of two series:

- First, the average remunerations in the public sector excluding state-owned enterprises. Own calculations using series of public-sector employees in Baptista (2006a; 1997, Cuadro V-4) from 1936 to 1999. In 1941-46 total employees are sourced from Valecillos (2007, p.175). And total remunerations in the public sector from 1936 to 1989 (Baptista 1991) and Valecillos (2007, p.393) thereafter.
- Secondly, the average remuneration in overall manufacturing excluding food, textiles and footwear. For estimation procedure data points and sources prior to 1992 see second series of Group 3. To move forward to 1999, I calculate series of white collars' mean remuneration from industrial surveys assuming that the white-collar premium equals the value in 1992 (= 2.34). Gaps between observations are filled in with interpolations.
- From 2000 to 2013 I use changes in the series of a simple average of salaried workers in the public sector and in large firms from CEDLAS (2024).

The series of remunerations per worker in the public sector are weighted by the public-sector employment shares on total salaried employment (Valecillos 2007, p.175, p.241, p.341) and the residual shares are applied to the manufacturing series.

Group 1. The average labour income per worker is the weighted average of two series:

- First, mean remunerations of white collars in the oil industry between 1936 and 1999 from Baptista (2006a) and *Petróleo y Otros Datos Estadísticos* (PODE) thereafter.
- Second, mean remunerations for white collars in manufacturing excluding food, textiles and footwear. For data points and sources see Group 3.
- From 2000 to 2013 I use the simple average of employers (*patronos*) and self-employed professionals from CEDLAS (2024).

The weights are assumed to be 0.2 for oil 0.8 and for manufacturing.

B.3. Shares of the economically active population and relative income ratios

Tables B.2 and B.3 summarises the employment shares and the relative income ratios used to calculate the three occupational Ginis. For estimation details and sources used to obtain the EAP shares per group e_i (i=1 to 4) in eq. 2 for the calculation of *G4All*, see Astorga (2024; Online Appendix 1, pp.6-8).

EAP shares e'_i and e''_i used in eq. 3 and eq. 4 respectively, are calculated by adapting the series of total employment per group. The latter are obtained by multiplying the per-group EAP shares e_i times the total occupation series in Baptista (2006a) and ECLAC (2025). In *G4Lab* because I am assuming that employers earn capital income only, their estimated shares are excluded from e_1; in *G3Lab* the whole e_1 is excluded.

TABLE B.2: EMPLOYMENT SHARES BY OCCUPATIONAL GROUPS BY LUSTRUMS

	e_1	e_2	e_3	e_4	e'_1	e'_2	e'_3	e'_4	e''_2	e''_3	e''_4
1920	3.5	6.8	29.9	59.8	2.3	6.3	31.5	59.8	6.6	31.1	62.3
1925	3.6	6.9	31.7	57.8	2.4	6.7	33.1	57.8	7.0	32.9	60.1
1930	3.8	6.8	33.8	55.6	2.6	7.0	34.8	55.6	7.2	35.1	57.7
1935	3.9	7.2	35.5	53.4	2.6	7.3	36.5	53.7	7.6	36.9	55.5
1940	4.0	7.2	38.5	50.3	2.7	7.3	39.1	51.0	7.8	40.0	52.2
1945	4.3	7.7	41.8	46.2	2.9	7.8	42.4	46.9	8.0	43.7	48.3
1950	4.9	8.4	43.5	43.2	3.3	8.5	44.3	43.9	8.8	45.8	45.4
1955	5.0	9.7	44.9	40.4	3.4	9.8	45.7	41.1	10.2	47.3	42.6
1960	5.2	11.1	45.8	37.8	3.5	11.3	46.7	38.5	11.7	48.4	39.9
1965	6.0	13.3	47.6	33.1	4.0	13.5	48.7	33.8	14.1	50.7	35.2
1970	7.6	16.0	47.8	28.6	5.1	16.4	49.2	29.4	17.3	51.7	31.0
1975	9.4	16.9	45.8	28.0	6.3	17.4	47.5	28.9	18.6	50.5	30.9
1980	10.3	17.4	48.0	24.3	6.9	18.0	50.0	25.1	19.4	53.6	27.1
1985	11.2	16.4	47.1	25.3	7.5	17.0	49.3	26.2	18.5	53.1	28.4
1990	11.9	17.5	47.5	23.2	7.9	18.2	49.8	24.1	19.8	53.9	26.3
1995	11.6	17.8	46.9	23.7	7.7	18.5	49.1	24.7	20.1	53.0	26.9
2000	10.7	17.5	48.1	23.7	7.1	18.1	50.2	24.6	19.6	53.9	26.6
2005	11.5	16.1	48.1	24.4	7.7	16.7	50.3	25.3	18.1	54.3	27.5
2010	12.2	15.3	49.7	22.7	8.2	15.9	52.2	23.7	17.4	56.7	25.9

All figures are three years averages in percentages.

TABLE B.3: RELATIVE INCOME RATIOS BY OCCUPATIONAL GROUPS BY LUSTRUMS

	r_1	r_2	r_3	r_4	r'_1	r'_2	r'_3	r'_4	r''_2	r''_3	r''_4
1920					3.50	2.50	1.08	0.70	2.75	1.19	0.77
1925					4.71	2.46	1.09	0.62	2.71	1.20	0.69
1930					4.50	2.24	1.09	0.63	2.46	1.20	0.69
1935	7.27	2.25	0.81	0.50	4.38	2.19	1.03	0.66	2.40	1.13	0.72
1940	7.25	2.16	0.85	0.46	4.36	2.08	1.11	0.59	2.28	1.21	0.65
1945	6.19	2.00	0.87	0.47	4.04	1.88	1.10	0.57	2.07	1.21	0.63
1950	6.35	1.87	0.79	0.43	3.99	1.72	1.08	0.56	1.92	1.20	0.62
1955	6.32	1.74	0.74	0.44	4.19	1.72	1.00	0.57	1.94	1.12	0.64
1960	6.05	1.74	0.71	0.44	4.37	1.87	0.91	0.55	2.13	1.04	0.62
1965	5.41	1.52	0.71	0.40	4.09	1.71	0.90	0.49	1.96	1.04	0.56
1970	4.50	1.25	0.73	0.39	3.78	1.43	0.89	0.47	1.68	1.04	0.55
1975	4.49	1.10	0.63	0.37	3.35	1.39	0.84	0.52	1.65	1.00	0.61
1980	4.05	1.12	0.61	0.38	3.23	1.44	0.78	0.51	1.72	0.94	0.61
1985	4.01	1.07	0.61	0.36	3.12	1.41	0.80	0.51	1.70	0.96	0.61
1990	4.28	1.06	0.50	0.31	3.38	1.59	0.66	0.47	2.00	0.83	0.59
1995	4.61	0.91	0.52	0.26	3.78	1.37	0.72	0.41	1.79	0.94	0.53
2000	4.27	1.08	0.55	0.37	3.40	1.48	0.71	0.54	1.81	0.88	0.66
2005	4.07	1.12	0.55	0.35	3.04	1.58	0.74	0.53	1.90	0.89	0.63
2010	3.67	1.14	0.58	0.39	2.87	1.52	0.75	0.56	1.82	0.90	0.67

All figures are three years averages.

To calculate the employers' labour share in Group 1 I rely on the breakdown of the relative shares for employers, managers and professional in Venezuela in the 1990s from ECLAC (2000). In that decade employers represented about 1/3 of Group 1's employment, and managers and professionals (which I assume to be all salaried workers) the remaining 2/3. In the following section I perform a sensitivity analysis to gauge the impact of changes in this split on *G4Lab*.

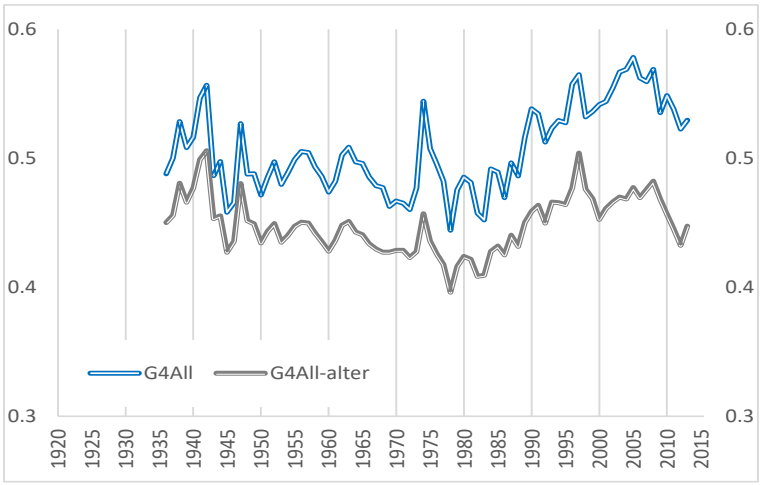
B.4. Robustness

This section examines the impact on my occupational Ginis of: an alternative allocation of capital income across the groups; the exclusion of the adjustment for the labour component of the mixed income of the own-account workers; the use of household income as an alternative income concept; changes in the split of Group 1's EAP between employers, on the one hand, and managers and professionals on the other.

B.4.1. *Alternative allocation of capital income*

Figure B.4 presents a comparison between my overall Gini with an alternative calculated with the allocation procedure in Baptista (2006b, p.53); namely: 40% of capital income (calculated as the difference between national income at factor cost and total remunerations) is allocated among households according to their participation in the labour distribution using household surveys. The remaining 60% is allocated among the households in the top 30% according to their participation in the labour distribution of such a quantile. I take those allocation assumptions, but apply them according to the participation of my four groups in my calculated total labour income.

FIGURE B.4: INEQUALITY IMPACT OF CAPITAL INCOME ALLOCATION



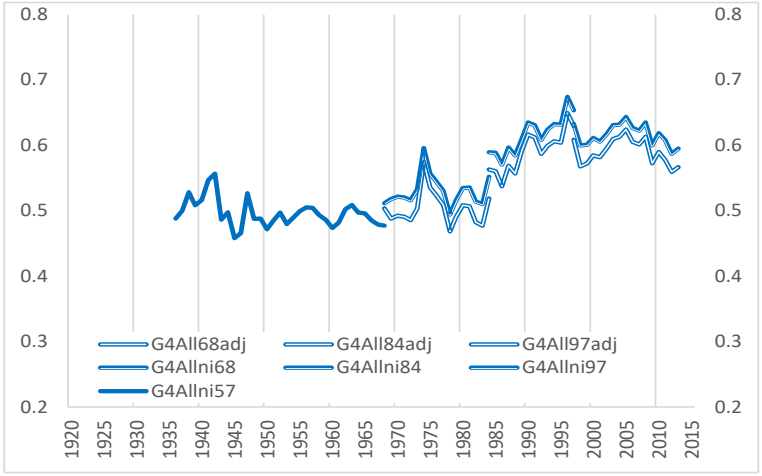
G4All = Overall Gini with the mixed-income adjustment; *G4All-alter* = Overall Gini with the mixed-income adjustment using Baptista (2006b).

As Figure B.4 shows, as expected the alternative allocation of capital income results in lower levels of overall inequality, largely because it gives a higher proportion of income to the two bottom groups. But, importantly, trajectories in *G4All* are robust to the change in the allocation procedure.

B.4.2. *Mixed income adjustment*

Figure B.5 presents the impact on overall inequality of the inclusion of the adjustment for the labour component of the mixed income of the owned-account workers.

FIGURE B.5: ADJUSTMENT FOR MIXED INCOME



G4All#adj & G4All# = Overall Gini "with" & "without" the adjustment, year base #.

As expected, there is a significant level reduction after the deduction of the mixed-income labour component from the capital income calculated with the original National Accounts data. However, trajectories are largely preserved.

B.4.3. *Change in the income concept*

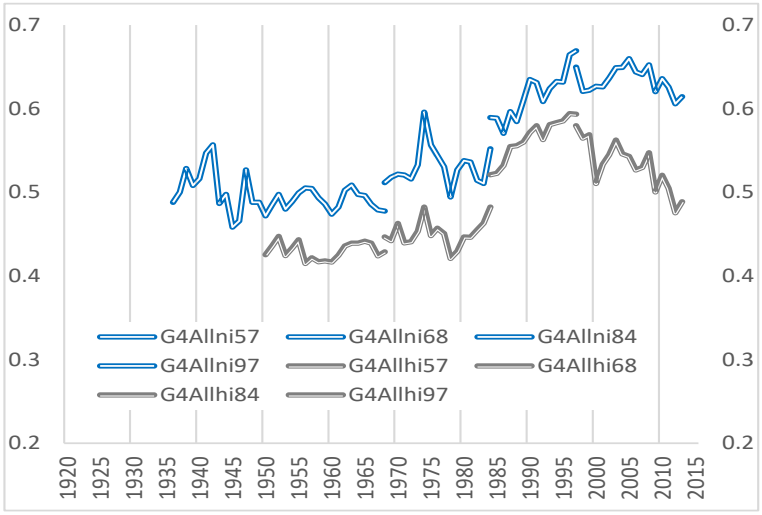
In this exercise I compare the overall Ginis calculated with Net National Income at factor cost and with the primary Household Income. The latter concept excludes non-distributed dividends, net profits of state-owned enterprises and corporate taxes.

Some comments on the estimation of household income are in order.

First, because of an interruption in the publication of household-income data between 1970 and 1977, capital income during this period is calculated by deducting several items from Gross Operating Surplus, namely: capital depreciation, indirect net taxes, repatriated profits, and net profits of state-owned enterprises using ECLAC's Statistical Yearbooks (SYB) of 1984 (p.448), 1985 (p.450), 1987(p.374).[37] Also, I deduct corporate taxes of non-oil firms, and of oil firms prior to the nationalisation of the industry in 1976 (Vera 2017). No deductions are made for non-distributed dividends. In 1976-77 oil income taxes are deducted as a proxy for PDVSA´s profits. Net profits from other non-financial state-owned enterprises are sourced from ECLAC (SYB 1983) in 1970 and in 1975-77 from IMF (1985). Between 1971 and 1974 those profits are assumed at US$1500bn per year in line with the 1975 value. Household income is then calculated as the estimated capital income plus remunerations (i.e., compensation of employees).

Secondly, from 1978 to 1997 household income is published as part of the broader concept of Non-financial Private Income. To get closer to household income I deduct corporate taxes of the private sector. From 1997 to 2007 a series of Household Income is available, the series is extended to 2013 using changes of the National Income series.

FIGURE B.6: NATIONAL INCOME VS. HOUSEHOLD INCOME



G4Allni# = Overall Gini calculated with National Income at factor cost, year base #. G4Allni = Overall Gini calculated with National Income, year base #.

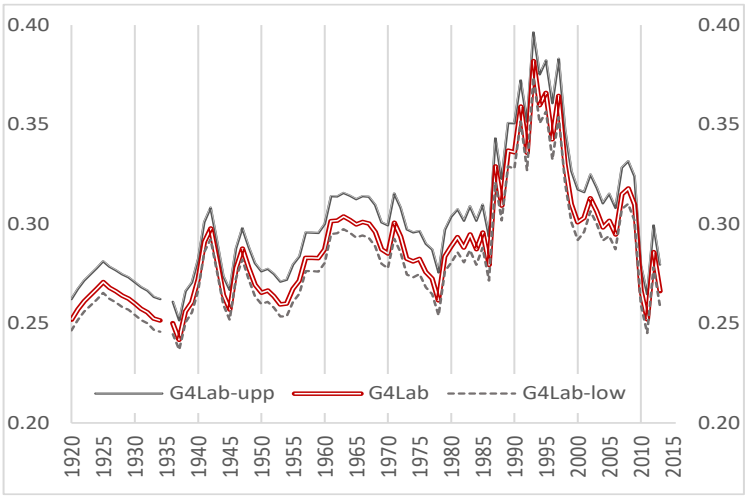
[37] Capital income in 1969 is estimated by applying the ratio of capital income to remunerations (base year of 1957) to remunerations in the base year of 1968.

Figure B.6 shows overall inequality with the use of National Income and Household Income without the mixed-income adjustment. As expected, overall inequality shows a higher level when the National Income is used. This is particularly the case prior to 1970 and after 1996.

B.4.4. *Split of Group 1's EAP*

To gauge the impact of changes the assumptions about the split of Group 1's EAP between, on one hand, employers, and on the other managers and professionals I define a range of possible values around the central value of 2/3 (this matches the share of managers & professionals in Venezuela reported in ECLAC (2000). The lower bound is equal to 3/5; and the upper bound = 4/5 (this matches the average value of 8 Latin American countries in ECLAC (2000). Figure B.3 presents the outcome of this exercise. As expected, a higher share of salaried workers in Group 1 generated a higher inequality level for *G4Lab*.

FIGURE B.7: SHARE OF SALARIED WORKERS IN GROUP 1



G4Lab-low = lower-bound Gini; G4Lab-upp = upper-bound Gini.

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