

# Functional distribution in Uruguay by GDP sectors 1908-2014

Winners and losers of distributional struggle

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## Abstract

The purpose of this empirical study is to analyze the evolution of functional income distribution on the Uruguayan economy during the period 1908-2014, presenting new estimates for the period previous to official data available. In this sense, we estimate four benchmarks (1908, 1919, 1936, 1945) which are in agreement with the available information for 1955-2014 based on the National Account methodology (BROU, 1965; BCU, 1983, 1997, 2005; Bensión and Caumont, 1979; Macadar, 1982; Amarante et al., 2007; De Rosa et al., 2017). The methodology employed for the benchmark estimations was the construction of social tables, and the paper provides a quantitative description and a shift-share analysis for selected periods. We find an increasing presence of wages remuneration until the 1960s while the land rent diminishes, but with a non-wage remunerations predominance during the whole period. We observed that the import substitution period has outstanding gains regarding labor-shares due to increments on the real wage of the industrial sector, but also on the public sector –as a consequence of the political patronage practices– and other services. The shift-share analysis shows that variations in labor-share occurred mainly guided by changes in sectoral remuneration rather than the relocation of workers among the most dynamic sectors in the total VA. Also, due to the importance of the service sectors on the share component, some questioning on the development models carried on the country during the whole period arises.

# 1 Introduction

The attention on functional analysis within distributive studies have returned recently, due to, on the one hand, the fall in the participation of the labor-share in total income on the industrialized countries since the beginning of the 1980s (Stockhammer 2013). On the other hand, due to the analysis of the evolution of high incomes (Atkinson et al. 2011; Piketty 2014; Piketty and Zucman 2014).

Recent literature has documented in detail the decline in the aggregate labor income share in the United States (Elsby et al. 2013) and across countries (Karabarbounis et al. 2013). Alvarez-Cuadrado et al. 2017, stands out that this decline was to a very large extent driven by a decline of sectoral labor income shares, while Díez-Catalán 2018 concludes the difference among service and non-service sector on this process. The concern of most of this literature are centered on the evolution of the labor-shares after 1970.

We aim to explore these relations in the long term, and to delve into the underpinning historical mechanism which drives the labor-share evolution. The papers provide a new empirical evidence for about a century of Uruguayan history. We estimate four benchmarks for the first half of the 20<sup>th</sup> century (1908, 1919, 1936, 1945) and five benchmarks which uses the national account information for the rest of the period (1955, 1963, 1983, 1997 and 2005). The sectoral approach that we develop in the paper intend to explore the heterogeneity in the trend of the labor share across industries. By doing so, it enquires deeper into the mechanisms behind the evolution of the labor share not always evident when we use aggregate data. We perform a shift-share analysis of the labor-share evolution among periods, decomposing the changes in industry's labor share between changes in the labor share across sub-industries and changes in the overall composition of the industry (Elsby et al. 2013).

Our results may be summarized as follows: first, the evolution of the functional income distribution of through the period shows a composition in which non-wage remunerations are predominant, in contrast to the development experienced in developed countries. Second, the evolution of the land rent as a share of gross value added during the import substitution model –ISI–, shows a decrease while the payroll increases. Given the process of the Welfare State expansion on this period, we could assume that the redistribution mechanisms operate in favor of employees. Third, the shift-share analysis shows that the greatest increase in labor-share occur during the ISI period and mainly due the improvements in sectoral remuneration rather than the employment relocation among the most dynamic sectors in the total VA. Nonetheless, the last mechanism explains the fall during the military government (1975-1983). Finally, the role played by the services sector, and the Public Administration is outstanding, given the unexplored role of these segments in the development process of the Uruguayan economy. After this introduction, the article is ordered as follows. On Section II we review the main background of this investigation, and Section III presents the paper's objectives. Section IV shows the estimation methodology briefly for the data series, –a separate work was devoted to the description of estimations *in extenso*–. Section IV presents the primary results, section V

concludes.

## 2 Background

Although income inequality is one of the most relevant features of the development process of the last 200 years (Moatsos et al. 2014), its analysis as an explanatory variable within the economic literature has changed over time. In recent decades, there has been an upsurge of distributive studies and, in particular, a change in the subjects of analysis within them. Classical studies, such as those of Marx, Smith or Ricardo, considered the distribution of the product a fundamental part of their analysis, and that distribution made sense regarding how the appropriation of it was based on the system of social classes. This functionalist vision of society will be shared by subsequent analyzes such as post-Keynesians and Neoricardians such as Robinson, Kaldor, and Pasinetti. The "neoclassical synthesis" in the economy implied a change in the conception of inequality within the economic analysis, giving a turn towards studies of personal inequality. Historical and institutional factors contributed to this process (Abeles et al. 2014, p. 3). On the one hand, the complexity of production processes has meant that both, individuals and households, without distinction of social classes, can obtain income from more than one productive factor. On the other hand, the extension of Welfare States has implied both the need to identify the possible objectives of social policies (vulnerable classes), as well as the expansion of income coverage for transfers.

The recent literature on the evolution of the labor-share in total income explores the links between this phenomenon and the deregulation of labor markets, institutional changes, the degree of unionization and the relocation of productive processes, among others other factors (Bentolila et al. 2003; Hogrefe et al. 2013; Jayadev 2007).

Regarding Latin America and the region, the persistence of inequality since the processes of independence (Escosura 2009; Williamson 2015), its declining process during the last decade (Alvaredo et al. 2015; Cornia et al. 2010; López-Calva et al. 2010), and the disparities within the continent throughout history (Astorga 2015; Bértola 2005, 2010; Rodríguez Weber 2014), places Latin America as an attractive subject for the literature on inequity and, in particular, for long-term analyzes. Nonetheless, the functional distribution approach and the labor-share analysis are yet scarce from the long run perspective (Abeles et al. 2014; Alarco Tosoni 2014) with some country centered exceptions (Arroyo-Abad et al. 2012; Frankema 2009; Williamson et al. 1998).

For Uruguay, distributive studies based on Household Surveys data -HS- are several, but they are available for the period after 1982 (Amarante, Arim, et al. 2007; Amarante, Colafranceschi, et al. 2014; Burdín et al. 2013, 2014; Mendive et al. 1996 among others). Some studies, such as those of Melgar 1981, make estimates for the 1960s and 1970s based on surveys similar to those of the HS, but they back to 1968 when this methodology can be reproduced. For the period

before 1968, Bértola 2005 <sup>1</sup> and Lezama et al. 2016 <sup>2</sup> are the only two studies that present estimates of personal inequality for the long term.

Regarding the functional distribution studies, the usurping of the System of National Accounts (SNA) (República Oriental del Uruguay (BROU) 1965) it's a watershed. Since 1955 to 2005 we have, with some loopholes, data produced by the Central Bank in the SNA context. Before 1955 the statistics are concentrated in the agrarian sector (Carluccio 1971; Echeagaray et al. 1971; Reig et al. 1986; Willebald 2015). In turn, the non-systematic information produced under the may be partially covered by some studies such as those of Bensión et al. 1979 for 1969-1973, Macadar 1982 for 1973-1979 Amarante, Arim, et al. 2007 for 1991-1997, and De Rosa et al. 2017 for 2005-2015.

### 3 Data estimation

We present the estimation of social tables for four benchmarks: 1908, 1919, 1936 and 1945. To construct the social tables, we identify, on the one hand, the groups of recipients and, on the other hand, the average income of each one of those groups.

The population was classified according to economic activity sectors and, within these, the workers and employees according to their qualification. Based on this qualification, the wages were assigned, so the result implies an average differential wages for each industry (at branches level) and between job qualifications within the sector activities.

We obtained a characterization of the workforce remuneration for agricultural-livestock (including forestry and fishing), industrial manufacturing (including extracting industries), construction industry, electricity, gas and water supply -EGW-; commerce (including repairs, hotels and restaurants), transportation and storage services, financial services, communications, public administration, and other services. By difference with the VA of each sector, we obtain the S.

The sources and details of the estimation of each sector for each year are described in extensive in Siniscalchi et al. 2017.

In general terms, the estimations respected the data of employed by industrial branches from different sources (Industrial Censuses, General Budget of State Expenditures-GBSE-, Industrial Surveys), taking the occupational categories that are presented in them and assigning differential wages for those occupation categories. In those cases, in which the source reported many wages

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<sup>1</sup>Bértola 2005 reviews other indicators of inequality (wages -land price ratios and wages - per capita GDP ratios) before presenting his estimation of personal income inequality for different sectors (agricultural, manufacturing and public sector). The nature of the sources for each of the estimation implies that the indicators obtained by the author have a combination of functional and personal distribution of income, although the work only presents indicators of personal inequality.

<sup>2</sup>Lezama et al. 2016 propose an alternative estimate for the period of the First Globalization (1870-1914), based on the use of income information of rural tenants and wage earners Willebald 2015 and a theoretical distribution function. Their results confirm the deterioration of the inequality found by Bértola 2005, but through a more uneven process and with significant improvements during relatively long periods (in particular, during the 1890s).

or wages mass payed, these data were used as a reference to build the mean wages by categories.

For each sector, we proceed classifying sources according to the ISIC rev4 classification. The remunerations were estimated deferentially according to the source, but considering the criterion of differentials by rating and by branch. In most of the cases, we obtain the wages data from the same source as the occupation data. When we do not have wage information, secondary sources were used.

In order to fill the series between the estimated benchmarks on the first half of the 20<sup>th</sup> century, we construct an average nominal wage index and an employment series by economic sector. With those series we estimate the W ratio by sectors. For the period 1955-2014 we have information for 5 benchmarks by GDP sectors (1958, 1975, 1983, 2003 and 2014). We use the aggregate information presented in Amarante, Arim, et al. 2007; Bensi3n et al. 1979; De Rosa et al. 2017; Macadar 1982; Rep3blica Oriental del Uruguay (BROU) 1965; Uruguay 1991 to estimate the total labor-share of the economy, while we use the benchmark sectoral information to perform the shift-share analysis. The blanks on the second half of the century were interpolated with the nominal wage index by sectors estimated by the National Statistical Institute (INE).

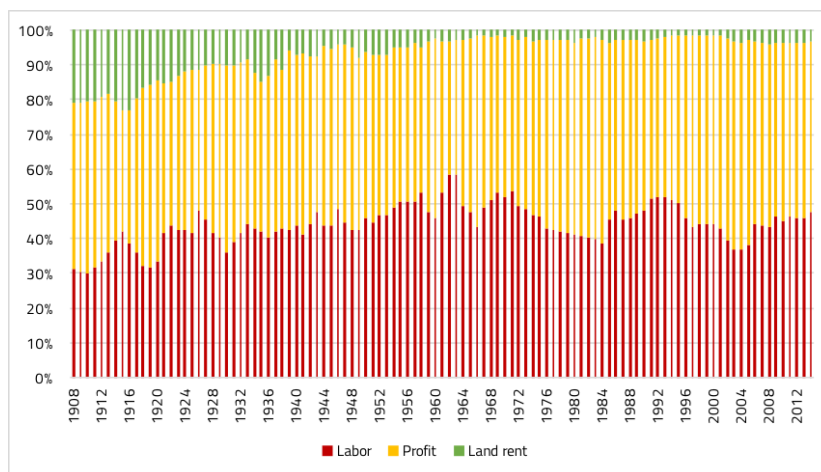
Once we obtain the payroll masses for each sector of activity, we estimate the S by the difference between the sectoral VA (Bonino et al. 2018) in each year.

We can divide this measurement into compensation for capital and compensation for the productive factor land. The latter comprises, exclusively, the S of the agricultural sector, but due to the relevance that the land as a productive factor has had in the Uruguayan abundant in natural resources economy (Barr3n et al. 1978; Reyes-Abadie et al. 1966) and the strong gravitation in the generation of income, we consider the land-rental-share (R) in a differentiated way from the rest of the capital-shares.

From 1908 to 1925, we calculate the rental-share as a percentage of agricultural VA using the structure that emerges from the interpolation of profits and benefits on agrarian S presented by Willebald 2015 and Reig et al. 1986. We calculate R from the agricultural surplus of Bonino et al. 2018. From 1925 to 1973 the R is calculated from the agrarian surplus according to the income and benefits structure presented by Reig et al. 1986 and from 1974 onward we use the structure presented by Oyhant3abal et al. 2017. In all cases, we obtain the quotients between R and VA using Bonino et al. 2018. We assign the rest of the agricultural surplus to the profit component.

With this information, we estimate a functional distribution series made according to the National Accounts System methodology (Uruguay 2009).

**Figure 1**  
GDP (factor cost) composition (1908-2014)



Source: 1908-1955: own estimations. 1955-1965: BROU (1965); 1969-1973: Bensi3n y Caumont (1979); 1974-1979: Macadar (1982); 1980-1997: BCU (1994; 1997); 1997-2014: De Rosa et al (2017). GDP: Bonino et al. (2012) and authors updates. Land rent: Own estimations based on Willebald (2015), Rieg and Vigorito (1986) y Oyhantçabal et al (2017). Interpolations were made with the nominal wage index (1908-1968 own estimations – 1968 onwards INE data).

## 4 The evolution of inequality in Uruguay from a functional distribution perspective

Figure 1 presents estimations of the functional income distribution from 1908 to 2014. The series shows the GDP divided into the Labor or Wage Remuneration (W) and the Gross Exploitation Surplus (S) component; the latter is divided into Land Rent (R) and Profits (P). The W component includes actual wages and salaries, as well as social security contributions paid by employers and workers, while S was divided into payments to the land factor (R) and physical or produced capital (P). We can see, during the first half of the 20<sup>th</sup> century, the W ratio remaining below 40%; only after the second half of the century, there is an increase in participation that reach beyond the 50% of GDP (in the early 1960s).

The highest levels of W are presented, mainly, in the period of the exhaustion of the Import Substitution Industrialization (ISI), also called, Industrialization Led by the State period. These results are in agreement with the findings of other authors for Latin American economies in the same period (Alarco Tosoni 2014; Frankema 2009). The deterioration of the W ratio during the military

government and the 2002 crisis are the most significant losses in distributive terms if we assume that the W ratio is divided among many persons than the capital-share.

During the 1990s, and particularly after the democratic restoration (1985) the W ratio rises, but in a different context than the 60's. The personal inequality measures (Alves et al. 2012) indicate that the 1990 decade was characterized by an increasing level of inequality, mainly due to the neoliberal policy of the government, the suppression of the bargaining process, and the labor market deregulation. The paradoxical rise in the W ratio and the personal inequality level may be explained by the changes on the skill premium and the transformation of the service sector.

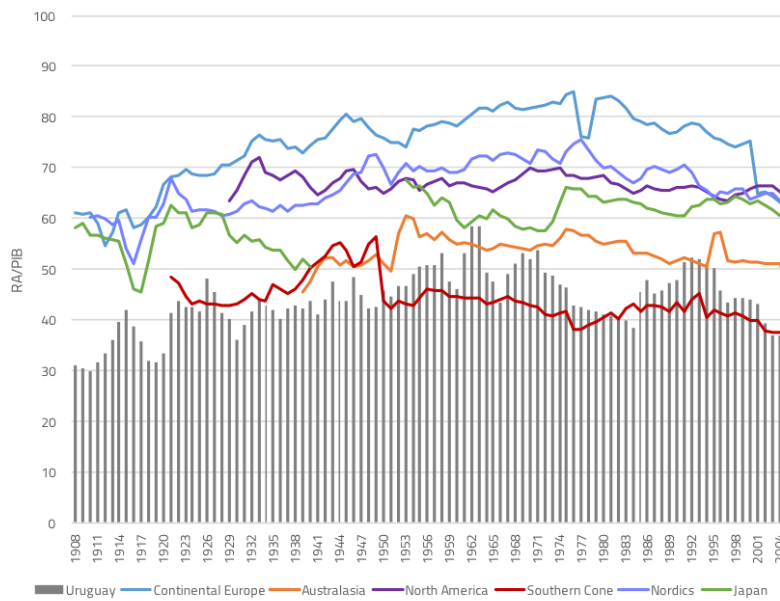
The evolution of the R ratio shows three moments throughout the century: first, until the 1960s, in which the fall in the rate coincides with the relative increase in the labor-share; the second moment, of stability, also presents the lowest levels of the R/VA ratio –between 1960 and the beginning of the 2000s–. The third moment, towards the end of the analysis period, the rate recovers and grows.

During the first period, we can assume that redistribution mechanisms worked in favor of the urban workers (Astori 1990; Azar et al. 2009; M. Rama 1990) -this also happened during a process of lowering the personal income inequality measured by the Gini index (Bértola 2005) - while, in the second period, redistribution seems to occur between the different kinds of capital retribution. The third period, as was analyzed by Oyhantçabal et al. 2017, p.131, the increase in the ratio takes place in a context marked by the rise in the value of agricultural commodities and foreign investment in the primary sector that imply a transformation on the logic of profit appropriation. In comparative terms, this evolution of the W/GDP ratio is similar to that described by other Latin American economies (Alarco Tosoni 2014; Frankema 2009; Neira Barría 2010). Meanwhile, in the international context Figure (2), it reports a systematically lower evolution compared to the developed countries (Bengtsson et al. 2018). That is, regarding the income structure, Uruguay, as also Latin America, has a different distribution from the prevailing one in the core economies, in which wage remunerations occupied a prominent place.

The levels of participation of the labor retributions, both in the settler economies of Australasia (Lloyd et al. 2013) and those of the Southern Cone (Argentina, Brazil, and Chile), follow patterns of evolution similar to those presented by Uruguay throughout the period. Both areas are ranking below those of the central regions and the Scandinavian countries. The central countries, as well as the Scandinavians and Japan, managed, since the end of the First World War, to maintain high levels of the W ratio, reaching levels above 60% since the 1920s (only Japan loses ground in the 1930s but recovers it after the WWII). On the other hand, the countries of the Southern Cone were not able to sustain the gains in the labor share that occurred in the period of the ISI after the exhaustion of this process.

Australia and New Zealand, despite having shown a higher W level than Uruguay and its neighbors in the Southern Cone, also experienced a decreasing

**Figure 2**  
 Payroll participation on GDP (factor cost) in some regions of the world and in Uruguay. 1908-2014 (population weighted average) (%)

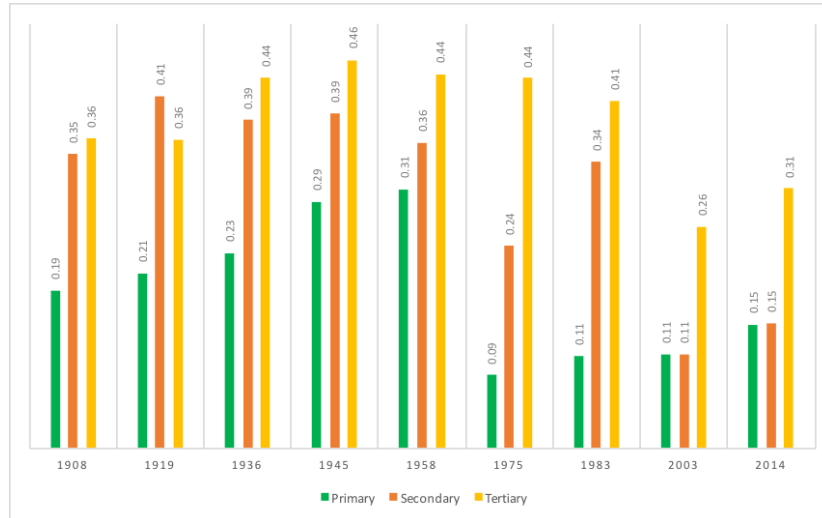


Source: Source: Own estimations based on: Alarco, G. (2014), Bengtsson, E. y Waldenström, D. (2017), Rodríguez-Weber (2015), Maddison (2010). Uruguay: Own estimations.



**Figure 3**

Evolution of sectoral payroll for primary, secondary and tertiary activities on total payroll (1908-2005)



Source: Source: Own estimations

trend since the 1970s, showing the inability to capitalize the gains in this indicator obtained in the middle decades of the 20<sup>th</sup> century. In the case of Uruguay, the  $W$  of the period oscillates around an average of 47%, reaching a maximum of 58% in the years 1962-1963 and a minimum of 31% in 1908.

## 5 The evolution of the payroll by GDP sectors

Figure 3 shows a summarized evolution of payroll by main activity sectors (a detailed evolution may be seen in Figure 5 on annex). As we can see, the gravitation of the secondary sector (manufacture and construction industries) rose until 1945 and decrease since 1958. The primary sector increases their participation until the first half of the 20<sup>th</sup> century when the legislation about minimum wages for the agricultural sector was particularly promoted; then, loses ground afterwards. The growing presence of the service payroll it's remarkable, and the presence of the Public Administration is one of the drivers of this process. Nonetheless, other service activities, less labor intensive than Public Administration grew substantially their importance (i.e. communication and financial services –see Figure 5 on annex–).

## 6 The decomposition of the labor shares

The analysis of sectoral differences in the long term is of singular importance because a growth based on sectors with a low prevalence of payroll would generate a fall in the total payroll, even in contexts of a generalized increase in labor remunerations. In this sense, it is possible to ask to what extent the changes in the participation of the payroll are given by the rise of the different sectors in their participation in the product, or due to increases in the predominance of better-remunerated industries. We perform a shift-share to explore these effects for different subperiods (Figure 4). It is assumed that the total labor-share of the economy can be expressed as the sum of sectoral ratios weighted by the weight of the respective VA in the total product:

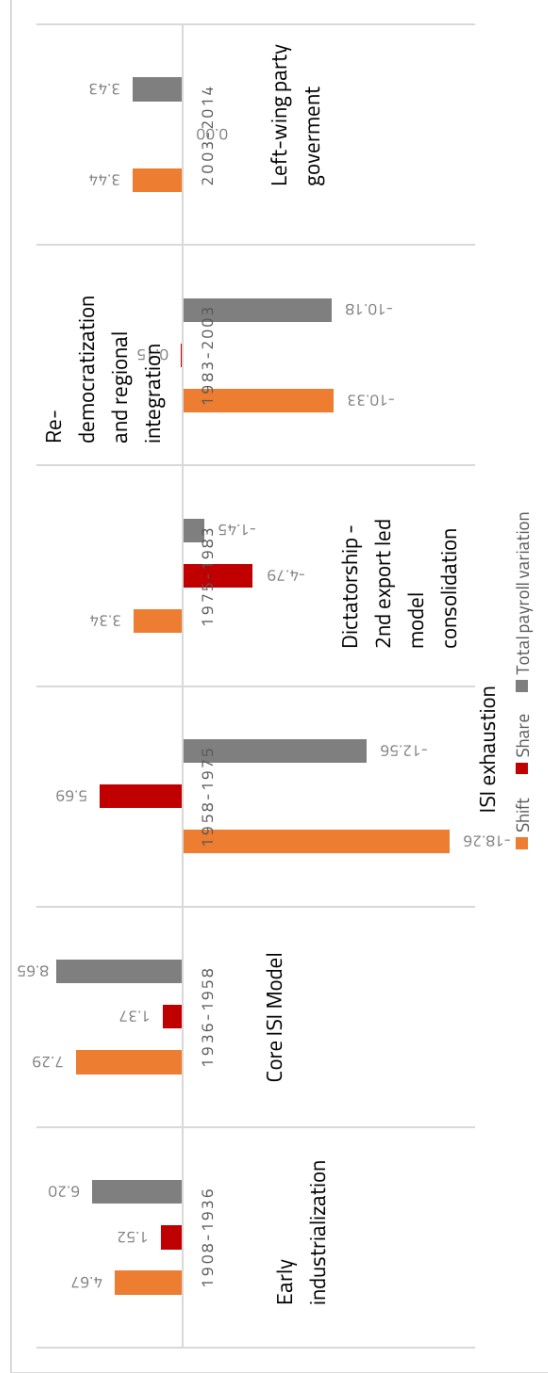
$$\lambda^\rho \equiv \frac{\sum_i \omega_i^\rho L_i^\rho}{PY} = \sum_i \omega_i \lambda_i^\rho \quad (1)$$

Where  $\omega_i \equiv \frac{P_i Y_i}{PY}$  is equal to the sectorial VA concerning the total VA; and  $\lambda_i^\rho = \frac{\omega_i^\rho L_i^\rho}{P_i Y_i}$  is the sectoral payroll as a proportion of the corresponding VA of the activity (the labor-share of the sector). Based on this, the change in the total ratio ( $\omega_i^\rho$ ) can be decomposed into two aggregate effects: a shift effect, which reflects the changes in sectoral labor-shares (weighted by the participation in the VA of each productive activity); and a share effect that includes the changes in the sectoral composition.

$$\lambda^\rho \equiv \underbrace{\sum_i \omega_i \Delta \lambda_i^\rho}_{shift} + \underbrace{\sum_i \Delta \omega_i \lambda_i^\rho}_{share} \quad (2)$$

In this way, the first component on the right side of the equation accounts for the changes that occur in total labor-share from the relative changes in the sector payroll ( $\Delta \lambda_i^\rho$ ), while the second component shows the variations produced by changes in the relative weight of the different sectors within the VA. We divided the period of analysis into six sub periods (Bértola et al. 2009; Oddone 2011) to capture: the early industrialization process (1908-1936), the ISI model (1936-1958), and the period of ISI depletion, the phase of stagflation and the beginning of the military government (1959-1974). The period 1975-1983 implies a turn on the economic orientation of the military government, when the promotion of the non-traditional exports and the financial globalization where the main strategy of growth. The democratic restoration and the liberalization period (1983-2003) which do not imply a significant change on the growth strategy inherited from the military government despite the two mayor crises which occurs at the beginning and the end of the period; and, finally, the years 2005-2014 try to reflect the effects of the left-wind governments and a new expansive cycle supported by the strength of the international commodities markets.

**Figure 4**  
Shift-Share analysis (total effect by sub periods)



Source: Own estimations

According to Figure 4, excluding in the period 1975-1983, where the share effect predominates, the total variation of the ratio is explained by the movements on sectoral remuneration, both in the periods in which it rises and in those that fall. Until the period 1958-1975, the economy seems to have some gains in the structural change component, despite it does not prevail as the main explanation to the total change on the  $W/VA$  ratio. Nonetheless, since the consolidation of the military government (1975-1983), those improvements blurred. Table 1 shows the shift-share analysis by GDP sectors. As we seen before, the shift component is which mainly explains the total variation in most of the period, except on the fourth period, in which the  $W/VA$  ratio decreases led by the share effect. That means that in the period 1975-1983 the decrease in the payroll were due, to a greater extent, to increases in the participation of sectors with worse remunerations within the VA than the decrease in the sectoral payment. In this sense, the negative sign on the Public Sector activities may be explained.

Increases in the presence of activities with higher salaries is, usually, associated in the literature with industries with higher levels of productivity per worker, and more particularly with the transformation activities. However, in the case of Uruguay, the share effects are led mainly by the State and the service activities, which are sectors with relatively low levels of productivity (at least in the 1960s and 1970s). The second period, characterized by the ISI and guided by an accelerated process of diminishing income inequality (Astori 1990; Bertino et al. 2001; Bértola 2005), shows the most important increase in the payroll of the whole period (1908-2014). This  $W/VA$  ratio increase is explained in 95 percent points by the shift component. We may interpret this increase as the expansion of sectoral remuneration. Second, the improvement in the labor share was led by the gains of the industrial sector (almost eight percentage points), within which the shift component also predominates.

**Table 1**  
Shift- Share analysis by GDP sectors (selected periods - 1908-2014)

	1908-1936		1936-1958		1958-1975		1975-1983		1983-2003		2003-2014							
	Shift	Share	Total	Shift	Share	Total	Shift	Share	Total	Shift	Share	Total						
Agriculture	1.2	-0.9	0.3	1.8	-1.3	0.5	-3.5	-1.6	-5.1	0.3	0.2	0.5	-0.4	0.3	-0.4	-0.1		
Manufacture	0.7	-1.0	-0.2	3.3	3.1	6.3	-8.4	2.7	-5.7	2.5	-1.4	1.1	-5.1	-1.0	-6.1	1.0	1.5	
EWG	0.3	0.6	1.0	0.4	-0.9	-0.5	-0.3	0.3	0.0	-0.7	0.4	-0.3	-0.1	0.2	0.1	0.4	0.0	
Commerce	0.8	0.1	1.0	0.6	0.0	0.6	-4.5	0.6	-3.9	0.6	-1.0	-0.4	0.0	0.5	0.5	1.0	1.4	
Transportation	0.7	1.2	2.0	0.3	0.4	0.6	-0.1	-0.2	-0.3	-0.8	-1.0	-1.8	-0.8	0.4	-0.4	0.3	0.0	
Communication	0.0	0.1	0.1	0.3	-0.1	0.2	-0.1	0.1	0.1	-0.3	0.3	0.0	-0.8	0.7	-0.1	0.6	0.2	
Financial services	-0.1	0.1	0.0	0.3	0.7	1.0	-0.1	0.3	0.2	-0.8	2.0	1.3	0.0	-0.8	-0.9	-0.3	-0.7	
Real Estate services	0.2	0.0	0.2	0.0	-0.1	-0.2	0.1	-0.3	-0.2	0.1	0.6	0.7	-0.8	0.0	-0.8	0.2	0.0	
Public Administration	0.0	1.9	1.9	-0.5	-2	-2.5	0.1	3.1	3.2	0.9	-4.0	-3.1	-2.4	-1.8	-4.2	0.6	0.7	
Other services	0.7	-0.8	-0.1	0.8	1.7	2.5	-1.5	0.5	-0.9	1.3	-0.8	0.5	-0.2	2.3	2.1	-0.7	1.3	
Total variation	4.7	1.5	<b>6.2</b>	7.3	1.4	<b>8.7</b>	-18.3	5.7	<b>-12.6</b>	3.3	-4.8	<b>-1.4</b>	-10.3	0.2	<b>-10.2</b>	3.4	0.0	<b>3.4</b>

Source: Own estimation

The relevance of the payroll improvement within the period entails some reconsideration about the nature and extension of this development model. In this sense, the national literature has dedicated much of the discussion of the period to the assessment of the role of industrial development in the process.

Particularly, the debate about the rise in real wages has had a central role in the literature. The discussion stands out about how much of the wages increase responded to the role played by the collective bargaining process –which was instituted in the country between 1943 and 1968–, and how much to the improvements in the productivity of the industrial sector (Bértola 2004; Camou 2012; Notaro et al. 2014). Other variables considered in the literature are the protectionist policy of the State through the control of the exchange rate and the use of restrictive measures to foreign trade, and the favorable evolution of the term of trade (Bértola 2004)

The results of our analysis suggest that the process was led mainly by wage increases. The high contribution to the wages improvement of the transformation industries is a very reasonable result. However, the service sectors also contributed significantly to the expansion of labor-share, and this is a less expected result. In this sense, if the share component is interpreted as an approximation to measure the dynamism of the economy (specifically, of structural change), this result would be evidence that both, secondary and tertiary activities, would have been part of the process. In some way, the moderate economic transformation evidenced by Uruguay –which in other Latin American countries was expressed as a truncated industrialization process (Fajnzylber 1983)– represented a loss of industry significance in wage gains. In fact, this is consistent evidence with the idea of the 1960s as the decade of consolidation of the service activity as one of the key sectors of the economy (Bonino et al. 2018).

The period between 1958-1975 elapse the uprising conflict among social classes on the distributive struggle which ended on the 1973 coup d'état. The period was characterized by the external payment crises (1982), an uprising inflation, unemployment, political migration and a reduction of the real wage of 30% at the end of the period (Notaro 2003). The collapse of the W/VA ratio was leading by shift effect on almost all sector (the exception was Public sector).

During the democratic restoration and regional integration period (1983-2003) represents the second mayor fall on the W/VA ratio. Despite the briefly re-institutionalization of the bargaining negotiation (1985-1991), along with the growing of the service sector (which become a skill-labor-intensive sector), the 1982 crises effect, the deregulation of the labor market and the de-industrialization process carried on by the governments during the 1990s in conjunction with several regional economic crises, leads to the 2002 crises which probably explains the fall of the ratio on the period.

The modest rise on the W/VA ratio during the left-wing governments it is led mainly by the contributions of the commerce and the transformation industries wage gains, despite almost all the sectors shows positive contributions in the shift component.

## 7 Conclusion

The main objective of this work was to present sectoral estimates of the functional income distribution for four benchmarks of the first half of the 20<sup>th</sup> century –1908, 1919, 1936 and 1945– which are consistent with the official National Accounts series for 1955-2014. The series presents the functional distribution components: payroll and gross operating surplus, divided the latter into land rents and profits. The estimation method was the construction of social tables, which involved the estimation of the wage and capital earners by activity sector and their respective average income.

The evolution of the functional income distribution of through the period shows a composition in which non-wage remunerations predominate (Figure 1), in contrast to the development experienced in developed countries (Figure 2). The labor-share was, on average, less than 40% during the first half of the 20<sup>th</sup> century, achieving its highest figures (around 50%) for a few years during the end of the ISI period. This result is unexpected due to those years are identified in the national literature as the exhaustion of the growth model –late 1950s and early 1960s– (Arnábal et al. 2013). This levels of payroll put the Uruguayan economy, in international comparative terms, on a similar trajectory as that evidenced by other Latin American countries in the long-run (Alarco Tosoni 2014; Frankema 2009; Neira Barría 2010; Rodríguez Weber 2014). Furthermore, below the average figures presented by the central economies (Bengtsson et al. 2018).

The gross operating surplus is presented, separated between the retribution to the land factor and the physical or produced capital, considering the importance in the national history of the former, both as an inequality driver (Bértola 2005) and as an economic development driver. The evolution of the R/VA ratio shows a decrease while the payroll increases, simultaneously during the first half of the 20<sup>th</sup> century. We could assume that the redistribution mechanisms operate in favor of workers given the process of the expansion of the welfare regime during the period (Azar et al. 2009; Filgueira 1995). That also implied a lowering personal income inequality process measured by the Gini index (Bértola 2005). The sectoral evolution shows disparities among activities. Some sectors increased their payroll sharply over time (communications, energy, water provision), others keep steady on a low register (primary sector), and others show irregular cycles (industry, commerce). The shift-share analysis shows that variations in labor-share occurred mainly guided by changes in sectoral remuneration rather than the employment relocation among the most dynamic sectors in the total VA. The preponderance of Public Administration during the whole period, but particularly during the period 1958-1975, puts under discussion the sustainability of all the development models carried on the country, due to the patronage nature of the state expansion, mainly during the central decades of the century (G. Rama 1987; M. Rama 1990; Real de Azúa 1984; Zurbriggen 2005). Finally, despite the scare relevance of the share component during the whole period, a tendency of improvement in this component can be seen until the period 1958-1975. After 1975, when the share component explains the

mayor fall of the W/VA ratio on the period 1975-1983, the minimal “structural change” gains disappeared. The long-term analysis seems to indicate that the winners of the Batllista welfare regime (unskilled wage earners, public sector employees, and the industrial sector) were the big losers of the second half of the 20<sup>th</sup> century. Likewise, the years of left government, although they improve the labor-share for all sectors –the shift effect is positive in this period in almost all industries–, does not seem to have grounded the bases to achieve a structural change pattern of development.

## References

- Abeles, Martín, Verónica Amarante, and Daniel Vega (2014). “Participación del ingreso laboral en el ingreso total en América Latina, 1990-2010”. In: *Revista Cepal*.
- Alarco Tosoni, Germán (2014). “Participación salarial y crecimiento económico en América Latina, 1950-2011”. In: *Revista Cepal*.
- Alvaredo, Facundo and Leonardo Gasparini (2015). “Recent trends in inequality and poverty in developing countries”. In: *Handbook of income distribution*. Vol. 2. Elsevier, pp. 697–805.
- Alvarez-Cuadrado, Francisco, Ngo Van Long, and Markus Poschke (2017). “Capital–labor substitution, structural change, and growth”. In: *Theoretical Economics* 12.3, pp. 1229–1266.
- Alves, Guillermo et al. (2012). “La desigualdad del ingreso en Uruguay entre 1986 y 2009”. In: *Serie Documentos de Trabajo/FCEA-IE; DT03/12*.
- Amarante, Verónica, Rodrigo Arim, and Gonzalo Salas (2007). “Impacto distributivo de la reforma impositiva en Uruguay”. In: *informe preparado para el Análisis de Impacto Social y Pobreza (AISP), Uruguay-Segundo Préstamo Programático para Políticas de Desarrollo (DPL) II*.
- Amarante, Verónica, Marco Colafranceschi, and Andrea Vigorito (2014). “Uruguay’s income inequality and political regimes over the period 1981–2010”. In: *Falling inequality in Latin America: Policy changes and lessons*, pp. 118–139.
- Arnábal, Rodrigo, Magdalena Bertino, and Sebastian Fleitas (2013). “Una revisión del desempeño de la industria en Uruguay entre 1930 y 1959”. In: *Revista de Historia Industrial* 53, pp. 143–173.
- Arroyo-Abad, Leticia, Elwyn Davies, and Jan Luiten Van Zanden (2012). “Between conquest and independence: Real wages and demographic change in Spanish America, 1530–1820”. In: *Explorations in Economic History* 49.2, pp. 149–166.
- Astorga, Pablo (2015). “Functional inequality in Latin America: news from the twentieth century”. In:
- Astori, Danilocomp (1990). *La crisis de la deuda externa: origenes, situacion actual y perspectivas*. Tech. rep.



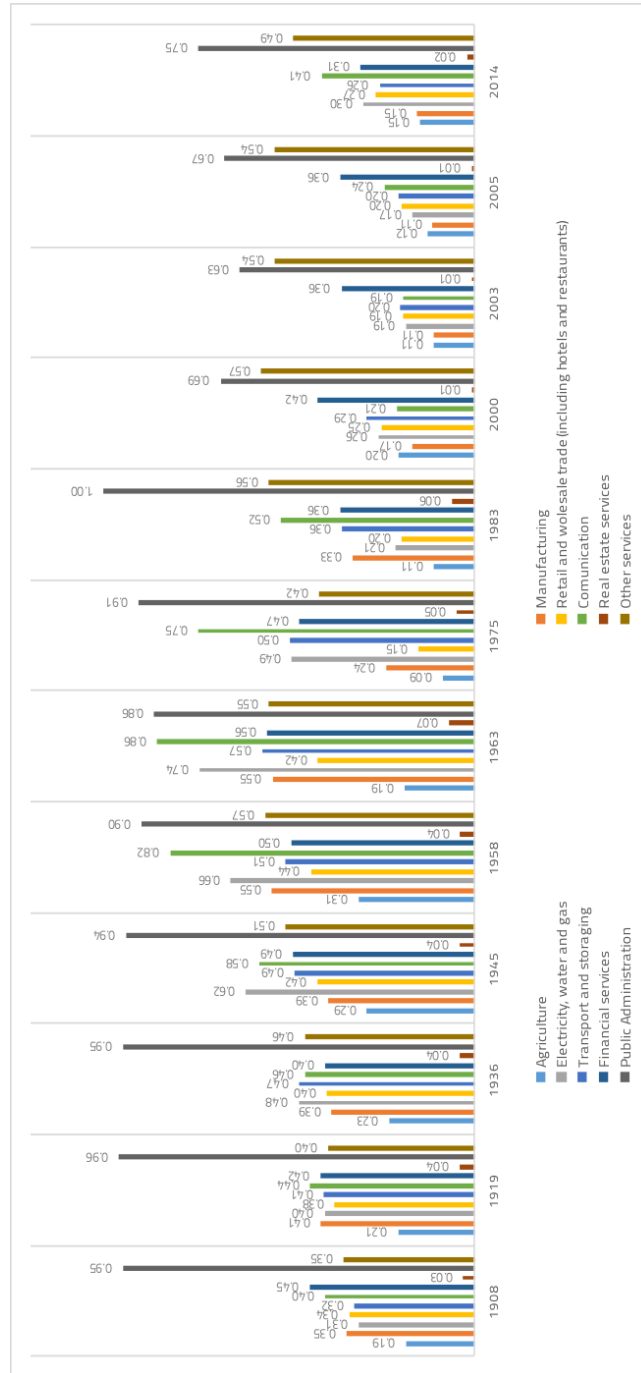
- Atkinson, Anthony B, Thomas Piketty, and Emmanuel Saez (2011). “Top incomes in the long run of history”. In: *Journal of economic literature* 49.1, pp. 3–71.
- Azar, Paola et al. (2009). “*De quiénes, para quiénes y para qué?: las finanzas públicas en el Uruguay del siglo XX*”. 336 UNId. Universidad de la República (Uruguay).
- Barrán, José Pedro and Benjamín Nahum (1978). *Agricultura, crédito y transporte bajo Batlle, 1905-1914*. Banda Oriental.
- Bengtsson, Erik and Daniel Waldenström (2018). “Capital shares and income inequality: Evidence from the long run”. In: *The Journal of Economic History* 78.3, pp. 712–743.
- Bensión, Alberto and Jorge Caumont (1979). *Política Económica y distribución del ingreso en el Uruguay 19070-1976*. Alcali.
- Bentolila, Samuel and Gilles Saint-Paul (2003). “Explaining movements in the labor share”. In: *Contributions in Macroeconomics* 3.1.
- Bertino, Magdalena et al. (2001). “La larga marcha hacia un frágil resultado. 1900-1955”. In: *El Uruguay del siglo XX. La economía*, pp. 9–55.
- Bértola, Luis (2004). “Salarios reales y distribución del ingreso 1930-1968. contextualizando los Consejos de Salarios”. In: *en Plá Rodríguez et al., Los Consejos de Salarios. Una mirada actual. Fundación de Cultura Universitaria, Montevideo*.
- (2005). “A50 años de la curva de Kuznets: Crecimiento económico y distribución del ingreso en Uruguay y otras economías de nuevo asentamiento desde 1870”. In: *Investigaciones de historia económica* 1.3, pp. 135–176.
- (2010). “An Overview of the Economic History of Uruguay since the 1870s”. In: *EH. Net Encyclopedia, edited by Robert Whaples. March 16, 2008. URL <http://eh.net/encyclopedia/article/Bertola>. Uruguay. final*, pp. 1871–2005.
- Bértola, Luis et al. (2009). “Income distribution in the Latin American Southern Cone during the first globalization boom and beyond”. In: *International Journal of Comparative Sociology* 50.5-6, pp. 452–485.
- Bonino, Nicolás, Carolina Román, and Henry Willebald (2018). *Structural change in Uruguay 1870-2015*. Tech. rep. Instituto de Economía - FCEA - UdelaR.
- Burdín, Gabriel, Fernando Esponda, and Andrea Vigorito (2013). “Desigualdad y altos ingresos en Uruguay. Un análisis en base a registros tributarios y encuestas de hogares para el período 2009-2011”. In: *línea* <http://www.cef.org.uy/images/TallerDesigualdad2013/desigualdadyaltosingresos.pdf> [fecha de consulta: 12 de mayo de 2014].
- Burdín, Gabriel, Fernando Esponda, Andrea Vigorito, et al. (2014). “Inequality and top incomes in Uruguay: a comparison between household surveys and income tax micro-data”. In: *World Top Incomes Database Working Paper* 1.
- Camou, María (2012). “Desempeño económico y relaciones de trabajo en la industria uruguaya: la empresa Campomar, 1900-1960”. In: *América Latina en la historia económica* 19.1, pp. 67–97.
- Carluccio, Alfonso (1971). *Estudio de la evolucion de la plusvalia del sector agropecuario del Uruguay durante el periodo 1955-1966*. Tech. rep.

- Cornia, Giovanni Andrea and Bruno Martorano<sup>42</sup> (2010). “Policies for reducing income inequality: Latin America during the last decade”. In: *Child Poverty and Inequality*, p. 215.
- De Rosa, Mauricio et al. (2017). *La evolución de las remuneraciones laborales y la distribución del ingreso en Uruguay*. Cuaderno de Desarrollo Humano 10. PNUD.
- Díez-Catalán, Luis (2018). *The labor share in the service economy*. Tech. rep. BBVA Bank, Economic Research Department.
- Echegaray, Alfredo et al. (1971). *Plusvalía agropecuaria del Uruguay 1930-1954*. Tech. rep.
- Elsby, Michael WL, Bart Hobijn, and Ayşegül Şahin (2013). “The decline of the US labor share”. In: *Brookings Papers on Economic Activity* 2013.2, pp. 1–63.
- Escosura, Leandro Prados de la (2009). “Lost Decades? Economic Performance in Post-Independence Latin America”. In: *Journal of Latin American Studies* 41.2, pp. 279–307. ISSN: 0022216X, 1469767X.
- Fajnzylber, Fernando (1983). *La industrialización trunca de América Latina*. Editorial Nueva Imagen.
- Filgueira, Fernando (1995). *A century of social welfare in Uruguay: growth to the limit of the Batllista social state*. 5. University of Notre Dame, Helen Kellogg Institute for International Studies.
- Frankema, Ewout (2009). *Has Latin America always been unequal?: a comparative study of asset and income inequality in the long twentieth century*. Vol. 3. Brill.
- Hogrefe, Jan and Marcus Kappler (2013). “The labour share of income: heterogeneous causes for parallel movements?” In: *The Journal of Economic Inequality* 11.3, pp. 303–319.
- Jayadev, Arjun (2007). “Capital account openness and the labour share of income”. In: *Cambridge Journal of Economics* 31.3, pp. 423–443.
- Karabarbounis, Loukas and Brent Neiman (2013). “The global decline of the labor share”. In: *The Quarterly Journal of Economics* 129.1, pp. 61–103.
- Lezama, Guillermo and Henry Willebald (2016). “Inequality in pre-income survey times: a methodological proposal”. In: *V Congreso Latinoamericano de Historia Económica*. CLADHE.
- Lloyd, Christopher, Jacob Metzger, and Richard Sutch (2013). *Settler economies in world history*. Brill.
- López-Calva, Luis Felipe and Nora Claudia Lustig (2010). *Declining inequality in Latin America: A decade of progress?* Brookings Institution Press.
- Macadar, Luis (1982). *Uruguay 1974-1980: un nuevo ensayo de reajuste económico?* Ediciones de la Banda Oriental, CINVE.
- Melgar, Alicia (1981). *Distribución del ingreso en el Uruguay*. Tech. rep.
- Mendive, Carlos and Alvaro Fuentes (1996). “Diferencias en la captación del ingreso por fuente” en INE”. In: *Taller de expertos sobre medición de pobreza*.
- Moatsos, Michail et al. (2014). “Income inequality since 1820”. In:
- Neira Barría, Vicente (2010). “Distribución factorial del ingreso en América Latina, 1950-2000: Nuevas series a partir de las cuentas nacionales”. In:

- Notaro, Jorge (2003). “La batalla que ganó la economía. 1972-1984”. In: *Bertoni et al. El Uruguay del siglo XX. La Economía. Montevideo: Instituto de Economía—Ediciones de la Banda Oriental.*
- Notaro, Jorge, Claudio Fernández Caetano, and Milton Sörensen (2014). “Los salarios en la industria manufacturera. Uruguay, 1946-1955”. In: *Investigaciones de Historia Económica-Economic History Research* 10.1, pp. 57–67.
- Oddone, Gabriel (2011). “Restricciones para sostener el crecimiento. Lecciones y desafíos para las políticas públicas”. In: *La aventura uruguaya. El país y el mundo Montevideo: Sudamericana.*
- Oyhantçabal, Gabriel and Martín Sanguinetti (2017). “El agro en Uruguay: renta del suelo, ingreso laboral y ganancias”. In: *Problemas del desarrollo* 48.189, pp. 113–139.
- Piketty, Thomas (2014). “Capital in the 21st Century”. In:
- Piketty, Thomas and Gabriel Zucman (2014). “Capital is back: Wealth-income ratios in rich countries 1700–2010”. In: *The Quarterly Journal of Economics* 129.3, pp. 1255–1310.
- Rama, Germán (1987). “La democracia en Uruguay”. In: *Buenos Aires: Grupo Editor Latinoamericano.*
- Rama, Martín (1990). “Crecimiento y estancamiento económico en Uruguay”. In: *2003) Economía Política en Uruguay: Instituciones y Actores Políticos en el Proceso Económico.*
- Real de Azúa, Carlos (1984). *Uruguay, una sociedad amortiguadora?* 3. La Banda Oriental.
- Reig, Nicolás and Raúl Vigorito (1986). *Excedente ganadero y renta de la tierra: Uruguay: 1930-1970.* Tech. rep.
- República Oriental del Uruguay (BROU), Banco de la (1965). *Cuentas Nacionales.* BROU.
- Reyes-Abadie, Washington, Oscar Buschera, and Tabaré Melogno (1966). *La Banda Oriental: Pradera-frontera-puerto.* Ediciones de la Banda Oriental.
- Rodríguez Weber, Javier E (2014). “La economía política de la desigualdad de ingreso en Chile: 1850-2009”. PhD thesis. Facultad de Ciencias Sociales - Universidad de la República.
- Siniscalchi, Sabrina and Henry Willebald (2017). *Dinámica sectorial de la distribución funcional del ingreso en Uruguay, 1908-1963.* Tech. rep. Jornadas Anuales de Economía, Banco Central del Uruguay.
- Stockhammer, Engelbert (2013). “Why have wage shares fallen”. In: *ILO, Conditions of Work and Employment Series* 35.61, pp. 1–61.
- Uruguay, Banco Central del (1991). *Cuentas Nacionales.* BCU.
- (2009). *Revisión integral de las Cuentas Nacionales 1997-2005. Metodología. Programa de Cambio de Año Base e Implementación del Sistema de Cuentas Nacionales 1993.* BCU.
- Willebald, Henry (2015). “Patrones distributivos en las economías templadas de reciente asentamiento: desigualdad en el ingreso agrario durante la Primera Globalización (1870-1913).” In: *Historia Agraria* 66.

- Williamson, Jeffrey G et al. (1998). *Real wages and relative factor prices in the Third world 1820-1940: Latin America*. Harvard Institute of Economic Research.
- Williamson, Jeffrey G (2015). “Latin American Inequality: Colonial Origins, Commodity Booms or a Missed Twentieth-Century Leveling?” In: *Journal of Human Development and Capabilities* 16.3, pp. 324–341.
- Zurbriggen, Cristina (2005). *Estado, empresarios y redes rentistas durante el proceso sustitutivo de importaciones en Uruguay: el path dependence de las reformas actuales*. Ediciones de la Banda Oriental - Instituto de Ciencia Política FCS, UdelaR.

**Figure 5**  
Payroll evolution by economic sector (1908-2005)



Source: Source: Own estimations