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The distribution of income in Uruguay: the effects of economic and institutional reforms

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THE DISTRIBUTION OF INCOME IN URUGUAY: THE EFFECTS OF

ECONOMIC AND INSTITUTIONAL REFORMS

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Abstract

This paper is concerned with distributive aspects of crucial economic and institutional reforms experienced by income sources in Uruguay after the late eighties. These reforms involved both, the labor market and the pensions system, and we provide empirical evidence about the different way they affected the distribution of income. The distribution of income across all earners at the end of the eighties exhibited two well-distinguished poles, each associated with one income source. This bimodality faded with time during the nineties due to the general improvement in retirement pensions, vanishing polarization by income sources. For the same period we find in the case of labor earnings a net transfer of population mass from the middle of the distribution to both extremes, which results in increasing polarization within this income source.

Resumen

El trabajo analiza los aspectos distributivos de las reformas económicas e institucionales que afectaron las diferentes fuentes del ingreso en Uruguay desde finales de los años ochenta. Estas reformas involucraron el mercado obrero y el sistema de pensiones. Se proporciona la evidencia empírica sobre la forma diferente en que afectaron la distribución de ingreso. La distribución de ingreso exhibió dos polos bien diferenciados, cada uno asociado con una fuente del ingreso. Esta bimodalitad fue desvaneciéndose durante los años noventa debido a la mejora general en las pensiones, desapareciendo la polarización por fuentes de ingreso. Se encontró, en el caso de los asalariados, un traslado neto de población del medio de la distribución hacia ambos extremos, lo que produce la polarización creciente dentro de esta fuente del ingreso.

1. Introduction

The purpose of this paper is to study the evolution of income distribution by sources in Uruguay between 1989 and 1997, the last year of available uniform data. Uruguay is mainly a urban country. Half the total urban population lives and nearly two thirds of the economic activity is carried out in the metropolitan area of Montevideo. The other half of the urban population and one third of economic activity are dispersed in the rest of the urban Uruguay (RUC), which is composed of cities generally not larger than 30,000 inhabitants. Uruguay is a particular country in Latin America. Low levels of inequality compared to other Latin American Countries have characterized its income distribution. Papers developed about the topic by Bucheli and Rossi (1994) and Vigorito (1998) show that the income distribution has not varied too much during the last years. This is in contrast to the situation experienced by the remaining Latin American countries that have increased its levels of inequality

Other studies show, however, greater inequalities in certain components of households' income. Bucheli and Rossi (1994) show important changes in the distribution of pensions; Miles and Rossi (1999) and Gradín and Rossi (2000) show a growing inequality in the distribution of wages since the beginning of the 1990s. According to the last paper, between 1990 and 1996 the Gini index grew 17 per cent in Montevideo and 12 per cent in the RUC, the increase in Theil index was even larger (36 and 30 per cent respectively). The same paper shows that the wage distribution in Uruguay increased also its degree of bipolarity, it means that it had a tendency to the separation into two big groups.

The macroeconomic framework in the country can be summarized as follows. A big recession occurred at the beginning of the eighties but the Uruguayan economy substantially grew after the recovery of democracy in 1985 until 1994. By 1995 the country lived a new

recession that finished in 1996. The period is also characterized by a stabilization plan that reduced inflation considerably, and an increasing opening of Uruguayan economy within the free trade area of MERCOSUR with Argentina and Brazil. A deep reform in the state was conducted but differing from other Latin-American countries, since a big part of public intervention was preserved.

The evolution of the distribution of income in Uruguay is intimately related to important transformations in the labor market and in the social protection system.

Regarding the labor market, the country experienced an increase in women's participation rate as well as in the level of education of the new generations entering the market. A demand bias favoring most skilled people was also observed. Furthermore, this labor market experienced a crucial institutional reform affecting the degree of centralization in wage negotiation. Until 1990 wage increases were decided in bargaining councils by unions, employers and government representatives, adjusted three times a year for the entire economic sectors and uniformly for Montevidean and workers. A decentralization process begun in 1990, with wage increases decided on a local level and bargaining councils practically disappearing. This fact, jointly with the fall in the industry employment, where unions have had more preponderance, could explain the important deunionization process observed in the Uruguayan work force, where membership is not compulsory. While in 1986 four of every ten workers were members of labor unions, in 1997 the proportion was reduced to one of ten.

Another important change, from the point of view of their repercussion in the distribution of income, took place in the social protection system and is related to the adjustments of pensions. Before 1989, pensions were adjusted yearly and linked to the wage index. Given that inflation rate used to be high, the government was allowed to make payments in advance. The reform, approved in referendum by December of 1989, established

that increases had to take place in the same month as public sector wages and the rise had to be equivalent to the variation of the wage index between the adjustment month. This fact, in a context of high inflation rates implied substantial improvements in the level of pensions, moving this group up in the global distribution of income.

This paper is concerned with the distributive consequences of those economic and institutional reforms involving both, the labor market and the pensions system, providing empirical evidence about the different way they affected the distribution of income. We will focus on individual earnings and we will differentiate by their main income sources: labor income, pensions and self-employment income. Other less relevant incomes have been omitted.

In our view, the transformations carried out in individual earnings distribution in Uruguay can be easily characterized from the point of view of polarization because as it will be demonstrated in the next sections they involved two different processes going in opposite directions regarding polarization in a society. This is so because on the one hand a deep change appears in the underlying poles of the distribution of total earnings, where the two main poles given by different income sources caused a high degree of bimodality at the end of eighties but these poles moved closer each other during the nineties, reducing bimodality. On the other hand, the well-known phenomenon of the *disappearing middle class* is found within the distribution of labor income for the same period. For these reasons, measures that are consistent with Lorenz dominance criterion are not adequate in this context, as Esteban and Ray (1994) or Wolfson (1994) have stressed. The problem is that these measures cannot distinguish between convergence to the global mean and convergence to local poles. Therefore, in order to summarize distributional changes we will use polarization indices. Regarding the notion of polarization there is not a consensus similar to that of inequality. Wolfson has a notion closer to the existence of bipolarity in the distribution, according to him

"a more polarized income distribution is one that is more *spread out* from the middle, so there are fewer individuals or families with middle level incomes. In addition there is a sense that this spreading out is also associated with a tendency toward *bimodality*, a clumping of formerly middle level incomes at either higher or lower levels" (Wolfson (1997); page 402). However Esteban and Ray's view of polarization allow the formation of a small number of poles and can be summarized as follows: "Suppose that the population is grouped into significantly-sized "clusters", such that each cluster is very "similar" in terms of the attributes of its members, but different clusters have members with very "dissimilar" attributes. In that case we would say that the society is "polarized"." (Esteban and Ray (1994); page 819). This last view is more general and it involves the bipolar case as a particular one, so our empirical approach will use this framework of polarization analysis.

The study is based on data from the Household Survey of Uruguay from 1986 through 1997[1] (*Encuesta de Hogares*, Instituto Nacional de Estadística). This survey is carried out, in present format, every month from 1981; its frame is the civilian population of Uruguay, decomposed in a survey for Montevideo and another for the rest of the urban country. It contains individual data on monthly labor earnings, non-labor earnings, age, sex, educational level, hours worked per week, marital status, occupation characteristics, and other relevant variables. All monetary variables have been deflated using the consumer price index of December of 1996.

The structure of the paper is as follows. The next section focuses on changes on labor earnings as well as total income, which are analyzed through the estimation of their respective underlying densities. Using the same tool, section 3 analyzes retirement incomes. In order to summarize distributional changes sections 4 and 5 present the results of

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[1] In 1998 the survey incorporated relevant changes affecting the sample.

computing polarization indices that result from an extension of Esteban and Ray (1994) contribution to the measurement of polarization. The last section concludes the main results.

2. Changes in the labor market and total income

In order to analyze how the labor income distribution changed in Uruguay during the nineties we will estimate densities for labor income, considering only those individuals who earned some positive amount. These densities are estimated with the non-parametric technique known as *kernels*, avoiding any assumption about the shape of the distribution. It smoothes the density preventing from the noise induced by the use of a sample instead of the whole population. We compute adaptive kernels over the logarithm of incomes, using an optimal bandwidth and Gaussian kernel functions[2]. As a consequence, we inspect how the whole distribution changed over time, rather than concentrating on particular points.

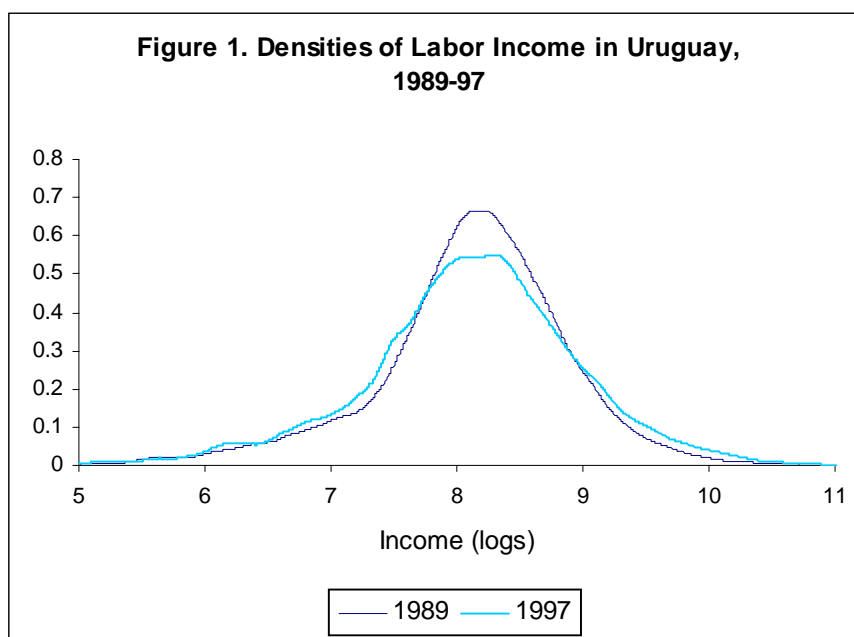**Figure 1. Densities of Labor Income in Uruguay, 1989-97**

Figure 1 displays how labor income distribution changed in Uruguay from 1989 to 1997, with income expressed in real terms. Since the average did decreased the distribution shifted a little to the left. A specific distributive change stands out in the figure, showing a

prominent shrinkage in the middle of the distribution, while both extremes substantially increased in size. The proportion of earners who worsened in absolute terms is larger than the proportion that improved. The phenomenon is referred to in the labor economics literature as *the disappearing middle class*, focusing the attention of a number of researchers since the second half of the eighties in the US[3]. We can say in other words that the distribution generated by the labor market became more polarized as Love and Wolfson (1976), Wolfson (1994 and 1997) or Esteban and Ray (1991, 1993 and 1994) conceptualized this notion.

The estimation of the same densities separately for Montevideo and the rest of the urban country shows that workers from Montevideo contributed to the increase in the upper tail while workers from the rest of the urban country contributed to the enlargement of the lower tail (cf. Figures 2 and 3). Comparing the densities in both distributions we observe that they moved apart one each other, while the density corresponding to Montevideo shifted to the right, the one corresponding to the rest of the urban country moved towards the left. In both cases the mode is less prominent in 1997 than it was in 1989.

Figure 2. Densities of Labor Income in Montevideo, 1989-97

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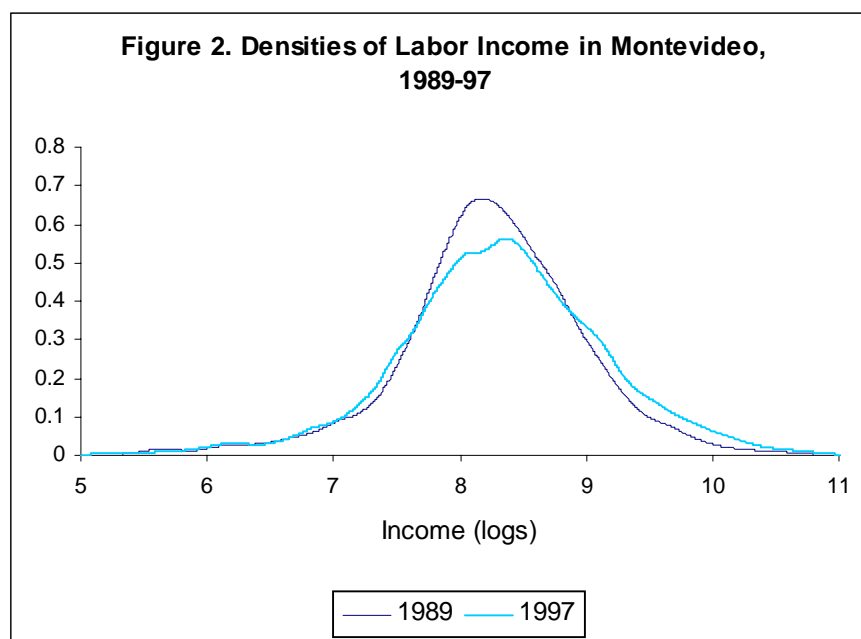
[2] We refer to Silverman (1989) and subsequent literature for details about this technique.
[3] A big part of these studies were published in the Monthly Labor Review, but other similar studies were conducted in different countries and different dates.

**Figure 3. Densities of Labor Income in RUC, 1989-97**
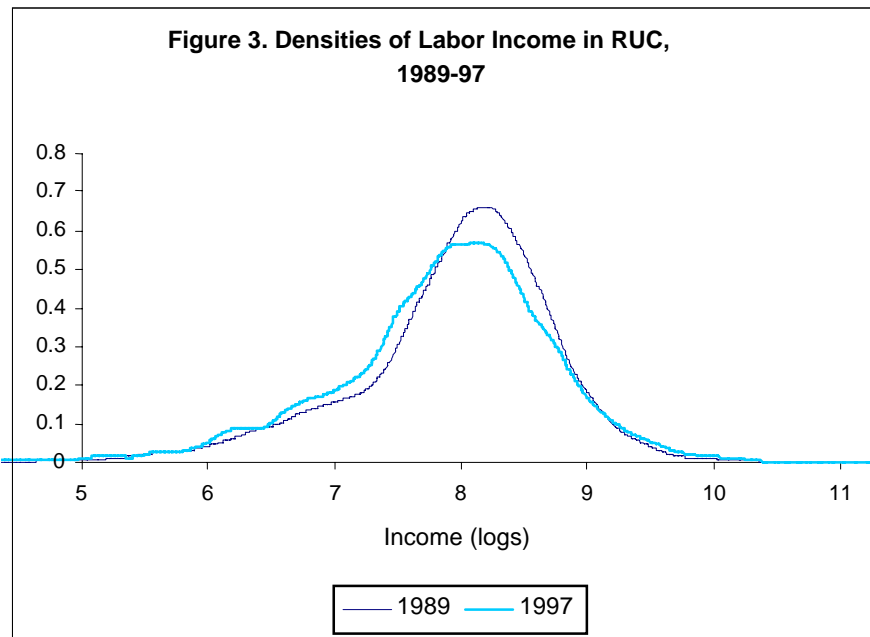
What is the reason for this increasing polarization in labor earnings? In Gradín and Rossi (1999), for instance, it is shown that the distribution of wages in Montevideo presented increasing polarization by qualification and age, what was consistent with increasing returns to education and experience Miles and Rossi (1999). In the RUC there was evidence about increasing wage polarization by sector (public versus private) and branch of activity. In both cases, Montevideo and RUC, polarization by sex declined, showing that the gender gap did not explain this tendency towards augmenting polarization.

One could expect at first that given this clear polarization increase in the labor income distribution and considering that wages account for more than a half of incomes, we would find a similar trend if we put all income sources together. In the remaining of this section we will show that it was not the case in Uruguay for the period we are considering.

Figures 4 and 5 show respectively for Montevideo and the RUC the changes in densities of the distribution of total individual income across any type of earner. Total income includes labor income, pensions and self-employment income, omitting other irrelevant sources of income to concentrate on the most important ones. It is shown in Figure 4 that in

1989 the distribution outside Montevideo was extremely bimodal, a big proportion of population was gathering together at two well-defined poles that were significantly separated from one each other. This bimodality was substantially smoothed during the nineties.

A similar trend is found in Montevideo according to Figure 5, the difference being that in this case the first mode is not so outstanding in 1989 as in the rest of the country - although it is farther from the second mode - and it completely disappears by 1997. The distribution for the whole Uruguay - omitted here -, which is just the weighted average of both regions, reproduces the same process. Thus, we cannot say that labor income polarization resulted in a higher polarization in total income. Some other force acted in the opposite direction compensating this trend. The next section finds out this force being the crucial reforms undertaken in the social protection system.

Figure 4. Densities of Total Income in RUC, 1989-97

Figure 5. Densities of Total Income in Montevideo 1989-97
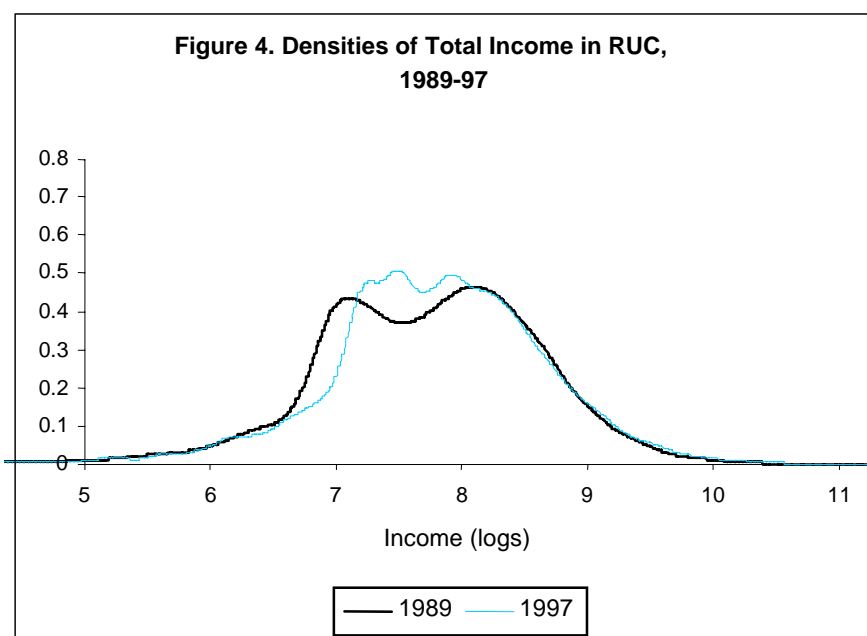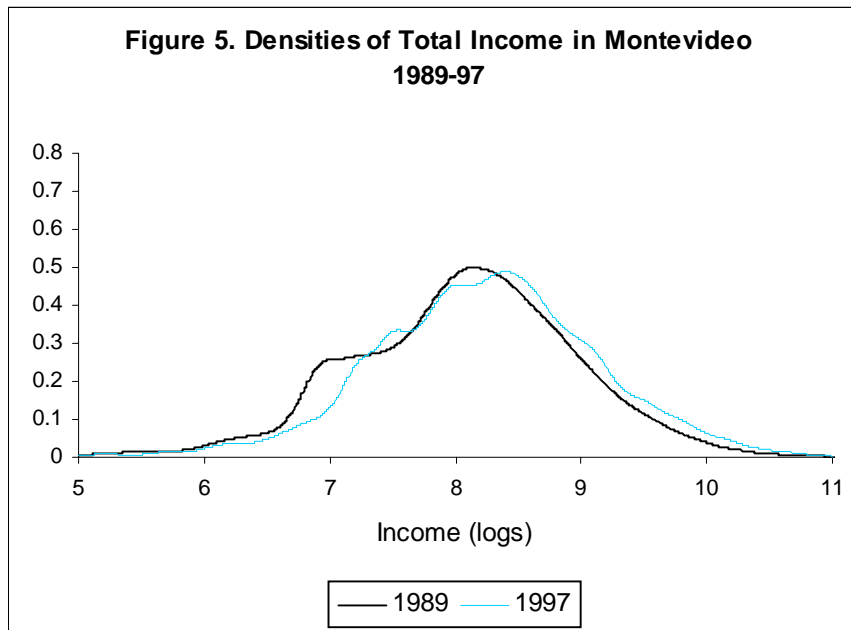
3. Changes in retirement pensions

Whenever a bimodal distribution is found, one should immediately inspect whether or not this distribution is just the result of summing up two different sub-distributions, in this case two income generation processes, each one exhibiting a different unique mode so that bimodality results from aggregation.

In this section we show that, indeed, the two modes found in the distribution of total income in both Uruguayan urban regions in 1989 were the result of aggregating income by two distinct sources, say labor income and retirement pensions, both sources accounting for almost 80% of total income. This is shown in Figures 6 and 7 for both years and both areas. For that, we make an exhaustive partition of population according to their main source of income: labor, retirement pensions and self-employment incomes. This decomposition leads the total income density to be the weighted sum of sub-populations densities, with the weights being respective population shares. However, we omit the representation of the third source, self-employment, to allow a better view of distributional changes

the pensions system. The result of this is a high degree of polarization in total income. But we find out that the distribution by income sources changed during the nineties in two different aspects. On the one hand, the density of retirement pensions moved towards the right, approaching that of labor income. On the other hand, labor income exhibits now a higher degree of internal dispersion. We observe as a consequence, a significant increase in the overlapping between them, which finally explains that the bimodality in the aggregate distribution gradually faded with time. In 1997 the distinction between labor income and retirement pension earners appears to be much less crucial than in 1989. A quite similar result is found in Montevideo (Figure 7) with both income sources displaying a substantially higher degree of internal dispersion than in the rest of the country. In both urban areas the new modes are less prominent than before.

4. Polarization in Uruguay: income groups

Up to now we entrusted the analysis to the direct observation of densities, in this section we summarize distributive changes in relative income. Here, rather than with inequality we are concerned with polarization. The reason is that the type of distributive changes we are dealing with can be better captured by indices of this nature than by indices consistent with Lorenz dominance. The latter, as the mentioned literature stressed, cannot distinguish whether a given population is concentrating around the global mean or around a few local poles. In both cases inequality measures increase while polarization indices should decline in the first case and be reduced in the second one[4].

In this paper we use the Esteban and Ray (1994) approach to measure polarization, but since its difficulties to be implemented in personal income distributions, we follow the

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[4] We refer to those articles for details about the notion of polarization and its comparison with inequality.

extension proposed in Esteban, Gradín and Ray (1999) to make it operative in this context. So, for a given distribution *f* we compute polarization as follows:

1) First we fit a 2-spike distribution to the original density, such that preserving the same income it minimizes the error of representing *f* by this degenerated distribution. This defines groups as two income classes such that in the representation all members in each group are collapsed in its respective mean income. The error is defined as the intragroup dispersion within the group as measured by Gini index of inequality. The same is undertaken for a 3-groups representation[5].

2) Secondly, we compute polarization in the 2 and in the 3-spike distributions using the Esteban and Ray's index (*simple polarization*). This is polarization between-groups, from which we subtract the error of the representation (*intragroup heterogeneity*), as increasing dispersion within the groups should reduce overall polarization.

Then, for ρ being the 2 or the 3-spike optimal representation, the measure for *extended polarization* is:

$$P(f;\alpha,\rho) = ER(\alpha,\rho) - \beta[G(f) - G(\rho)], \tag{1}$$

where α is a parameter indicating the sensitivity to polarization - and so the distance to the notion of inequality -, it falls in the [1,1.6] interval in order to fulfill a set of axioms. β is the weight assigned to the error term, *G* is the Gini coefficient of inequality and *ER* is the index proposed in Esteban and Ray (1994) computed over the 2 or the 3-spike distribution with average incomes *(y1, y2, y3)* - expressed in logs- and respective population shares *(p1, p2, p3)*, defined as follows:

$$ER(f;\alpha) = \sum_i \sum_j p_i^{1+\alpha} p_j |y_i - y_j|. \tag{2}$$

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[5] The same exercise was conducted with other number of groups posing the same results. In Esteban, Gradín and Ray (1999) is shown that the measure proposed by Wolfson (1994) is a particular case of this approach when there are two groups of identical size.

In the case of β=0 expression (1) leads to (2). Results are presented in Table 1 in the appendix for main income sources in Uruguay, as well as for Montevideo and the RUC separately. These results show that, on the one hand, both main sources of income experienced an increase in polarization for two and three underlying income classes, but in a different way. In the case of labor income we find out that groups are more polarized in 1997, there is a big increase in the distance between extreme groups, despite they are internally more dispersed. In the case of pensions we find that groups are more polarized between them because of increasing size of endogenous extreme groups, groups are internally more homogenous, but in this case the distance between extreme groups remained almost unchanged. Labor income also shows a substantial increase in inequality, which is lower in the case of pensions.

How did these changes affect the distribution of total income? We see in the table that it remained unchanged, only a low increase in Gini coefficient is found, with no relevant change in polarization. If we rather look at the variable that at the end is relevant for welfare, household equivalent income[6], we see that it slightly increased in polarization and more substantially in inequality. However, after the previous analysis we can conclude that it was the result of the formation of households rather than the result of the process generating incomes in Uruguay. Elements such as the correlation between income sources in a household, the number of earners or the household composition might explain this increasing inequality and polarization.

In 1989 both urban regions showed similar distributive patterns but in the analyzed period the increase in labor income polarization was larger in Montevideo and the increase in pensions income polarization was larger in the rest of the urban Uruguay. Another big difference between both regions is that total income polarization and inequality were reduced

in the RUC, being almost constant in Montevideo, while household income polarization and inequality were substantially increased only in Montevideo. In the RUC, household income polarization was constant and even declined.

In order to show how increasing polarization took place we account for the decline in the middle class in two different ways. First, we exogenously define the middle-income group to be all people whose income is larger than 75% of the mean and lower than 125%, alternatively 60%-140% is also provided. In the second case we provide the endogenous middle-income group used to compute polarization indices shown above (with 3 groups). In this case the interval defining the middle is different in each distribution, varying with time. With both definitions of the middle-groups, also presented in Table 1, we observe a decline in its size that is smaller in the case of total and household income than in income sources. In the exogenous case (25-125%), for instance, the middle group for labor income earners shrunk in Uruguay from 31.2% to 25.6% between 1989 and 1997. The middle group is larger in size in the RUC than in Montevideo. However the decline in the size is much lower if we consider all earners (from 37.6% to 36.3%) or households (from 37.8% to 37.0%). Furthermore the income distance ratio of top group income to bottom group income in the three groups optimal distribution goes up in all three cases, but the change is stronger for labor income.

5. Polarization in Uruguay: groups by income sources

There were small changes in the level of polarization of total income and of household income in Uruguay between 1989 and 1997. The assumption in the previous section was that groups were formed by income classes. What if we assume that individual attachment to a group regards the income source rather than the income level? For this we follow Gradín

[6] Defined using OECD equivalent scales (weighting 1 the first adult, .7 the rest of adults and .5 children) and

$(2000)^{7}$, using the Esteban, Gradín and Ray approach computing polarization for exogenous subpopulations, which are given in this case by the main income source (ρ^{c}) in both, total earners and household income. Thus, we compute:

$$GP(f,\alpha,\rho^{c}) = P(f,\alpha,\rho^{c}) + \beta, \tag{3}$$

with $P()$ defined as in (3).

According to this, Table 2 shows as expected from the graphical analysis that polarization by income sources substantially declined in Uruguay and in both urban regions separately, and this is true regardless of the variable we analyze: total income or household equivalent income. In both areas the main source of reduction was the approximation between income poles, especially between labor earners and pensioners. In Uruguay, pensioners improved from 55% of the global average in total income to 71%, while labor earners and self-employment declined respectively from 143 and 115% to 131 and 110%. Furthermore, groups generally became internally more disperse. However, this varies across groups because while inequality within labor earners (or households) increased in all Uruguay, pensioners show the same or less dispersion. Similar results are found for household equivalent income.

The measure (3) allows us to take into account the degree of overlapping among sub-distributions, through the index I. For q_{i} indicating the ith sub-population share, the index is:

$$I = \sum_{i} I_{i} q_{i}, \tag{4}$$

where I_{i} indicates the overlapping between the ith sub-distribution and the overall population and comes from the decomposition of the Gini index of inequality, such that we re-write the error term as:

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weighting each household according to the number of members.
[7] Different approaches have been proposed in order to deal with polarization under exogenous sub-populations. For instance, D'Ambrosio (2000) uses an alternative extension of Esteban and Ray's approach replacing

$$\varepsilon(F, \rho^c) = \sum_i s_i G(f_i) I_i, \qquad \textbf{(5)}$$

and it can be expressed as the weighted sum of each I_{ij} representing the overlapping between the ith and the jth sub-distributions, weights being respective population shares:

$$I_i = \sum_j I_{ij} q_j. \qquad \textbf{(6)}$$

We refer to Gradín (1999 and 2000) for details. Given that $I_{ij} \neq I_{ji}$, for two sub-populations i and j we will compute the overlapping between them as:

$$I_{ij}^* = I_{ij} q_i + I_{ji} q_j. \qquad \textbf{(7)}$$

According to Yitzhaki (1994), based on Laswell's notion of stratification, "perfect stratification occurs when the observation of each group are confined to a specific range, and the ranges of groups do not overlap. Hence we can view overlapping as non-stratification" (Page 148). According to this notion, Yitzhaki and Lerman (1991) and Yitzhaki (1994) develop overlapping indices behaving quite similarly to the indices used in this section, the latter are more directly connected to our measures of polarization.

The results in Table 2 in the appendix show that the degree of overall overlapping increased between 1989 and 1997 in both geographical areas for both total and household equivalent income, but the increase was larger in the former case. Of special relevance was the large increase of overlapping between labor earners and pensioners in all cases, so reducing social stratification or segmentation due to income sources in Uruguay at the same time that polarization is reduced.

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distances in terms of average incomes with an index of distance between sub-distributions. Zhang and Kanbur (2000) propose the use of the ratio "between-group" to "within-group" inequality.

6. Conclusions

In this paper we have shown using kernel densities and polarization summary indices that income distribution in Uruguay showed a deep change between 1989 and 1997. The change affected the process generating income by different sources like the labor market and the pensions system, appearing a process of declining polarization through an approximation between income poles with a significant decline in social stratification.

Furthermore an increasing polarization was observed within labor market earners. This polarization was characterized by a decline in the size of the middle-income group with an enlargement of the tails. The lower tail was enlarged due to the worsening of the economic position of middle-income workers in RUC, and the enlargement of the upper tail was due to the improvement of Montevideo middle-income workers.

The improvement in the position of pensioners compensated the increasing polarization within the labor market and pensions system, such that total income did not experienced an increase in overall polarization while household equivalent income increased a little in polarization, but for reasons other than income sources.

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APPENDIX

Table 1. Polarization in Uruguay, 1989-97

Uruguay		Labor 1989	1997	Pensions 1989	1997	Total 1989	1997	Household 1989	1997
Polarization	2 Groups	0.094	0.112	0.113	0.125	0.126	0.127	0.105	0.111
	"inter"	0.208	0.237	0.229	0.239	0.257	0.256	0.218	0.227
	3 Groups	0.110	0.132	0.119	0.135	0.152	0.150	0.118	0.125
	"inter"	0.164	0.190	0.177	0.190	0.210	0.209	0.170	0.178
Inequality (Gini)		0.382	0.436	0.430	0.434	0.463	0.468	0.393	0.414
	intra -2 Groups	0.114	0.125	0.117	0.115	0.130	0.129	0.113	0.116
	intra -3 Groups	0.054	0.057	0.058	0.055	0.059	0.058	0.052	0.053
Middle Income Group size (3 groups)									
	endogenous	0.401	0.380	0.356	0.327	0.376	0.363	0.378	0.370
	exogenous 25%	0.312	0.256	0.214	0.205	0.236	0.221	0.276	0.252
	40%	0.504	0.418	0.409	0.356	0.379	0.365	0.448	0.423
Income dif. Between extreme groups		5.2	6.7	6.2	6.3	7.7	7.8	5.4	6.0

Montevideo		Labor 1989	1997	Pensions 1989	1997	Total 1989	1997	Household 1989	1997
Polarization	2 Groups	0.097	0.115	0.132	0.138	0.124	0.127	0.100	0.115
	"inter"	0.208	0.235	0.255	0.259	0.254	0.255	0.207	0.231
	3 Groups	0.109	0.130	0.142	0.152	0.147	0.149	0.109	0.129
	"inter"	0.162	0.186	0.202	0.208	0.207	0.207	0.159	0.181
Inequality (Gini)		0.384	0.432	0.462	0.452	0.461	0.466	0.372	0.416
	intra -2 Groups	0.111	0.121	0.123	0.121	0.130	0.128	0.106	0.115
	intra -3 Groups	0.053	0.056	0.060	0.056	0.059	0.058	0.050	0.053
Middle Income Group size (3 groups)									
	endogenous	0.384	0.376	0.341	0.348	0.379	0.369	0.378	0.366
	exogenous 25%	0.294	0.244	0.185	0.203	0.232	0.224	0.289	0.249
	40%	0.490	0.406	0.347	0.335	0.383	0.366	0.478	0.416
Income dif. Between extreme groups		5.2	6.5	7.3	7.1	7.6	7.7	4.9	6.0

Rest of the Urban Country		Labor 1989	1997	Pensions 1989	1997	Total 1989	1997	Household 1989	1997
Polarization	2 Groups	0.096	0.108	0.088	0.103	0.129	0.122	0.100	0.100
	"inter"	0.206	0.227	0.196	0.207	0.253	0.243	0.209	0.206
	3 Groups	0.112	0.126	0.095	0.103	0.148	0.137	0.110	0.109
	"inter"	0.163	0.181	0.148	0.154	0.204	0.192	0.162	0.159
Inequality (Gini)		0.365	0.405	0.373	0.378	0.445	0.434	0.378	0.370
	intra -2 Groups	0.110	0.119	0.108	0.103	0.124	0.121	0.110	0.106
	intra -3 Groups	0.051	0.055	0.053	0.051	0.056	0.056	0.052	0.049
Middle Income Group size (3 groups)									
	endogenous	0.405	0.394	0.390	0.364	0.365	0.366	0.380	0.380
	exogenous 25%	0.327	0.287	0.304	0.258	0.237	0.245	0.288	0.293
	40%	0.504	0.456	0.558	0.475	0.368	0.382	0.479	0.485
Income dif. Between extreme groups		4.9	5.9	4.9	4.9	7.0	6.5	5.0	4.9

Table 2. Polarization by groups of income earners in Uruguay, 1989-97

Uruguay		Total		Household	
		1989	1997	1989	1997
Polarization (*P*)		0.816	0.716	0.705	0.647
Polarization between groups (*ER*)		0.108	0.067	0.035	0.021
population shares	Labor	0.518	0.489	0.635	0.590
	Pensions	0.324	0.344	0.179	0.212
	Self-employed	0.158	0.168	0.186	0.198
relative incomes	Labor	1.153	1.101	0.990	0.985
	Pensions	0.545	0.707	0.803	0.901
	Self-employed	1.434	1.307	1.224	1.151
Inequality within groups		0.292	0.351	0.330	0.374
	Labor	0.382	0.436	0.367	0.402
	Pensions	0.428	0.429	0.396	0.381
	Self-employed	0.513	0.520	0.436	0.465
Overlapping	Overall	0.711	0.791	0.870	0.919
	Labor-Pensions	0.314	0.479	0.597	0.694
Montevideo		Total		Household	
		1989	1997	1989	1997
Polarization (*P*)		0.817	0.721	0.711	0.637
Polarization between groups (*ER*)		0.108	0.068	0.030	0.019
population shares	Labor	0.539	0.517	0.649	0.636
	Pensions	0.309	0.325	0.160	0.169
	Self-employed	0.152	0.158	0.191	0.195
relative incomes	Labor	1.130	1.081	0.982	0.968
	Pensions	0.540	0.701	0.835	0.935
	Self-employed	1.475	1.347	1.199	1.160
Inequality within groups		0.291	0.347	0.319	0.382
	Labor	0.384	0.433	0.352	0.404
	Pensions	0.456	0.444	0.383	0.385
	Self-employed	0.488	0.505	0.399	0.462
Overlapping	Overall	0.706	0.784	0.882	0.934
	Labor-Pensions	0.316	0.480	0.635	0.754
Rest of Urban Country		Total		Household	
		1989	1997	1989	1997
Polarization (*P*)		0.827	0.737	0.726	0.678
Polarization between groups (*ER*)		0.105	0.061	0.037	0.016
population shares	Labor	0.495	0.461	0.620	0.558
	Pensions	0.341	0.362	0.198	0.242
	Self-employed	0.164	0.177	0.182	0.200
relative incomes	Labor	1.169	1.094	0.989	0.969
	Pensions	0.563	0.739	0.807	0.949
	Self-employed	1.399	1.290	1.247	1.150
Inequality within groups		0.278	0.324	0.311	0.338
	Labor	0.361	0.404	0.345	0.353
	Pensions	0.375	0.374	0.363	0.342
	Self-employed	0.520	0.501	0.449	0.431
Overlapping	Overall	0.714	0.798	0.861	0.934
	Labor-Pensions	0.312	0.498	0.593	0.770