Poverty in Uruguay (1989-1997)

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Abstract

The purpose of this paper will be to study the evolution of inequality and poverty in Uruguay between 1989 and 1997. We found that from 1991 there is an increase wage inequality in Uruguay and poverty changed little, decreased until 1993 and then increased.

Near a half of poor people in Uruguay are children and old people contribute very little to poverty.

Resumen

El objetivo de este trabajo fue analizar la evolución de la desigualdad y la pobreza en Uruguay en el período 1989-97. Encontramos que desde 1991 se incrementó la desigualdad salarial en Uruguay y la pobreza cambio levemente, descendiendo hasta 1993 e incrementándose luego.

Cerca de la mitad de los pobres en Uruguay son niños y las personas de edad contribuyen muy poco a la pobreza.

1.- Introduction

The purpose of this paper will be to study the evolution of inequality and poverty in Uruguay between 1989 and 1997.

Uruguay is mainly a urban country. Half of the total urban population lives and nearly two thirds of the economic activity is carried out in the metropolitan area of Montevideo, the capital. The other half of urban population and one third of economic activity are dispersed in the rest of the urban Uruguay (RUC), which includes cities generally not larger than 30,000 inhabitants. Uruguay shows low levels of inequality compared to other Latin American Countries income distribution , and this 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 their levels of inequality.

However, recent studies revealed greater inequalities in some of the components of the households income. Bucheli and Rossi (1994) show important changes in the distribution of pensions; Miles and Rossi (1999); Gradin and Rossi (2000) show a growing inequality in the distribution of wages from the beginning of the 1990s.

The macroeconomic framework in the country can be summarized as follows. After a big recession 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 went through 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 unlike from other Latin-American countries, considerable areas of public intervention were preserved.

The evolution of the distribution of income and poverty in Uruguay is closely 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, and wages adjusted three times a year for all economic sectors and uniformly for Montevidean and RUC workers. A decentralization process begun in 1990, with wage increases decided on a local level and bargaining councils practically disappearing.

Another important change, from the point of view of its consequences in the distribution of income and poverty, took place in the social protection system and is related to the indexation of pensions. Before 1989, pensions were adjusted yearly and linked to the wage index. The reform approved by referendum in December of 1989, established that increases had to take place in the same month as public sector wages (more than one per year) and the rise had to be equivalent to the variation of the wage index within the adjustment period. This fact, in a context of high inflation rates implied substantial improvements in the real level of pensions, moving this group up in the averall distribution of income.

2. The data and inequality-poverty measurement

The study will be based on data from the Household Survey of Uruguay from 1989 through 1997 (*Encuesta de Hogares*, Instituto Nacional de Estadística).

This survey is carried out, in its present format, every month since 1981; its sample framework is the whole civilian population of Uruguay, decomposed in a survey for Montevideo (the capital) 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 will be deflated using the consumer price index of December of 1996.

To measure inequality, I will use three indices consistent with the Lorenz criterion: the Gini coefficient, the Theil index, and the coefficient of variation. If we transfer money from one individual to another with a lower wage, the three indices will register a reduction of the inequality. The main difference between the measures is that if we consider a transfer that reduces the inequality and at the same time and another that increases it, the final result will depend on the weight that each one assigns to both. This weight will depend on the position in the distribution of the affected individuals. The indices show different senstitibity to transfers that take place in different points of the distribution.

Let us consider a group of wages x_i, i=1,...,n that have the distribution function F. The mean is μ. The Gini coefficient G is defined as the area between the actual Lorenz curve and the line of perfect equality. It can be written as:

$$G(F) = \frac{1}{2n^2\mu} \sum_{i=1}^{n} \sum_{j=1}^{n} |x_i - x_j|.$$

This index is more sensitive to transfers that take place in the center of the distribution, while the coefficient of variation and Theil index are more sensitive to the tails of the distribution. If I denote *ln* for the logarithm, the Theil index is:

$$T(F) = \frac{1}{n} \sum_{i=1}^{n} \frac{x_i}{\mu} \ln\left(\frac{x_i}{\mu}\right)$$

and the coefficient of variation is:

$$CV(F) = \frac{1}{\mu} \sqrt{\frac{1}{n} \sum_{i=1}^{n} (x_i - \mu)^2} \ .$$

It should be kept in mind that the Gini coefficient is bounded between 0 and 1, while the other two measures do not have an upper bound.

The poverty line I will use is a relative one, which will be set at 50% of the median income.

For each individual in the household I compute the equivalent income, defined as the total income of the household divided by the number of individuals in the household corrected by potential economies of scale in consumption. If I denote Y_i the income of individual i, the equivalent income (Y'_i) is:

$Y'_i = (Y_i) / (d_i)^\theta$

Where the demographic variable d_i , measures the number of family members and the elasticity, θ, varies between 0 and 1. I will use four types of equivalent scales: $\theta=0.75$, $\theta=0.55$, $\theta=0.36$ and $\theta=0.25$. The first assigns the largest increase in cost for increases in family size and gives little weight to potential economies of scale in consumption, whereas the last assigns the greatest economies of scale.

For the dimension of poverty, I will use the index proposed by Foster et al

(1984):

$$P_a = \frac{1}{N} \sum_{i=1}^{q} \left(\frac{g_i}{Z} \right)^a$$

where N is the size of the sample, q the number of poor individuals, Z the poverty line and $g_i = Z - Y_i$ is the poverty gap for individual i, his income being Y_i.

The measure P_0 is the headcount ratio index: it estimates the percentage of individuals whose equivalent income is below the poverty line. The index calculated with $a = 1$ weights the headcount ratio by the average of the gap of the poor. Thus the ratio P_1/P_0 is the average poverty gap among the poor. When $a = 2$, the index is sensitive to the income distribution among the poor: the wider the poverty gap for individual i, the bigger its weight in the calculation of the index.

One of the advantages of this index is that it is additively decomposable. For each group j of size n_j, an index can be calculated:

$$P_{a_j} = \frac{1}{n_j} \sum_{i=1}^{q_j} \left(\frac{g_{ij}}{Z} \right)^a$$

where g_{ij} is the poverty gap for individual i belonging to the group j and q_j the number of poor in the group. Thus, P_a is equal to the sum of these measures for every class weighted by the population share n_j/N.

3.- Wage inequality

The evolution of the wage distribution is shown in the Figure 1 and Figure 2:

Figure 1: Wage inequality- RUC- 1989=100

Figure 2: Wage inequality.Montevideo.1989=100
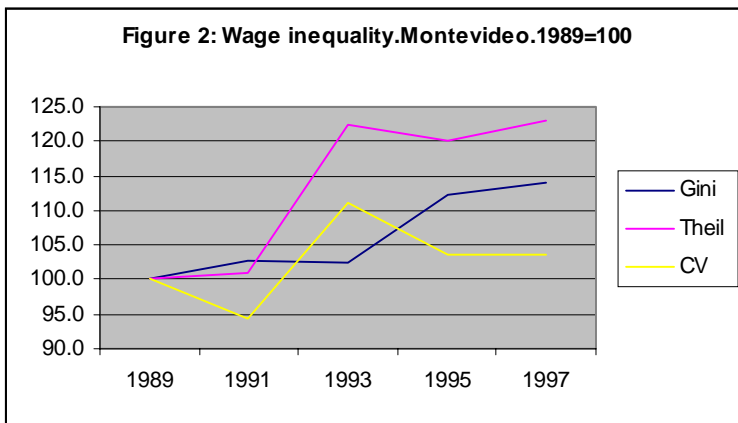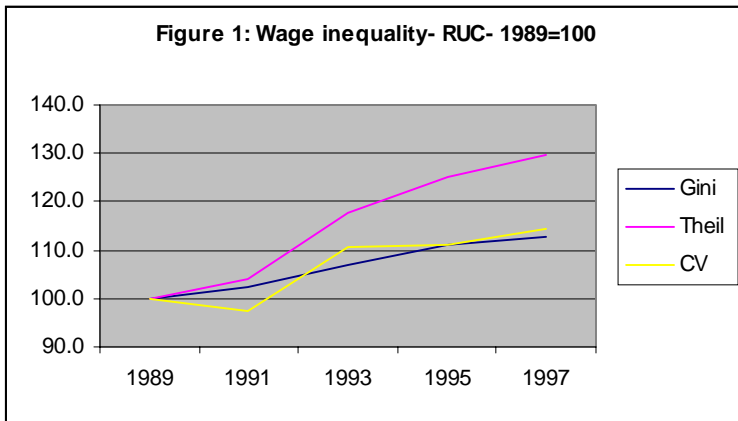
It is observed in Figure 1 and Figure 2 a clear tendency to increased wage inequality in Uruguay. This applies both for Montevideo and the rest of the urban country (RUC), especially since 1991. This growth of inequality is captured by the different indexes, being more important if the sensitibity to transfers is larger in the low line of the distribution. The index of Theil grows 21.6% between 1991 and 1996 in the capital, compared to 11.1% in the case of Gini and 9.6% for CV, and something similar happens in the RUC during 1991-97, 24.9% compared to 10.4% and 17.4% respectively. Starting from inequality levels growth is higher in the capital, except in the case of the variation coefficient, more sensitive to transfers that take place in the high line of the distribution, for this index the inequality grew more in the RUC.

4.- Poverty

a.- Changes of the poverty profile during the period

The evolution of poverty, based in p0, is shown in the Figure 3 and Figure 4: the poverty decreases until 1993, and then increases, but the changes are small. The last situation is related to growth problems, increased openness of the Uruguayan economy and the process of decentralization in wage negotiation.

The percentage of poor in 1997, the poverty gap in the population and among the poor are (for $\theta 1 = 0.75$ in Table 1) : 0.16%, 5.2% and 2,3%.

Men and women show similar evolutions but women have an increase in their level of poverty relative men.

Figura 3: Poverty p0:total, male and female

Figure 4: Poverty p0, total, male and female. 1989=100
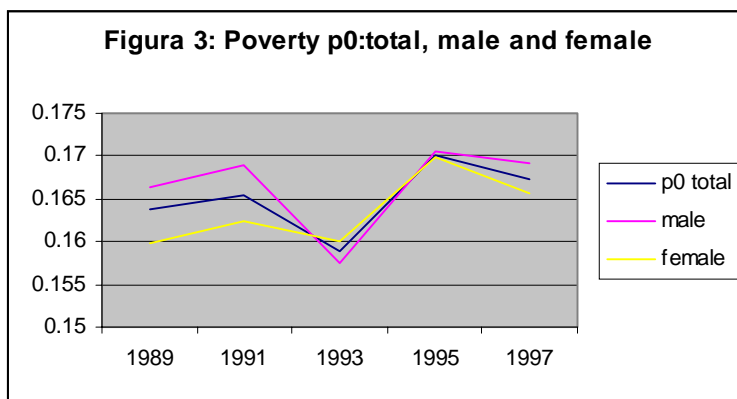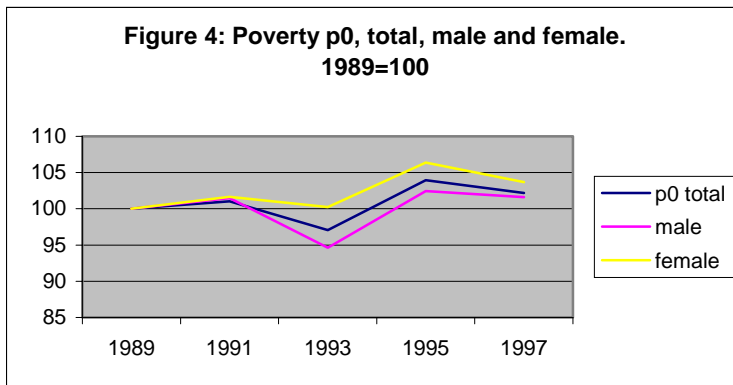
b) Contributions to poverty

In tables 1-11 I present the contributions to poverty of different characteristics of the households.

The main results are that 46.5% of the poor in Uruguay are children, and households with 1-3 children less than 14 years old contribute 60% to the poor. On the contrary, households with people older than 60 years old contribute very little to poverty.

Finally, poverty is more intensive within the Rest of the Urban Country than in Montevideo.

5.- Conclusions

- From 1991 there is an increase wage inequality in Uruguay;
- Poverty changed little, decreased until 1993 and then increased;
- This changes in wage inequality and poverty are related to economic changes: recession, an increase in trade openness of the economy that affected the industrial structure and decentralization of wage negotiation.
- Near a half of poor people in Uruguay are children;
- Households with 1-3 children less than 14 years old contribute near 60% to poor people;
- Old people contribute very little to poverty.

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Table 1: Poverty line: half of median equivalent income

For $\theta_1 = 0.75$, $\theta_2 = 0.56$, $\theta_3 = 0.36$ and $\theta_4 = 0.25$

Poverty Line	q1 = 0.75	q2 = 0.56	q3 = 0.36	q4 = 0.25
1989	1259.4	1634.98	2110.09	2457.01
1991	1601.51	2075.67	2666.7	3060.66
1993	1489.94	1929.62	2470.48	2850.82
1995	1448.02	1879.35	2420.88	2795.94
1997	1402.76	1818.24	2330.4	2697.4

Table 2: Poverty in Uruguay

	P0	Std. Err.	P1	Std. Err.	P2	Std. Err.
q1 = 0.75						
1989	0.163727	0.001461	0.060529	0.000704	0.035527	0.000554
1991	0.165445	0.001486	0.050391	0.000573	0.023106	0.000348
1993	0.158914	0.001464	0.048823	0.000566	0.022405	0.000345
1995	0.170198	0.001474	0.053366	0.000581	0.024835	0.000355
1997	0.16727	0.001475	0.051707	0.000572	0.023684	0.000344

	P0	Std. Err.	P1	Std. Err.	P2	Std. Err.
q2=0.56						
1989	0.1593	0.001445	0.057802	0.000688	0.033704	0.0005423
1991	0.152551	0.001438	0.045146	0.00054	0.0202844	0.0003294
1993	0.154681	0.001448	0.045131	0.00054	0.0202197	0.0003253
1995	0.165825	0.001459	0.04987	0.000556	0.0225965	0.0003362
1997	0.158727	0.001444	0.047796	0.0005465	0.0214077	0.0003261

	P0	Std. Err.	P1	Std. Err.	P2	Std. Err.
q3= 0.36						
1989	0.163915	0.001462	0.058472	0.000687	0.0337212	0.000539
1991	0.148136	0.00142	0.0427316	0.0005229	0.018916	0.0003148
1993	0.155499	0.001451	0.044846	0.0005349	0.029854	0.0003184
1995	0.168412	0.001468	0.04956	0.0005517	0.022216	0.0003306
1997	0.159851	0.001448	0.04686	0.0005395	0.02083	0.0003203

	P0	Std. Err.	P1	Std. Err.	P2	Std. Err.
q4= 0.25						
1989	0.169808	0.001482	0.060531	0.000695	0.03465	0.0005421
1991	0.146888	0.0014159	0.0416157	0.0005153	0.0183328	0.0003096
1993	0.158096	0.0014609	0.046169	0.0005416	0.020422	0.0003208
1995	0.1700293	0.0014743	0.0503355	0.0005556	0.0225755	0.0003323
1997	0.163569	0.0014618	0.0479106	0.0005457	0.0213625	0.0003236

Table 3: Poverty in Uruguay; male

Sex=Male

	P0	P1	P2
q1=0.75			
1989	0.16647	0.06322	0.03774
1991	0.16894	0.05148	0.02355
1993	0.15753	0.04827	0.02207
1995	0.17051	0.05406	0.02523
1997	0.16911	0.05286	0.02439

Sex=Male

	P0	P1	P2
q2= 0.56			
1989	0.15975	0.05942	0.03538
1991	0.15562	0.04596	0.02064
1993	0.15058	0.04357	0.01945
1995	0.16464	0.04977	0.0226
1997	0.15916	0.04832	0.02182

Sex=Male

	P0	P1	P2
q3=0.36			
1989	0.16032	0.05861	0.0347
1991	0.14852	0.043	0.01916
1993	0.14722	0.04205	0.01853
1995	0.16408	0.04844	0.02175
1997	0.15694	0.04647	0.02085

Sex=Male

	P0	P1	P2
q4= 0.25			
1989	0.16414	0.05957	0.0351
1991	0.14614	0.04148	0.01845
1993	0.14654	0.04243	0.01867
1995	0.16286	0.04836	0.02174
1997	0.1583	0.04676	0.02106

Table 4: Poverty in Uruguay; female

Sex=Female

	P0	P1	P2
q1= 0.75			
1989	0.15975	0.05942	0.03538
1991	0.16236	0.04945	0.02272
1993	0.16013	0.04932	0.0227
1995	0.16992	0.05276	0.02449
1997	0.16563	0.05068	0.02305

Sex=Female

	P0	P1	P2
q2= 0.56			
1989	0.15899	0.05638	0.03223
1991	0.1499	0.04445	0.01998
1993	0.15829	0.0465	0.0209
1995	0.16687	0.04996	0.02259
1997	0.15834	0.04733	0.02104

Sex=Female

	P0	P1	P2
q3= 0.36			
1989	0.16715	0.05835	0.03286
1991	0.14787	0.04251	0.01871
1993	0.16278	0.04731	0.02102
1995	0.17224	0.05055	0.02263
1997	0.16245	0.04721	0.02081

Sex=Female

	P0	P1	P2
q4= 0.25			
1989	0.1748	0.06138	0.03426
1991	0.14763	0.04176	0.01823
1993	0.16827	0.04946	0.02197
1995	0.17636	0.05208	0.02332
1997	0.16826	0.04893	0.02163

Table 5: Wage Inequality: Montevideo and Rest of the Urban Country (RUC)

REST OF THE URBAN COUNTRY (RUC) 1986-1997

	GINI	%	THEIL	%	CV	%
1989	0.358	100	0.232	100	0.856	100
1991	0.366	102.2	0.241	103.9	0.835	97.5
1993	0.383	107	0.273	117.7	0.949	110.9
1995	0.398	111.2	0.29	125	0.95	111
1997	0.404	112.8	0.301	129.7	0.98	114.5

MONTEVIDEO 1986-1997

	GINI	%	THEIL	%	CV	%
1989	0.383	100	0.293	100	1.061	100
1991	0.393	102.6	0.296	101	1.002	94.4
1993	0.392	102.3	0.359	122.5	1.179	111.1
1995	0.43	112.3	0.352	120.1	1.1	103.7
1997	0.437	114.1	0.36	122.9	1.098	103.5

Table 6: Contribution to Poverty: male and female (1997)

q1= 0.75	Population Share	Poverty Share p0	Poverty Share p1	Poverty Share p2
Male	47.1	47.6	48.1	48.5
Female	52.9	52.4	51.8	51.5
Total	100	100	100	100

Table 7: Contribution to Poverty: Head of the household and others (1997)

q1= 0.75	Population Share	Poverty Share p0	Poverty Share p1	Poverty Share p2
Head	31.2	24.7	23.5	23.1
Spouse	19.8	15.6	15	14.6
Children	36.6	46.5	49.1	50.6
Parents, father and mother in law	2	1	0.9	0.8
Others	10.3	12.2	11.5	10.8
Total	100	100	100	100

Table 8: Contribution to Poverty: Montevideo and RUC (1997)

q1= 0.75	Population Share	Poverty Share p0	Poverty Share p1	Poverty Share p2
Montevideo	48	27.2	26.2	26
RUC	52	72.8	73.8	74
Total	100	100	100	100

Table 9: Contribution to Poverty: quantity of women in the household (1997)

q1= 0.75	Population Share	Poverty Share p0	Poverty Share p1	Poverty Share p2
0	2	1.8	1.6	1.8
1	3.3	20.8	19.1	18.4
2	32	28.7	29.6	29.9
3	19.2	23.6	24.1	24
4	8.2	12.7	11.9	11.8
5 and +	5.7	12.3	13.6	14
Total	100	100	100	100

Table 10: Contribution to Poverty: quantity of younger than 14 years old in the household (1997)

q1= 0.75	Population Share	Poverty Share p0	Poverty Share p1	Poverty Share p2
0	33.8	17.5	14.2	12.6
1	22.6	20	18.5	17.1
2	17.7	24	24.2	24.1
3	7.9	16.6	16.8	16.9
4	3.1	9.9	12.7	14.8
5 and +	14.8	11.9	13.5	14.5
Total	100	100	100	100

Table 11: Contribution to Poverty: quantity of older than 60 years old in the household (1997)

q1= 0.75	Population Share	Poverty Share p0	Poverty Share p1	Poverty Share p2
0	53.9	70.2	74.4	76.6
1	28.6	20.9	18.5	17.5
2	16.3	8.5	6.8	5.7
3	1.1	0.4	0.2	0.1
Total	100	100	100	100