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Wage inequality in developing countries: market forces or government intervention

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Wage Inequality in Developing Countries: Market Forces or Government Intervention

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Abstract

Wage dispersion had increased signi...cantly in developing countries, despite the openness to trade of these economies. Research on this issue, using approaches valid under the assumption of conventional demand-supply competitive framework, conclude that this observed increase in wage inequality is a consequence of an increase in skills premium. In this paper we show that this conclusion could be bias if governement intervention is not taken into account. Here we ...nd that in Uruguay most of the increase in wage dispersion could be explain by a signi...cant increase in public wages and a decrease of minimum wage. In addition, we observe that the the impact of these intervetions are di¤erent depending on the degree of concentration of population and economic activity.

Keywords: wage dispersion; returns to schooling; quantile regression.

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1.-INTRODUCTION

Over the last decades we can observe a movement towards greater wage inequality simultaneously with an increasing oppeness to trade policy in most Latin American countries. These are puzzling facts for conventional economic wisdom. The traditional Stolper-Samuelson theorem states that liberalization would raise the relative price of developing countries' abundant factor, unskilled labour, tending to reduce wage inequality. However, evidence is the contrary, showing that the distance between the most skilled workers, as measured by the ninetieth quantile of the wage distribution, and the least skilled workers, as measured by the tenth quantile of the wage distribution, has been rising steadily during the last decades in most of these countries (see Robbins, 1996).

The answer to this observed increase in wage inequality in an openning to trade environment was found in the increasing in returns to skills. Most of the research in this issue seek for an increase in relative demand for skilled workers that explain the rising skills premium. On the one hand, the interpretation given to these demand movements was that trade could have favoured direct investment in technologies skilled-labour-intensive in those sectors intensive in natural resources -usually the tradable sectors in these countries. On the other, these demand movements were shown to be larger than the important shifts in the supply of skilled workers (see, among others, Mitnik, 2001; Arim and Zoppolo, 2000; Green et al., 2000; Beyer et. al., 1999; Robins and Gindling, 1999; Robbins, 1996).

However, these results were obtained under the assumption of a competitive market framework, ignoring the e¤ects of government intervention on labour market outcomes. In this paper we suggest that in some Latin American countries, as in Uruguay, the intervention in the labour market is crucial to explain the observed increase in wage inequality, as well as its timing. Not neglecting that there has been some in-

crease in skills premium, we ...nd that collective wage bargainig or the public wage policy seriously a¤ected the wage distribution.

Rising wage inequality in Uruguay was analyzed by a few number of papers, Gonzalez and Miles (2001), Azim and Zoppollo (2000) and Robbins, (1996). All these papers begin their discussion with the prior belief that the explanation to the greater wage dispersion is found in the increase in returns to skills (maybe following what was the current research view) not taking into account the impact of the goverment intervention in labour market outcomes. As a consequence, the conclusions of these papers con...rm their priors. Nevertheless, if the government interventions are taken into account conclusions can signi...cantly change.

The concern of these paper is to analyze the observed increase in wage dispersion in Uruguay between 1986 and 1997, the latest year
of available data, discussing the e¤ects of the intervention in the labour market. Furthermore, to study these wage structure movements we will take into account the regional di¤erences of concentration of population and economic activity that characterizes developing countries.

In most empirical analysis of wage inequality, the labour market of a country is considered homogeneous, i.e. at most regional di¤erences are only introduced by dummy variables. However, an important di¤erence between developed and developing countries is that, in these last countries, only a few metropolitan areas concentrate most of the population and economic activity of the whole country[1]. In particular, in Uruguay, the metropolitan area of Montevideo concentrates nearly two thirds of the economic activity and one half of Uruguayan population. The remaining population and economic activity are dispersed in the rest of the country, basically, in small cities

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[1] In the south cone of Latin America, nearly forty percent of the total country's population lives in the main metropolitan areas of Gran Buenos Aires, Argentina; Santiago, Chile; Asunción, Paraguay; Lima, Perú (CEPAL, 1997).

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[2]. We ...nd that the wage structure movements were signi...cantly a¤ected by these di¤erences in concentration of popultation and economic activity.

The paper is divided in ...ve sections. In the next section we discuss the data used. In section three we study the changes in the wage structure following a descriptive approach. In section four we discuss the possible determinants of the observed increase in wage inequality. In section ...ve we conclude.

2.-DATA

The results presented in this study are based on men wage data of the Uruguayan Household Survey from 1986 through 1997 (Encuesta de Hogares, Instituto Nacional de Estadística, Uruguay). The survey frame is the civilian population of Uruguay living in housing units in urban areas, decomposed in a survey for the metropolitan area of Montevideo and another one for the population living in cities in the rest of Uruguay -we will refer to this second survey as the rest of the urban zones (RUZ).

The sample we use is composed of all the males older than 13 years, given that this is the legal working age in Uruguay. We only include those who had a positive salary in the month preceding the interview, i.e. at least one month tenure, and who worked during the week before the interview, either in the private or in the public sector (self-employed, working without salary, entrepreneurs, or those who had never worked are excluded). In Table A1 in the appendix we present the number of observations used and some descriptive statistics of the main variables (see Buchelli et al. 2000, for a detailed description of the survey).

The variable of interest is the real hourly wage, de...ned as the salary in the month just before the interview divided by four times the hours worked in the week previous

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[2]3.2 million people live in Uruguay, 90 percent in cities: 45% in Montevideo; the rest dispersed in cities generally smaller than 30.000 inhabitants (Instituto Nacional de Estadística, Censo 1996 Uruguay).

to the interview. We assume that the hours worked in the week previous to the interview are the same for the whole month just before the interview (see DiNardo et al., 1996, for a justi...cation of the use of real hourly wages).

In order to de...ne real wages we de‡ate hourly wages by the Montevidean consumer price index, which is the only one available for Uruguay. Although the Uruguayan expenditure survey, which is the one used in the construction of the price index, recovers information of both regions -Montevideo and the RUZ- only data on Montevideo is used in the construction of the consumer price index, based on the evidence that in‡ation is similar in both regions. In this sense, the Montevidean price index is considered as the national price index and the in‡ation rate derived from this index is the one used when bargaining nominal wages. That is, when bargaining nominal wage increase in the RUZ, the measure of in‡ation used is the one based the Montevidean price index. As a consequence, de‡ating RUZ wages based on the Montevidean price index does not seem to bias the analysis of the evolution of the wage structure during this period (see Rodriguez et al. 1998).

The surveys used do not account for data related with the union membership neither on whether worker's wage was bargained at a national, sector-wide or ...rm speci...c level. Hence, we will discuss the e¤ects of these elements on wage inequality based on a descriptive approach.

Finally, we do not include in our analysis of wage structure the workers' migration decision, that could be a¤ecting wage di¤erentials between regions. Once more, the data available in these surveys do not allow to formalize empirical equations for migration decisions (Borjas, 1999). As a consequence, our results could be a¤ected by a selectivity bias problem, i.e. there could be a pooling equilibria where all less skilled-educated workers decide to stay in the RUZ whilst more skilled-educated to migrate to Montevideo. Clearly, we do not know up to what the degree the lack of including migration decisions a¤ects the results we discuss below, although in

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other papers, such as Rauch (1993), the self-selection bias was not signi...cant for the problems similar as the one treated here[3].

3.-REAL HOURLY WAGE CHANGES 1986-1997

In the top graphs of Figure 1 we present the median, tenth and ninetieth quantile of the rhw distribution for working men in Montevideo and in the rest of the urban zones (RUZ), as well as the minimum wage and unemployment indexed to be 100 in 1986.

Insert Figure 1

Overall, notice that mostly all workers experienced a rhw increase when considering the two end points of this period, though these gains were not spread equally between workers. Between 1986 and 1997, wages for workers at the tenth quantile of the wage distribution, increased by about a 20 percent in Montevideo or a 2 percent in the rest of the urban zones, while wages for workers at the ninetieth quantile, increased by about a 70 percent or a 30 percent respectively. This divergence in earnings between workers at the upper and lower end of the wage distribution suggests that there has been an important increase in wage inequality, within and between regions.

Furthermore, there are notable di¤erences in the timing of these wage movements along this period. Notice that only the Montevidean ninitieth quantile wage series increased steadily from 1986 through 1997. The median and the tenth quantile in Montevideo increased signi...cantly until 1989 and from 1989 through 1997, the median shows a slight increase while the tenth quantile remained relatively constant until 1994 and then declines -the median increased by about 6 percent and the tenth quantile fell a 10 percent between 1989 and 1997. In the RUZ, we observe the same pattern

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[3]We could justify our ...ndings assuming exogenous selection, which, as selection models, can not be tested empirically (Manski, 1995).

of wage increase until 1989 and from then, the ninetieth quantile remained relatively constant while the median and tenth quantile declined steadly, a 13 and 25 percent respectively. Wage inequality also increased between regions, as observed from the bottom graph of Figure 1, which gives the ratio of rhw Montevidean to RUZ quantiles.

In sum, this discussion suggests that wage inequality has increased during this period within and between both regions with notably di¤erences in the timing of the wage movements.

The explanation given to this rising wage inequality by Gonzalez and Miles (2001), applying quantile regression to a Mincer-type speci...cation or Arim and Zoppollo (2000) or Robbins (1996), using the approach of Katz and Murphy (1992) to study movements of the relative demand and supply of skills, was of an increase in returns to skills. This same conclusion could be achieved if we apply the method proposed by Juhn, Murphy and Pierce's (1993) to decompose the increased wage inequality between the individual characteristic changes, price of skill changes and changes in the distribution of unobservable hability. Table 1 quanti...es the contribution of observed quantities, prices and unobservables to the increase in the ninetieth-tenth quantile di¤erential for the 1986-97 period, following directly Juhn's et al. method.

Insert Table 1

From this table we observe that changes in prices of skills or unobserable hability account for nearly 80 percent of the observed increase in the ninetieth-tenth wage inequality in Montevideo and 65 percent in the RUZ. Furthermore, above the median these factors explains an 80 and 85 percent in Montevideo and the RUZ respectively. Below the median, in Montevideo a 75 percent is explained by change in prices and unobservable, though most is due to unobservable, while in the RUZ these factors explain less than 40 percent. Hence, following these authors or the previous discussion, these results could suggest an increase in returns to skills, if de...ned including observ-

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ables characteristics, such as education or experience, and unobservable habilities.

Nevertheless, the methods discussed above to infer an increase in skills premium are constructed on assumptions supporting the conventional supply-demand frameworks operating in competitive markets (Snower, 1999). These assumptions are not sustainable in Uruguay, where labour market outcomes during this period were drastically a¤ected by the government intervention, such as centralized bargaining institutions, statutory minimum wage changes or signi...cant real hourly wage increase for public workers. Additionally, and related with statistical properties, robust results when applying Katz and Murphy or any other method based in separating in cells the sample using observable characteristics, such as the Quantile Minimum Distance Estimatior (Buchinski, 1994), requires a large number of observations within each cell (Peracchi, 2000). In other terms, given the relatively small number of observations on working men in the Uruguayan labour market, these methods could lead to non robust results, as shown, for example, by the changing signs of the eigenvalues when following Kats and Murphy's method to Uruguayan data.

4.-LABOUR MARKET INTERVENTION

Depending on government intervention, wage movements from 1986 through 1997 can be decomposed into two time intervals: a ...rst interval, between 1986 and 1989, where inequality remained relatively constant or even decrease, as in the RUZ, and a second, begining in 1990, where wage inequality increased within and between regions. Though these facts are clear from Figure 1, in Table 2 we quantify these changes by giving inequality measures on the log in rhw in 1986, 1989 and 1997.

Insert Table 2

From 1986 to 1989, standard deviation and percentile di¤erentials remained practically constant or diminished. The most important characteristic of this period was the

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centralized wage bargaining negotiations that covered nearly 94 percent of Uruguayan workers (see Rodriguez et al. 1998). From 1989 to 1997, wage inequality increased signi...cantly in both regions, as shown by the rising standard deviation or percentile di¤erential of the log rhw within these years. During this period, wage bargaining drifted from totally centralized institutions to practically totally decentralized negotiations, a rising trade openning policy begun in 1990, public rhw increased and statutory minimum wage decreased signi...cantly.

1986-89: Centralized Wage Bargaining

The ...rst democratic administration, that lasted until 1989, was concerned with diminishing social con‡ict and increasing real wage, particularly, for workers at the lower quantiles of the wage distribution. Unions were legalized and wage-setting process was based on collective bargaining agreements with an active government participation that included extending the terms of collective bargaining contracts to workers not initially covered by the agreements. The negotiations typically called for sector-wide minimum wages and for criterias to index wage adjustment to past or expected in‡ation, which was measured by the Montevidean price index. In addition, this period was characterized by a high rate of unionization, which reached to four of every ten workers in the labour market -traditionally, the ending periods of military regimes are characterized by high participation rates in social movements (Rodriguez et al., 1998; Cassoni et al, 1999).

The consequences of this intervention in the labour market are clearly observed in Figure 2, where we present the percentage change in log rwh by quantile.

Insert Figure 2

Notice that those most favoured by the centralized wage bargaining were workers at the lower tail of the wage distribution, and particularly, workers at the RUZ.

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Furthermore, workers at all points of the wage distribution in the RUZ experience rhw gains higher than workers in Montevideo.

On the one hand, this observations are in accordance with Rodrik (1999) results, who suggest nonnegligible wage improvements from the enhancement of democratic institutions. The centralized wage bargaining as well as the large number of short term strikes that took place while wage negotiations -which demanded wage increase for the least favoured workers during the military regime- explains most of the wage structure movements over this period. On the other hand, these interventions suggest that labour market forces were not e¤ective to determine wage levels during this period.

The lack of e¤ectiveness of conventional demand and supply frameworks to explain the wage movements during this period is more clearly understood when we observe the e¤ects of the statutory minimum wage on the lower tail of the rhw distribution.

Though not mentioned before, perhaps the most striking fact of the top graphs of Figure 1 is the dramatic fall of the statutory minimum wage. Between 1986 and 1989, the statutory minimum wage fell nearly a 12 percent, while the tenth quantile of the real hourly wage distribution increased by more than 30 percent in both regions. Obviously, if market forces had operated during this period one could have expected a dramatic fall of the lower tail of the wage distribution, which will explain some of the incrased wage inequality (Lee, 1999). The movement of the lower tail of the wage distribution is explained by the fact that wage negotiations included setting a minimum wage which was set above the statutory minimum. We will discuss the statutory minimum wage e¤ects on the wage distribution in the following sections.

1990-97: Descentralization of bargaining and trade openness

The new administration that begun in 1990 adopted two decisions that could have a¤ected labour market outcomes. The ...rst decision was to completly descentralize

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wage bargaining institutions: between 1991 and 1997, wages of nearly 95 percent of Uruguayan workers were bargained at ...rm-speci...c levels - a radical change with respect to the previous period (see Rodriguez et al.). The decentralization of wage bargaining was accompanied by a sharp fall in the unionization rate, reaching at the end of the period to only one of every ten workers.

The second decision adopted by this administration was to increase trade openning policy, by diminishing tari¤ protections, even eliminating customs, as well as using crawling-peg exchange rate policies so as to drive local in‡ation toward international levels, i.e. in‡ation was nearly 115 percent in 1990 falling to a 20 percent in 1997. The consolidation of the free trade commerce zone, Mercosur, took place during these years, with a reorientation of trade ‡ow: in 1997, ...fty percent of total Uruguayan trade was with Argentina and Brazil; between 1990 and 1997, imports of manufactured goods multiplied by 3 whilst exports by 1.5; the manufacturing participation on the GDP fell from 26 to 20 percent, substituted by the increase in participation of the service and tourism sectors.

Wage movements during this period can be observed in Figure 3, where we present the percentage change in log rwh by quantile between 1989 and 1997.

Insert Figure 3

Overall, workers in the upper quantiles gained signi...cantly relative to the average while workers in the lower quantiles lost signi...cantly relative to the average. Furthermore, notice that workers in Montevideo gained signi...cantly more that workers in the RUZ at the same quantile of the wage distribution. The striking fact is that log rhw changes for workers in the extreme upper quantiles in the RUZ were smaller than the mean changes of the log rhw in Montevideo.

In a wage bargainging and openning to trade environment, Figure 3 suggest that rhw movements in Uruguay were similar to what was observed in most developing

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countries, where workers at the upper extreme of the wage distribution gained significantly more than workers at the lower end. Hence, if least skilled workers were to be measured by those in lower quantiles while most skilled workers by those at the upper quantiles, then we could possible argue that there has been an increase in returns to skills.

However, if public wage and staturory minimum wage policies are taken into account, conclusions with respect to the reasons of the increase in wage dispersion could be signi...cantly di¤erent. In Figure 4 we present the tenth and ninetieth quantile of the rhw distribution for working men in Montevideo and in the rest of the urban zones (RUZ), di¤erentiating public and private wages indexed to be 100 in 1989.

Insert Figure 4

In the ...rst place, observe that in both regions public workers at the upper extreme of the rhw distribution gained relatively more than private workers at the same point of the wage distribution. In the second place, these gains were much higher in Montevideo than in the RUZ. From 1989 to 1997, real hourly wages of Montevidean workers at the ninetieth quantile increased by about a 65 and 21 percent in the public and private sector respectively, while in the RUZ this increase was of nearly 15 percent for public workers and a loss of 7 percent for private workers. These movements could be the consequence of several reasons: a reduction in working hours without changes in wages; high unionizaiton rates of public workers -which includes mayoralty, utility and banking workers -; the fact that unions are particularly powerful in Montevideo, where most of the public o¢ces and banks are installed -the dispersion of workers in the RUZ diminish their union power-; in 1991, the Montevidean mayoralty was gained by a left wing party which decided to increase public wages independently of the workers category; mayoralties in the RUZ were much more poor in budget terms than Montevideo; the utility industries -telephone and electricity- owned by the state

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and concentrated in Montevideo begun during these years a reestructuration process, increasing signi...cantly their rhw.

In the third place, the movements of lower end of the wage distribution were rather di¤erent between regions: in Montevideo remained relatively constant while in the RUZ fell signi...cantly but only for private workers. In Montevideo, the tenth quantile decreased only about a 10 percent in the public sector and 7 percent in the private sector when comparing 1989 with 1997. Within this period, the public rhw movemets in Montevideo were always below the private rhw momements. On the other hand, in the RUZ, the lower tail of the wage distribution in the private sector, as measured by the tenth quantile, fell steadily during the overall period -nearly a 25 percent decrease- while the public rhw fell sligthly until 1991, and remained relatively constant until the end of the period, e.g. the log rhw of the public sector decreased about 7 percent between 1989 and 1997.

In sum, if inequality is measured by the movements of the ninetieth to tenth quantile distance, then the upper tail of the wage distribution increased signi...cantly during this period as a consequence of public rhw movements. In what respect to the lower tail, it remained practically constant in Montevideo while in the RUZ it fell steadly for private workers.

Clearly, the question that should be answered now is whether the increase of rhw at the upper end of the wage distribution could be undestood as increase in skills premium. Additionally, we analyze the di¤erent movements of the lower tail of the wage distribution, arguing that it is basically a consequence of the externalities that the concentration of workers and economic activity produces on bargained minimum wages.

Increase in Skills Premium?.—
Results so far refer only to changes in the overall wage distribution and do not tell

us how these changes break down into changes within and between groups. Within speci...c groups de...ned in terms of observable characteristics, evidence could be somewhat di¤erent. Generally, skills are de...ned in terms of education and experience observable characteristics as well as by the point in the wage distribution a worker is within these groups, unobservable hability, i.e. workers at the tenth and ninetieth quantile in the same education-experience subgroup are commonly refered as low skilled and more skilled respectively. In this sense, is undestood as an increase in returns to skills if within more experienced-educated workers those in the upper extreme of the wage distribution gain signi...cantly more than those at the lower end or if more educated-experience workers enjoyed higher wage increase than less educated-experienced workers.

In Figure 5 we plot the percentage change in log rhw by quantile between 1989 and 1997 for Montevideo, characterizing workers depending on whether they are public or private workers, having 12 or less schooling years or more than 12 schooling years and less than 10 or more than 10 years of experience.

Insert Figure 5

Within groups, these graphs illustrate two facts. First, that rhw increased relatively more for workers at the upper quantiles than for workers at the lower end of the wage distribution. Therefore, in the sense discussed in the last paragraph, this could be understood as if more skilled workers enjoyed higher log rhw increase than less skilled workers. Second, that wage movements at the upper extreme of the wage distribution were dominated by public wage movements. That is, more skilled public workers enjoyed higher wage increments than more skilled private workers.

Between these groups, regularities are not so clear.In Table 3, were we summarize log rhw rate of change.

Insert Table 3

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Notice that less educated-more experienced workers enjoyed a higher log rhw increase than more educated-more experienced workers at most quantiles. Furthermore, less experienced-more educated public workers gained sligthly less than more experienced-more educated workers. That is, these statistics show that there are no clear regularities in the rhw movements with respect to observed characteristics, e.g. rhw increase did not favoured more educated-experienced workers with respect to less educated-experienced workers, as should be expected if wage policy favoured more skilled workers as de...ned by observable characteristics.

Additionally, we had estimated the ratio of the nonparametric quantiles of the log rhw conditional on education, between the public and private rhw. In other terms, Table 4 present the ratio between the nonparametric quantile of the public sector log rhw and the nonparametric quantile of the private sector log rhw, conditional on having 6, 10, 12 or 16 years of schooling and less or more thant ten years of potential experience.

Insert Table 4

The striking fact is that in all cases the ratio had increased and is larger than one -except for workers with sixteen years of schooling and more than ten years of experience in the ninetieth quantile of the log rhw distribution. That is, in 1997, rhw for workers in each of these quantiles were sligthly higher in the public than in the private sector. The fact that these ratio increased between 1989 and 1997 imply that public wages at each quantile, conditional on the years of schooling and experience, increased relatively more or decreased less in the public than in the private sector.

Therefore, for the case of Montevideo we do not observe clear regularities in the wage movements in terms of workers skills. Nevertheless, what the discussion above suggest is that the observed increase in wage inequality between 1989 and 1997 is basically a consequence of the important increase public rhw.

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For the RUZ, the story is somewhat di¤erent, recalling the idea that dispersion of economic activity and population could have a¤ected rhw movements. In Figure 6 we plot the percentage change in log rhw by quantile between 1989 and 1997 for the RUZ.

Insert Figure 6

Within groups, a similarity with Montevideo is that rhw for workers at the upper extreme of the wage distribution increased more or decreased less than for workers at the lower end. Furthermore, between groups, more skilled workers, measured by the more experience-educated, enjoyed higher wage increase than less skilled educated workers, as measured by the other groups (see also Table 5). That is, it seems as if there had been some regularity in the wage movements in the RUZ, with rhw of more skilled workers increasing more or decreasing less than for less skilled workers. This is the basic di¤erence with respect to Montevideo, and could suggest that the high dispersion of economic activity and population in the RUZ could have a¤ected these wage movements, by diminishing wage bargaining externalities at ...rms or public workers power.

Despite of these regularities in wage movement in the RUZ, what Figure 4 and the graphs of Figure 6 suggest is, ...rst, that the increase of wage inequality in the RUZ is a consequence of the signi...cant fall of the private sector rhw, particularly in the lower end of the distribution. Second, that again, wage movements on the upper tail of the wage distribution were dominated by the public wage movements.

Insert Table 5

In Table 6 we present the ratio between the nonparametric quantile of the public sector log rhw and the private sector the nonparametric quantile, conditional on

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having 6, 10, 12 or 16 years of schooling and for years 1989 and 1997.

Insert Table 6

As in Montevideo, this ratio had increased and is above one -except for workers with sixteen years of schooling and more than ten years of experience in the ninetieth quantile of the log rhw distribution. That is, in 1997, workers in each of these quantiles gain sligthly more in the public than in the private sector. In the second place, these ratio had increased between 1989 and 1997.

In sum, what we intended to show in this section was, ...rst, that in Montevideo public wages increased without clear regularities in terms of observable characteristics. Second, that this regularities are more clearly observed in the RUZ, were workers and economic activity is much more dispersed. Finally, suggest that in Montevideo, the observed increase in wage inequality is basically a consequence of the movements of the upper tail of the public wage distribution while in the RUZ is mostly a consequence of the important fall of the lower tail of the private wage distribution, whic, as discuss next, is directly linked to the fall of the statutory minimum wage.

Statutory Minimum Wage.—

As commented before, one of the most stricking facts of Figure 1 is the dramatic fall of the legal minimum wage, a 55 percent over the whole period, of which nearly 80% corresponds to the 1990-97 interval. The impact of this fall in the lower tail of the wage distribution, as represented by the tenth quantile, is signi...cantly di¤erent between regions. While in Montevideo the lower tail of the wage distribution remained practically constant, in the RUZ it fell steadily for private workers.

The Uruguayan minimum wage institutional framework is very simple: there is only one statutory minimum wage set by the government and uniform for all workers. As is well known, legal minimum wage laws were originally proposed as a tool to redistribute income. However, in Uruguay and particularly in the nineties, the minimum wage

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was used as a policy instrument to diminish the public de...cit, since a large number of government payments were indexed to the evolution of the minimum wage. This explains the signi...cant fall in the statutory minimum wage.

In Montevideo, the movement of the lower tail of the wage distribution results from a bargained minimum wage, at sector-wide or ...rm level agreements, which were set above the statutory minimum. The concentration of workers in Montevideo had an externality e¤ect on the wage negotiations at ...rm-speci...c levels. Those intervening in the wage bargaining at sector-wide or ...rm speci...c agreements realized that the legal minimum wage lost e¤ectiveness due to its policy instrumentalization, and hence, called for a bargained minimum above the statutory level. A similar phenomenon was observed in Spain, where the unions' aim in the bargaining process was to raise the relative wage of unskilled and semi-skilled workers by setting a bargained minimum wage much higher than the statutory minimum; or in the formal sector of the Mexican labour market, where the legal minimum lost e¤ectiveness because it was too far to the left of the wage distribution (Dolado et al., 1997; Bell, 1997).

The dispersion of workers in the RUZ gave the ...rms a monopsony power when bargaining wages, hence tending to reduce real hourly wages due to the fall of the bottom ‡oor imposed by the minimum wage. This is in the line of what was observed in developed countries, where the minimum wage acts as a bottom ‡oor of the wage distribution, hence it movements a¤ects wage inequality. In Table 7 we present the rate of change of unemployment between 1989 and 1997, of employment depending on whether the worker has primary education or university education and the correlation between unemployment and minimum wage changes with the momements of the ninetieth and tenth rhw quantiles.

Insert Table 7

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Observe, ...rst, the high correlation between the movements of the private sector rhw tenth quantile in the RUZ an the statutory minimum wage, e.g. the lower tail of the wage distribution followed the minimum wage fall. In Montevideo there is practically no correlation between these variables. This suggests that the fall of the real minimum wage pushed downwards the lower tail of the wage distribution for RUZ private workers. This could be a consequence of the high dispersion of workers in the RUZ, which increased the monopsony power of ...rms when negotiating wages.

Second, there is also an important negative correlation between unemployment and minimum wage and with the private tenth quantile, e.g. an increase in unemployemnt was accompanied by minimum wage or tenth quantile wage decrease. In other terms, market conditions seem to had a¤ected the lower tail of the wage distribution as well as the statutory minimum wage.

Finally, observed that employment of workers with primary education had diminished in both regions, more signi...cantly in Montevideo. However, this decrease seems to be compensated by the increase of employement of workers with University in a similar amount. It looks as if there had been a substitution of workers in the labour market. We discuss this argument in the next section.

Distribution of Employment.—

An extended idea behind the observed increased in wage inequality in developing countries is that it is due to an increase in relative demand for most skilled workers. However, this does not seem to be the case of Uruguayan labour market. On the one hand, there is no clear evidence of a signi...cant increase in labour demand for more skilled workers. On the other hand, there has been a noticeable increase of workers with higher education in the labour market. To get an idea of the labour demand and supply movements, in this section we brie‡y present the industrial and occupational distribution of total employment over the 1986-1997 period.

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In Table 8 we present the total industry employment distribution, as well as di¤erentiated by years of schooling.

Insert Table 8

Observe, in the ...rst place, that the only industries where the share of total employment had increased are construction, wholesale and retail sail, banking and professional sector and the educational sector. In Montevideo, the increase were signi...cant: banking and professional services with an increase of nearly 3.3 percentual points; educational sector, of about 5.2 percentual points; wholesale and retail sale with about 4 points. However, in the RUZ these increments were much more smaller, even practically insigni...cant in some sectors, e.g. the only industrial sector that signi...cantly increased the share over the total is the aggregate of others. In the second place, notice that the share of public administration on total employment had diminished in both regions, particularly in the RUZ. Finally, when considering the distribution of employment di¤erentiating by years of schooling, what is clear is that there has been a dramatic change on the composition of employment, with an increase in the participation of more educated workers. Notice that this change is general to every industrial sector and not only to those that had increased their participation on the share of total employment. That is, these facts could illustrate a substitution of less educated workers by more educated workers without a change in the demand toward more skilled-educated workers.

In order to obtain a picture of the employment supply changes, ...rst we show, in Table 9, the changes in schooling years of the male workers in Uruguay.

Insert Table 9

Overall, observe the signi...cant increase of the share of workers with more than 10 years of schooling, e.g. workers with pre-university and university studies practically

duplicated their share in the labour market between 1986 and 1997. The composition within this group is rather di¤erent between regions. While in Montevideo there is a similar participation of pre-universitary and universitary workers in the labour market, in the RUZ the relation is nearly of three to one.

In Table 10 we present the total occupational distribution of workers, as well as divided by schooling years.

Insert Table 10

This table illustrates an increase in supply of educated workets within occupations but with no drastic changes on the share of these di¤erent occupations. Again, it looks as if less educated workers left the labour market and were substituted by most educated workers in each of these occupations.

In sum, employment distribution does not show evidence of an increase of relavite demand for most skilled workers. Instead, what this discussion suggest is that there has been a reestructuration of the labour market with less educated workers substituted by more educated.

5.- CONCLUSION

In this paper we were concerned with studying the observed increased in wage dispersion in Uruguay. The most common explanation given to the increase in wage inequality in developing countries is an increase in the relative demand of most skilled workers. However, in this paper we show that, in Uruguay, is the government intervention that explains this increase in a large extent. Additionally, we observed that the impact of this intervention is di¤erent depending on the degree of concentration of population and economic activity.

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Figure 1

Indexed Real Hourly Wages 1986-1997

Quantile Indexed to 1986=100

Montevideo

Rest of the Urban Zones

Years
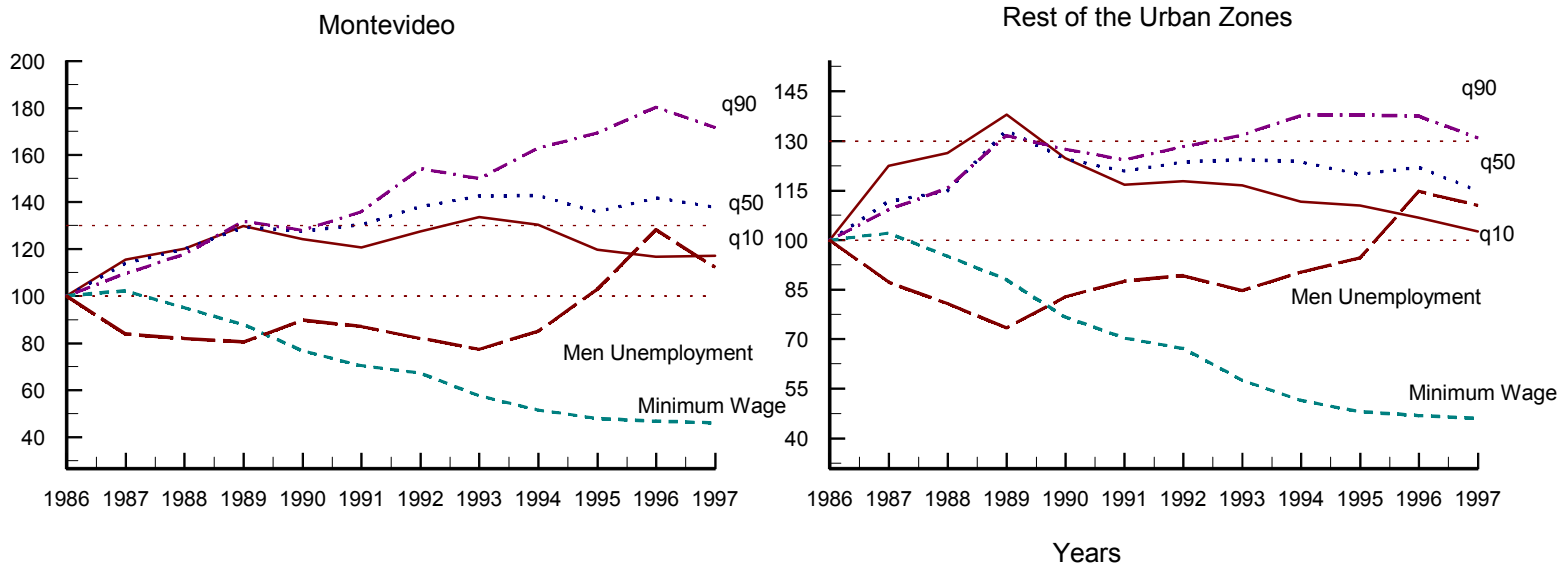
Ratio Montevideo to RUZ 90th, 50th, and 10th Quantile
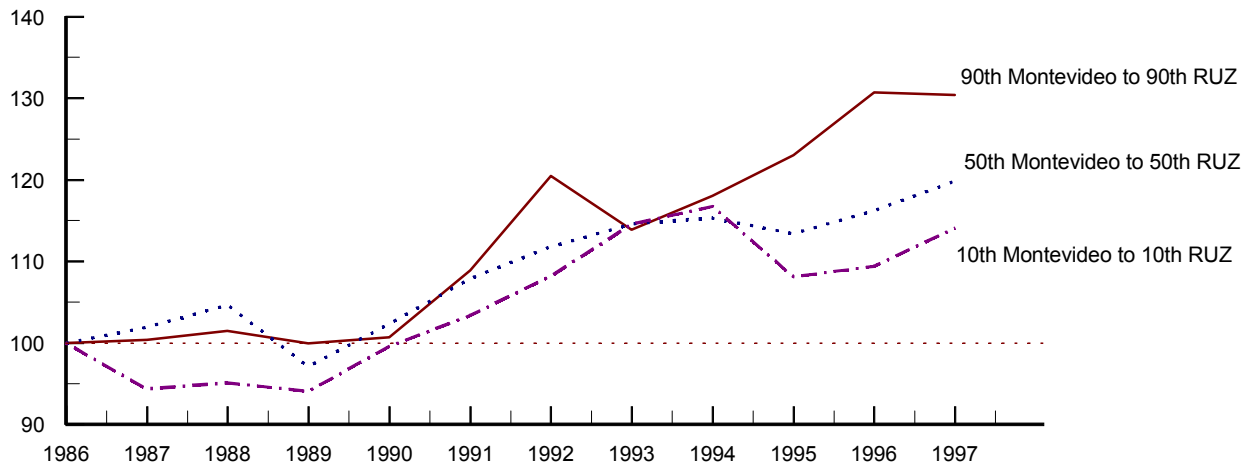
Figure 2

Log Hourly Real Wage Changes by Quantiles 1986-89

(Mean Log HRW change horizontal line)
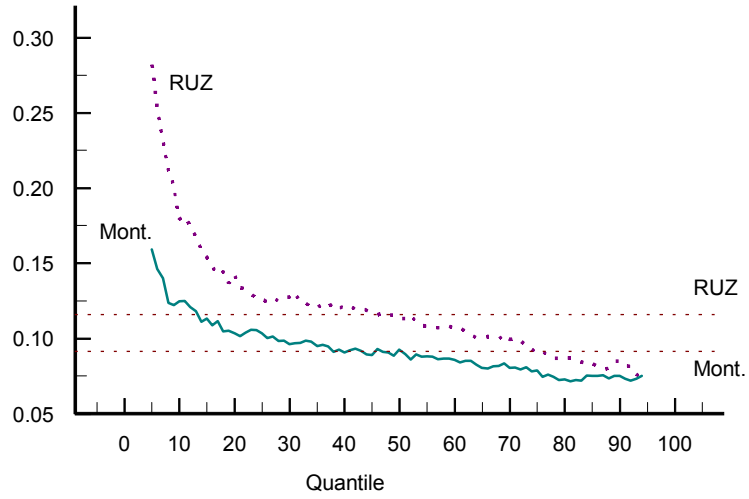
Figure 3

Log Hourly Real Wage Changes by Quantile 1989-97

(Mean Log RHW change horizontal line)
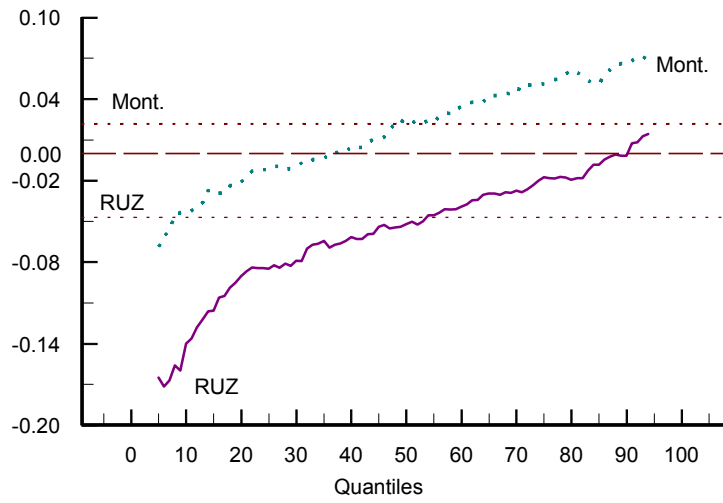
Figure 4

Hourly Real Wage Indexed to 1989=100

Ninetieth and Tenth Quantile of the Public and Private Sector
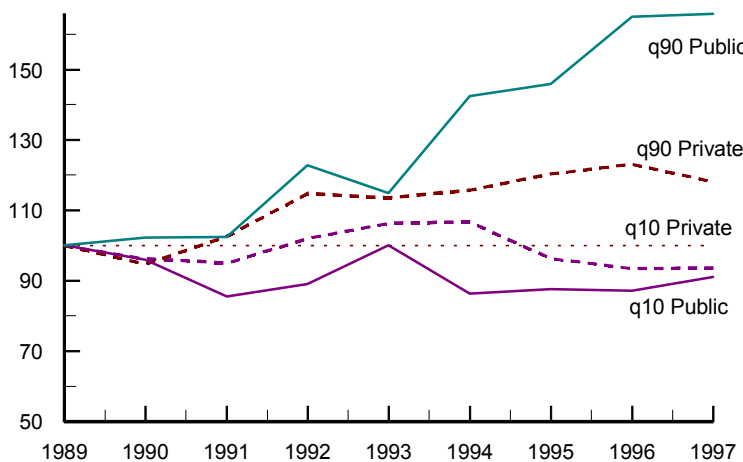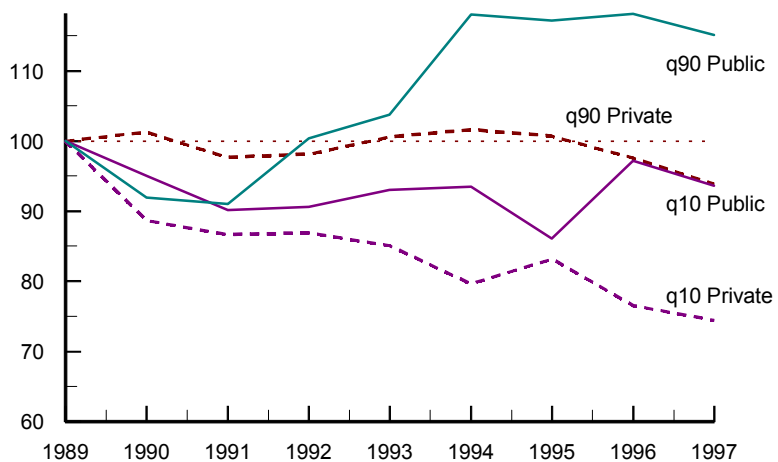
Figure 5

Log Hourly Real Wage Changes by Percentile 1989-1997

Montevideo

More than 10 years of Experience

Less than 10 years of Experience

More than 12 years of Schooling

Less than 12 years of Schooling
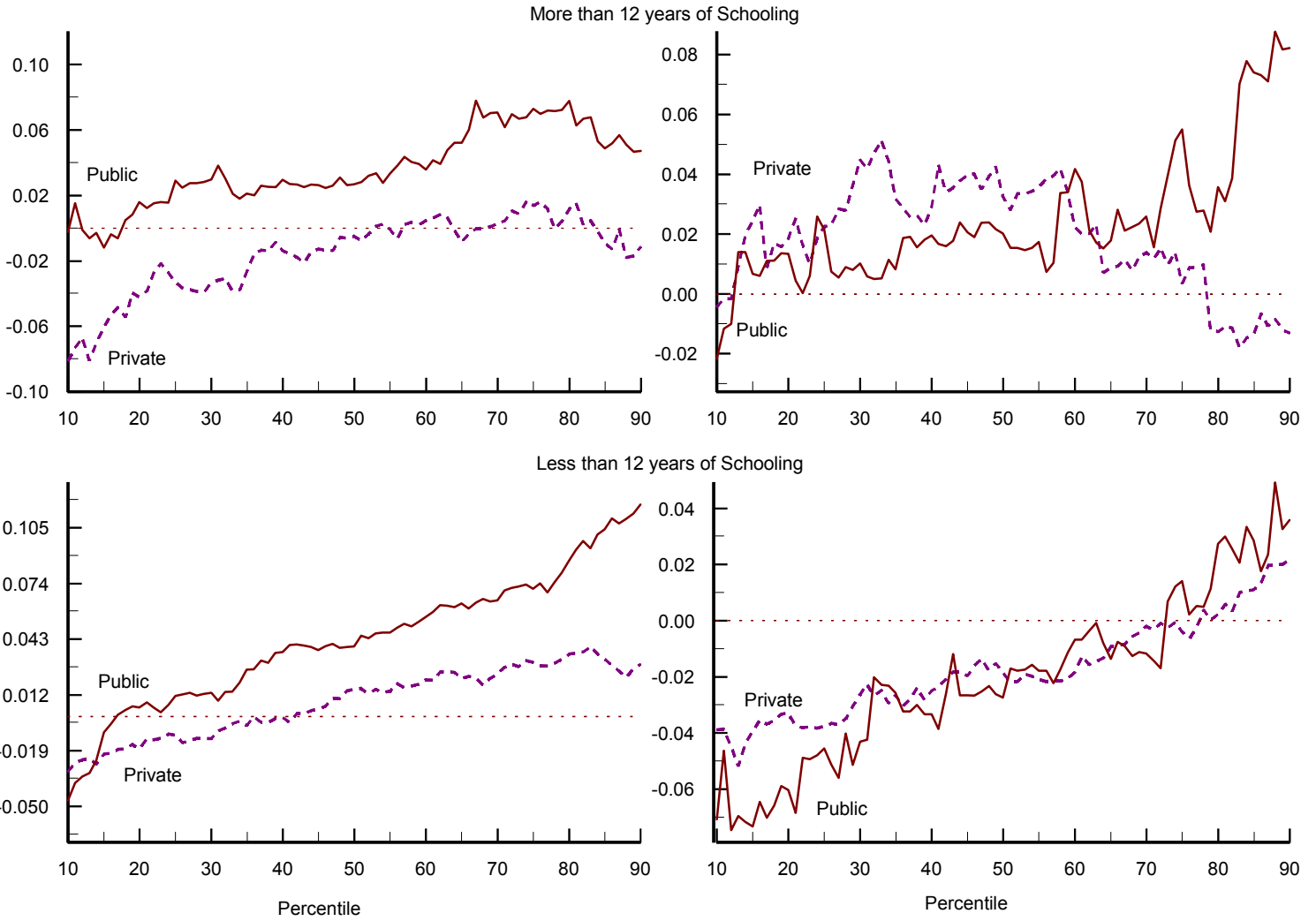
Figure 6

Log Hourly Real Wage Changes by Percentile 1989-1997

Rest of the Urban Zones

More than 10 years of Experience

Less than 10 years of Experience

More than 12 years of Schooling

Less than 12 years of Schooling

Percentile
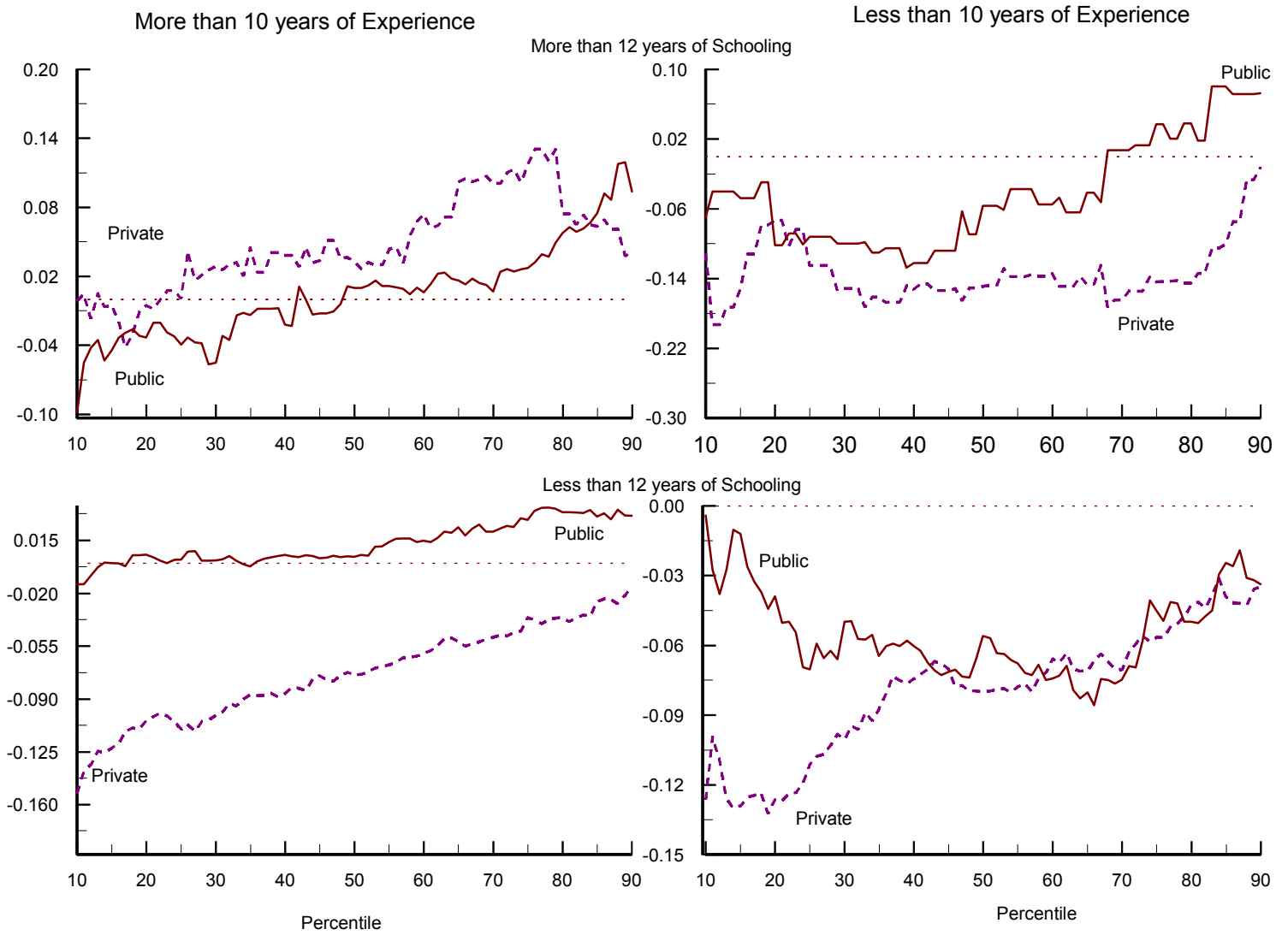
TABLE 1: Observable and unobservable components of changes in inequality 1986-97.

Differential	Total Change	Observed Quantities	Observed Prices	Unobserved Prices and Quantities
Montevideo				
90-10	0.3781	0.0816	0.1143	0.1822
90-50	0.2144	0.0412	0.0835	0.0898
50-10	0.1637	0.0405	0.0308	0.0924
RUZ				
90-10	0.2445	0.0880	0.0266	0.1299
90-50	0.1302	0.0186	0.0375	0.0741
50-10	0.1143	0.0694	-0.0109	0.0558

Note: Based on Katz and Autor (1999) approximation.

TABLE 2: Inequality measures for log real hourly wages.

	1986	1989	1997
Montevideo			
St. Dev.	0.6642	0.6566	0.7807
Percentile differential:			
90-10	1.5699	1.5843	1.9480
90-50	0.8842	0.9017	1.0986
50-10	0.6857	0.6826	0.8494
RUZ			
St. Dev.	0.6418	0.5884	0.7029
Percentile differential:			
90-10	1.4455	1.3998	1.6900
90-50	0.7035	0.6929	0.8337
50-10	0.7420	0.7029	0.8563

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TABLE 3: Montevideo Log RHW Quantile rate of change between 1989-97

	Public		Private	
	Schooling Years			
	+12	-12	+12	-12
More than ten years of experience				
10th quantile	-0.00	-0.05	-0.08	-0.03
25th quantile	0.03	0.01	-0.03	-0.01
50th quantile	0.03	0.04	-0.00	0.02
75th quantile	0.07	0.07	0.01	0.03
90th quantile	0.05	0.12	-0.01	0.03
Less than ten years of experience				
10th quantile	-0.02	-0.07	-0.00	-0.04
25th quantile	0.02	-0.05	0.02	-0.01
50th quantile	0.02	-0.03	0.03	-0.02
75th quantile	0.05	0.01	-0.00	0.00
90th quantile	0.08	0.04	-0.01	0.02

TABLE 4: Nonparametric Quantiles Ratio of Public to Private log RHW conditional on education.

Years of Schooling	Montevideo									
	Less 10 years of experience									
	10th Quantile		25th Quantile		50th Quantile		75th Quantile		90th Quantile	
	1989	1997	1989	1997	1989	1997	1989	1997	1989	1997
6	1.146	1.122	1.114	1.136	1.091	1.106	1.071	1.096	1.051	1.111
10	1.151	1.110	1.119	1.117	1.087	1.093	1.065	1.073	1.059	1.081
12	1.142	1.112	1.121	1.104	1.084	1.085	1.065	1.066	1.069	1.064
16	1.135	1.075	1.112	1.097	1.081	1.071	1.053	1.031	1.034	1.075
	More 10 years of experience									
6	1.070	1.056	1.028	1.057	1.010	1.054	0.988	1.043	0.959	1.059
10	1.048	1.036	1.021	1.050	1.004	1.051	0.971	1.038	0.944	1.037
12	1.034	1.034	1.019	1.047	0.998	1.049	0.967	1.027	0.936	1.024
16	1.029	1.029	1.016	1.050	0.984	1.024	0.953	1.005	0.929	0.980

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TABLE 5: RUZ Log RHW Quantile rate of change between 1989-97

	Public		Private	
	Schooling Years			
	+12	-12	+12	-12
More than ten years of experience				
10th quantile	-0.10	-0.01	-0.00	-0.15
25th quantile	-0.04	-0.00	0.00	-0.11
50th quantile	0.01	0.00	0.03	-0.07
75th quantile	0.03	0.03	0.12	-0.04
90th quantile	0.09	0.03	0.04	-0.02
Less than ten years of experience				
10th quantile	-0.07	-0.00	-0.11	-0.13
25th quantile	-0.09	-0.07	-0.13	-0.11
50th quantile	-0.06	-0.06	-0.15	-0.08
75th quantile	0.04	-0.05	-0.14	-0.06
90th quantile	0.07	-0.03	-0.01	-0.03

TABLE 6:   Nonparametric Quantiles Ratio of Public to Private log RHW conditional on education.

Rest of the Urban Zones										
Less 10 years of experience										
6	1.211	1.396	1.125	1.206	1.070	1.100	1.059	1.076	1.042	1.101
10	1.200	1.309	1.121	1.173	1.069	1.085	1.065	1.060	1.041	1.091
12	1.206	1.300	1.110	1.158	1.064	1.082	1.054	1.059	1.040	1.087
16	1.181	1.289	1.092	1.152	1.052	1.062	1.048	1.047	1.027	1.078
More 10 years of experience										
6	1.086	1.268	1.022	1.152	0.994	1.079	0.977	1.051	0.997	1.052
10	1.077	1.216	1.012	1.136	0.991	1.072	0.978	1.054	0.996	1.045
12	1.078	1.199	1.017	1.125	0.992	1.068	0.987	1.053	0.996	1.042
16	1.077	1.159	1.014	1.089	1.000	1.047	0.995	1.047	0.991	1.022

TABLE 7:   Legal Minimum Wage, Unemployment and Wage Distribution 1989-97.

	Montevideo	RUZ
	1989-97	1989-97
Rate of Change Employment		
Primary Education	-25.0	-8.3
University Education	23.4	7.6
Correlation		
Unenployment- Private Tenth Quantile RWH	-0.73	-0.89
Unenployment- Minimum Wage	-0.64	-0.83
Minimum Wage-Private Tenth Quantile RWH	0.10	0.93

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TABLE 8: Labour demand: industry employment distribution

	Montevideo		RUC	
	1986	1997	1986	1997
Manufacture	27.5	21.4	23.0	19.8
Low	18.4	14.1	19.4	16.6
Basic	9.1	7.3	3.6	3.2
Utilities	5.3	4.3	5.2	4.1
Construction	4.0	5.5	9.2	10.8
Wholesale and Retail Sale	15.2	19.0	13.4	14.3
Transport	9.7	9.0	8.9	6.4
Banking and Prof.Services	7.0	9.1	4.1	3.5
Public Admin	14.8	10.7	21.9	15.7
Others	16.5	21.1	14.2	25.5

By Years of Education
Montevideo

	1986				1997			
	≤ 6	7-10	11-12	+12	≤ 6	7-10	11-12	+12
Manufacture	44.2	39.6	10.2	6.0	28.2	42.1	19.4	10.2
Low	50.0	36.0	9.0	5.0	30.2	41.1	18.9	9.8
Basic	32.4	46.8	12.7	8.0	24.4	44.0	20.5	11.1
Utilities	38.1	36.4	13.6	11.9	20.2	34.1	22.1	23.6
Construction	63.0	29.3	2.8	5.0	49.2	31.2	12.0	7.5
Wholesale and Retail Sale	40.8	39.9	12.2	7.2	23.0	36.2	28.3	12.5
Transport	44.7	40.1	10.6	4.6	30.6	41.5	20.0	7.8
Banking and Prof.Services	14.1	40.9	26.2	18.8	9.9	26.0	27.1	37.0
Public Admin	36.8	38.0	8.7	16.5	23.0	28.8	19.1	29.0
Others	34.1	34.3	10.5	21.1	21.1	33.6	18.4	26.9

RUC

	≤ 6	7-10	11-12	+12	≤ 6	7-10	11-12	+12
Manufacture	54.7	36.9	6.7	1.7	44.0	41.2	12.3	2.5
Low	56.2	35.3	6.8	1.7	46.8	39.3	12.0	2.0
Basic	46.5	45.5	6.6	1.5	29.5	51.3	14.1	5.1
Utilities	47.1	45.4	7.1	0.4	41.4	42.4	11.1	5.1
Construction	67.1	28.9	2.8	1.2	60.9	30.8	7.9	0.4
Wholesale and Retail Sale	47.8	44.1	6.6	1.5	32.9	43.0	21.5	2.6
Transport	53.0	41.0	4.8	1.2	45.7	36.5	15.9	1.9
Banking and Prof.Services	17.0	52.7	25.4	4.9	15.3	30.6	38.8	15.3
Public Admin	47.5	39.2	7.9	5.4	38.5	41.5	14.1	5.9
Others	47.0	30.3	9.6	13.2	36.0	34.1	17.5	12.3

Notr: RUZ: rest of the urban zones. ≤ 6: 6 or less years of schooling; 7-10: seven to ten years of schooling; 11 to 12 years of schooling (pre-university); +12:more than 12 years of schooling.

TABLE 9: Working Men Schooling Distribution

	Years of Schooling			
	6<	6-10	11-12	+12
Montevideo				
1986	0.1171	0.6576	0.1131	0.1122
1989	0.1003	0.6473	0.1254	0.1270
1997	0.0557	0.5457	0.2119	0.1867
Rest Urban Zones				
1986	0.2205	0.6626	0.0759	0.0411
1989	0.2016	0.6812	0.0804	0.0368
1997	0.1450	0.6616	0.1458	0.0476

TABLE 10: Labour supply: occupation distribution

	Montevideo		RUZ	
	1986	1997	1986	1997
Profess.+Technic.	5.2	6.5	3.1	3.0
Education	1.2	1.9	1.1	1.2
Computer	0.9	0.9	0.0	0.1
Managers	2.7	5.0	1.4	1.8
Sales and Clerical	29.7	28.2	21.3	17.6
Workers and Services	58.0	53.7	70.5	64.6
OTHERS	2.3	3.8	2.6	11.7

By Years of Education							
Montevideo							
	1986				1997		
	≤ 6	7-10	11-12	+12	≤ 6	7-10	11-12	+12
Profess.+Technic.	7.5	16.0	8.8	67.7	3.2	11.1	11.4	74.3
Education	5.1	10.2	22.0	62.7	1.1	11.7	7.4	79.8
Computer	2.9	25.7	22.9	48.6		8.7	23.9	67.4
Managers	7.3	27.1	26.0	39.5	6.1	21.2	31.8	40.8
Sales and Clerical	18.1	46.0	21.7	14.2	11.0	34.1	33.4	21.5
Workers and Services	49.0	40.8	7.2	3.0	37.8	41.7	15.7	4.8
OTHERS	32.3	33.3	12.9	21.5	28.2	27.6	17.2	27.0
RUC							
Profess.+Technic.	6.6	30.8	19.8	42.9	19.4	27.0	14.2	39.2
Education	0.0	26.1	18.8	55.1	4.9	14.8	23.0	57.4
Computer	0.0	33.3	0.0	66.7			50.0	50.0
Managers	6.9	43.1	38.9	11.1	15.1	34.9	32.6	17.4
Sales and Clerical	10.3	49.2	35.5	5.1	21.3	39.0	32.6	7.1
Workers and Services	23.4	36.4	39.2	1.0	48.9	39.2	10.3	1.6
OTHERS	26.1	26.1	44.3	3.5	63.1	27.6	7.6	1.8

Notr: RUZ: rest of the urban zones. $\leq$ 6: 6 or less years of schooling; 7-10: seven to ten years of schooling; 11 to 12 years of schooling (pre-university); +12:more than 12 years of schooling.

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