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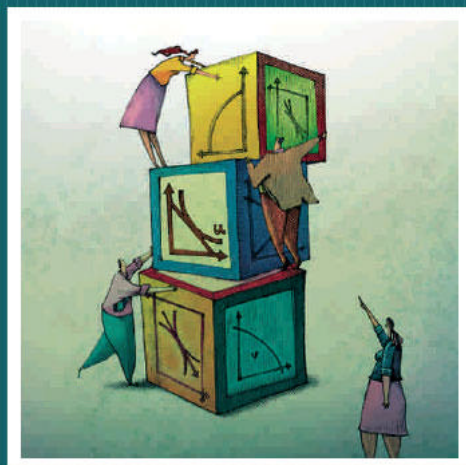
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Public-Private Wage Gap

In Latin America (1992-2007): A Matching Approach

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Abstract

Using matching methods, we estimate the public-private wage gap for urban workers in eleven Latin American countries for the 1992- 2007 period. These methods do not require any estimation of earnings equations and hence no validity-out-of-the-support assumptions; furthermore, this approach allows us to estimate not only the average wage gap but also its distribution. Our main findings indicate that the average public sector worker earns more than his/her private counterpart, and that this differential increased over the 1992-2007 period. Our results also show important differences along the wage distribution; in fact, public servants in the highest percentiles of the wage distribution generally earn less than their private sector equivalents. Nonetheless, the percentile at which a positive wage gap becomes a wage penalty shifted over the period as the average wage gap experienced by most countries widened. Still, the most qualified public sector workers do face a wage penalty. Furthermore, the data shows no relationship between our country ranking according to the public-private wage gap, and indicators of government effectiveness.

Key words: Public-private wage gap, Matching, Public sector, Latin America, Government effectiveness.

JEL Classification: J31, D31.

Public-Private Wage Gap in Latin America (1992-2007): A Matching Approach

I.   Introduction

The public sector is the biggest spender and employer in almost every developing country; at the same time, government effectiveness, particularly the quality of public services and the civil service, is still a concern, based on the recognition that good governance is a key ingredient for development. These two facts seem to lie behind the continuing research on how to measure the quality of the public service and the growing support for public sector reforms, with civil sector enhancement as a major component.[1]

One of the requirements to increase the ability of governments to produce and implement good policies is related to their capacity to attract and retain highly–skilled personnel, which in turn relates to their wage policies.[2] In this sense, the wage gap between public and private sector workers is a relevant research topic.

The general perception is that civil servants are overpaid. The traditional empirical evidence has endorsed this view, concluding that there is a substantial public sector

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[1] International lending organizations, such as the World Bank and the Inter-American Development Bank, have shown a renewed interest in civil service reforms. For example, Lora (2007) states that, after 20 years of reforms of a state apparatus, the region still has a long way to go in terms of modernizing civil service administration. The World Bank (2008) highlighted new civil service rules, including merit-based recruitments and promotion, to enhance public sector efficiency. Also, OECD (2008, 2009) argued that public servants' management is still a highly sensitive issue in most OECD member countries.

[2] As described by Van Dooren et al. (2008), one of the drivers of efficiency in the public sector is the human resources management practice, and wages are important for attracting and retaining qualified staff, especially in cases of skill shortages.

premium, as shown by the seminal work of Gregory and Borland (1999), followed by a number of country-specific studies for both developed and developing economies. High public sector wages are seen as a source of inefficiency in public service provision and as a rent for public sector workers.

More recent research—mainly for developed countries—emphasizes that the wage premium is not homogeneous across the wage distribution (Melly, 2005; Lucifora and Meurs, 2006; Glinskaya and Lokshin, 2007); actually, these studies show that the wage premium is highest at the lower end of the wage distribution and decreases as it moves up.

There are a number of studies for developing countries but, apart from Panizza (2001) and Panizza and Qiang (2005), there is limited research for Latin America, a region that has implemented major public sector reforms in recent decades (Lora, 2007; Chaudhry et al., 1994; World Bank, 2008). In particular, few studies have explored the existence of a negative high-skill wage premium in Latin America that may render it difficult for the civil service to attract qualified workers.

This research attempts to fill this gap using a methodology that allows us to bring new light onto a long-standing issue. Following Ñopo (2008) and Frölich (2007), we apply matching methods to estimate the public-private wage gap for urban workers in eleven Latin American countries (Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, El Salvador, Honduras, Panama, Paraguay, and Uruguay) for the years circa 1992, 1996, 1999, 2003 and 2007. We opt for this method because it does not require any estimation of earnings

equations and hence no validity-out-of-the-support assumptions are needed. Furthermore, this approach allows us to estimate not only the average wage gap but also its distribution.

The objective of the paper is to compare public-private wage gap across different Latin American countries and time periods and to relate them to the countries' governance indicators, labor market characteristics and macro variables. Therefore, we consider a group of countries of different sizes, economic environments and institutional regulations.

This analysis is particularly relevant since during the last two decades most Latin American countries have made an effort to attract and retain highly-skilled personnel to the public sector. Some of them implemented public sector reforms during the early and mid-1990s. In our country sample, Brazil, Chile and Uruguay engaged in civil service reforms in the 1990s, while in Costa Rica competitive appointment processes based on meritocracy were installed much earlier (in 1953) than in the rest of the region. Brazil's public sector reform was introduced in 1995 and included new forms of public sector organization, the adoption of different employment regimes and a new human resources policy (Barzelay et al., 2001).[3] Uruguay launched a civil reform in 1997, with voluntary retirement for public sector workers, a substantial reallocation of funds in order to improve internal management and working conditions, and a redesign of payment systems (Lora, 2007). Since 1990, Chile has implemented reforms in public administration that have gained scope over time, deepening the strategy of management by results, but particularly since 2003 with the

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[3] In Brazil, only 30 percent of federal officials had a university degree in 1995, a figure that had risen to 63 percent by 2001 (Echabarría and Cortázar, 2007).

establishment of the Public Senior Management System with a merit-based selection of civil servants, and a new professional career path (Echabarría and Cortázar, 2007).

We find that average public sector workers earn more than their private counterparts in all the Latin American countries of our sample, and that this differential increased over the 1992-2007 period. Our results also reveal important differences along the wage distribution: in fact, public servants in the highest percentiles of the wage distribution generally earn less than their private sector equivalents. Nonetheless, the percentile at which a positive wage gap becomes a wage penalty shifted over the period as the average wage gap experienced by most countries widened. Still, the most qualified public sector workers do face a wage penalty.

Moreover, it is interesting to notice that the data shows no relationship between our country ranking according to the public-private wage gap, and an indicator of government effectiveness, which captures perceptions on the quality of public service provision, competence of public servants, and the quality of public policy formulation and implementation (Kaufmann et al., 2009).

Besides this introduction, the paper is structured as follows. Section II provides a brief overview of the literature on the public-private wage gap. In Section III the methodological approach and the data are described. Section IV presents our results; first, we examine the public-private wage gap for the most recent year, 2007, analyzing the gains obtained from the methodological approach implemented, and the within-countries heterogeneities;

second, we analyze the evolution of the public-private wage gap through the 1992-2007 period, and we relate it to countries' institutions and macro variables. Section V concludes.

II.   Previous Literature on the Public-Private Wage Gap

The empirical evidence has devoted considerable attention to public-private wage differentials. There are excellent surveys about this issue for developed countries; for instance, Ehrenberg and Schwartz (1986) present evidence of a public sector wage premium in their analysis of 23 studies. Gregory and Borland (1999) review 34 studies, and find that the public sector wage premium is high and statistically significant for women but not always statistically significant for men.[4]

More recently, a large number of studies for developing countries have been published. Among others, Adamchik and Bedi (2000) for Poland, Skyt-Nielsen and Rosholm (2001) for Zambia, Christofides and Pashardes (2002) for Cyprus, Aslam and Kingdon (2009) and Hyder and Reilly (2005) for Pakistan, Gorodnichenko and Sabirianova (2007) for Ukraine, and Glinskaya and Lokshin (2007) for India. Also, there are studies that include more than one country, such as Panizza (2001) and Panizza and Qiang (2005) for various Latin American economies, and Lucifora and Meurs (2006) for France, the U.K. and Italy.

Most articles have found a public sector wage premium, which could be explained by incentives to overpay public sector workers in order to buy their cooperation and political

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[4] Table S1 in the Supplementary Appendix summarizes some of the research on the public-private wage gap, adding up to the reviews by Gregory and Borland (1999) and Ehrenberg and Schwartz (1986).

support. First, because it is difficult for the society to punish governments politically for paying higher wages to public servants; in addition, this greater wage costs can be passed on to taxpayers (Borjas, 2000; Mueller 1998). Second, because public sector workers are generally organized and constitute an important interest group that can exercise pressure on the administration, and since most public services have no substitutes, governments have low capacity to resist union pressure or strikes.

The methods applied have evolved over time; the earlier papers used to estimate mainly earnings equations by OLS (Smith, 1976; Lindauer and Sabot, 1983). Later, new methods intending to correct for selection bias due to the non-random allocation of workers between sectors were implemented, e.g., Terrel (1993) for Haiti, Hou (1993) for Taiwan, and Lassibille (1996) for Spain.

There are at least two issues highlighted by researchers when estimating wage gaps. First, it has been argued that estimating only the average wage gap is a drawback, given wage differentials' heterogeneous behavior (e.g., Bales and Rama, 2002; Panizza, 2001; and Katz and Krueger, 1991). In fact, some research has found that the public sector has a more compressed wage structure than the private sector. The observed pattern is that workers in the lower part of the conditional wage distribution have a positive differential with respect to the private sector, while workers in the higher part of the wage distribution face a negative differential (Gregory and Borland, 1999). Moreover, this literature can be divided into: (i) those studies that analyze the heterogeneity of the wage premia for workers with low/high skills (e.g., Panizza, 2001; Katz and Krueger, 1991); and (ii) those that examine the wage gap at different points of the conditional wage distribution using quantile

regressions.[5] In the case of developing countries, the evidence is limited. Skyt-Nielsen and Rosholm (2001) for Zambia, and Hyder and Reilly (2005) for Pakistan find a positive average public pay premium; this premium is found to decline monotonically as it moves towards the higher part of the conditional wage distribution; interestingly, in Zambia the pay gap became negative for highly educated public sector workers.

Second, on the methodological side, earnings equations and the Blinder-Oaxaca decomposition have been criticized due to misspecification attributable to differences in the supports of the empirical distributions of individual characteristics for the two groups of workers being analyzed (Bellante and Ramoni, 2007; Ñopo, 2008). The problem is that these methods do not restrict the comparison to those individuals with comparable characteristics in both groups. To overcome this drawback, recent studies have applied matching methods to estimate the public-private wage gap: Glinskaya and Lokshin (2007) for India, and Bellante and Ramoni (2007) for the U.S. are good examples.

The existing literature on the public-private wage gap for Latin America does not address these issues in depth. We attempt to fill this gap, applying matching methods, which allow us to compare similarly-skilled public and private workers, considering differences in the distribution of their observed characteristics. Moreover, this approach lets us analyze whether the wage gap displays heterogeneous behavior throughout the conditional wage distribution.

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[5] See Melly (2005) on Germany, Poterba and Rueben (1994) on the U.S., Mueller (1998) on Canada, Blackaby et al.(1999) on the U.K., and Lucifora and Meurs (2006) on Italy, France and the U.K.

III. Methodology and Data

Methodology

We use propensity score matching (PSM) to estimate the public-private sector wage gap for a group of eleven Latin American countries for the years circa 1992 through 2007. PSM is a technique frequently used to identify a control group that exhibits the same distribution of covariates as a treatment group, in non-experimental data.[6] As stated by Frölich (2007) and Ñopo (2008), PSM can also be used outside the context of treatment evaluation; for example, to disentangle the effects from observable and unobservable variables, as a nonparametric alternative to the Blinder-Oaxaca wage differentials decomposition.[7]

In this paper, we use the PSM method to identify workers in the public sector that display the same observable characteristics as private sector workers, and compare their wages. This approach does not require estimating earnings equations for public and private sector workers, and thus it is not necessary to assume that the linear estimators of the earnings equations are valid out of the supports of individual characteristics for which they were estimated (Ñopo, 2008).

Individuals working in the public sector would be the treated group, while private sector workers are our comparison group. As Frölich (2007) demonstrates, the consistency of PSM follows from a purely mechanical property of conditional densities. Therefore, the justification of PSM is not based on any properties of potential outcomes, at least when one

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[6] See, for example, Heckman et al. (1997), Dehejia and Wahba (2002), Lechner (2002), and Smith and Todd (2005).
[7] See Blinder (1973) and Oaxaca (1973).

is interested in disentangling the effects from observables and unobservables, as is our case. The PSM estimator is simply the mean difference in outcomes over the common support, appropriately weighted by the propensity score distribution of participants.

In addition, PSM allows us to estimate not only the average wage gap between public and private workers, but also its distribution. PSM can be used to estimate adjusted density and distribution functions. Actually, we can estimate how much public sector workers would earn if they had the same distribution of human capital characteristics as private sector workers. The adjusted quantiles can be obtained indirectly by inverting the adjusted distribution function obtained from PSM. This analysis provides insights into the distribution of the unexplained wage differences between public and private workers.

Our implementation of the methodology follows carefully the steps suggested by Caliendo and Kopeinig (2008). First, we estimate a probit regression for the treatment enrollment probability[8] on years of schooling, an interaction of schooling with post-secondary studies, potential experience, potential experience squared, dummy variables for marital status and part time workers, a set of dummies for occupations (professionals, technicians, blue-collars, etc.) and regional dummies (country-specific);[9] this specification is the same across all the countries and years (1992 through 2007).[10] Second, the treated units are matched. Since gender differences will most likely play a relevant role in the public-private wage gap, instead of including a gender dummy in the PSM estimation we condition on exact matches with respect to gender. Moreover, we implement a range of algorithms in order to

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[8] The propensity score is computed using the respective sample weights for each country.
[9] For each country, the metropolitan region is used as reference.
[10] The only exception is Brazil, which does not have data on marital status.

gauge the effect of using a particular matching estimator on the outcome; nonetheless, as the results are robust we report only kernel matching.[11] Third, we use two methods to accurately determine the region of common support: (i) all observations with a propensity score smaller than the minimum and larger than the maximum in the opposite group (minima and maxima criterion) were deleted, (ii) the trimming approach of Heckman et al. (1997) was used;[12] in particular, five percent of the observations with low density values were trimmed. As a robustness check we also trimmed 10 percent of the observations with low density values, and following Black and Smith (2004) we defined a thick support region defined by $0.33 < \hat{p}(x) < 0.67$. Fourth, the matching quality is assessed through the standardized mean bias (SMB) suggested by Rosenbaum and Rubin (1985), and the pseudo-R^2 suggested by Sianesi (2004); the reduction in the standardized difference for some of the variables considered is also calculated. Fifth, the average public-private wage gap for common support population and the adjusted density are estimated using log-wages. Taking advantage of the matching approach we obtain the cumulative empirical distribution function of hourly wages for the matched samples of public and private sector workers. At any percentile the horizontal distance between the two distribution functions after matching is a measure of the unexplained public-private wage gap at the respective percentile (Ñopo, 2008).

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[11] We implement one-to-one matching with replacement, five-nearest neighbor matching, radius matching and kernel matching. For the one-to-one matching with replacement, the five-nearest neighbor matching, and the radius matching, we define a caliper (or value for maximum distance of controls) of 0.01.

[12] See also Heckman et al. (1998) and Smith and Todd (2005).

The data

The information sources are official household surveys for eleven Latin American countries (Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, El Salvador, Honduras, Panama, Paraguay and Uruguay), provided by the Economic Commission for Latin America and the Caribbean (ECLAC). The countries have been selected in part based on data availability; nonetheless, they represent Latin American economies of different sizes and degrees of development, with different labor market characteristics and governance indicators. To examine the evolution of the wage gap, we consider cross section data for five years, household survey circa 1992, 1996, 1999, 2003, and the most recent household survey (circa 2007).[13]

All urban workers of working age that declare having positive labor income from work are included in the study; the analysis is focused on hourly labor earnings from the main job, measured as declared monthly earnings divided by declared monthly hours. We work with the broadest definition of public sector, which includes all individuals that declare to work in the public sector. In this sense, our characterization is similar to the one used by Panizza in his previous studies.[14]

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[13] The year of the household surveys differs for Argentina (2006 instead of 2007; also the year 1992 was not included because we could not differentiate between public and private sector workers), Bolivia (1997 instead of 1996), Chile (2000 and 2006 instead of 1999 and 2007, also year 1992 was not included because we could not differentiate between public and private sector workers), Colombia (1993, 2000 and 2005 instead of 1992, 1999 and 2007), Honduras (2001 and 2006 instead of 1999 and 2007), Panama (1991, 1997, 2001 and 2006 instead of 1992, 1996, 1999, and 2007), Paraguay (1990 and 1995 instead of 1992 and 1996), and El Salvador (1991 and 2000 instead of 1992 and 1999).

[14] In order to check the robustness of our results, we also use a narrower definition, considering only civil servants (excluding workers in social service sectors, such as education and health-care, and excluding also workers in state-owned companies). The results are similar to those presented in the next section, and are available from the authors upon request.

The comparisons between public and private employment include self-employed workers, following research that argues that self-employment is an important activity for those workers that have been released from the public sector (Alderman et al., 1996; Rama and MacIsaac, 1999; Bales and Rama, 2002). For the year 2007 we divide workers in the private sector into two comparison groups for public workers: (i) private employees and (ii) self-employed individuals; this allows us to investigate whether there are systematic differences in the wage gap between public workers and these two groups of private workers.

Table 1 presents descriptive statistics of workers' log-hourly wage and years of schooling, the magnitude of public sector employment according to the broadest definition, and the number of public and private sector workers (sample size and population).[15] On average, public sector workers have higher labor earnings than private workers, in all countries and for all years analyzed. These higher public sector wages can be explained because public workers have more years of schooling than private workers.

Table 1 also shows that, on average, public sector employment accounted for around 16.8 percent of total urban employment in 1992, decreasing to around 12.9 percent in 1996 and with no significant changes during the rest of the period.[16] However, there are some

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[15] Table S2 in the Supplementary Appendix presents descriptive statistics of observable workers' characteristics, including gender, marital status, potential experience and occupation. The percentage of women working in the public sector tends to be higher than those working in the private sector for the whole period. Also, there are more married workers in the public sector than in the private sector, but there are not systematic differences between public and private workers in terms of potential experience (age).

[16] In our sample, the percentage of public sector workers is similar to the International Labor Office (ILO) statistics. Both show a stabilization of public employment figures during the period, after the reductions that took place in the early 1990s. According to ILO, public employment in Latin America represented, on

differences across countries; Costa Rica and Panama stand out as the countries with the largest shares of public sector employment (21.4 and 27.1 percent in 1992, and 15.9 and 17.8 percent in 2007, respectively), while Chile and Colombia have the lowest (10.1 and 9.9 percent in 1996, and 9.8 and 7.7 percent in 2007, respectively).

IV.   Results

We first present, for the most recent year (circa 2007), the average estimated public-private wage gap, the cumulative empirical distribution function of hourly wages of public and private workers, before and after matching; and the unexplained public-private wage gap for different percentiles of the hourly wage distribution.

Next, since we have data for several time periods, we analyze the evolution of the public-private wage gap throughout the 1992-2007 period. This is interesting because Latin American countries have made efforts to increase the professionalization of their public servants. In fact, public sector reforms have occurred in the early and mid-nineties in some of the countries in the sample, and in some countries labor market conditions and institutional regulations have changed during the period.[17]

Finally, we examine the relationship between the wage gap and countries' governance indicators, as well as with labor market and macroeconomic characteristics.

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average, 15.5 percent of urban employment in 1990, dropping to 13.5 percent in 1995, 12.8 percent in 2000, and 12.8 percent in 2007 (ILO, *Panorama Laboral*, several issues).
[17] See Echavarría and Cortázar (2007).

a) 2007 results

Table 2 shows the public-private wage gaps by country for the year 2007. The raw wage gap simply reflects the difference in mean wages between both sectors. The unexplained wage gaps are estimated using Kernel-Epanechnikov algorithm conditioning on exact matches with respect to gender.[18,19]

The raw public-private wage gap shows that, for every country analyzed, public sector workers earn more than private sector workers. After performing matching comparisons, the unexplained wage gap decreases, but continues to favor public sector workers in all countries studied and all of them (except for Paraguay) are statistically different from zero at the 5-percent level. The ranking of countries according to their public-private wage gaps starts with Uruguay, followed by Bolivia, Honduras and Colombia, then by Panama, El Salvador, Argentina, and Brazil, and at the end Costa Rica, Chile and Paraguay. Our results on the public-private wage gap confirm the common view that public sector workers earn more than their private counterparts.

To empirically analyze the benefits of this method, we compare the results obtained, *vis-à-vis* a traditional Blinder-Oaxaca (B-O) approach. First, we estimate the public-private wage gap using the B-O decomposition—in terms of differences in workers' average characteristics and differences in the average returns to these characteristics—, and we compare the unexplained public-private wage gap estimated using B-O with the

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[18] In order to check the robustness of our results, the one-to-one matching with replacement, five-nearest neighbor matching, radius matching were also estimated; all matching algorithms show similar results. These outcomes can be obtained from the authors upon request. We use existing software routines (psmatch2) to run the estimation. The raw gap and the unexplained wage gaps are calculated using log-wages.
[19] The quality of the matching is satisfactory for all countries, an assessment of it is presented in Table S3 of the Supplementary Appendix.

unexplained gap estimated identifying differences in supports. Second, following Ñopo (2008), we obtain the unmatched public sector workers and examine the differences in covariates on this uncommon part of the support.

Table 2 shows that the unexplained differences estimated using Blinder-Oaxaca (column 2) overestimate the public-private wage gap (column 3). Differences in the support account for an important share of the gap; in effect, in most countries unmatched public sector workers are highly educated workers, mainly women, with more potential experience (except in Paraguay), and a high percentage of them are married (see Table A1 in the Appendix). These highly educated women with more years of potential experience have lower gender wage penalty and higher return to experience in the public sector than in the private sector. Since they are included in the Blinder-Oaxaca decomposition and are not included in the matching approach, the former tends to overestimate the component of the wage gap attributable to differences in the returns.[20]

Nevertheless, the average unexplained wage gap (column 3) does not describe the full picture if public-private wage differentials are heterogeneous throughout the conditional hourly wage distribution. Thus, taking advantage of the matching approach, we obtain the unexplained wage gap for different percentiles of the wage distribution (columns 6-12 Table 2). In all countries the public sector premium, which is economically relevant at the lower percentiles, decreases along the wage distribution, and in most countries, except

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[20]Lucifora and Meurs (2006), using quantile regression methods, find that women are better off in the public sector with respect to men, mainly at higher quantiles of the wage distribution. For Latin America, Panizza and Qiang (2005) find that the premium associated with working in the public sector is often higher for women than for men.

Brazil, turns into a wage penalty for public sector workers. Previous studies have shown similar results for developed countries.[21]

It is interesting to determine at what percentile of the wage distribution the public sector premium turns into a penalty. To examine this fact in more detail, we follow Ñopo (2008) and Frölich (2007) and calculate the horizontal distance between the private and public hourly wage cumulative distribution functions at any percentile, i.e., the absolute wage gap between both sectors. The absolute wage gap at, e.g., the 20th percentile, is the difference between the wage at the 20th percentile in the public workers' hourly wage distribution and the wage at the 20th percentile in the private workers' distribution. Figure 1 presents the absolute public-private wage gap by percentiles before and after matching for each country in 2007. They show, as mentioned before, that the unexplained wage gap decreases as it moves towards the upper percentiles of the log hourly wage distribution. The public sector wage premium became a penalty around the 95th percentile for Argentina and at the 80th percentile for Chile and El Salvador. In Paraguay, the public sector wage premium became a wage penalty around the 60th percentile.[22]

In sum, we find that, on average, public sector workers are overpaid, but this is not the case for higher wages individuals. In Table 3, we present the characteristics of these higher wages public sector workers and their peers at the private sector in terms of education, age, experience, gender and marital status. Individuals in the highest percentiles of the wage

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[21] See section on previous literature.

[22] In order to be sure that there is enough common support to make explicit statements over the entire distribution, we perform trimming at 5 and 10 percent and we distinguish regions of thick support following Black and Smith (2004). In the Supplementary Appendix, Table S4, we present the results obtained using different trimming and the Black and Smith criterion; the results are robust to these different methods.

distribution, that receive a wage penalty in the public sector, show high levels of human capital, they have 14 and more years of education (16-17 years of schooling in many countries), and more than 20 years of experience. In demographic terms, they are 40-48 years old, and are married more often than not. Also, between 42-52 percent are women, except in Brazil and Bolivia where females account for a smaller percentage. Their peers in the private sector have similar years of education, age and experience, with less participation of women (apart from Brazil). The wage penalty could be explained by the smaller return to post-secondary education, and therefore, the smaller return to being a professional in the public *vis à vis* the private sector. The question is why highly educated people choose to work in the public sector even though they face a wage penalty; one possible answer is that they obtain non-monetary returns as political power and the capacity to implement their ideas and produce changes in their countries. Another possible explanation is that there are risk-averse individuals that put a high value on job stability, which may be stronger in the public sector.

In addition, given that self-employment could be considered a niche of dismissed public servants, we separate workers in the private sector into two comparison groups for public sector workers: private employees and self-employed individuals. Table A2 presents these results for 2007; for every country (except Brazil), the unexplained public-private wage gap is larger when self-employed individuals are considered in the comparison group than when the comparison group includes only private employees. Again, this average unexplained wage gap does not reflect the fact that there are important differences along the wage distribution; the wage gap between public sector and self-employed workers is very high at lower percentiles and decreases considerably when we move to higher percentiles, turning

into a wage penalty for higher wages individuals in most countries (all except Argentina, Bolivia, and Costa Rica). This behavior could be explained by the fact that individuals at the lower end of the wage distribution probably are low-skilled informal workers, while individuals at the upper part of the wage distribution are self-employed professionals (i.e., consultants). In every country the wage gap between public sector workers and private employees is positive but smaller than the gap with self-employed workers, and turns into a wage penalty at the upper end of the distribution for every country except Brazil. In general, the comparison with private employees leads to a higher penalty for public sector workers than the comparison with self-employed individuals; the exceptions are Honduras and Panama where the wage penalty is much heavier when the comparison is with self-employed individuals, and Brazil where public sector workers enjoy a wage premium compared with private employees.

b)   Evolution of the wage gap

Through the period 1992-2007, the unexplained public-private wage gap continued to favor public sector workers in 42 out of 53 cases.[23] Moreover, the public-private wage gap increased in all the countries except Costa Rica and Paraguay, which experienced an increase and then a decline over the period. Colombia, El Salvador and Panama showed systematically the greatest wage differential in favor of public sector workers in all years, while Chile and Paraguay showed the smallest (see Table 4).

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[23] The exceptions are some countries where the wage gap is statistically not different from zero (Argentina, Brazil, Chile, and Uruguay in 1996, Bolivia in 1992, and Paraguay 1992, 1996, 1999 and 2007), and countries that have a slightly negative wage gap (Chile in 1999 and Uruguay in 1992).

Table 4 also presents the unexplained wage gap for different percentiles of the wage distribution for the whole period. In all the countries except El Salvador the wage premium in favor of public sector workers located at the bottom percentiles of the wage distribution increased through the period. Also, wages have improved for public sector workers located at the higher end of the conditional hourly wage distribution, although, as already mentioned, for the highest percentiles—90th and, in some cases, 75th and up—there is still a wage penalty in nearly every country. The exceptions are Costa Rica and Paraguay, where the wage penalty experienced by public sector workers increased in the later years of the period, and El Salvador, where the wage penalty decreased and vanished in 2003, appearing again in 2007.

The unexplained wage gap is systematically bigger for the bottom percentiles in El Salvador, Panama, and Colombia, while Brazil, Chile and Costa Rica have the smallest public sector wage premium throughout the conditional hourly wage distribution. Nonetheless, after 1996, Chile experienced a significant decline in the wage penalty faced by public servants in the highest percentiles of the wage distribution. This could be explained by the reform on human resources management implemented in this country, aiming to attract and retain highly-skilled workers in the public sector. This is also the case for Uruguay that engaged in a civil service reform in 1997; in 1996 the wage penalty was -0.37 and -0.49 at the 90th and 95th percentiles, respectively, and by 2007 it decreased to -0.02 and -0.12 at the 90th and 95th percentile, respectively.

The unexplained wage gap is systematically wider and negative for the top percentiles in the case of Paraguay and, in the first years of the period, for Bolivia, Chile and Uruguay.

This is consistent with our findings for the average unexplained wage gap. Figure 2 shows the absolute public-private wage gap by percentiles after matching for every country and for each one of the years considered in the study; it allows us to visualize the above mentioned behavior of the unexplained wage gap.

c) **Is there a relationship between the public-private wage gap and countries' characteristics?**

In this section we intend to correlate the estimated public-private wage gap with various macro and governance indicators. We are interested in how indicators that measure different dimensions of governance relate to the average unexplained wage gap and to the unexplained wage gap at different percentiles of the wage distribution, controlling for some macroeconomic variables and labor market characteristics.

We work with the Worldwide Governance Indicators (WGI) of the World Bank (Kaufmann et al., 2009); in particular with those that cover three dimensions of governance, namely: voice and accountability, government effectiveness, and rule of law.[24] These indicators are based on several hundred individual variables measuring perceptions of governance. Voice and accountability captures perceptions about the extent to which a country's citizens are able to participate in choosing their government, as well as freedom of expression and association. Government effectiveness captures perceptions on the quality of public services, the quality of civil service and the degree of its independence from political

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[24]The number of observations in the regressions is determined by the availability of these indicators, Kaufmann et al, (2009) provide data from 1996 to 2008. We also considered three other indicators: political stability, regulatory quality and control of corruption, but we did not include them here because for the group of countries being analyzed they are highly correlated with the indicators included, and have no relationship with the wage gap.

pressures, as well as the quality of policy formulation and implementation and the credibility of the government's commitment to such policies. Rule of law captures the perceptions about the extent to which agents have confidence in the rules of society, in particular the quality of contract enforcement, property rights, the police and the courts, as well as the likelihood of crime and violence.

The labor market characteristics and macroeconomic variables included are: an index of unionization in the private sector, public sector employment participation, female labor force participation, GDP per capita, and inflation rate. [25]

Table 5 presents different specifications for the relationship between the average unexplained public-private wage gap and these variables. It is interesting to notice that in all of them the relationship between the degree of private sector unionization and the wage gap is negative and statistically significant; thus, the higher the unionization of the private sector, the lower the wage gap. Also, the inflation rate shows a negative and statistically significant relationship with the public-private wage gap. This could be explained by the fact that private wages adjust more rapidly to inflation than public wages. The rest of the macroeconomic variables are not statistically significant in any of the specifications considered.

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[25] The data was obtained from the World Bank and the International Labor Office. We also estimated alternative specifications considering other macroeconomic variables and countries' characteristics, such as trade openness, the Gini coefficient, size of the informal sector, percentage of population with 12 or more years of education, but most of these variables show no relationship with the wage gap. Unfortunately, there is no information available on the degree of unionization in the Latin American public sector. The problem is that in many countries, for example Chile, associations of public sector workers exist and, even though they are involved in wage bargaining with the government, are not formally considered a union.

The governance indicators show some relationship with the average public-private wage gap, in particular, the degree to which citizens are able to participate in government elections. Freedom of expression and association is positively related and statistically significant with the wage gap. In contrast, rule of law is negatively and significantly related with the wage gap. Furthermore, government efficiency shows no relationship with the wage gap. Thus, there is no evidence that the quality of the service provided by the public sector is related with the wage gap in favor of its workers. These results can be explained by the fact that Latin American countries with high quality of public administration according to the WGI, including Brazil, Chile and Uruguay, are the ones with smaller unexplained public-private wage gap, and countries like El Salvador and Honduras with a relatively high unexplained public-private wage gap have lower indicators of public sector efficiency.[26]

We also estimate similar regressions for the unexplained wage gap at different percentiles of the wage distribution (Table 5). It is interesting to notice that for lower percentiles (P10) neither the index of unionization nor the inflation rates present a statistically significant relationship with the wage gap, at percentile 25th only the inflation rate statistically significant at 10 percent; only at a higher percentiles ($P75^{th}$ and $P90^{th}$) the coefficients for the unionization index increase and became statistically significant at 5 or 1 percent. Therefore, the estimation results for the average wage gap are mainly explained by the relationship between both variables at higher percentiles of the wage distribution. One possible explanation is that low-income private sector individuals work in sectors with

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[26] See Kaufmann et al. (2009) and www.govindicators.org for more details. Similar information gives an IADB study which ranked the quality of public administration in Latin America, with Brazil and Chile at the top of the list (Lora, 2007).

lower unionization rates, for instance, the service sector; therefore, they are less effective in terms of wage bargaining than higher income private employees working in sectors like mining or manufacturing. Hence, the degree of unionization of the private sector tends to reduce the wage gap at higher percentiles of the wage distribution. The more effective use of their bargaining power by private workers at the higher end of the wage distribution can also explain their ability to have their salaries adjusted with respect to inflation.

In terms of the governance indicators, at the 75th percentile voice and accountability is significant and positively related with the wage gap, and rule of law is negatively related and statistically significant, both with coefficients slightly larger than those obtained for the average wage gap. Government effectiveness, as measured by the WGI, is not related with the wage gap at any percentile of the wage distribution.

In order to evaluate the robustness of the results obtained we perform a random-effects analysis in order to gain more precision, also including other variables which could potentially affect the wage gap, such us: country size measured by the GDP, population, manufacturing industry employment participation, and time to elections.[27]

Table 6 presents the results. It is interesting to notice that when including the employment participation of the manufacturing industry in the regression, the relationship between private sector unionization and the average unexplained wage gap, although negative, is not statistically significant, maybe because the manufacturing industry tends to have high

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[27] Time to elections is measured as the number of years between the time of the household survey and the next presidential election.

unionization rates. The inflation rate still shows a negative and statistically significant relationship with the wage gap; if private wages adjust more rapidly to inflation than public wages, the inflation rate will reduce the public-private wage gap. The only other macro-variable that shows a statistically significant (at 10 percent) relationship with the wage gap is time to elections, although this occurs in only one of the specifications.

In terms of governance indicators, the results are similar to those previously obtained; voice and accountability presents a positive and statistically significant relationship with the wage gap, and rule of law is negatively and significantly related with the wage gap, both variables with regression coefficients slightly larger than those previously obtained. Again, government efficiency shows no relationship with the wage gap.

We also estimate these regressions for the wage gap at different percentiles of the wage distribution. For lower percentiles (P10) none of the variables have a statistically significant relationship with the wage gap. At percentile 25th only the inflation rate is negatively related to the wage gap and for one of the specifications voice and accountability is positively related and statistically significant at 10 percent. At percentile 75th and 90th the regression coefficients of the private sector unionization index and the inflation rate increase and became statistically significant, endorsing the results obtained before. At these percentiles (at least for two specifications) the variable time to elections presents a negative and statistically significant relationship with the wage gap; a possible explanation for this

result would be that when elections are close the government tends to increase salaries to obtain the support of public servants, widening the public-private wage gap.[28]

In terms of governance indicators voice and accountability is positively and significantly related to the wage gap at the 75th percentile, and in one of the specifications at the 25th and 90th percentiles. Rule of law is significant and negatively related with the wage gap at the 75th percentile and in one of the specifications at the 25th percentile. Government effectiveness is not correlated with the wage gap at any percentile of the wage distribution for the Latin American countries included in the study.

V. Conclusions

This paper uses a propensity score matching approach that follows Frölich (2007) and Ñopo (2008) to analyze whether there is a wage gap in favor of public sector workers in Latin America, and, if so, how this gap has evolved during the 1992-2007 period. The methodology emphasizes the no need for out-of-support assumptions, deals partially with selection bias problems, and provides information about the distribution of the unexplained pay differences. In general, we find that public sector workers earn more than their private counterparts and this differential increased over the 1992-2007 period.

We also intend to correlate the estimated public-private wage gap with governance indicators, controlling for countries' labor market and macroeconomic characteristics. It is

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[28] Data for Chile shows a negative correlation between the difference between public-private wage increases and time to elections.

interesting to notice that, in spite of the important public sector reforms that have taken place in Latin America since the 1990s, we find no relationship between our countries' public-private wage gap ranking and government effectiveness, which captures perceptions on the quality of public services provision, the civil service and the capacity to produce and implement good policies. This finding is in line with the WGI results that ranked Latin American countries according to governance effectiveness, placing Chile as number one, followed by Uruguay, Costa Rica and Brazil, then, Argentina, Paraguay and Bolivia, followed by El Salvador and Honduras; this ranking does not match our public-private wage gap in these countries. Similarly, an Inter-American Development Bank's study ranked the quality of public administration in Latin America, with Brazil and Chile at the top of the list, followed by Costa Rica, Uruguay, and Argentina, and with Bolivia and Paraguay at the bottom (Lora, 2007).

In this sense, our results appear more consistent with traditional explanations provided by previous studies; i.e., the public sector wage premium reflects incentives to overpay public sector workers and buy their cooperation and political support. We also find that the public sector wage premium seems higher in countries where the bargaining power of the private sector, measured by private unionization rates, is weak; this relationship is stronger for workers in the highest percentiles of the wage distribution.

Our results also show that there are important differences along the wage distribution; in general, public sector workers in the highest percentiles of the wage distribution earn less that their private counterparts. This confirms the evidence provided by other authors for developed countries.

One reason why less skilled workers are better paid in the public sector could be the State's intention to be seen as a "good employer" of the least skilled workers; thus, fair rates of pay are offered to them (Bender and Elliott, 1999; Lucifora and Meurs, 2006). Since Latin American economies are characterized by a highly unequal wage distribution, any small State's effort to be a "fair employer", paying more to the least skilled workers, will tend to produce a compressed wage structure, that is, a positive wage gap for the lowest percentiles and a wage penalty for the highest percentiles of the wage distribution.

We also find that the percentile at which a positive wage gap is transformed into a negative wage gap has shifted over time, due to the increase in the public-private wage gap experienced by most countries between 1992 and 2007. One of the greatest changes in relative wages happened in Chile and Uruguay; both countries had a substantial increase in the wage premium for the highest deciles. While there is no in-depth evidence of the effect of reforms on public wages, as already mentioned Uruguay and Chile have engaged in civil service reforms during the last several years, implementing a more competitive selection and promotion for senior staff members, with increases in wages, and also greater transparency on public wage policies. In this sense, anecdotic evidence provides some support to the hypothesis that the time tendency in relative wages could be partially influenced by public civil service reforms.

Despite the changes in the wage gap at higher percentiles of the wage distribution, still the most qualified public sector workers face a negative wage gap. However, it must be acknowledged that the data does not consider other benefits that senior officials could be

enjoying; in this sense, the relative penalty for higher skilled workers could reflect non compensating factors, such as political power or other benefits difficult to measure with available data.

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Table 1
Descriptive Statistics

Country	Year	Log hourly income from main job in each country's 2007 currency		Years of education		% Public Sector	Nº observations		N° expanded observations	
		Public	Private	Public	Private		Public	Private	Public	Private
Argentina	1996	2.175	1.794	9.1	6.2	11.5	428	3,227	440,890	3,280,100
	1999	1.443	0.966	12.5	10.0	15.7	6,522	21,318	1,241,153	6,359,114
	2003	1.615	1.352	12.1	10.8	20.0	7,954	22,605	1,667,746	6,180,708
	2006	1.960	1.495	13.1	10.6	16.3	10,785	35,444	1,519,549	7,402,055
Bolivia	1992	1.914	1.370	12.5	8.4	15.6	1,453	5,067	130,041	556,378
	1997	2.209	1.606	13.0	7.9	11.9	998	5,589	196,814	1,268,434
	1999	2.026	1.288	13.6	9.0	11.2	342	2,032	206,798	1,446,678
	2003	2.343	1.454	13.1	8.4	10.6	1,422	7,936	195,484	1,618,676
	2007	5.405	4.471	14.6	9.5	13.4	634	3,077	321,418	1,751,564
Brazil	1992	9.013	8.523	9.6	6.4	16.1	15,893	64,512	6,820,015	28,863,993
	1996	1.693	1.273	10.0	6.9	15.3	16,328	70,167	7,036,763	31,971,958
	1999	1.165	0.652	10.3	7.4	14.6	16,257	74,271	6,950,814	33,047,821
	2003	1.701	1.214	10.9	8.2	13.9	19	84,837	8,154,547	39,126,709
	2007	4.782	4.177	11.6	8.5	13.8	20,829	103,586	9,424,902	49,789,252
Chile	1996	7.534	7.137	13.3	10.6	10.1	3,315	26,047	405,695	3,409,805
	2000	10.095	9.806	13.4	11.0	8.2	6,008	36,970	535,785	3,364,749
	2003	7.439	6.946	13.7	11.1	10.6	6,053	40,481	483,859	3,602,010
	2006	10.180	9.784	13.5	11.2	9.8	6,689	48,344	525,696	4,373,523
Colombia	1993	8.410	7.636	11.7	8.3	8.8	2,847	25,219	686,268	6,257,823
	1996	8.497	7.762	12.0	7.9	9.9	3,995	32,594	1,098,757	8,225,670
	2000	8.269	7.492	12.7	8.5	11.2	3,755	27,307	1,100,726	7,465,632
	2003	8.557	7.399	14.9	8.5	7.9	10,859	124,804	845,211	7,897,149
	2005	8.585	7.477	15.3	9.0	7.7	13,380	153,740	933,502	9,410,261
Costa Rica	1992	7.228	6.723	11.7	8.4	21.4	1,195	3,052	111,777	300,984
	1996	7.382	6.827	12.2	8.6	18.7	1,041	3,109	105,959	342,348
	1999	9.492	8.945	12.6	8.8	16.2	1,108	4,057	108,786	424,487
	2003	7.456	6.904	12.8	9.1	16.3	1,337	4,914	171,981	678,577
	2007	10.384	9.792	13.2	9.3	15.9	1,382	5,670	196,144	833,333
El Salvador	1991	4.900	4.204	11.0	6.4	14.6	1,036	6,080	109,333	625,270
	1996	5.761	4.927	12.4	7.3	11.5	997	5,837	143,357	848,657
	2000	6.033	5.117	12.7	7.7	11.9	1,951	11,411	178,665	1,041,513
	2003	6.021	5.165	13.3	8.1	10.0	1,593	10,102	173,586	1,159,695
	2006	2.031	1.157	13.7	8.4	9.6	1,409	9,483	173,234	1,228,102
Honduras	1992	2.536	1.885	11.0	6.6	16.5	737	3,659	106,085	500,796
	1996	3.304	2.619	11.2	6.7	11.4	785	4,455	99,625	614,359
	2001	3.671	2.872	11.6	6.9	10.1	1,516	9,749	112,858	726,222
	2003	3.715	2.777	11.5	6.8	9.0	696	5,092	107,047	806,578
	2006	3.737	2.762	12.1	7.1	9.8	2,029	15,250	132,728	994,555
Panamá	1991	1.075	0.512	12.5	10.4	27.1	1,527	2,859	105,746	211,581
	1997	1.089	0.564	13.1	10.8	21.5	1,706	4,613	126,925	358,008
	2001	1.127	0.554	13.2	10.5	21.5	2,448	6,840	145,793	444,047
	2003	1.265	0.545	13.5	10.8	20.2	2,374	5,228	152,465	385,035
	2006	1.116	0.526	13.8	10.8	17.8	2,012	7,174	149,661	571,693
Paraguay	1990	9.104	8.589	12.6	8.9	12.1	223	1,187	54,579	287,007
	1995	9.436	8.820	12.0	7.9	9.6	503	2,840	109,832	649,232
	1999	8.726	8.074	12.2	8.4	11.5	541	3,022	132,339	807,839
	2003	9.235	8.281	13.2	8.7	12.2	1,093	5,563	153,967	846,893
	2007	12.013	11.270	13.0	8.9	12.0	592	3,320	174,573	1,040,413
Uruguay	1992	4.166	3.871	10.0	8.2	19.5	2,145	8,737	201,063	814,173
	1996	4.219	3.803	10.3	8.7	19.3	4,191	17,579	195,730	817,937
	1999	3.609	3.150	9.6	8.4	16.8	2,712	15,542	120,611	712,182
	2003	4.133	3.507	11.8	9.4	18.7	3,666	16,407	170,459	781,906
	2007	7.268	6.500	11.7	9.1	16.6	8,677	45,333	201,214	1,069,202

Table 2
Public-Private Wage Gap. Circa 2007

Country	Year	Raw wage gap (1)	Unexplained wage gap Blinder-Oaxaca (2)	Unexplained wage gap Kernel matching (3)	Standard Error (4)	t statistics (5)	Wage gap for different percentiles of the wage distribution						
							p5 (6)	p10 (7)	p25 (8)	p50 (9)	p75 (10)	p90 (11)	p95 (12)
Argentina	2006	0.47	0.26	0.23	0.02	14.53	0.41	0.38	0.33	0.23	0.10	0.02	-0.01
Bolivia	2007	0.93	0.50	0.36	0.08	4.72	0.87	0.67	0.56	0.41	0.14	-0.11	-0.25
Brazil	2007	0.61	0.24	0.18	0.02	11.88	0.53	0.22	0.21	0.19	0.11	0.06	0.05
Chile	2006	0.40	0.19	0.13	0.02	7.29	0.55	0.37	0.17	0.13	0.04	-0.06	-0.27
Colombia	2005	1.11	0.44	0.34	0.02	19.51	0.70	0.59	0.51	0.43	0.21	0.01	-0.07
Costa Rica	2007	0.59	0.25	0.13	0.04	2.86	0.52	0.37	0.21	0.12	-0.01	-0.10	-0.12
El Salvador	2006	0.87	0.45	0.26	0.04	6.74	0.52	0.50	0.48	0.31	0.18	-0.06	-0.32
Honduras	2006	0.98	0.47	0.34	0.04	9.08	0.80	0.64	0.49	0.38	0.19	0.01	-0.09
Panama	2006	0.59	0.35	0.29	0.04	7.84	0.62	0.51	0.37	0.24	0.09	0.01	-0.04
Paraguay	2007	0.74	0.34	0.07	0.06	1.03	0.78	0.60	0.30	0.11	-0.18	-0.61	-0.72
Uruguay	2007	0.77	0.44	0.42	0.02	26.98	0.97	0.84	0.66	0.43	0.19	-0.02	-0.12

Notes:
(1) See number of observations in Table 1.
(2) The set of control variables includes: years of schooling, interaction schooling with post-secondary education, experience, experience squared, dummy indicators for part-time workers, marital status, a set of dummies for occupations (professionals, technicians, blue-collars, etc.), and regions of the country where the workers live.
(3) p5 to p95 are percentiles. The Xth percentile is the value below which X percent of the observations may be found.
(4) The raw wage gap and the unexplained wage gaps are calculated using log-wages.

Table 3
Characteristics of Public Workers Facing a Wage Penalty. Circa 2007

	years of education	age	experience	% women	% married
Argentina					
Public workers with wage penalty	14.9	45.3	24.4	49.4	55.3
Private workers counterparts of penalized public workers	14.1	46.0	25.9	32.7	52.2
Bolivia					
Public workers with wage penalty	16.2	43.7	21.5	38.1	66.3
Private workers counterparts of penalized public workers	16.3	42.1	19.8	32.6	69.8
Brazil					
Public workers with wage penalty	14.4	43.9	23.5	35.2	0.0
Private workers counterparts of penalized public workers	10.6	56.7	40.1	72.4	0.0
Chile					
Public workers with wage penalty	15.9	46.6	24.7	47.4	66.1
Private workers counterparts of penalized public workers	16.1	44.7	22.6	45.7	75.6
Colombia					
Public workers with wage penalty	19.1	46.3	21.2	45.9	61.9
Private workers counterparts of penalized public workers	18.9	46.7	21.7	33.9	39.8
Costa Rica					
Public workers with wage penalty	15.5	41.5	20.0	50.8	64.1
Private workers counterparts of penalized public workers	15.1	40.7	19.6	39.0	54.5
El Salvador					
Public workers with wage penalty	16.1	41.9	19.8	57.3	55.0
Private workers counterparts of penalized public workers	16.0	46.2	24.2	52.0	72.8
Honduras					
Public workers with wage penalty	16.4	44.7	22.3	45.2	60.1
Private workers counterparts of penalized public workers	16.4	43.1	20.7	34.3	60.9
Panama					
Public workers with wage penalty	17.1	46.7	23.6	41.9	53.0
Private workers counterparts of penalized public workers	17.2	45.1	21.9	33.7	74.5
Paraguay					
Public workers with wage penalty	14.2	39.4	19.1	52.1	58.0
Private workers counterparts of penalized public workers	14.8	42.4	21.7	41.4	71.4
Uruguay					
Public workers with wage penalty	14.1	47.6	27.5	46.8	61.5
Private workers counterparts of penalized public workers	14.7	47.8	27.1	39.9	68.4

Table 4
Public-Private Wage Gap by Country and Year

Country	Year	Raw wage gap	Unexplained wage gap Kernel matching	Wage gap for different percentiles of the wage distribution						
				p5	p10	p25	p50	p75	p90	p95
Argentina	1996	0.38	0.01	0.30	0.21	0.15	0.02	-0.07	-0.28	-0.30
	1999	0.48	0.17	0.55	0.42	0.28	0.16	-0.02	-0.13	-0.16
	2003	0.26	0.12	0.87	0.17	0.11	0.06	-0.03	-0.18	-0.25
	2006	0.47	0.23	0.41	0.38	0.33	0.23	0.10	0.02	-0.01
Bolivia	1992	0.54	-0.04	0.24	0.19	0.12	-0.03	-0.15	-0.31	-0.43
	1997	0.60	0.16	0.43	0.42	0.31	0.22	0.03	-0.15	-0.42
	1999	0.74	0.25	0.89	0.76	0.52	0.32	-0.07	-0.38	-0.41
	2003	0.89	0.19	0.45	0.40	0.34	0.23	0.03	-0.09	-0.22
	2007	0.93	0.36	0.87	0.67	0.56	0.41	0.14	-0.11	-0.25
Brazil	1992	0.49	0.06	0.16	0.15	0.13	0.09	0.01	-0.07	-0.10
	1996	0.42	0.02	0.11	0.11	0.09	0.04	-0.03	-0.09	-0.16
	1999	0.51	0.14	0.26	0.22	0.20	0.16	0.08	-0.03	-0.05
	2003	0.49	0.13	0.22	0.21	0.20	0.17	0.04	-0.01	-0.03
	2007	0.61	0.18	0.53	0.22	0.21	0.19	0.11	0.06	0.05
Chile	1996	0.40	0.03	0.34	0.27	0.23	0.04	-0.12	-0.40	-0.61
	2000	0.29	-0.03	0.19	0.10	0.04	-0.04	-0.11	-0.22	-0.37
	2003	0.49	0.15	0.57	0.39	0.23	0.19	0.02	-0.20	-0.31
	2006	0.40	0.13	0.55	0.37	0.17	0.13	0.04	-0.06	-0.27
Colombia	1993	0.77	0.27	0.54	0.47	0.37	0.31	0.15	0.05	-0.06
	1996	0.73	0.23	0.44	0.39	0.34	0.25	0.09	-0.03	-0.10
	2000	0.78	0.32	0.44	0.43	0.39	0.30	0.25	0.19	0.08
	2003	1.16	0.38	0.71	0.60	0.55	0.49	0.27	-0.01	-0.19
	2005	1.11	0.34	0.70	0.59	0.51	0.43	0.21	0.01	-0.07
Costa Rica	1992	0.55	0.19	0.31	0.28	0.24	0.21	0.14	0.07	0.00
	1996	0.56	0.29	0.40	0.38	0.34	0.31	0.27	0.13	0.11
	1999	0.55	0.24	0.38	0.34	0.28	0.24	0.19	0.15	0.09
	2003	0.55	0.20	0.39	0.35	0.33	0.27	0.11	-0.06	-0.12
	2007	0.59	0.13	0.52	0.37	0.21	0.12	-0.01	-0.10	-0.12
El Salvador	1991	0.70	0.25	0.69	0.63	0.44	0.28	-0.03	-0.15	-0.37
	1996	0.83	0.29	0.93	0.65	0.50	0.39	0.02	-0.27	-0.38
	2000	0.92	0.35	0.62	0.59	0.56	0.43	0.18	-0.06	-0.17
	2003	0.86	0.38	0.65	0.63	0.61	0.38	0.23	0.06	0.01
	2006	0.87	0.26	0.52	0.50	0.48	0.31	0.18	-0.06	-0.32
Honduras	1992	0.65	0.10	0.21	0.20	0.18	0.13	0.01	-0.08	-0.26
	1996	0.68	0.20	0.56	0.47	0.34	0.21	0.04	-0.05	-0.08
	2001	0.80	0.12	0.53	0.36	0.29	0.15	-0.05	-0.09	-0.10
	2003	0.94	0.21	0.79	0.56	0.34	0.16	0.07	-0.05	-0.14
	2006	0.98	0.34	0.80	0.64	0.49	0.38	0.19	0.01	-0.09
Panama	1991	0.56	0.18	0.55	0.48	0.35	0.13	-0.02	-0.13	-0.18
	1997	0.52	0.18	0.64	0.43	0.40	0.12	-0.04	-0.21	-0.32
	2001	0.57	0.26	0.73	0.44	0.34	0.20	0.12	0.00	-0.04
	2003	0.72	0.24	0.87	0.60	0.38	0.17	0.02	-0.09	-0.17
	2006	0.59	0.29	0.62	0.51	0.37	0.24	0.09	0.01	-0.04
Paraguay	1990	0.51	-0.03	0.17	0.14	0.11	0.06	-0.22	-0.38	-0.44
	1995	0.62	0.01	0.49	0.28	0.22	0.14	-0.29	-0.40	-0.43
	1999	0.65	0.05	0.41	0.32	0.26	0.18	-0.14	-0.33	-0.35
	2003	0.95	0.14	0.96	0.76	0.41	0.05	-0.19	-0.29	-0.41
	2007	0.74	0.07	0.78	0.60	0.30	0.11	-0.18	-0.61	-0.72
Uruguay	1992	0.29	-0.09	0.32	0.24	0.05	-0.12	-0.26	-0.37	-0.49
	1996	0.42	0.01	0.49	0.29	0.13	-0.01	-0.17	-0.29	-0.35
	1999	0.46	0.18	0.50	0.42	0.26	0.18	0.05	-0.04	-0.10
	2003	0.63	0.29	0.92	0.70	0.49	0.30	0.01	-0.11	-0.25
	2007	0.77	0.42	0.97	0.84	0.66	0.43	0.19	-0.02	-0.12

Notes:
(1) See number of observations in Table 1.
(2) The set of control variables includes: years of schooling, interaction schooling with post-secondary education, experience, experience squared, dummy indicators for part-time workers, marital status, a set of dummies for occupations (professionals, technicians, blue-collars, etc.), and regions of the country where the workers live.
(3) p5 to p95 are percentiles. The Xth percentile is the value below which X percent of the observations may be found.
(4) The raw wage gap and the unexplained wage gaps are calculated using log-wages.

Table 5
Public-Private Wage Gap, Governance Indicators, and Labor Market and Macroeconomic Characteristics
(dependent variable public-private wage gap)

Variables	Unexplained average wage gap Kernel matching			Wage gap for different percentiles of the wage distribution											
	awg (1)	awg (2)	awg (3)	p10 (4)	p10 (5)	p10 (6)	p25 (7)	p25 (8)	p25 (9)	p75 (10)	p75 (11)	p75 (12)	p90 (13)	p90 (14)	p90 (15)
Unionization Index	-0.908* (0.503)	-0.911* (0.465)	-1.191** (0.574)	-1.152 (0.885)	-1.116 (1.246)	-1.339 (0.991)	-0.823 (0.758)	-0.872 (1.024)	-1.055 (0.747)	-1.085** (0.547)	-1.107** (0.474)	-1.406** (0.595)	-1.783*** (0.577)	-1.833*** (0.673)	-1.926*** (0.581)
% Public employment	0,001 (-0.009)	0.010 (0.010)	0.013 (0.010)	-0.005 (0.021)	-0.003 (0.024)	0.008 (0.020)	-0.003 (0.016)	-0.005 (0.019)	0.008 (0.014)	-0.002 (0.010)	-0.003 (0.009)	0.0116 (0.011)	0.0004 (0.013)	-0.002 (0.014)	0.011 (0.015)
GDP per capita	-0,022 (0.049)	-0.022 (0.045)	-0.063 (0.041)	-0.112 (0.108)	-0.119 (0.120)	-0.155 (0.096)	-0.059 (0.061)	-0.0501 (0.075)	-0.087 (0.069)	0.0367 (0.053)	0.041 (0.055)	-0.007 (0.051)	0.029 (0.068)	0.038 (0.077)	0.006 (0.082)
Inflation	-0.008** (0.004)	-0.008* (0.004)	-0.010*** (0.003)	-0.007 (0.008)	-0.006 (0.008)	-0.008 (0.007)	-0.008* (0.005)	-0.009* (0.005)	-0.010 (0.006)	-0.008* (0.004)	-0.008* (0.004)	-0.010** (0.005)	-0.006 (0.005)	-0.007 (0.006)	-0.007 (0.006)
Female labor force participation	-0,002 (0.005)	-0.002 (0.005)	0.003 (0.005)	0.005 (0.011)	0.005 (0.013)	0.009 (0.008)	-0.0004 (0.008)	9.99e-05 (0.011)	0.004 (0.006)	-0.005 (0.006)	-0.005 (0.006)	0.0004 (0.006)	0.002 (0.008)	0.002 (0.009)	0.005 (0.008)
Voice and accountability	0.236*** (0.076)	0.238** (0.095)		0.234 (0.203)	0.218 (0.207)		0.218* (0.119)	0.239 (0.190)		0.278** (0.117)	0.287** (0.123)		0.214 (0.164)	0.235 (0.203)	
Rule of law	-0.184** (0.075)	-0.181* (0.102)		-0.115 (0.173)	-0.150 (0.207)		-0.180 (0.113)	-0.133 (0.173)		-0.220** (0.086)	-0.199* (0.103)		-0.135 (0.115)	-0.088 (0.169)	
Government efficiency		-0.005 (0.109)	2.53e-05 (0.048)		0.056 (0.212)	0.075 (0.087)		-0.076 (0.200)	-0.028 (0.059)		-0.034 (0.119)	-0.011 (0.049)		-0.078 (0.207)	0.008 (0.082)
Constant	0.355 (0.306)	0.351 (0.305)	0.404 (0.348)	1.053 (0.712)	1.101 (0.823)	1.155 (0.709)	0.788 (0.509)	0.724 (0.631)	0.792 (0.531)	-0.096 (0.363)	-0.125 (0.353)	-0.055 (0.405)	-0.559 (0.474)	-0.625 (0.562)	-0.545 (0.637)
Nº observations	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
Adjusted R-squared	0.415	0.390	0.279	0.077	0.040	0.068	0.190	0.165	0.145	0.445	0.424	0.304	0.300	0.278	0.265

Notes:
(1) Bootstrapped standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.
(2) p10 to p90 are percentiles. The Xth percentile is the value below which X percent of the observations may be found.
(3) GDP per capita is taken as log.

Table 6
Public-Private Wage Gap, Governance Indicators, and Labor Market and Macroeconomic Characteristics. Random-effects Analysis
(dependent variable public-private wage gap)

Variables	Unexplained average wage gap Kernel matching			Wage gap for different percentiles of the wage distribution											
	awg (1)	awg (2)	awg (3)	p10 (4)	p10 (5)	p10 (6)	p25 (7)	p25 (8)	p25 (9)	p75 (10)	p75 (11)	p75 (12)	p90 (13)	p90 (14)	p90 (15)
Unionization Index	-0.802	-0.784	-1.018	-0.624	-0.428	-0.785	-0.370	-0.396	-0.629	-1.237**	-1.290***	-1.414**	-2.136***	-2.287***	-2.113***
	(0.565)	(0.567)	(0.663)	(1.062)	(1.302)	(1.012)	(0.712)	(0.929)	(0.800)	(0.508)	(0.485)	(0.651)	(0.690)	(0.757)	(0.554)
% Public employment	-0,003	-0.002	0.014	-0.010	-0.004	0.003	-0.009	-0.009	0.006	-0.004	-0.005	0.0177	0.001	-0.004	0.021*
	(0.008)	(0.010)	(0.009)	(0.018)	(0.021)	(0.0120)	(0.011)	(0.017)	(0.012)	(0.012)	(0.012)	(0.013)	(0.017)	(0.015)	(0.012)
GDP	-0.141	-0.142	-0.091	-0.150	-0.166	-0.120	-0.205	-0.203	-0.155	-0.142	-0.138	-0.085	-0.107	-0.095	-0.068
	(0.104)	(0.113)	(0.115)	(0.171)	(0.153)	(0.120)	(0.126)	(0.144)	(0.140)	(0.087)	(0.085)	(0.108)	(0.096)	(0.109)	(0.117)
Population	0,002	0.002	0.001	-0.0004	-0.0003	-0.001	0.001	0.001	0.0005	0.003***	0.003**	0.002	0.003	0.003*	0.003
	(0.002)	(0.002)	(0.001)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.003)	(0.002)	(0.002)	(0.002)
Inflation	-0.011**	-0.011***	-0.012***	-0.009	-0.008	-0.009	-0.012**	-0.012**	-0.013**	-0.013***	-0.013***	-0.014***	-0.011**	-0.012**	-0.011**
	(0.004)	(0.004)	(0.004)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Female labor force participation	-0.008	-0.008	0.0004	0.008	0.007	0.014	-0.004	-0.004	0.004	-0.015***	-0.015**	-0.007	-0.011	-0.010	-0.006
	(0.007)	(0.007)	(0.006)	(0.011)	(0.012)	(0.009)	(0.009)	(0.010)	(0.007)	(0.005)	(0.007)	(0.007)	(0.009)	(0.009)	(0.009)
Time to elections	-0.035	-0.035*	-0.013	-0.019	-0.012	-0.003	-0.022	-0.023	-0.004	-0.046**	-0.048**	-0.018	-0.061**	-0.066**	-0.033
	(0.028)	(0.020)	(0.027)	(0.040)	(0.047)	(0.041)	(0.031)	(0.033)	(0.035)	(0.021)	(0.024)	(0.028)	(0.030)	(0.030)	(0.033)
% Manufacturing industry employment	0.005	0.005	-0.006	0.0002	-0.002	-0.009	0.009	0.009	-0.001	0.007	0.008	-0.006	-0.001	0.001	-0.011
	(0.010)	(0.010)	(0.013)	(0.017)	(0.015)	(0.013)	(0.014)	(0.016)	(0.014)	(0.008)	(0.008)	(0.009)	(0.010)	(0.011)	(0.014)
Voice and accountability	0.312***	0.306**		0.235	0.167		0.268*	0.278		0.384***	0.402***		0.325	0.377**	
	(0.114)	(0.131)		(0.184)	(0.251)		(0.157)	(0.173)		(0.131)	(0.141)		(0.200)	(0.163)	
Rule of law	-0.228**	-0.235**		-0.142	-0.223		-0.233*	-0.222		-0.255***	-0.233**		-0.160	-0.098	
	(0.089)	(0.115)		(0.168)	(0.215)		(0.137)	(0.183)		(0.091)	(0.109)		(0.128)	(0.136)	
Government efficiency		0.014	0.002		0.148	0.052		-0.020	-0.039		-0.041	0.016		-0.114	0.053
		(0.130)	(0.068)		(0.263)	(0.110)		(0.184)	(0.078)		(0.120)	(0.054)		(0.136)	(0.078)
Constant	1.843*	1.863	1.151	1.722	1.941	1.295	2.497**	2.467*	1.798	1.984**	1.924**	1.194	1.385	1.217	0.858
	(1.076)	(1.138)	(1.143)	(1.738)	(1.629)	(1.268)	(1.255)	(1.379)	(1.430)	(0.906)	(0.953)	(1.192)	(1.147)	(1.254)	(1.343)
Nº Observations	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32

Notes:
(1) Bootstrapped standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.
(2) p10 to p90 are percentiles. The Xth percentile is the value below which X percent of the observations may be found.
(3) GDP is taken as log.

Table A1
Characteristics of Unmatched Public Workers. Circa 2007

	years of education	age	experience	% women	% married	Nº observations	Nº expanded observations
Argentina							
Public workers on support	12.6	41.2	22.7	52.4	47.9	10,248	1,477,918
Private workers on support	12.8	40.9	22.0	52.4	47.4	35,444	7,402,055
Public workers off support	17.0	48.7	25.7	76.9	64.7	537	41,631
Bolivia							
Public workers on support	14.1	39.5	19.3	47.2	57.0	604	308,842
Private workers on support	14.5	39.1	18.6	47.2	51.3	3,077	1,751,564
Public workers off support	17.3	51.8	28.4	39.7	76.3	30	12,576
Brazil							
Public workers on support	11.4	39.1	21.7	54.3	0.0	19,789	9,059,790
Private workers on support	11.4	39.3	22.0	54.3	0.0	103,586	49,789,252
Public workers off support	15.5	51.0	29.6	69.7	0.0	1,040	365,112
Chile							
Public workers on support	12.8	41.8	23.0	53.4	50.8	6,356	500,828
Private workers on support	12.8	41.9	23.1	53.4	48.8	48,344	4,373,523
Public workers off support	17.3	55.6	32.2	53.3	50.5	333	24,868
Colombia							
Public workers on support	15.1	40.9	19.8	50.3	45.9	12,717	905,982
Private workers on support	15.1	40.4	19.3	50.3	45.8	153,740	9,410,261
Public workers off support	21.2	51.9	24.7	39.9	82.6	663	27,520
Costa Rica							
Public workers on support	13.0	39.3	20.3	52.1	47.9	1,313	190,033
Private workers on support	13.1	39.9	20.8	52.1	46.8	5,670	833,333
Public workers off support	16.8	47.8	24.9	46.5	67.8	69	6,111
El Salvador							
Public workers on support	13.2	38.9	19.6	47.2	46.8	1,339	166,138
Private workers on support	13.3	40.3	20.9	47.2	46.6	9,483	1,228,102
Public workers off support	17.7	51.8	28.2	55.8	47.9	70	7,096
Honduras							
Public workers on support	11.9	39.9	22.0	55.7	42.5	1,928	125,821
Private workers on support	12.1	39.1	21.0	55.7	40.7	15,250	994,555
Public workers off support	16.2	44.1	22.0	64.2	69.1	101	6,907
Panama							
Public workers on support	13.7	41.5	21.8	50.9	41.8	1,912	146,947
Private workers on support	13.7	42.0	22.3	50.9	44.4	7,174	571,693
Public workers off support	19.0	53.7	28.7	53.8	64.4	100	2,714
Paraguay							
Public workers on support	13.1	38.0	19.0	49.6	52.8	563	170,042
Private workers on support	13.0	39.4	20.4	49.6	59.9	3,320	1,040,413
Public workers off support	15.3	38.8	17.5	61.3	74.3	29	4,531
Uruguay							
Public workers on support	11.3	43.8	26.5	49.8	53.4	8,246	191,837
Private workers on support	11.2	44.6	27.4	49.8	55.5	45,333	1,069,202
Public workers off support	17.2	51.7	28.5	73.7	76.6	431	9,377

	Comparison group	Unexplained wage gap	Standard error	Wage gap for different percentiles of the wage distribution						
				p5	p10	p25	p50	p75	p90	p95
Argentina	self employed	0.46	0.02	0.75	0.70	0.60	0.48	0.28	0.08	0.01
	private sector employees	0.11	0.02	0.20	0.17	0.13	0.11	0.04	0.00	-0.01
	whole private sector	0.23	0.02	0.41	0.38	0.33	0.23	0.10	0.02	-0.01
Bolivia	self employed	0.59	0.12	1.28	0.93	0.80	0.57	0.50	0.26	0.13
	private sector employees	0.03	0.07	0.27	0.26	0.22	0.12	-0.05	-0.40	-0.43
	whole private sector	0.36	0.08	0.87	0.67	0.56	0.41	0.14	-0.11	-0.25
Brazil	self employed	0.17	0.02	0.94	0.36	0.28	0.13	-0.11	-0.20	-0.24
	private sector employees	0.16	0.02	0.27	0.22	0.20	0.17	0.09	0.06	0.05
	whole private sector	0.18	0.02	0.53	0.22	0.21	0.19	0.11	0.06	0.05
Chile	self employed	0.44	0.03	1.19	0.99	0.68	0.39	0.26	-0.03	-0.22
	private sector employees	0.00	0.02	0.11	0.09	0.06	0.02	-0.05	-0.14	-0.34
	whole private sector	0.13	0.02	0.55	0.37	0.17	0.13	0.04	-0.06	-0.27
Colombia	self employed	0.46	0.02	1.30	1.10	0.79	0.45	0.18	-0.02	-0.06
	private sector employees	0.29	0.02	0.52	0.51	0.45	0.36	0.14	-0.06	-0.16
	whole private sector	0.33	0.02	0.70	0.59	0.51	0.43	0.21	0.01	-0.07
Costa Rica	self employed	0.40	0.10	1.18	0.96	0.55	0.35	0.27	0.18	0.13
	private sector employees	0.07	0.04	0.32	0.30	0.18	0.08	-0.06	-0.17	-0.25
	whole private sector	0.13	0.04	0.52	0.37	0.21	0.12	-0.01	-0.10	-0.12
El Salvador	self employed	0.53	0.10	0.78	0.71	0.67	0.60	0.41	0.02	-0.29
	private sector employees	0.25	0.04	0.53	0.51	0.47	0.28	0.10	-0.11	-0.45
	whole private sector	0.26	0.04	0.52	0.50	0.48	0.31	0.18	-0.06	-0.32
Honduras	self employed	0.31	0.07	1.25	1.01	0.61	0.35	0.10	-0.53	-0.64
	private sector employees	0.28	0.04	0.73	0.52	0.40	0.29	0.10	-0.02	-0.08
	whole private sector	0.34	0.04	0.80	0.64	0.49	0.38	0.19	0.01	-0.09
Panama	self employed	0.49	0.10	1.71	1.34	0.68	0.42	0.09	-0.23	-0.28
	private sector employees	0.22	0.03	0.39	0.36	0.32	0.25	0.06	0.00	-0.01
	whole private sector	0.29	0.04	0.62	0.51	0.37	0.24	0.09	0.01	-0.04
Paraguay	self employed	0.34	0.10	1.18	1.16	0.84	0.37	-0.12	-0.36	-0.45
	private sector employees	0.00	0.06	0.43	0.42	0.29	0.15	-0.21	-0.42	-0.76
	whole private sector	0.07	0.06	0.78	0.60	0.30	0.11	-0.18	-0.61	-0.72
Uruguay	self employed	0.62	0.02	1.41	1.20	0.93	0.65	0.28	-0.02	-0.20
	private sector employees	0.32	0.02	0.77	0.71	0.55	0.34	0.06	-0.12	-0.17
	whole private sector	0.42	0.02	0.97	0.84	0.66	0.43	0.19	-0.02	-0.12

Notes:
(1) See number of observations in Table 1.
(2) p5 to p95 are percentiles. The Xth percentile is the value below which X percent of the observations may be found.

Table S1
Studies on Public-Private Wage Gap

Author(s) (Year)	Country	Methodology			Public Sector Premium?
		Main Approach (*)	Selection Bias Correction?	Test for Heterogeneous Effects? (**)	
Smith (1976)	United States	OLS	No	No	Yes
Lindauer and Sabot (1983)	Tanzania	OLS	No	No	Yes
Katz and Krueger (1991)	United States	OLS	No	No	Yes
Terrel (1993)	Haiti	OLS	Yes	No	Yes
Hou (1993)	Taiwan	OLS	Yes	No	Yes
Poterba and Rueben (1994)	United States	OLS, QR	No	Yes	Yes
Lassibille (1996)	Spain	OLS	Yes	No	Yes
Mueller (1998)	Canada	QR	No	Yes	Yes
Disney and Gosling (1998)	United Kingdom	OLS, QR	No	Yes	Yes
Blackaby et al. (1999)	United Kingdom	OLS, QR	No	Yes	Yes
Adamchik and Bedi (2000)	Poland	OLS, ML	Yes	Yes	No
Panizza (2001)	Latin American countries	OLS	No	No	Yes
Amarante (2001)	Uruguay	OLS, BO	No	No	Yes
Skyt-Nielsen and M. Rosholm (2001)	Zambia	QR	No	Yes	Yes
Brainerd (2002)	Russia	OLS	Yes	No	No
Christofides and Pashardes (2002)	Cyprus	OLS, BO	Yes	No	Yes
Bales and Rama (2002)	Vietnam	OLS, FE	Yes	Yes	Yes
Lokshin and Branko (2003)	Yugoslavia	OLS	Yes	Yes	No
Hyder and Reilly (2005)	Pakistan	QR	Yes	Yes	Yes
Melly (2005)	Germany	OLS, BO,QR	No	Yes	Yes
Panizza and Qiang (2005)	Latin American countries	OLS	No	No	Yes
Lucifora and Meurs (2006)	France, Great Britain, Italy	KR, QR	No	Yes	Yes
Bellante and Ramoni-Perazzi (2007)	United States	OLS,PSM	Yes	No	Yes
Glinskaya and Lokshin (2007)	India	OLS, PSM	Yes	Yes	Yes
Gorodnichenko and Sabirianova (2007)	Ukraine	OLS, FE	Yes	No	No
Aslam and Kingdon (2009)	Pakistan	OLS, BO, FE	Yes	No	Yes

(*) Nomenclature; OLS: earnings equations estimated by OLS; QR: Quantile regression; ML: Maximum likelihood; FE: Fixed effects; PSM: Propensity score matching; KR: Kernel regression; BO: Blinder-Oaxaca decomposition.
(**) Considering wage differentials throughout the conditional wage distribution, or wage differentials for different types of workers.

Sector			% Women (2)	% Married (3)	Potential experience (4)	Professional (5)	Technician (6)	Blue collar (7)	Other (8)
Argentina	1996	Public	54.0	51.6	23.9	22.0	35.0	33.3	9.7
		Private	36.1	49.5	25.5	6.6	11.4	49.9	32.2
	1999	Public	51.7	57.3	22.1	17.3	35.2	36.4	11.1
		Private	38.2	45.9	21.7	6.3	12.8	47.3	33.7
	2003	Public	55.5	48.1	22.5	13.1	26.1	39.7	21.1
		Private	38.7	43.4	22.3	6.5	12.3	51.8	29.4
	2006	Public	55.2	48.0	22.8	15.2	30.4	41.2	13.1
		Private	39.5	38.1	22.2	5.8	10.8	56.1	27.4
Bolivia	1992	Public	62.7	72.9	18.9	17.0	37.8	38.8	6.3
		Private	60.8	67.1	20.5	2.7	6.9	76.4	14.0
	1997	Public	46.2	73.3	20.0	6.5	10.2	78.0	5.3
		Private	39.8	66.7	23.2	2.3	1.7	85.4	10.6
	1999	Public	43.6	66.9	19.5	7.5	33.2	55.0	4.3
		Private	41.1	54.0	21.8	2.7	5.3	81.0	11.0
	2003	Public	48.6	59.3	19.2	38.9	21.3	30.3	9.5
		Private	41.1	44.6	21.9	4.3	5.9	74.4	15.4
	2007	Public	47.6	57.8	19.9	50.4	17.6	25.4	6.6
		Private	38.4	44.6	22.0	7.5	8.2	72.0	12.3
						technician	clerical	other	
Brazil	1992	Public	49.9	na	21.2	31.0	23.8	45.2	
		Private	31.2	na	20.9	7.0	13.2	79.8	
	1996	Public	52.4	na	21.3	33.8	22.8	43.5	
		Private	32.3	na	21.1	7.5	12.5	80.1	
	1999	Public	53.6	0.0	21.7	36.1	22.2	41.7	
		Private	33.3	0.0	21.5	8.3	12.3	79.4	
	2003	Public	55.0	na	22.1	27.3	21.3	51.3	0.2
		Private	34.0	na	21.1	9.8	8.6	81.5	0.0
	2007	Public	56.2	0.0	22.3	30.7	21.3	48.0	0.1
		Private	35.9	0.0	21.2	9.7	8.6	81.7	0.1
Chile	1996	Public	49.5	66.5	21.4	37.2	16.4	38.9	7.5
		Private	30.5	55.4	20.4	11.4	8.1	63.2	17.2
	2000	Public	48.8	59.3	21.7	52.3	14.8	10.1	22.8
		Private	32.8	54.2	21.3	22.1	10.8	31.2	36.0
	2003	Public	54.1	56.1	22.6	37.7	16.9	35.9	9.5
		Private	32.5	49.8	21.3	13.1	9.0	62.8	15.1
	2006	Public	51.6	50.1	23.1	32.2	15.8	39.8	12.2
		Private	34.5	45.5	22.2	11.1	8.4	62.5	18.0
						professional and technician	clerical	other	

Sector			% Women (2)	% Married (3)	Potential experience (4)	Professional (5)	Technician (6)	Blue collar (7)	Other (8)
Colombia	1993	Public	44.9	54.0	19.8	39.4	28.3	32.3	
		Private	37.9	37.4	20.3	10.0	11.5	78.5	
	1996	Public	48.7	48.0	19.5	45.5	23.8	30.8	
		Private	39.1	33.0	22.1	9.1	10.2	80.7	
	2000	Public	50.2	43.1	18.8	40.8	19.3	39.9	
		Private	43.8	31.0	22.1	9.0	9.6	81.5	
	2003	Public	53.1	46.2	19.1	56.4	15.2	28.4	
		Private	44.2	29.4	22.6	8.9	9.1	82.0	
	2005	Public	51.4	44.9	19.4	58.1	16.3	25.6	
		Private	43.8	28.2	22.6	10.0	10.1	79.9	
Costa Rica	1992	Public	41.1	60.2	19.2	47.1	25.5	26.3	1.1
		Private	32.2	43.9	19.9	13.1	10.1	72.9	3.8
	1996	Public	49.4	53.4	19.3	51.7	23.9	23.6	0.8
		Private	28.4	44.0	20.0	13.8	11.2	69.9	5.2
	1999	Public	47.8	52.4	20.1	55.2	22.5	21.5	0.8
		Private	33.5	41.7	20.3	16.0	9.9	70.2	4.0
	2003	Public	53.8	52.9	20.7	44.9	15.6	32.0	7.5
		Private	34.4	40.1	20.1	9.4	15.2	56.0	19.4
	2007	Public	50.7	49.7	20.5	46.8	19.0	26.7	7.5
		Private	35.0	34.3	20.4	10.9	14.7	54.4	20.0

						professional	other		
El Salvador	1991	Public	41.6	50.5	21.7	37.6	62.4		
		Private	41.4	30.2	24.4	6.2	93.8		
	1996	Public	42.0	54.1	18.6	21.9	28.1	38.8	11.2
		Private	43.0	33.5	23.6	4.9	7.5	65.4	22.2
	2000	Public	46.3	47.0	20.0	24.8	30.3	32.3	12.6
		Private	45.7	30.7	23.7	4.6	8.4	61.4	25.6
	2003	Public	45.7	48.0	19.0	19.8	37.1	32.4	10.6
		Private	45.3	30.9	22.5	4.2	9.4	62.5	23.8
	2006	Public	47.8	46.7	20.2	25.0	35.3	28.5	11.2
		Private	45.7	30.6	23.2	4.8	8.7	61.6	25.0

						professional and technician	clerical	other	
Honduras	1992	Public	48.5	50.0	19.6	56.6	16.3	27.1	
		Private	35.5	29.8	22.1	11.5	6.3	82.2	
	1996	Public	52.0	47.2	20.7	55.0	21.7	23.4	
		Private	40.8	28.2	21.2	10.6	6.7	82.7	
	2001	Public	55.4	49.4	20.8	64.6	13.4	22.0	
		Private	41.1	29.3	21.3	11.8	6.9	81.3	
	2003	Public	56.7	44.7	21.1	65.1	14.3	20.6	
		Private	42.2	29.2	23.2	9.5	6.4	84.2	
	2006	Public	56.5	43.7	21.9	31.6	37.0	21.7	9.8
		Private	42.0	26.4	22.8	20.1	7.6	53.7	18.6

Sector			% Women (2)	% Married (3)	Potential experience (4)	Professional (5)	Technician (6)	Blue collar (7)	Other (8)
Panamá	1991	Public	51.7	na	20.4	53.3	22.6	22.3	
		Private	34.7	na	19.3	18.2	14.5	59.1	
	1997	Public	50.6	na	20.6	51.1	22.2	26.7	
		Private	35.1	na	18.8	19.9	13.3	66.8	
	2001	Public	47.3	44.0	21.2	34.7	11.4	45.6	8.3
		Private	31.4	31.3	19.6	10.8	4.9	65.1	19.2
	2003	Public	48.7	45.1	21.5	37.4	12.4	42.9	7.2
		Private	42.2	29.7	18.4	11.2	5.2	58.1	25.6
	2006	Public	50.2	42.5	22.2	37.7	22.6	31.9	7.8
		Private	32.7	28.4	20.6	8.9	7.7	62.9	20.5
						professional and technician	clerical	other	
Paraguay	1990	Public	38.6	53.5	18.1	40.3	39.7	20.0	
		Private	37.4	50.7	21.1	10.7	10.5	78.8	
	1995	Public	42.7	58.7	18.4	46.8	28.2	25.1	
		Private	34.5	46.5	21.1	10.4	8.4	81.2	
	1999	Public	43.7	55.0	19.6	49.7	29.6	11.6	9.1
		Private	36.9	47.1	21.1	10.5	9.9	68.7	11.0
	2003	Public	48.4	56.7	18.7	43.8	14.9	35.1	6.2
		Private	35.2	44.2	22.4	7.6	6.8	65.9	19.6
	2007	Public	49.3	53.3	18.9	39.8	14.3	38.2	7.8
		Private	35.3	41.7	22.3	7.9	6.3	68.2	17.6
						professional and technician	blue collar	other	
Uruguay	1992	Public	39.5	68.3	25.6	56.5	29.5	14.0	
		Private	41.6	53.4	24.3	22.3	71.1	6.6	
	1996	Public	41.6	63.3	25.4	58.6	28.7	12.7	
		Private	42.4	48.8	23.6	23.5	70.3	6.2	
	1999	Public	34.5	61.5	26.2	44.6	0.2	31.2	24.0
		Private	40.7	46.7	23.8	16.4	17.9	42.2	23.5
	2003	Public	48.5	58.3	26.0	27.7	8.0	53.9	10.3
		Private	42.7	45.6	24.6	12.2	6.1	56.9	24.9
	2007	Public	50.1	54.4	26.6	30.2	8.2	51.5	10.1
		Private	43.0	38.6	24.7	11.2	6.4	54.6	27.9

Table S3
Reduction in the Standardized Difference for Schooling and Experience; Mean Standardized Bias and Pseudo R2
**Before and After Matching by Country and Year**

Country	Year	Reduction in standardized difference				Mean bias before	Mean bias after	Pseudo R^2 before	Pseudo R^2 after
		Experience		Schooling					
		before	after	before	after				
Argentina	1996	-11.0	2.8	60.3	-5.1	32.9	3.6	0.14	0.00
	1999	3.1	1.1	64.6	-5.2	33.2	1.4	0.18	0.00
	2003	4.2	6.3	39.1	-0.4	22.6	2.9	0.13	0.00
	2006	6.7	4.7	60.1	-6.3	26.4	2.6	0.16	0.00
Bolivia	1992	-12.8	10.9	96.4	-14.6	28.3	5.9	0.26	0.01
	1997	-26.3	-3.1	117.0	-3.2	32.9	6.1	0.25	0.02
	1999	-23.4	-2.3	118.3	-3.8	36.5	7.7	0.24	0.02
	2003	-19.3	7.0	109.6	-7.1	36.7	6.0	0.27	0.01
	2007	-18.0	4.9	116.5	-8.0	43.6	6.4	0.30	0.02
Brazil	1992	0.5	0.3	77.3	-1.5	31.8	2.3	0.30	0.00
	1996	0.4	-0.6	76.4	-2.2	29.5	2.5	0.30	0.00
	1999	0.3	1.7	72.5	-1.5	29.6	2.3	0.30	0.00
	2003	6.8	-1.3	70.8	0.5	25.2	1.6	0.16	0.00
	2007	6.4	-1.9	79.8	1.4	26.0	1.4	0.18	0.00
Chile	1996	5.7	2.8	73.5	-6.0	20.4	3.6	0.17	0.01
	2000	0.5	6.6	61.9	-5.0	16.4	3.0	0.18	0.01
	2003	2.8	2.0	72.1	-5.0	19.2	3.3	0.17	0.01
	2006	0.5	-0.6	70.5	-1.9	19.0	3.3	0.16	0.01
Colombia	1993	-4.4	2.5	87.0	-2.1	31.6	4.2	0.26	0.01
	1996	-16.2	6.8	106.0	-1.4	32.7	5.6	0.27	0.01
	2000	-26.3	7.9	88.7	1.8	32.8	4.3	0.28	0.01
	2003	-17.3	3.6	133.8	1.3	30.3	3.6	0.26	0.01
	2005	-19.3	3.7	135.8	0.7	32.9	4.1	0.27	0.01
Costa Rica	1992	-8.8	-4.0	85.4	7.0	30.1	1.3	0.26	0.00
	1996	-6.8	-20.7	92.6	5.6	33.8	3.0	0.29	0.01
	1999	-3.1	-6.1	102.0	7.2	32.0	3.7	0.23	0.01
	2003	3.0	-0.2	102.9	1.6	36.4	1.8	0.35	0.00
	2007	-1.4	-3.6	113.9	-2.3	37.1	1.7	0.35	0.00
El Salvador	1991	-21.6	-6.7	103.1	-0.1	19.7	6.1	0.23	0.03
	1996	-39.7	-0.8	113.3	-7.5	34.1	7.9	0.23	0.02
	2000	-31.7	1.1	115.5	-6.3	34.6	7.6	0.26	0.01
	2003	-33.8	-6.5	131.1	0.0	35.5	4.6	0.29	0.01
	2006	-27.4	-9.3	127.8	-2.0	36.4	7.0	0.29	0.01
Honduras	1992	-13.6	6.4	90.4	-2.1	23.6	4.2	0.29	0.02
	1996	-3.0	3.3	97.1	-2.4	23.8	3.3	0.39	0.01
	2001	-4.5	1.0	108.4	-10.6	24.7	3.9	0.39	0.01
	2003	-0.3	-2.4	100.5	0.7	24.0	4.3	0.36	0.02
	2006	-2.3	3.8	117.5	-3.5	22.0	2.8	0.27	0.01
Panama	1991	7.5	-8.7	55.8	-2.3	23.2	5.5	0.30	0.02
	1997	12.8	-6.1	62.3	9.2	23.0	6.0	0.27	0.02
	2001	5.0	0.0	69.9	-3.8	24.4	4.3	0.20	0.01
	2003	23.2	-2.5	71.4	3.6	25.4	4.2	0.21	0.01
	2006	5.9	-3.4	83.3	-2.1	29.8	4.7	0.27	0.01
Paraguay	1990	-15.8	7.0	89.5	-2.8	23.9	4.3	0.32	0.01
	1995	-20.0	-5.9	95.4	2.2	23.6	3.5	0.34	0.01
	1999	-14.1	-17.1	99.9	0.6	25.9	5.2	0.32	0.03
	2003	-33.3	-1.2	129.4	-5.3	27.2	5.7	0.30	0.02
	2007	-24.2	-9.6	116.3	0.9	24.9	5.4	0.25	0.02
Uruguay	1992	9.4	-5.5	46.7	-1.7	14.1	3.3	0.18	0.01
	1996	12.6	-1.4	41.9	-4.4	12.5	2.5	0.17	0.00
	1999	16.4	3.7	36.0	-4.1	11.7	3.5	0.17	0.01
	2003	10.7	-5.6	60.8	2.4	10.8	2.8	0.11	0.01
	2007	13.4	-6.4	64.6	2.6	10.7	2.8	0.13	0.01

Table S4

Public-Private Wage Gap for Different Percentiles of the Wage Distribution, According to Different Methods to Determine the Region of Common Support. Circa 2007

Countries	Trimming 5%						
	p5	p10	p25	p50	p75	p90	p95
Argentina 2006	0.41	0.38	0.33	0.23	0.10	0.02	-0.01
Bolivia 2007	0.87	0.67	0.56	0.41	0.14	-0.11	-0.25
Brazil 2007	0.53	0.22	0.21	0.19	0.11	0.06	0.05
Chile 2006	0.55	0.37	0.17	0.13	0.04	-0.06	-0.27
Colombia 2005	0.70	0.59	0.51	0.43	0.21	0.01	-0.07
Costa Rica 2007	0.52	0.37	0.21	0.12	-0.01	-0.10	-0.12
El Salvador 2006	0.52	0.50	0.48	0.31	0.18	-0.06	-0.32
Honduras 2006	0.80	0.64	0.49	0.38	0.19	0.01	-0.09
Panama 2006	0.62	0.51	0.37	0.24	0.09	0.01	-0.04
Paraguay 2007	0.78	0.60	0.30	0.11	-0.18	-0.61	-0.72
Uruguay 2007	0.97	0.84	0.66	0.43	0.19	-0.02	-0.12

Countries	Trimming 10%						
	p5	p10	p25	p50	p75	p90	p95
Argentina 2006	0.40	0.36	0.31	0.24	0.11	0.02	-0.03
Bolivia 2007	0.88	0.68	0.58	0.43	0.14	-0.06	-0.21
Brazil 2007	0.53	0.23	0.22	0.18	0.12	0.04	0.03
Chile 2006	0.53	0.39	0.18	0.13	0.06	-0.05	-0.18
Colombia 2005	0.71	0.58	0.51	0.46	0.20	0.00	-0.08
Costa Rica 2007	0.54	0.40	0.23	0.14	0.01	-0.10	-0.11
El Salvador 2006	0.52	0.50	0.48	0.36	0.16	-0.10	-0.36
Honduras 2006	0.82	0.64	0.49	0.40	0.17	0.00	-0.06
Panama 2006	0.69	0.55	0.37	0.23	0.08	-0.04	-0.06
Paraguay 2007	0.76	0.63	0.32	0.18	-0.16	-0.59	-0.74
Uruguay 2007	0.96	0.84	0.66	0.43	0.20	0.03	-0.09

Countries	Black -Smith (2004)						
	p5	p10	p25	p50	p75	p90	p95
Argentina 2006	0.49	0.44	0.33	0.20	0.05	0.00	-0.02
Bolivia 2007	0.95	0.83	0.57	0.32	0.12	-0.06	-0.10
Brazil 2007	0.27	0.26	0.17	0.08	0.04	0.00	0.00
Chile 2006	0.43	0.35	0.19	0.04	-0.09	-0.28	-0.41
Colombia 2005	0.61	0.54	0.41	0.25	0.04	-0.08	-0.22
Costa Rica 2007	0.50	0.23	0.12	0.03	-0.10	-0.15	-0.16
El Salvador 2006	0.59	0.55	0.45	0.26	0.00	-0.24	-0.52
Honduras 2006	0.86	0.75	0.63	0.32	0.04	-0.08	-0.12
Panama 2006	0.55	0.34	0.24	0.10	-0.05	-0.10	-0.16
Paraguay 2007	0.70	0.41	0.18	-0.05	-0.46	-0.81	-0.88
Uruguay 2007	0.96	0.76	0.46	0.15	-0.12	-0.20	-0.38

Figure 1
Absolute Public-Private Wage Gap, Before and After Matching, 2007

Honduras
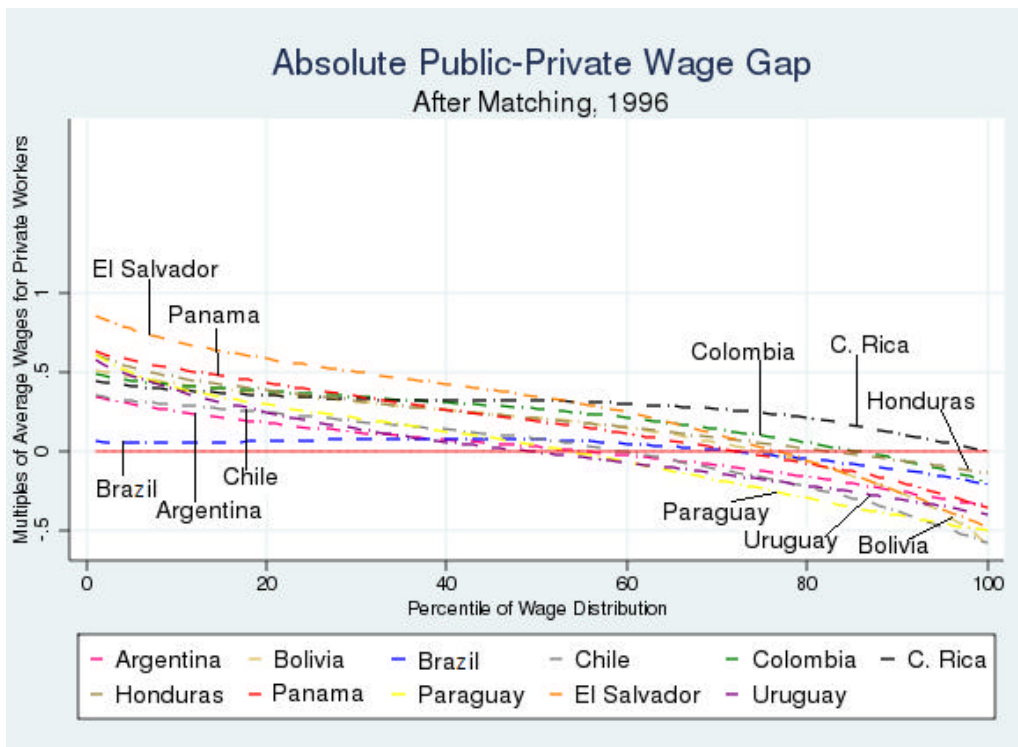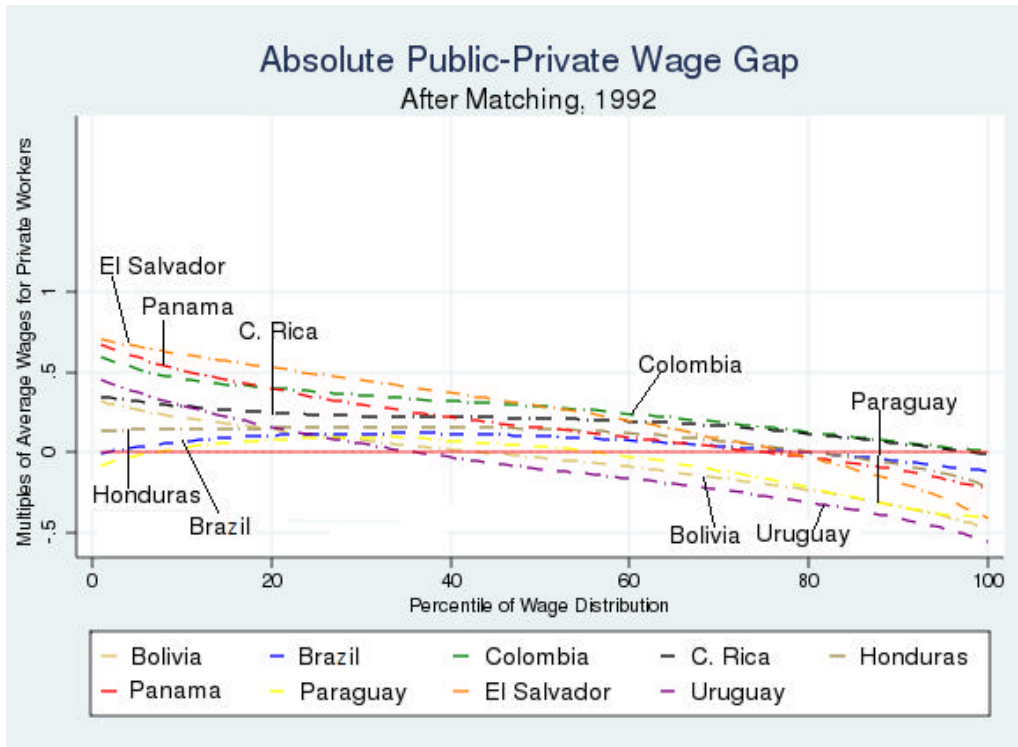
El Salvador

Uruguay

Panama

Paraguay
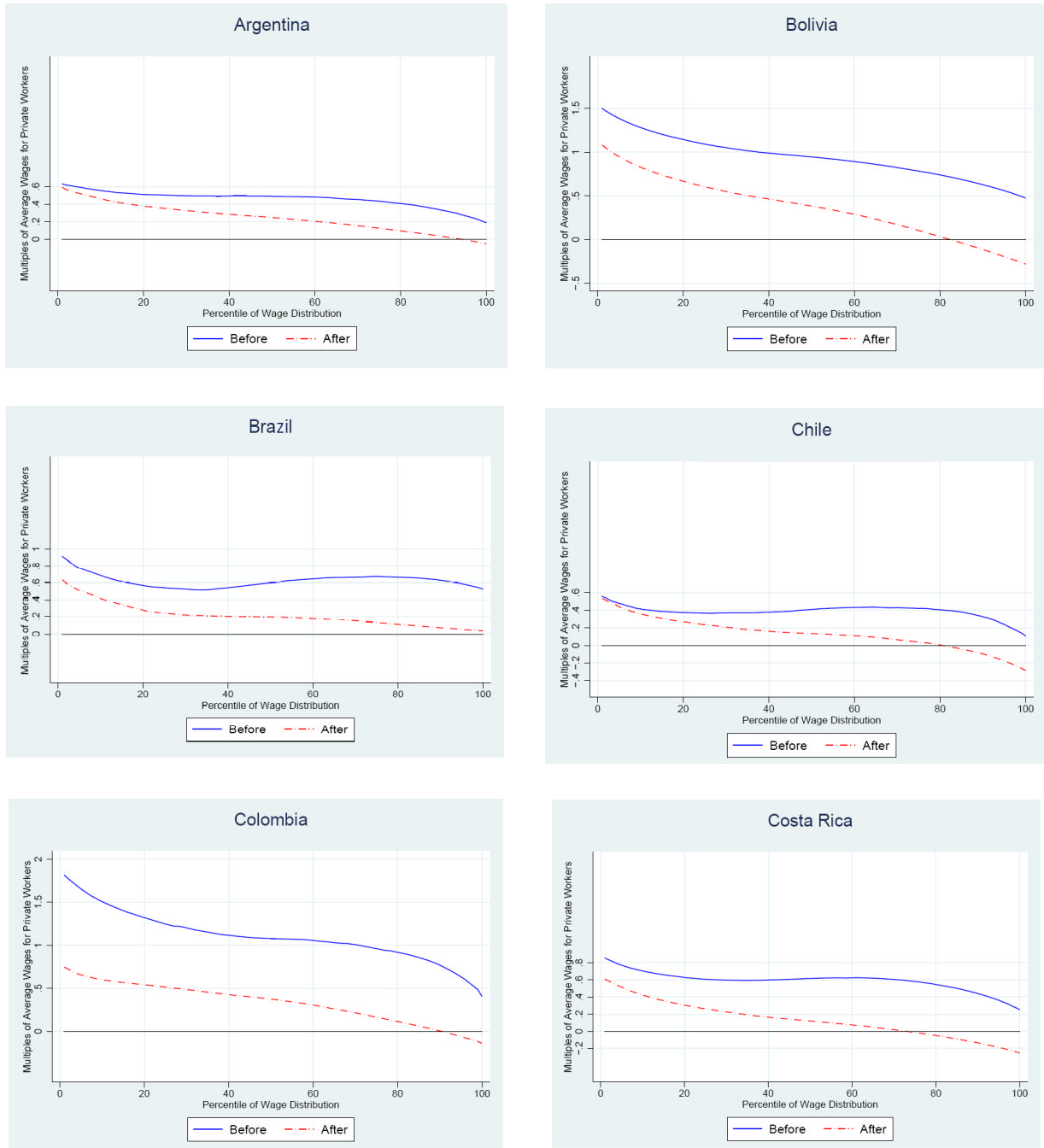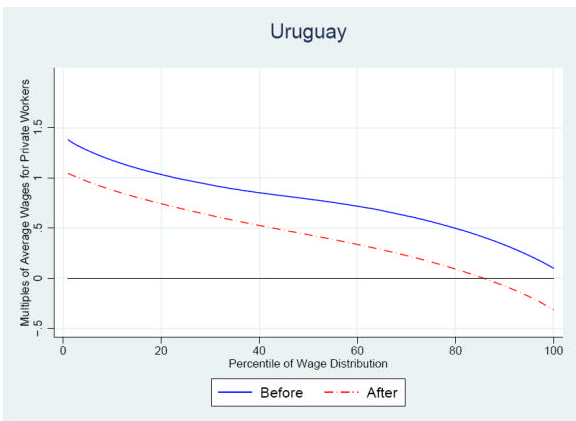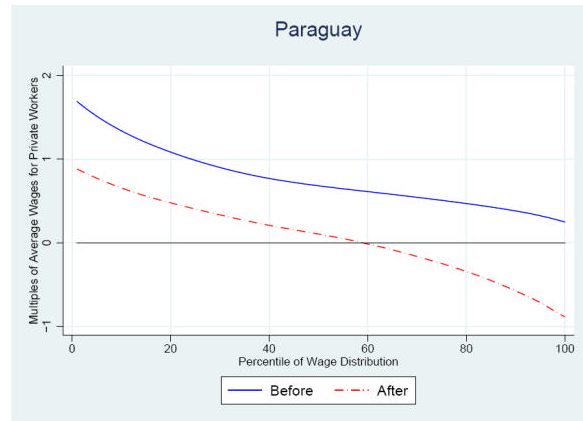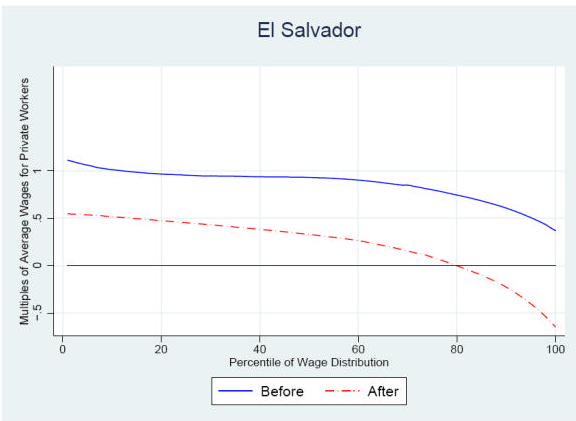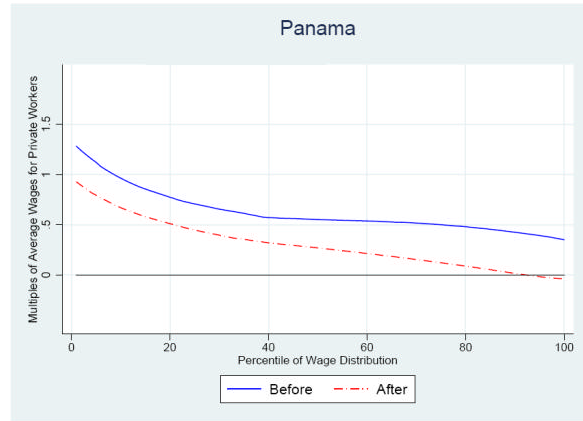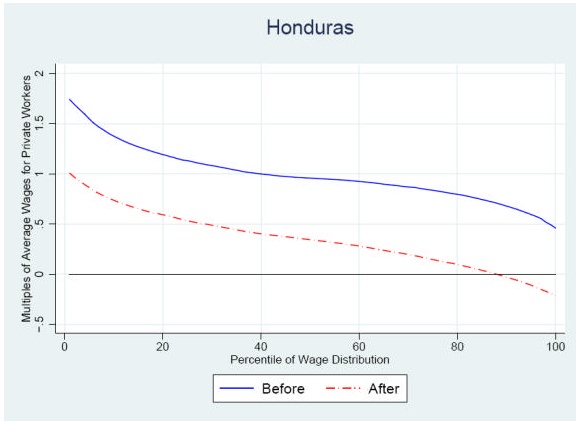
Figure 2
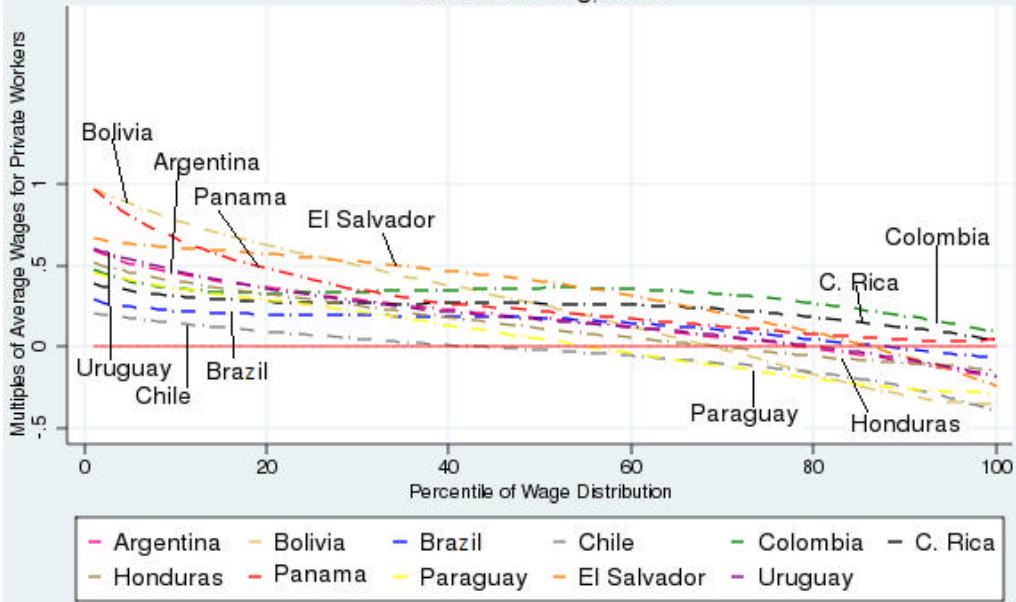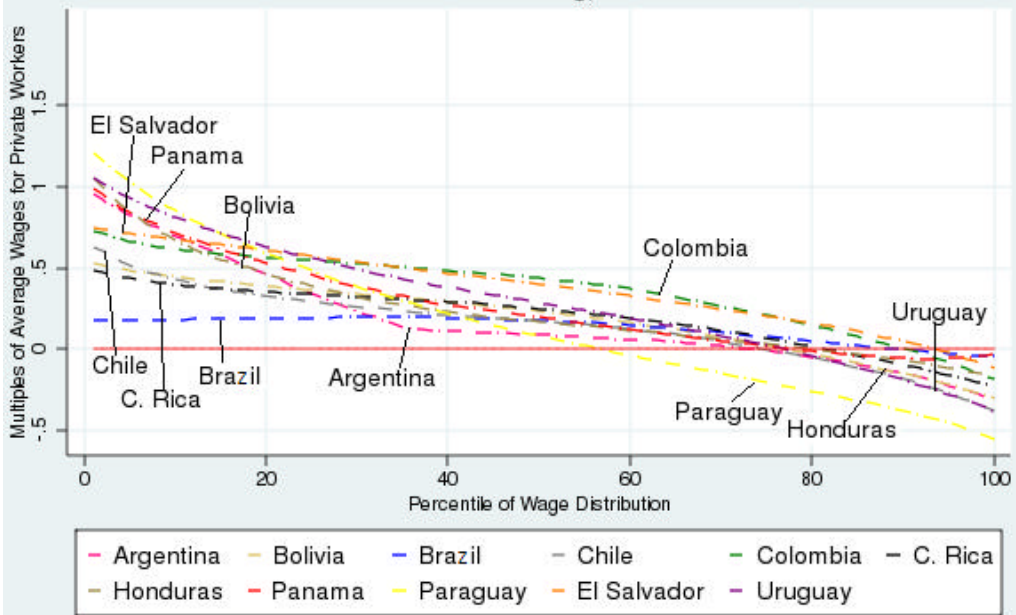**Absolute Public-Private Wage Gap, After Matching, all countries, selected years**
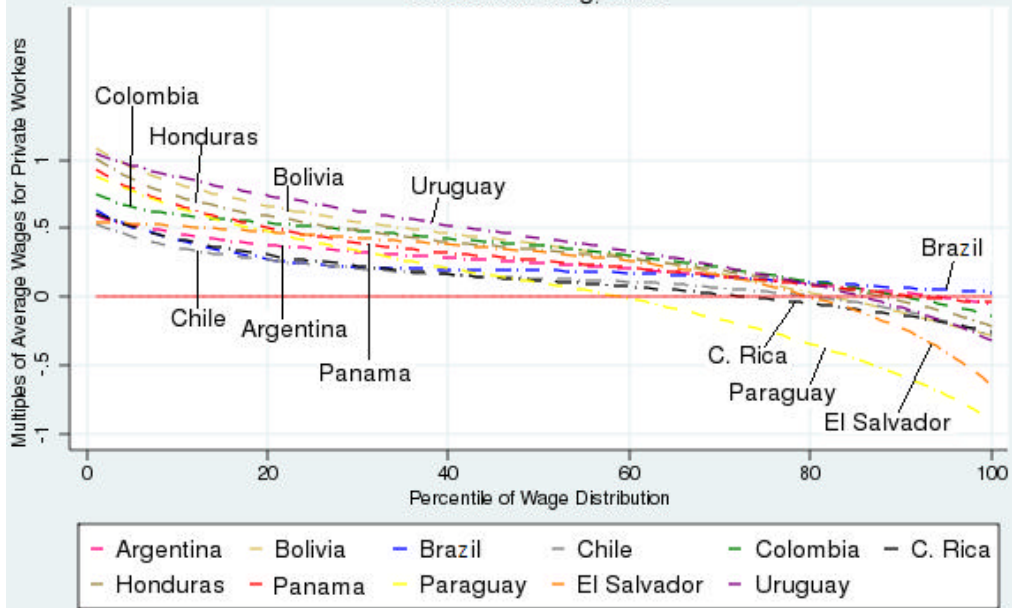

49

Absolute Public-Private Wage Gap
After Matching, 1999

Absolute Public-Private Wage Gap
After Matching, 2003

50

Absolute Public-Private Wage Gap
After Matching, 2007

51

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