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Wage-setting Decisions on Newly Hired Employees: Survey Evidence from Colombian Firms[*]

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Abstract

This paper uses a survey on wage formation that was applied to 1,305 Colombian firms to study wage-setting decisions with respect to newly hired employees. The Colombian case is interesting, since the country's labour market performance, especially its unemployment rate and level of informality, differs not only from the developed countries, where studies of this type are concentrated, but also from most Latin American countries. The replies to the survey indicate wages for the newly hired are based mainly on a predefined wage structure. This may help to explain, in part, the presence of downward nominal wage rigidities in the Colombian formal labour market, since firms are unwilling to differentiate the pay of new hires from the wages of existing workers. Using *logit* models, we find that the probability of wages being bargained between the employee and the employer is less in the case of larger firms. On the contrary, the larger firms are more likely to determine wages according to a predefined wage structure. In general, the presence of flexible benefits and variable pay reduces the probability of wages being determined pursuant to a predefined wage structure. The results also indicate the worker's educational level, experience and job duties are the main determinants of the wages of newly hired employees.

Keywords: wage setting, newly hired employees, wage rigidities survey evidence, *logit*, Colombia

JEL Classification: C25, J30, J50

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I. Introduction

The wage-setting decisions of Colombian firms with respect to newly hired employees are examined and analysed in this paper, as is the relevance of certain factors that affect decisions of this sort, such as labour market institutions, prevailing economic conditions and the specific characteristics of firms. Understanding how firms determine the wages of their newly hired workers is important, because these wages are significant determinants of the firm's wage structure and, to some extent, could help to explain wage rigidities. Consequently, these decisions have an impact on job creation and on the labour market in general.[1]

One approach to examining the determinants of the wages of newly hired workers is to conduct a survey by directly asking workers who took a job recently how their new salary was determined, or by asking firms how they set the wages of their new hires.[2] In the first case, Hall and Krueger (2008) applied a survey on wage formation to 1,400 employees who obtained a job shortly before the interview. The purpose was to investigate the incidence of wage posting, bargaining, and the job search. They found that a third of the workers had information about the precise wage before being interviewed for the job (sign of wage posting), another third bargained over the salary before accepting the job, and nearly 40% were able to retain their previous employment while considering their current job. In

For instance, see Pissarides (2009).

[2] However, this line of research has not been used widely in economic literature. See Pissarides (2009) and Galuščák et al. (2010). Other approaches include models that match employer-employee information and macro models. See Galuščák et al. (2010) and Hall and Krueger (2008) for a review of alternative approaches and models.

summary, Hall and Krueger (2008) found that wage posting and bargaining models for wage formation play a significant role in the United States labour market.

On the other hand, Bewley (2007) interviewed more than two hundred business people, labour leaders and various labour market intermediaries in the early 1990s in the Northeast region of the United States to study downward wage rigidity and wage dynamics. In this context, the author also analysed how the pay of new hires was determined. He found the pay of new workers in the primary sector, where employment is long-term and full-time, is closely related to the firm's internal pay structure. In other words, this structure tends to tie the pay of newly hired employees to that of existing workers. As Bewley (2007) explains, this makes the pay of new hires downwardly rigid.[3]

Galuščák et al. (2010) used information from a firm-level survey on wage-setting practices in fifteen European Union countries to study how the wages of newly hired workers are determined. The authors found that internal factors, such as internal pay structures or collective agreements, are more important in determining the wages of new hires than external factors, such as the wages of similar workers outside the firm.

Following this line of research, we analyse wage-setting decisions on newly hired employees using a wage-formation survey we designed and applied to 1,305 Colombian firms.[4] The Colombian case is interesting, since its labour market performance differs not

[3] In addition, Bewley (2007) found the pay of newly hired workers in the secondary sector tends to be determined by the market and to decline in a slack labor market, although the pay of existing employees is just as downwardly rigid as the pay of primary sector employees.

[4] This paper is part of a broader research agenda we developed on wage formation in Colombia, using evidence from a firm-level survey (e.g., Iregui et al. (2009), Iregui et al. (2010a) and Iregui et al. (2010b)).

only from the developed countries, where studies of this type are concentrated, but also from most Latin American countries. For instance, the unemployment rate in Colombia has been among the highest in Latin America for years. According to the International Labour Organization, unemployment in Colombia averaged 13.8% during 2000-2008, as opposed to 8.3% in Latin America and the Caribbean, 7.5% in Europe,[5] 6.9% in Canada and 5.1% in the United States. Another important aspect is the high level of informality in the country. Informality in Colombia, measured as self-employed workers/active labour force, averaged nearly 40% in 2001-2007, while this figure in Latin America was close to 26% during the same period.[6] In addition, union density in Colombia is very low: less than 5% in recent years.[7] It averaged close to 40% in Europe, 15% in Chile, and 18% in Mexico during 2001-2007.[8]

Given the characteristics of the labour market in Colombia, particularly the high levels of unemployment and informality, one would have expected a more flexible environment for setting the wages of new hires. In fact, Arango et al. (2010), Sánchez and Núñez (1998), and Ramos et al. (2010) found a wage curve for all workers, although when the information was broken down between formal and informal workers, Ramos et al. (2010) found that "only wages of informal workers react to local labour market conditions" (p.6); however, the wages of formal workers, who are the focus of our paper, do not. The replies to the survey indicate the wages of new hires for all occupational groups are based on a predefined internal wage structure. This result may help to explain, in part, the downward

[5] The information is for Germany, Belgium, Spain, France, Italy, Norway and the United Kingdom.
[6] This definition of informality was taking from Loayza and Rigolini (2006), p. 15; the data are from the International Labour Organization.
[7] See Guataquí et al. (2009) for Colombian data.
[8] Taken from http://stats.oecd.org/Index.aspx?DatasetCode=U_D_D.

nominal wage rigidities in the Colombian formal labour market found by Iregui et al. (2010a), since firms in the formal sector are not willing to depart from their internal pay structure when setting the wages of new hires. Moreover, in all groups, the worker's educational level, experience and job duties are what mainly determine the wage of a new employee.

This paper provides elements for understanding how the wages of newly hired employees are set, inasmuch as we ask the firms directly about their wage-setting policies. In addition, our findings could help to explain nominal wage rigidities in Colombia.

There are three sections in this paper, apart from this introduction. In the second section, we discuss how the firms responded to the question about wage setting for new workers, and empirically analyse the factors that could determine how firms decide on wages. Then, we examine the most important factors firms consider when setting wages for new workers. The final section contains our conclusions.

II. Wage-setting Decisions on Newly Hired Employees

To study firms' wage setting decisions with respect to newly hired employees, we use the replies to a wage-formation survey we designed and applied to 1,305 legally constituted Colombian firms.[9] The survey was carried out in thirteen cities,[10] which account for 70% of

[9] This firm-level survey was designed to examine wage-setting mechanisms, the nature and sources of wage rigidities, and the link between wages and prices in Colombia. For details on the survey's design and general results, see Iregui et al. (2009).

[10] Bogotá, Bucaramanga, Barranquilla, Cali, Cartagena, Medellín, Manizales, Pereira and their metropolitan areas. Barrancabermeja, Buga, Tuluá, Girardot and Rionegro also were included.

all formal employment in Colombia, taking into account nine economic sectors[11] and three firm sizes: small, medium and large. We also designed the survey to obtain answers from four occupational groups: managers, professionals, technicians and assistants, and unskilled workers.

The survey has an advantage in that it uses a representative sample of firms, which allows us to generalize the results to the population under study.[12] The survey was applied during the first half of 2009, time when the country exhibited signs of an economic slowdown, low inflation and rising unemployment.[13] This environment offers an interesting framework for analysing how the pay of new hires is determined.

Specifically, we asked firms to indicate which of the following three alternatives was the one used the most in the setting the wages of new workers: i) the wage is bargained directly between the employee and the employer, ii) the wage is determined on the basis of a predefined internal wage structure for each position, and iii) the wage is fixed by using a combination of the two previous options.

[11] Agriculture, forestry and fishing; trade; construction; electricity, gas, water and mining; manufacturing; financial services; transport, storage and communications; education and health; and "other" services are included. We excluded the public sector, because the wages of public employees are set by government decree.

[12] The sample was selected from a population of 39,004 small, medium and large Colombian firms belonging to the formal sector. The selection was performed using stratified random sampling in which the strata correspond to the nine economic sectors under consideration.

[13] During the first half of 2009, the Colombian economy declined 0.5% and the unemployment rate was 12.3%, on average.

Table 1 contains the results, generalized to the population.[14] As illustrated, the survey shows the wages of newly hired employees in all occupational groups are determined mainly according to a predefined wage structure. Similar results were found by Bewley (2007) and Galuščák et al. (2010). Along the same line, Agell and Lundborg (2003) found that the wage of the new worker is linked to the wage of the existing worker in the firm. Moreover, they state that employees care mostly about the wage structure within the firm.

The predefined wage structure is used more often in the case of less skilled workers (technicians and assistants 66%, and unskilled workers 78%). These results may help to explain, in part, the presence of downward nominal wage rigidities in the Colombian formal labour market, as found by Iregui et al. (2010a), since these salaries do not differ from the wages paid to incumbent workers with similar characteristics, even in difficult times.

Table 1
Wage-setting Decisions on Newly Hired Employees

Occupational group	Wages are bargained directly between the employee and the employer	Wages are determined based on a predefined internal wage structure	Wages are fixed using a combination of the two previous options
Managers	25.90%	38.70%	35.40%
Professionals	16.37%	49.97%	33.66%
Technicians and assistants	12.11%	66.30%	21.59%
Unskilled workers	9.97%	77.96%	12.07%

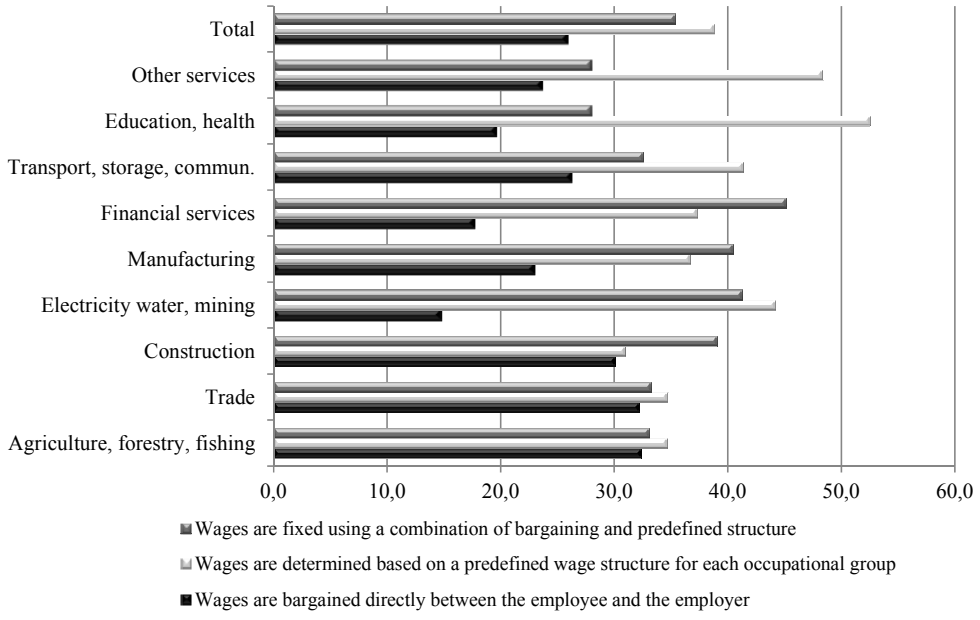
Source: Authors' calculations.

[14] It is important to mention that we obtained replies from 1,305 firms. The firms that did not answer the questionnaire were replaced by firms with similar characteristics. In addition, we calculated coefficients of variation (*cve*) for each answer in order to verify the reliability of the population estimates. The coefficients obtained did not exceed 5%, which indicates the population estimates are reliable.

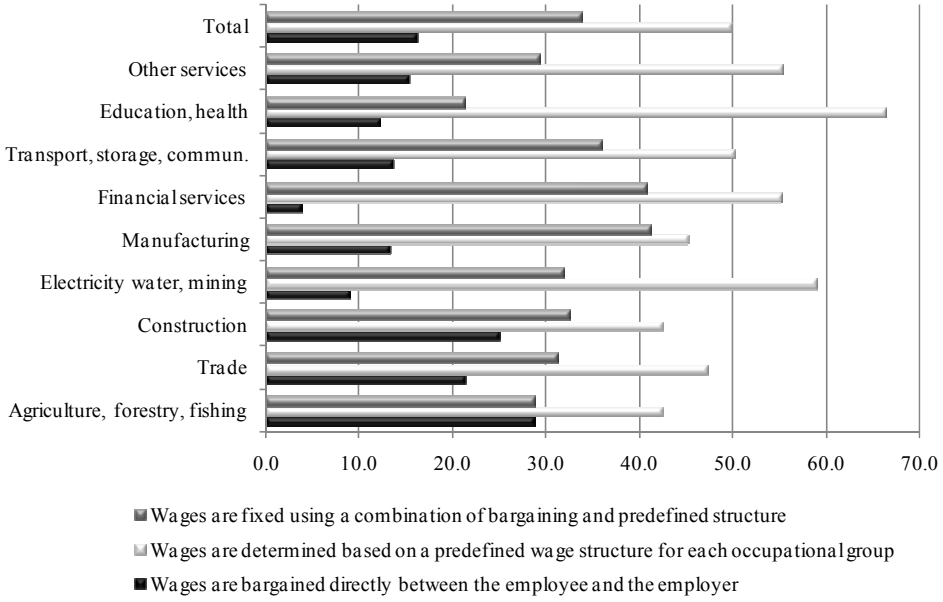
On the other hand and as expected, wages are bargained directly between the employee and the employer more often in the case of managers (26%), who may have more power than other groups when negotiating their wages.

Graphs 1a to 1d depict the results for occupational positions and economic sectors. The survey shows the wages of new workers in most economic sectors are determined mainly pursuant to a predefined wage structure, although the other options, in the case of managers, also are important in some sectors. For instance, in the financial, manufacturing and construction sectors, those salaries are fixed using a combination of bargaining and a predefined wage structure. In the agricultural and trade sectors, the three options are used evenly. It is worth noting that in more than 80% of firms the determination of wages for less skilled workers is made by using a predefined wage structure, in all economic sectors.

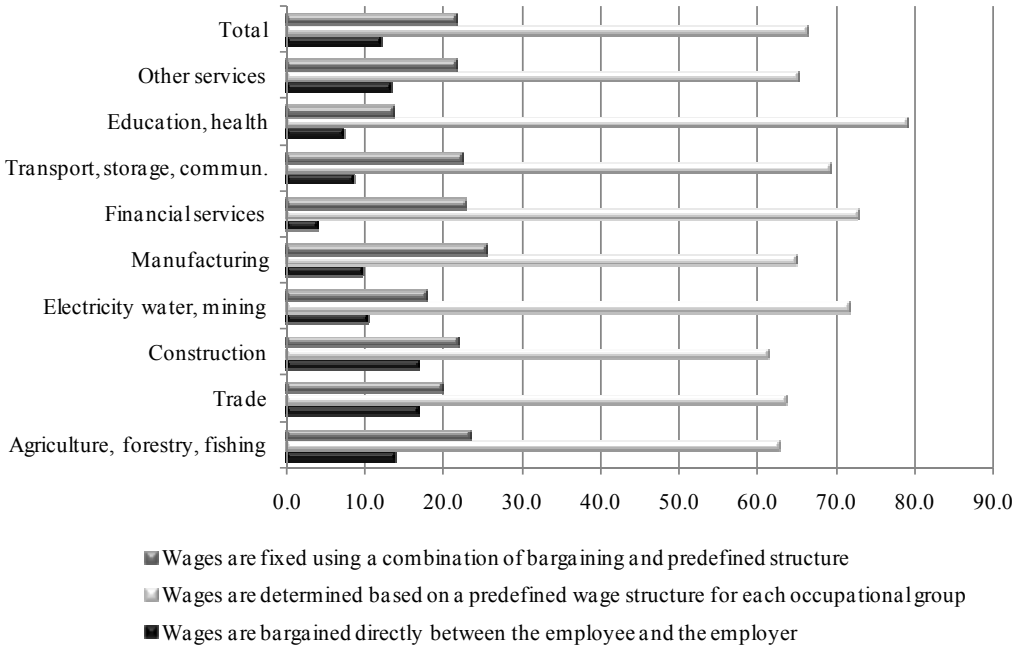
Graph 1
Wage-setting Decisions on Newly Hired Employees, by Occupational Group and Sector (%)
Graph 1a: Managers



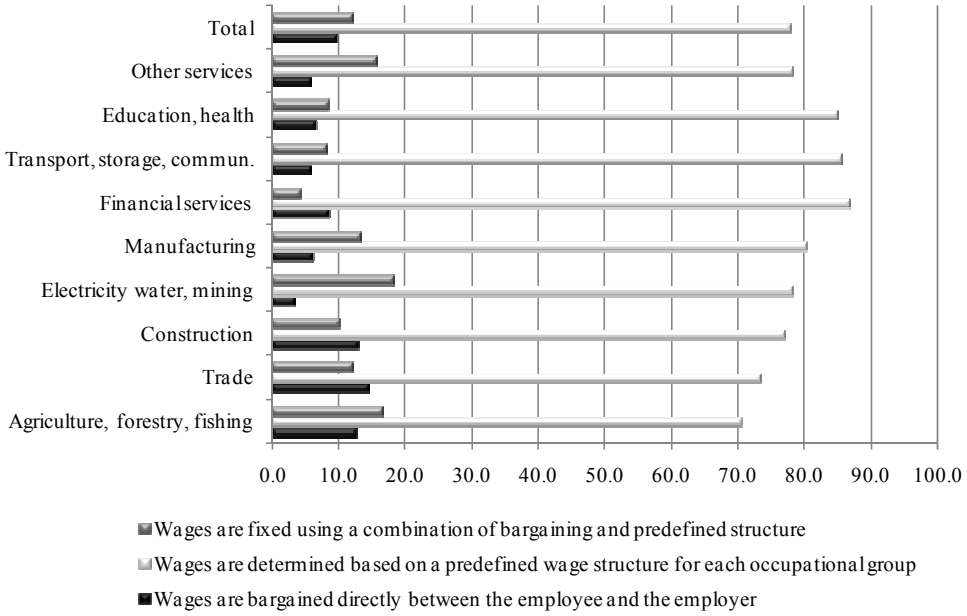
Graph 1b: Professionals



Graph 1c: Technicians and Assistants



Graph 1d: Unskilled Workers



Source: Authors' calculations.

Next, we empirically analyse the relevance of certain firm characteristics that may influence the likelihood of using the different alternatives in setting wages for new workers. To that end, we estimate *logit* models, using the information on specific firm characteristics that was collected through the survey, including the economic sector where the firms operate, their location (*region),*[15] size (*log of no. employees*), and the proportion of female workers in the company. Like Iregui et al. (2010a), the percentage of workers earning the minimum wage (*minimum wage earners*), the share of employees with a permanent employment contract (*permanent workers*), and the share of temporary workers (*temporary workers*) were incorporated to control for labour force composition. The influence of collective wage agreements was captured through a dummy variable that takes the value of 1, if the firm has any form of collective agreement (*collective agreements*). Dummy

[15] The financial sector and the cities other than Bogotá (the nation's capital) were considered as the reference groups in all regressions.

variables also were included to account for the presence of flexible benefits and variable pay. Labour costs, as a share of total costs, were considered to approximate labour intensity. Finally, the average wage of each occupational group was included (*log (wage)*).

Table 2 shows the marginal effects from a *logit* regression for each of the three alternatives used in setting wages for new hires. All the results are generalized to the population and are reported by occupational group.

For all positions, the probability of wages being bargained between the employee and the employer decreases for larger firms. As Bewley (2007) pointed out, larger firms have an internal pay structure that is frequently described in a formal document. Therefore, deviating from this structure can be difficult for larger companies. In addition, the likelihood of bargaining decreases as the share of temporary workers increases. As expected, this indicates that such workers have less bargaining power. In fact, the probability of bargaining is 20% lower, on average, for temporary workers than for workers with permanent contracts. On the other hand, for managers and professionals, the probability of wages being bargained is 4.3% higher, on average, among firms located in Bogota than in other cities. In the particular case of managers, the presence of collective agreements reduces the likelihood of firms negotiating wage. For professionals, sectoral dummies are important; the probability of bargaining increases in the agriculture, trade and construction sectors. Moreover, higher wages in the case of this group reduce the probability of bargaining. Finally, for unskilled workers, this probability decreases when the share of labour costs increases as a portion of total costs.

Table 2
Marginal Effects from a Logit Regression
Wage-setting Decisions on Newly Hired Employees (Weighted)

	Managers						Professionals					
Variables	Wages are bargained between the employee and the employer		Wages are determined based on a predefined wage structure		Wages are fixed using a combination of the two previous options		Wages are bargained between the employee and the employer		Wages are determined based on a predefined wage structure		Wages are fixed using a combination of the two previous options	
Agriculture, forestry, fishing	0.075	(0.078)	-0.066	(0.830)	0.006	(0.080)	0.215***	(0.094)	-0.133*	(0.080)	-0.029	(0.081)
Trade	0.067	(0.071)	-0.001	(0.072)	-0.056	(0.069)	0.150*	(0.089)	-0.002	(0.074)	-0.078	(0.069)
Construction	0.020	(0.078)	-0.023	(0.082)	0.011	(0.078)	0.158*	(0.093)	-0.039	(0.084)	-0.058	(0.078)
Electricity, gas, water, mining	-0.099	(0.093)	0.092	(0.087)	0.001	(0.085)	0.062	(0.104)	0.098	(0.093)	-0.101	(0.088)
Manufacturing	0.023	(0.075)	-0.017	(0.074)	0.006	(0.071)	0.136	(0.090)	-0.097	(0.076)	0.037	(0.070)
Transport, storage and comm.	0.018	(0.076)	0.048	(0.073)	-0.049	(0.072)	0.098	(0.092)	0.009	(0.077)	-0.028	(0.072)
Education and health	0.006	(0.082)	0.091	(0.084)	-0.093	(0.085)	0.126	(0.093)	0.057	(0.091)	-0.122	(0.088)
Other services	0.006	(0.073)	0.116*	(0.072)	-0.115*	(0.071)	0.124	(0.090)	0.060	(0.077)	-0.113*	(0.070)
Region	0.048*	(0.027)	-0.181***	(0.029)	0.139***	(0.031)	0.037*	(0.021)	-0.157***	(0.031)	0.125***	(0.032)
Log (No. employees)	-0.035***	(0.011)	0.032***	(0.012)	0.002	(0.012)	-0.041***	(0.011)	0.051***	(0.012)	-0.012	(0.012)
Permanent workers (%)	-0.017	(0.211)	0.042	(0.042)	-0.025	(0.042)	-0.050	(0.030)	0.049	(0.045)	0.001	(0.044)
Temporary workers (%)	-0.203***	(0.086)	0.162***	(0.073)	0.029	(0.076)	-0.243***	(0.084)	0.155*	(0.086)	0.054	(0.082)
Female workers (%)	-0.064	(0.065)	0.027	(0.072)	0.035	(0.076)	-0.059	(0.059)	0.108	(0.080)	-0.062	(0.078)
Minimum wage earners (%)	0.084	(0.053)	-0.046	(0.059)	-0.036	(0.056)	0.047	(0.049)	-0.058	(0.064)	0.007	(0.059)
Flexible benefits	-0.003	(0.030)	-0.085***	(0.033)	0.088***	(0.032)	-0.029	(0.026)	-0.057*	(0.030)	0.086***	(0.033)
Variable pay	-0.024	(0.028)	-0.027	(0.032)	0.056*	(0.031)	0.026	(0.025)	-0.076***	(0.035)	0.058*	(0.034)
Collective agreements	-0.095**	(0.050)	0.065	(0.051)	-0.008	(0.050)	-0.051	(0.042)	0.098**	(0.051)	-0.090**	(0.050)
Labour costs (%)	-0.001	(0.001)	0.002**	(0.001)	-0.001	(0.001)	-0.001	(0.001)	0.001	(0.001)	0.000	(0.001)
Log (wage)	-0.021	(0.020)	-0.009	(0.025)	0.034	(0.024)	-0.054***	(0.022)	-0.028	(0.03)	0.086***	(0.032)
No of observations/ Pseudo R^2	1,266/0.062		1,266/0.060		1,266/0.055		1,161/0.115		1,161/0.060		1,163/0.052	

Notes: Robust standard errors in parentheses. (*), (**) and (***) denote statistical significance at 10, 5 and 1 percent, respectively.
Source: Authors' calculations.

Table 2 (cont.)
Marginal Effects from a Logit Regression
Wage-setting Decisions on Newly Hired Employees (Weighted)

	Technicians and Assistants						Unskilled workers					
Variables	Wages are bargained between the employee and the employer		Wages are determined based on a predefined wage structure		Wages are fixed using a combination of the two previous options		Wages are bargained between the employee and the employer		Wages are determined based on a predefined wage structure		Wages are fixed using a combination of the two previous options	
Agriculture, forestry, fishing	0.069	(0.077)	-0.094	(0.081)	0.065	(0.068)	-0.023	(0.076)	-0.127	(0.117)	0.170*	(0.100)
Trade	0.088	(0.069)	-0.043	(0.071)	-0.012	(0.061)	-0.002	(0.067)	-0.078	(0.101)	0.099	(0.108)
Construction	0.074	(0.073)	-0.031	(0.079)	-0.011	(0.068)	-0.011	(0.075)	-0.061	(0.119)	0.091	(0.110)
Electricity, gas, water, mining	0.059	(0.078)	0.065	(0.091)	-0.086	(0.083)	-0.124	(0.093)	-0.059	(0.122)	0.171*	(0.101)
Manufacturing	0.080	(0.070)	-0.085	(0.728)	0.047	(0.060)	-0.057	(0.070)	-0.045	(0.111)	0.122	(0.109)
Transport, storage and comm.	0.031	(0.074)	-0.001	(0.076)	0.009	(0.064)	-0.071	(0.077)	0.022	(0.118)	0.068	(0.110)
Education and health	0.064	(0.076)	0.211	(0.087)	-0.055	(0.078)	-0.021	(0.078)	-0.041	(0.119)	0.086	(0.113)
Other services	0.081	(0.071)	-0.043	(0.074)	-0.005	(0.063)	-0.070	(0.076)	-0.071	(0.116)	0.145*	(0.089)
Region	0.006	(0.020)	-0.112***	(0.029)	0.112***	(0.027)	0.002	(0.020)	-0.025*	(0.015)	0.025	(0.021)
Log (No. employees)	-0.044***	(0.009)	0.052***	(0.011)	-0.009	(0.009)	-0.037***	(0.008)	0.037***	(0.011)	0.000	(0.008)
Permanent workers (%)	0.008	(0.027)	0.008	(0.042)	-0.019	(0.038)	0.022	(0.032)	-0.039	(0.041)	0.017	(0.031)
Temporary workers (%)	-0.223***	(0.079)	0.166***	(0.081)	0.015	(0.069)	-0.117*	(0.068)	0.049	(0.084)	0.044	(0.061)
Female workers (%)	-0.047	(0.047)	0.075	(0.071)	-0.038	(0.065)	-0.014	(0.043)	0.018	(0.064)	-0.009	(0.052)
Minimum wage earners (%)	0.077	(0.053)	-0.083	(0.057)	-0.005	(0.049)	0.052	(0.041)	-0.030	(0.054)	-0.024	(0.039)
Flexible benefits	0.002	(0.023)	-0.049	(0.033)	0.049*	(0.029)	0.022	(0.025)	-0.039	(0.033)	0.019	(0.024)
Variable pay	-0.002	(0.022)	-0.005	(0.032)	0.011	(0.028)	-0.024	(0.021)	-0.005	(0.029)	0.032	(0.022)
Collective agreements	-0.042	(0.037)	0.121***	(0.049)	-0.106***	(0.045)	0.037	(0.035)	0.006	(0.047)	-0.041	(0.038)
Labour costs (%)	-0.001	(0.001)	0.001	(0.001)	-0.000	(0.001)	-0.001*	(0.0006)	0.002**	(0.001)	-0.001	(0.001)
Log (wage)	-0.012	(0.025)	-0.140***	(0.041)	0.145***	(0.034)	-0.009	(0.044)	0.030	(0.058)	-0.023	(0.048)
No of observations/ Pseudo R^2	1,207/0.126		1,207/0.062		1,207/0.050		1,038/0.118		1,038/0.045		1,038/0.046	

Notes: Robust standard errors in parentheses. (*), (**) and (***) denote statistical significance at 10, 5 and 1 percent, respectively.
Source: Authors' calculations.

For the second alternative, we found the likelihood of determining wages based on a predefined wage structure increases with firm's size and decreases if the firm is located in Bogotá. This applies to all occupational positions. The same probability, in the case of managers, professionals and technicians, increases as the share of temporary workers rises. On average, this probability is 16% higher for temporary workers than for workers with permanent contracts. The presence of flexible benefits, in the case of managers and professionals, reduces the probability of wages being determined based on a predefined wage structure. Variable pay also reduces this probability in the case of professionals. By contrast, labour costs raise this probability in the case of managers and unskilled workers, as do collective agreements in the case of professionals and technicians. Economic sectors, in general, do not affect the probability that firms determine the wages of new hires based on a predefined wage structure.

Lastly, according to the results, the probability that the firms set the wages of newly hired employees using a combination of the two previous alternatives increases for firms located in Bogotá and, as expected, for firms that have flexible benefits, specifically in the case of managers, professionals and technicians. If firms have variable pay, this likelihood also increases for managers and professionals. As the wages of professionals and technicians rise, so does the likelihood of the firm using a combination of bargaining and a predefined wage structure. However, for these occupational groups, the presence of collective agreements reduces the likelihood of using this option by 10%. In the case of unskilled workers, firms dedicated to agriculture, manufacturing and "other" services have a16% higher probability, on average, than firms in the financial sector (the reference category).

III. Factors Considered by Firms in Setting the Wages of a New Worker

We also were interested in examining what aspects firms consider to be the most important when setting the wages of new workers. Accordingly, we asked the interviewees to qualify, based on a scale from 1 (*not important)* to 4 (*very important),* the relevance of certain factors related to the country's economic conditions, labour institutions, and job requirements in setting such wages.[16] The average scores obtained were ordered and *t* statistics were calculated for each option to test whether the mean differences between contiguous alternatives were statistically significant. In all cases, the results show the null hypothesis of equal average scores is rejected, with a confidence level of 99%.[17]

Table 3 shows the results of the average score for each factor, by occupational position. In general, internal reasons such as job requirements are very important when setting wages for new workers. Specifically, for all groups, the worker's educational level, experience and job duties are the main determinants of the wage set for a newly hired employees. According to the results presented in the previous section, these characteristics could be associated with the criteria that firms consider when defining the internal wage structure. Besides these factors, collective agreements are very important for less skilled workers, but not for managers and professionals.[18] On the other hand, external aspects such as the salary of similar workers outside the firm, the labour market situation and the legal minimum wage (except for less skilled workers) obtain lower scores. However, these external factors

[16] Following Blinder (1991), a mean score greater than or equal to 3.0 is considered excellent and a score of less than 1.5 is very poor.
[17] These results may be obtained from the authors upon request.
[18] Druant et al. (2008) found that collective agreements are very important for Belgian firms when setting the wages of newly hired employees. Similarly, Galuščák et al. (2009) reported that such agreements also are important in Spain, Italy and Greece.

could be used to bargain wages between some firms and new employees, especially in the case of managers.

Table 3
Importance of the Following Factors in Determining the Wages of Newly Hired Employees (Mean Score*)

	Managers	Professionals	Technicians, assistants and unskilled workers
Worker's educational level	3.39(1)	3.47(1)	2.91(4)
Worker's experience	3.37(2)	3.43(2)	3.11(2)
Job duties	3.25(3)	3.36(3)	3.13(1)
Firm's profitability	2.99(4)	3.04(4)	2.87(5)
Country's economy conditions	2.53(5)	2.53(5)	2.40(8)
Risk associated with the position	2.35(6)	2.52(6)	2.65(6)
Labour market situation	2.30(7)	2.37(7)	2.22(9)
Geographical location of the workplace	2.16(8)	2.20(9)	2.17(10)
Wages of similar workers outside the firm	2.13(9)	2.17(10)	1.98(11)
Collective pay agreements	1.92(10)	2.25(8)	3.02(3)
Minimum wage	1.66(11)	1.75(11)	2.56(7)

*Average scores based on the following scale: 1 = *not important*, 2 = *of minor importance*, 3 = *moderately important*, 4 = *very important*.
Note: The numbers in parentheses correspond to the order obtained by each factor. Source: Authors' calculations.

As observed in Table 4a and Table 4b, the results do not show significant variations for managers and professionals, when the economic sector is taken into account. However, in the case of less skilled workers (Table 4c), there are some considerable differences. For instance, collective pay agreements score very high for agriculture, construction, electricity and the manufacturing sector, while the mean scores are lower in transport and the "other services" sector. The worker's educational level is very important in the financial and "other services" sectors, where more skilled workers are needed, than in the agriculture sector. When considering the firm's location and size, the results are very similar (Tables 5 and 6).

Table 4a
Importance of the Following Factors in Determining the Wages of Newly Hired Employees, by Sectors and Occupational Position: Managers (Mean Score*)

	Agriculture forestry, fishing	Trade	Construct.	Electricity, gas, water, mining	Manufact.	Financial services	Transport storage and comm.	Education and health	Other services
Worker's educational level	3.45(1)	3.58(1)	2.94(2)	3.59(2)	3.25(1)	3.08(2)	3.05(1)	3.34(1)	3.76(1)
Worker's experience	3.44(2)	3.58(2)	2.89(3)	3.60(1)	3.20(2)	3.20(1)	3.04(2)	3.27(3)	3.66(2)
Job duties	3.37(3)	3.33(3)	2.96(1)	3.50(3)	3.03(3)	3.06(3)	3.03(3)	3.32(2)	3.63(3)
Firm's profitability	3.21(4)	3.14(4)	2.82(4)	3.03(4)	2.88(4)	2.22(4)	2.91(4)	2.98(4)	3.45(4)
State of the economy	2.65(5)	2.71(5)	2.24(5)	2.71(5)	2.26(5)	2.14(6)	2.33(5)	2.50(5)	2.98(5)
Risk associated with the position	2.45(7)	2.26(8)	2.14(6)	2.69(6)	2.07(7)	2.31(5)	2.27(6)	2.30(6)	2.88(6)
Labour market situation	2.42(8)	2.40(7)	1.96(10)	2.69(7)	2.10(6)	2.04(8)	2.16(7)	2.16(8)	2.71(8)
Geographical location of the workplace	2.63(6)	2.20(9)	1.98(9)	2.43(9)	1.89(9)	1.75(9)	2.05(8)	1.89(9)	2.75(7)
Wages of similar workers outside the firm	2.05(9)	2.10(10)	1.98(8)	2.44(8)	2.02(8)	2.14(7)	1.83(10)	2.23(7)	2.43(9)
Collective pay agreements	2.15(10)	2.67(6)	2.00(7)	1.81(10)	1.85(10)	1.67(10)	1.92(9)	1.64(10)	1.85(10)
Minimum wage	1.82(11)	1.70(11)	1.52(11)	1.75(11)	1.61(11)	1.51(11)	1.68(11)	1.54(11)	1.78(11)

*Average scores based on the following scale: 1 = *not important*, 2 = *of minor importance*, 3 = *moderately important*, 4 = *very important*.
Note: The numbers in parentheses correspond to the order obtained by each factor.
Source: Authors' calculations.

Table 4b
Importance of the Following Factors in Determining the Wages of Newly Hired Employees, by sectors and Occupational Position: Professionals (Mean Score*)

	Agriculture forestry, fishing	Trade	Construct.	Electricity, gas, water, mining	Manufact.	Financial services	Transport storage and comm.	Education and health	Other services
Worker's educational level	3.60(1)	3.60(2)	3.10(2)	3.52(1)	3.44(1)	3.30(2)	3.31(2)	3.43(1)	3.71(1)
Worker's experience	3.47(2)	3.61(1)	3.06(3)	3.36(3)	3.32(2)	3.31(1)	3.32(1)	3.33(3)	3.55(2)
Job duties	3.28(3)	3.44(3)	3.13(1)	3.39(2)	3.28(3)	3.27(3)	3.33(3)	3.39(2)	3.54(3)
Firm's profitability	3.23(4)	3.14(5)	3.06(4)	3.00(4)	3.02(4)	2.37(5)	3.09(4)	3.08(4)	3.33(4)
State of the economy	2.65(5)	2.67(6)	2.33(6)	2.58(7)	2.29(6)	2.08(7)	2.44(6)	2.55(5)	2.96(5)
Risk associated with the position	2.56(7)	2.33(8)	2.58(5)	2.71(5)	2.41(5)	2.47(4)	2.74(5)	2.39(6)	2.91(6)
Labour market situation	2.45(8)	2.56(7)	2.05(8)	2.62(6)	2.18(7)	1.98(9)	2.25(7)	2.23(7)	2.76(8)
Geographical location of the workplace	2.63(6)	2.27(9)	1.98(10)	2.38(9)	1.94(10)	1.73(10)	2.13(8)	1.90(10)	2.80(7)
Wages of similar workers outside the firm	2.10(10)	2.18(10)	2.06(7)	2.52(8)	2.08(9)	2.06(8)	1.86(10)	2.21(8)	2.48(9)
Collective pay agreements	2.13(9)	3.21(4)	2.00(9)	1.95(10)	2.18(8)	2.13(6)	2.19(9)	2.00(9)	2.08(10)
Minimum wage	1.86(11)	1.80(11)	1.73(11)	1.74(11)	1.69(11)	1.59(11)	1.75(11)	1.64(11)	1.88(11)

*Average scores based on the following scale: 1 = *not important*, 2 = *of minor importance*, 3 = *moderately important*, 4 = *very important*.
Note: The numbers in parentheses correspond to the order obtained by each factor.
Source: Authors' calculations.

Table 4c
Importance of the Following Factors in Determining the Wages of Newly Hired Employees by Sectors and Occupational Position: Technicians, Assistants and Unskilled Workers (Mean Score*)

	Agriculture forestry, fishing	Trade	Construct.	Electricity, gas, water, mining	Manufact.	Financial services	Transport storage and comm.	Education and health	Other services
Worker's educational level	2.41(8)	2.95(5)	2.56(6)	3.00(4)	2.88(4)	2.94(2)	2.76(4)	2.94(4)	3.21(3)
Worker's experience	2.90(3)	3.23(2)	2.86(4)	3.13(3)	3.05(3)	2.96(1)	3.11(1)	3.00(2)	3.30(2)
Job duties	2.95(2)	3.29(1)	2.92(2)	3.30(1)	3.06(2)	2.90(3)	3.09(2)	3.08(1)	3.30(1)
Firm's profitability	2.83(5)	3.00(4)	2.91(3)	2.86(5)	2.85(5)	2.27(6)	2.90(3)	2.95(3)	3.04(4)
State of the economy	2.41(9)	2.59(8)	2.20(8)	2.40(7)	2.15(8)	1.98(8)	2.29(8)	2.43(7)	2.75(7)
Risk associated with the position	2.66(6)	2.63(6)	2.68(5)	2.84(6)	2.62(6)	2.39(5)	2.68(6)	2.43(6)	2.94(5)
Labour market situation	2.34(10)	2.37(9)	1.98(9)	2.39(8)	2.05(9)	1.73(10)	2.19(9)	2.11(9)	2.59(10)
Geographical location of the workplace	2.61(7)	2.28(10)	1.97(10)	2.36(9)	1.90(10)	1.65(11)	2.13(10)	1.94(11)	2.69(9)
Wages of similar workers outside the firm	1.99(11)	1.98(10)	1.87(11)	2.24(10)	1.85(11)	1.90(9)	1.76(11)	2.07(10)	2.24(11)
Collective pay agreements	3.47(1)	3.20(3)	3.50(1)	3.14(2)	3.11(1)	2.87(4)	2.50(7)	2.73(5)	2.77(6)
Minimum wage	2.84(4)	2.61(7)	2.41(7)	2.06(11)	2.58(7)	2.14(7)	2.70(5)	2.40(8)	2.74(8)

*Average scores based on the following scale: 1 = *not important*, 2 = *of minor importance*, 3 = *moderately important*, 4 = *very important*.
Note: The numbers in parentheses correspond to the order obtained by each factor.
Source: Authors' calculations.

Table 5
Importance of the Following Factors in Determining the Wages of Newly Hired Employees, by Regions and Occupational Position (Mean Score*)

	Managers		Professionals		Technicians, assistants and unskilled workers	
	Bogota	Other regions	Bogota	Other regions	Bogota	Other regions
Worker's educational level	3.22(2)	3.62(1)	3.35(2)	3.65(1)	2.83(4)	3.00(5)
Worker's experience	3.28(1)	3.50(3)	3.38(1)	3.49(3)	3.08(1)	3.15(2)
Job duties	3.03(3)	3.56(2)	3.23(3)	3.56(2)	3.06(2)	3.23(1)
Firm's profitability	2.75(4)	3.32(4)	2.87(4)	3.30(4)	2.72(5)	3.06(4)
State of the economy	2.37(5)	2.76(5)	2.38(6)	2.74(5)	2.26(8)	2.58(8)
Risk associated with the position	2.24(6)	2.48(6)	2.49(5)	2.56(6)	2.58(6)	2.75(6)
Labour market situation	2.20(7)	2.43(7)	2.25(7)	2.54(7)	2.09(9)	2.38(10)
Geographical location of the workplace	2.00(9)	2.38(8)	2.03(10)	2.44(8)	1.99(10)	2.41(9)
Wages of similar workers outside the firm	2.01(8)	2.28(9)	2.04(9)	2.36(9)	1.85(11)	2.14(11)
Collective pay agreements	1.73(10)	2.15(10)	2.19(8)	2.31(10)	3.00(3)	3.07(3)
Minimum wage	1.59(11)	1.75(11)	1.69(11)	1.85(11)	2.46(7)	2.69(7)

*Average scores based on the following scale: 1 = *not important*, 2 = *of minor importance*, 3 = *moderately important*, 4 = *very important*.
Note: The numbers in parentheses correspond to the order obtained by each factor. Source: Authors' calculations.

Table 6
Importance of the Following Factors in Determining the Wages of Newly Hired Employees, by Firm Size and Occupational Position (Mean Score*)

	Managers			Professionals			Technicians, assistants and unskilled workers		
	Small	Medium	Large	Small	Medium	Large	Small	Medium	Large
Worker's educational level	3.31(1)	3.37(1)	3.49(1)	3.45(2)	3.45(1)	3.51(1)	2.84(5)	2.94(3)	2.94(4)
Worker's experience	3.29(2)	3.37(2)	3.45(2)	3.46(1)	3.41(2)	3.41(3)	3.15(2)	3.13(2)	3.04(2)
Job duties	3.11(3)	3.21(3)	3.43(3)	3.25(3)	3.32(3)	3.50(2)	3.07(3)	3.15(1)	3.19(1)
Firm's profitability	2.98(4)	2.99(4)	2.99(4)	3.06(4)	3.04(4)	3.00(4)	2.87(4)	2.86(5)	2.86(5)
State of the economy	2.51(6)	2.45(5)	2.63(5)	2.50(6)	2.45(6)	2.61(5)	2.38(8)	2.32(8)	2.48(8)
Risk associated with the position	2.24(7)	2.31(6)	2.48(6)	2.48(7)	2.47(5)	2.60(6)	2.60(7)	2.64(6)	2.71(6)
Labour market situation	2.12(8)	2.30(7)	2.48(7)	2.24(8)	2.34(8)	2.51(7)	2.13(9)	2.28(9)	2.24(10)
Geographical location of the workplace	2.05(9)	2.11(9)	2.32(9)	2.11(9)	2.13(9)	2.33(9)	2.10(10)	2.11(10)	2.30(9)
Wages of similar workers outside the firm	1.90(10)	2.09(10)	2.42(8)	1.98(10)	2.11(10)	2.40(8)	1.85(11)	1.98(11)	2.10(11)
Collective pay agreements	2.56(5)	2.11(8)	1.77(10)	2.71(5)	2.40(7)	2.15(10)	3.28(1)	2.90(4)	3.03(3)
Minimum wage	1.68(11)	1.68(11)	1.60(11)	1.80(11)	1.79(11)	1.66(11)	2.65(6)	2.52(7)	2.48(7)

*Average scores based on the following scale: 1 = *not important*, 2 = *of minor importance*, 3 = *moderately important*, 4 = *very important*.
Note: The numbers in parentheses correspond to the order obtained by each factor.
Source: Authors' calculations.

Finally, to explore the possible interaction among the factors affecting wage-setting decisions with respect to newly hired employees, we computed Spearman rank correlations to pair the different factors, taking the occupational position into account.

The Spearman rank correlations are shown in Table 7. For all occupational groups, the highest correlation observed is between worker's education and worker's experience, as expected. Other pairs with high correlations for all positions are the firm's profitability and the country's economic conditions, job duties and worker's education, and the risk associated with the position and the geographical location of the workplace. All these correlations show these factors complement each other in determining the wage-setting decisions on new hires.

Table 7
Spearman Rank Correlations between Factors Affecting Wage-setting Decisions on Newly Hired Employees: Managers

Factors	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Labour market situation (1)	1.000										
Minimum wage (2)	0.278*	1.000									
Wages of similar employees outside the firm (3)	0.451*	0.202*	1.000								
Collective pay agreements (4)	0.193*	0.396*	-0.004	1.000							
Firm's profitability (5)	0.404*	0.288*	0.332*	0.199*	1.000						
State of the economy (6)	0.436*	0.298*	0.369*	0.208*	0.596*	1.000					
Job duties (7)	0.459*	0.215*	0.442*	0.054	0.439*	0.412*	1.000				
Geographical location of the workplace (8)	0.456*	0.297*	0.329*	0.134	0.408*	0.487*	0.404*	1.000			
Risk associated with the position (9)	0.423*	0.291*	0.308*	0.099	0.356*	0.427*	0.408*	0.576*	1.000		
Worker's educational level (10)	0.400*	0.163*	0.327*	-0.088	0.395*	0.364*	0.560*	0.326*	0.338*	1.000	
Worker's experience (11)	0.400*	0.163*	0.356*	-0.105	0.345*	0.378*	0.544*	0.305*	0.349*	0.706*	1.000

Note: * denotes statistical significance at 1%. Number of observations: 1,267, except for action (9), where the number of observations is 183.
Source: Authors' calculations.

Table 7 (Cont.)
Spearman Rank Correlations between Factors Affecting Wage-setting Decisions on Newly Hired Employees: Professionals

Factors	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Labour market situation (1)	1.000										
Minimum wage (2)	0.267*	1.000									
Wages of similar employees outside the firm (3)	0.439*	0.186*	1.000								
Collective pay agreements (4)	-0.001	0.247*	-0.050	1.000							
Firm's profitability (5)	0.329*	0.230*	0.269*	0.176	1.000						
State of the economy (6)	0.394*	0.270*	0.349*	0.148	0.548*	1.000					
Job duties (7)	0.380*	0.155*	0.348*	0.047	0.316*	0.312*	1.000				
Geographical location of the workplace (8)	0.436*	0.266*	0.338*	0.021	0.322*	0.439*	0.317*	1.000			
Risk associated with the position (9)	0.279*	0.248*	0.194*	0.053	0.222*	0.306*	0.250*	0.465*	1.000		
Worker's educational level (10)	0.336*	0.089*	0.295*	-0.058	0.297*	0.299*	0.456*	0.278*	0.212*	1.000	
Worker's experience (11)	0.293*	0.079*	0.226*	-0.042	0.226*	0.256*	0.405*	0.178*	0.184*	0.564*	1.000

Note: * denotes statistical significance at 1%. Number of observations:1,164, except for action (9), where the number of observations is 176.
Source: Authors' calculations.

Table 7 (Cont.)
Spearman Rank Correlations between Factors Affecting Wage-setting Decisions on Newly Hired Employees: Technicians, Assistants, and Unskilled Workers

Factors	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Labour market situation (1)	1.000										
Minimum wage (2)	0.188*	1.000									
Wages of similar employees outside the firm (3)	0.393*	0.066	1.000								
Collective pay agreements (4)	0.030	0.061	0.006	1.000							
Firm's profitability (5)	0.316*	0.154*	0.279*	0.123	1.000						
State of the economy (6)	0.421*	0.170*	0.362*	0.162	0.568*	1.000					
Job duties (7)	0.350*	0.066	0.288*	0.103	0.291*	0.325*	1.000				
Geographical location of the workplace (8)	0.425*	0.091*	0.335*	0.011	0.345*	0.452*	0.328*	1.000			
Risk associated with the position (9)	0.332*	0.129*	0.252*	0.013	0.258*	0.300*	0.337*	0.456*	1.000		
Worker's educational level (10)	0.289*	-0.017	0.258*	-0.001	0.293*	0.272*	0.406*	0.263*	0.274*	1.000	
Worker's experience (11)	0.291*	0.077*	0.225*	0.039	0.237*	0.252*	0.416*	0.222*	0.297*	0.540*	1.000

Note: * denotes statistical significance at 1%. Number of observations:1,284, except for action (9), where the number of observations is 188.
Source: Authors' calculations.

IV. Conclusions

This paper provides elements for understanding how the wages of newly hired employees are set, since we ask the firms about their wage-setting policies. We use a wage-formation survey that we applied to 1,305 Colombian firms belonging to the formal labour market. Given the high levels of unemployment and informality in Colombia, we would have expected a more flexible environment in setting the wages of new hires. However, the results of the survey show the wages of newly hired employees in all occupational groups are determined on the basis of the firm's predefined internal wage structure. Therefore, our findings could help to explain, in part, the downward nominal wage rigidities in Colombia, since firms are not willing to differentiate the pay of new hires from the wages of existing workers, even during periods of economic slowdown.

By estimating *logit* models, we find the probability of wages being bargained between the employee and the employer decreases in larger firms with respect to all occupational positions. Most of these firms have internal pay structures that are formally documented; as a consequence, deviations from that pay structure can be difficult for companies. On the contrary, we found the likelihood of determining wages based on a predefined wage structure increases with the firm's size. In general, the presence of flexible benefits and variable pay reduces the probability of wages being determined according to a predefined wage structure. Finally, the results for all groups indicate the worker's educational level, experience and job duties are the main determinants of the wages afforded to a newly hired employee which could be associated with the criteria firms consider when defining their internal wage structure.

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