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**EMPLOYER SIZE, PRODUCTIVITY, LABOUR QUALITY, WORKING
CONDITIONS, INTERNAL LABOUR MARKETS AND WAGES: AN EMPIRICAL
ANALYSIS OF THE HOTEL INDUSTRY IN ANDALUSIA**

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Abstract

In this paper, the diversity of job characteristics and wage gaps in the Spanish hotel industry due to different employer size have been studied. A labour market in which wages depend on employer size means the characteristics of the same job differs between firms. In the hotel industry the data indicate significant differences in the nature of the job according to the size of the establishment. This topic has been analysed for many economic sectors but, as far as we know, not for the hotel industry. Using data from the research project “Mismatch in

education, productivity and wages in the Andalusian tourism sector”, the first aim was to establish whether there was a similar positive relationship between employer size and wages in the hotel industry. The second aim was to account for wage premia earned by workers employed by larger hotels taking into account the specific characteristics of each establishment. The results have shown that even after controlling for the workers’ observable characteristics and the other determinants of our wage equation, a substantial wage differential remained between large and small establishments. To achieve these aims four hypotheses on productivity, labour quality, working conditions and internal labour markets was tested. Based on adding the productivity measure, the results show that this variable accounts for 17.8% of the establishment-size wage premium. Similar results were obtained when adding our own measures of working conditions. However, the size-wage relationship remains almost unaffected when controlling for labour quality and internal labour market variables.

It is also possible that large establishments pay higher wages simply because they employ workers with more unobserved abilities. To take into account the workers’ unobserved heterogeneity, we need to specify a model that allows for the potential self-selection by workers of hotels of various sizes, and this is a task that cannot be achieved with the available data. However, bearing in mind that different explanatory hypotheses of wage differences between different size hotels have different implications for the management of human resources, identifying the sources of the wage-establishment size effect is a relevant question for future research.

Key words: Hotel industry, employer size, segmented labour markets, wage gaps, productivity and working conditions.

JEL codes: J31, L83, R23.

1. Introduction

In this paper, we study the diversity of job characteristics and wage gaps in the Spanish hotel industry due to differences in the size of establishments. A labour market in which wages depend on employer size means that the characteristics of the same job differs between firms. A job is described by a vector of variables that includes the wage rate, length of the working week, health risks and risk of injury, the nature of the tasks and characteristics of the workplace (Oi and Idson, 1999). Although size may not be the most suitable measure to identify a specific labour market in the hotel industry, the data indicate significant differences in the nature of the job according to the size of the establishment. This topic has been analysed for different economic sectors and countries (Oi and Idson, 1999; Lallemand et al., 2007), but not, as far as we know, for the hospitality sector.

Spanish hotel establishments vary enormously depending on their category (number of stars) and the tourist market segment they service. This paper only analyzes 2- to 5-star hotels which are those that have increased the number of bed places and new establishments during the last 20 years. 5-star hotels have experienced the greatest growth, followed by 3-star and 4-star hotels. These establishments show a clear tourist profile as they are able to host tourist groups via the services of tour operators or other channels. Unlike lower category establishments (i.e., 1-star or less), which are mainly run as family businesses and are restricted to the immediate area, these corporate establishments are also large enough to participate in national and international markets.

Nevertheless, among hotels with 2 or more stars there are considerable differences in size and working conditions. Thus, we analyzed the factors that may account for wage differences between hotels, taking into special consideration size, worker characteristics and job characteristics.

Variables related to human capital and gender were included among worker characteristics because in a typical competitive labor market, workers are paid their value of marginal product, so equivalent workers are not expected to face any establishment size-wage

differentials. However, as the disposable evidence suggest there is a significant wage premia in favor of worker employed in larger establishments. Thus, our first aim was to establish whether there was a similar positive relationship between employer size and wages in the hotel industry. Our second aim was to account for wage premia earned by workers employed by larger hotels taking into account the specific characteristics of each establishment.

Within the limitations of the database used, we investigated whether larger hotels pay higher wages because:

- a. They are more productive
- b. They have a higher quality workforce
- c. They offer better working conditions and incentive payments schemes
- d. There are internal labour markets.

Different explanations for wage differentials may lead to different policy implications, so it might be important to determine the source of the employer-wage size differentials.

This paper is organized as follows: Section 2 presents the econometric specifications, data sources and descriptive statistics; Section 3 describes the empirical results; this is followed by the main conclusions and policy implications. Appendix A includes provides definitions for all the variables used in this paper.

2. Specification and data source

2.1. Specification

In our theoretical model wage are assume to depend on both worker characteristics and the characteristics of a worker's employer. Our empirical strategy is based on the estimation of the following wage equation:

$$\ln W_i = \alpha + \beta S_i + \mathbf{HC}_{ik} \delta_k + \mathbf{EC}_{im} \theta_m + \mathbf{CD}_{in} \lambda_n + u_i$$

where W_i is the net wage of worker i , S_i is the establishment size log (the exact number of workers within each hotel), \mathbf{HC}_i is a vector of k human capital and gender variables, \mathbf{EC}_i is a

vector of m hotel-specific characteristics, CD_i is a vector of n occupational dummies used as control variables and u_i is a worker-specific error term.

In line with Troske (1999), we added the explanatory variables step-by-step to test the validity of the theoretical explanations. By setting $\theta_m=0$ and $\lambda_m=0$, our equation is Mincer's (1974) well-known human capital earning function that includes the establishment size log as an additional explanatory variable. Our main parameter of interest is β which corresponds to the wage elasticity with respect to establishment size. Based on this equation, the four hypotheses outlined above are tested. The main arguments used to support each hypothesis are outlined below as well as the variables used for their empirical comparison.

Productivity

Oi and Idson (1999) suggest that workers are more productive in larger establishments and therefore ask for higher wages. Thus, the wage premium reflects the greater productivity of workers in larger establishments due to differences in the organization of production, the quality of capital, the amount of employer-specific training or the level of effort required by employers. They also state that firms in the service sectors face a production function that exhibits increasing returns as a consequence of the economies of massed reserves. More clients means that workers have less idle time and hence are more productive in larger establishments (Oi and Idson, 1999).

The evaluation of hotel productivity is not an easy task and a large range of productivity ratios can be calculated (Ball et al., 1986). Given the limitations mentioned above, we selected the productivity indicator for hotels defined by the Spanish National Institute of Statistics (INE, 1999): *annual turnover divided by the number of rooms*.

Labour quality

The labour quality hypothesis posits that large employers hire higher-quality workers for different reasons (Criscuolo, 2000). First, the capital intensity of larger establishments is relatively greater and there is some capital-skills complementarity. The economics of scale and other financial advantages are often mentioned to explain why large employers might invest more in both human and physical capital. Second, according to the efficiency wage

model, large establishments face higher monitoring costs, and to reduce these costs they may pay wages that are above the market clearing level to obtain a given quality of labour. The payment of efficiency wages attracts workers with better skills and reduces shirking which in turn reduces the monitoring cost per unit of labour service. Third, the presence of more able entrepreneurs and complementarity between entrepreneurial and workers ability might imply higher worker quality at larger employers. Finally, the larger employers are, usually, more innovative and the use of more advanced technology, induces greater complementarity between workers and, therefore, higher returns to human capital.

Given the information available in our database, the labour quality hypothesis was tested by introducing *mean schooling years of workers in each hotel*. However, due to the high proportion of overeducated workers in the hospitality sector (Marchante et al., 2005), we introduced as an additional variable the ratio of *overeducated workers in each hotel*¹.

Working conditions

Prior to the studies by Brown and Medoff (1989) and Oi and Idson (1999), working conditions were considered to be worse in large organizations. However, both studies provide evidence of better working conditions in larger firms. Nevertheless, wage-size gaps may be the result of sharing rents. High wages may incorporate labor rents that are sustained due to the discriminatory policy of managers who need to pay efficiency wages (Oi and Idson, 1999) and/or the characteristics of collective wage bargaining. In Spain collective wage bargaining occurs at three different levels: the national, the sectoral and/or at the single employer level.

According to Plasman et al. (2006), and in contrast to Belgium and Denmark where many single-employer agreements are initiated by the employer, these types of collective agreement in Spain are initiated by work councils or trade union delegations. The average union density is greater in firms with a single-employer collective agreement than in firms covered by other types of collective agreement and single-employer agreements are mainly used to obtain higher wages, improve working conditions and compress the wage distribution.

¹ We have used the subjective method (workers' self-assessment) as described in Marchante et al. (2005).

Although the database used does not include the information needed to categorise the hotels according to kind of agreements negotiated, it does provide data on working conditions. To test the hypothesis that large employers offer better working conditions, the following variables were added to our basic model: type of labour contract, the existence of a financial participation scheme (profit sharing) and hotel category (measured by the number of stars). First, workers with a *permanent full-time contract* earn higher wages in the Spanish hospitality sector (Marchante et al., 2005); second, the *profit-sharing bonus* has become more of a fixed sum than a real profit-oriented flexible payment in Spain. In collective agreements the bonus is treated as an added payment employees always receive, independent of the company's profits (Poutsman, 2001). Finally, the variable *number of stars* was introduced into our equation to take into account labour satisfaction, depending on the hotel category. According to López-Guzmán et al. (2010), employees in hotels with 4 stars or more are the most satisfied with their work and wages, and perceive greater opportunities for promotion within their company.

Internal labour markets

The dual labour market model of Doeringer and Piore (1971) implies a wage-size effect. Workers employed in the internal labour market are motivated to increase their work-effort in return for higher wages, job security and fringe benefits. Internal labour markets facilitate the evaluation of worker performance, reduce worker turnover among junior workers and decrease the incentives for senior workers to avoid sharing their knowledge with new workers (Criscuolo, 2000). According to Simms et al. (1988), we would expect the existence (or otherwise) of internal labour markets in hotels to be closely related to the chosen managerial control strategies and to be more evident where both the employment relationship and work process have become organized bureaucratically.

To identify the presence of internal labour markets we introduced two variables into our basic model: the existence of upward internal mobility (*promotion*) and in-house training courses promoted by the management (*on-the-job training*). Our extensive list of occupations, which groups jobs into functional areas and levels of responsibility — see Campos Soria et al. (2009) — has been used to construct a hierarchical scale according to the mean wage for each occupation using data extracted from the database used in this work.

2.2. Data source

The data source analysed in this study is the database generated for the research project 1FD97-0858 “Déficit de cualificaciones, productividad y salarios en el sector turístico andaluz” (“Mismatch in education, productivity and wages in the Andalusian tourism sector”) in 2000². The present study only used data referring to hotels, after eliminating any information that was incomplete regarding all the variables used. Thus, the final sample included 73 hotels and 1301 workers.

Table 1.- Mean values and standard deviations of selected variables by hotel size

	Fewer than 20 workers		From 20 to 89 workers		Greater than 89 workers		(b/a)
	Mean (a)	Standard deviation	Mean	Standard deviation	Mean (b)	Standard deviation	
Employment	13.44	3.11	51.61	18.35	163.15	77.82	12.13
Hourly net wages (€)	6.59	2.82	6.84	2.48	7.66	2.94	1.16
Tenure (years)	4.34	5.28	8.31	8.91	10.23	8.41	2.36
Experience (years)	16.60	10.65	20.43	11.23	22.76	11.70	1.37
Annual turnover divided by number of rooms (€)	15933.70	6443.73	31319.23	27221.64	52156.69	32234.32	3.27
Rooms	48.53	21.51	136.37	86.36	298.35	153.24	6.15
Ratio of workers in each hotel that are overeducated	0.23	0.14	0.18	0.11	0.10	0.08	0.45
Mean years of schooling of workers in the hotel	10.06	1.43	9.97	1.52	9.18	1.53	0.91
Profit	0.31	0.47	0.27	0.45	0.31	0.46	1.00
Permanent full-time contract	0.42	0.50	0.51	0.50	0.47	0.50	1.12
Stars	2.66	0.93	3.50	0.55	4.13	0.81	1.55
Training	0.27	0.45	0.31	0.46	0.65	0.48	2.40
Promotion	0.13	0.33	0.25	0.44	0.27	0.45	2.17
Workers (1301)	96		579		626		
Hotels (73)	14		43		16		

Source: Project 1FD97-0858.

Notes: The data available for this study were taken from a database created in 2000.

See Marchante et al. (2005) for a complete description of the database.

The means and standard deviations of the variables are shown in Table 1 and are classified according to hotel size (See Appendix for definition of variables). Except for the mean years of schooling of workers in hotel, there exist significant differences of mean workers and jobs characteristics between small and large establishments. Workers in hotels with more than 89 workers earn higher wages, have more years of tenure and more likelihood of having a job with a permanent full-time contract. The wage increase in a hotel with over 89 workers

² See Marchante et al. (2005) for a complete description of the database.

compared to establishments with less than 20 employees is 16%. Note that wages are expressed as net wages in the present study.

Even though the mean years of schooling of workers in hotels does not change along with hotel size, the ratio of overeducated workers presents very different results: overeducation affects 23% of the employees in smaller establishments and only 8% in larger establishments.

According to hotel size, significant differences were found in all the characteristics of the establishments except for the variable profit. Larger hotels have higher levels of productivity, generally have more stars, offer more in-house training courses and have more opportunities for promotion.

3. Empirical results

For the estimation we applied the “cluster” option in the Stata11 SE software package; thus, all standard errors have been corrected for heteroskedasticity and for clustering due to possible biases stemming from the use of aggregated variables in an individual wage equation. We also uses several augmented Mincerian earning functions -except in equation number 2- by including the observed characteristics of employees and employers as explanatory variables.

In line with Troske (1999), Table 2 shows the results obtained from estimating specification (1) in three different ways. Column (1) presents the results from estimating of our specification (1) including the set of worker human capital variable and gender in addition to the control variables, and setting $\beta=0$ and $\theta_m=0$. The estimated coefficients have the expected sing and they are statistically significant. The results are similar to those obtained by Marchante et al. (2005), although the inclusion of five occupation dummies slightly reduces the returns estimated for the different educational levels. Our estimation shows that women earn 8.5%³ less than men; the same result was obtained in Marchante et al. (2005).

³ We calculate these marginal effects applying the Halvorsen and Palmquist (1980) coefficient interpretation.

Table 2.- Individual log wage regressions

	Just worker characteristics (1)	Just L(estab size) (2)	Both workers and establishment characteristics (3)
Constant	1.4678 (29.91)*	1.4030 (16.41)*	1.1886 (12.65)*
Compulsory education	0.0742 (7.12)*	-	0.0812 (2.21)**
Vocational education I	0.1424 (2.97)*	-	0.1399 (3.32)*
Vocational education II	0.2077 (4.22)*	-	0.2149 (4.77)*
Upper secondary schooling	0.1779 (3.75)*	-	0.1756 (3.96)*
Lower university degree	0.2791 (5.91)*	-	0.2938 (6.71)*
Higher university degree	0.3363 (6.25)*	-	0.3583 (6.26)*
Experience	0.0151 (4.03)*	-	0.0143 (4.14)*
Experience squared	-0.0001 (-2.27)**	-	-0.0002 (-2.30)**
Tenure	0.0081 (5.57)*	-	0.0070 (5.80)*
Female	-0.0886 (-5.98)*	-	-0.0772 (-6.72)*
L(estab size)	-	0.0972 (4.76)*	0.0674 (2.8)*
Adjusted-R ²	0.4050	0.2735	0.4393
F-Statistic	33.05*	50.99*	32.41*
Degrees of freedom	[14,72]	[5, 72]	[15, 72]
Number of workers	1301	1301	1301
Number of establishments	73	73	73

Notes:

t-statistic are in parentheses. Significant at * 1% and ** 5%.

All regressions also include five occupation dummies (Managers, Office clerks, Manual workers, Other services workers and Restaurant workers) as control variables.

All standard errors have been corrected for heteroskedasticity and for the clustered sampling scheme.

Dependent variable: Log hourly net wages.

Column (2) presents the results from estimating specification (1), setting $\delta_k=0$ and $\theta_m=0$. Without these control variables the wage elasticity with respect to establishment size is very high (0.0972). In column (3), we control for standard human capital variables and gender. In this case, the effect of size on wages is reduced by 30.5% and is very similar to the estimates provided by Lallemand et al. (2007) for the the Spanish private sector as a whole using data from the 1995 European Structure of Earnings Survey, suggesting elasticity between wages and establishment size by around 0.07.

Our next step involves including our measure of hotel productivity (Table 3, column 1). The results show that workers in more productive hotels earn higher wages, and our main parameter of interest -wage elasticity with respect to establishment size- is reduced to 0.055, in comparison with the parameters estimated in equation 3 (Table 2).

Table 3.- Individual log wage regressions, including productivity, labour quality, working condition and internal labour markets variables.

	Including productivity variable (1)	Including labour quality variables (2)	Including working conditions variables (3)	Including internal labour markets variables (4)
Constant	0.9595 (6.29)*	1.0419 (8.16)*	1.1389 (13.79)*	1.2141 (12.50)*
Latpr	0.0270 (2.09)**	-	-	-
Overeducated	-	-0.1155 (-0.89)	-	-
Mean schooling	-	0.0195 (2.84)*	-	-
Profit	-	-	0.0447 (2.04)**	-
Permanent full-time contract	-	-	0.0717 (4.40)*	-
Stars	-	-	0.0265 (2.34)**	-
Training	-	-	-	0.0383 (1.79)***
Promotion	-	-	-	0.0512 (3.06)*
L(estab size)	0.0554 (3.46)*	0.0670 (3.53)*	0.0550 (3.73)*	0.0599 (3.22)*
Adjusted-R ²	0.4438	0.4460	0.4617	0.4473
F-Statistic	34.2*	28.71*	29.49*	30.93*
Degrees of freedom	[16, 72]	[17, 72]	[18, 72]	[17, 72]
Number of workers	1301	1301	1301	1301
Number of establishments	73	73	73	73

Notes:

t-statistic are in parentheses. Significant at * 1%, ** 5% and *** 10%.

All regressions include the same set of worker characteristics as the regression 1 in table 2 and five occupation dummies (Managers, Office clerks, Manual workers, Other services workers and Restaurant workers) as control variables.

All standard errors have been corrected for heteroskedasticity and for the clustered sampling scheme.

Dependent variable: Log hourly net wages.

As stated above, in order to investigate the hypothesis that the workforce in large hotels is more skilled, we again estimated specification (1), including in the \mathbf{EC}_i vector two new variables: mean years of schooling of all workers in each establishment and the proportion of workers within an establishment who were overeducated (Table 3, column 2). The estimated coefficient of mean schooling is positive and significant, indicating that more skilled workers

do tend to work together. However controlling for worker skills at the establishment level does not affect the estimated size-wage premia.

Another possible explanation for the wage-size gap is that large firms offer different working conditions. We tested this hypothesis by including three variables in the EC_i vector: profit, permanent full-time contract and number of stars (Table 3, column 3). After controlling for these indicators of working conditions, the magnitude of wage elasticity decreases to 0.055. Our estimations suggest that employees working in hotels with a profit-sharing system earn 4.5% more than workers in other working conditions and those with a full-time permanent contract earn 7.4% more. The estimated positive and significant coefficients of on-the-job training (significant at 10%) and promotion (significant at 1%) indicate that the opportunities for in-house training and the existence of internal mobility are reflected in higher wages. Furthermore, the coefficients estimated for these three variables are statistically significant and positive; that is, larger hotels offer better working conditions, that imply higher wages.

Finally we test the hypothesis of the presence of internal labour markets as an alternative explanation for the size-wage premia (Table 3, column 4). The wage increase for those that have received in-house training the increase is 3.9% while the increase for those who have been promoted within the same establishment is 5.2%. Nevertheless, neither of these variables substantially contributes to reduce the estimated wage elasticity with respect to establishment size.

Thus, although the hypotheses explain part of the difference in salaries earned by workers according to the size of the establishment, a sizeable part of the wage premium remains unaccountable. This finding is consistent with that obtained in previous studies (Lallemand et al., 2007; Troske, 1999). In the present study, and given the limitations of the database used, we have only been able to test each hypothesis individually, following the methodology of Troske (1999). Nevertheless, in the study by Lallemand et al. (2007), even when simultaneously controlling for a wide range of variables -human capital and gender, industry, regions and financial control, collective agreement, working conditions, labour quality and mean tenure- the estimated final value in Spain of wage elasticity in relation to establishment size was 0.045.

4. Conclusions

Numerous empirical studies have found that large employers pay higher wages. Nevertheless, to the best of our knowledge, this fact has not been verified for the hotel industry. We used a unique employer-employee matched data set from the hotel industry to examine several possible explanations. The empirical findings reported in this paper show the existence of positive and significant establishment-size wage premia in the Spanish hotel industry, even when controlling for human capital variables, occupations and gender. In this case, the size-wage elasticity estimated for the hotel industry is very similar to the Spanish private sector as a whole which was estimated in a previous study using a different data set. After controlling for human capital variables, occupations and gender, we examined four possible explanations for the employer size-wage premium: productivity, labour quality, working conditions and internal labour markets. Results based on adding the productivity measure show that this variable accounts for a 17.8 per cent of the establishment-size wage premium. Similar results are obtained adding our working conditions measures. However, the size-wage relationship is almost unaffected by controlling for labour quality and internal labour markets variables.

Although our results have shown that the hypotheses tested may account for some of the observed cross-sectional variations in workers' wages, in all cases a large and significant employer size-wage premium remains unexplained. The inability to account for the establishment wage premium in this study might suggest that organizational differences between small and large hotels have not been captured by the variables available in our database. Therefore, the use of a potential database that could facilitate simultaneous comparisons of a greater number of hypotheses might shed more light on this issue.

It is also possible that large establishments pay higher wages simply because they employ workers with more unobserved abilities. To take into account the workers' unobserved heterogeneity, we need to specify a model that allows for the potential self-selection by workers of hotels of various sizes, and this is a task that cannot be achieved with the available data. However, bearing in mind that different explanatory hypotheses of wage differences between different size hotels have different implications for the management of human resources, identifying the sources of the wage-establishment size effect is a relevant question for future research.

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Appendix

Definition of Variables

Variables	Variable		Definition
	Dependent variable	Lhnw	Log of hourly net wages (€)
	Independent variables		
S_i		L(estab size)	The establishment size log (the exact number of workers within each hotel)
CD_i	<i>Control variables</i> ⁴	Managers	1 if managers, professionals and technicians, 0 otherwise
		Office clerks	1 if office clerks, 0 otherwise
		Manual workers	1 if manual workers, 0 otherwise
		Other service workers	1 if other services workers, 0 otherwise
		Restaurant workers	1 if restaurant services workers, 0 otherwise
HC_i	<i>Human capital and gender</i>	Illiterate	1 if illiterate, 0 otherwise
		Compulsory education	1 if compulsory education, 0 otherwise
		Vocational education I	1 if vocational education I, 0 otherwise
		Vocational education II	1 if vocational education II, 0 otherwise
		Upper secondary schooling	1 if upper secondary schooling, 0 otherwise
		Lower university degree	1 if lower university degree, 0 otherwise
		Higher university degree	1 if higher university degree, 0 otherwise
		Exper	Experience [age-years of schooling-6] (years)
		Tenure	Tenure in the establishment (years)
		Female	1 if female, 0 otherwise
EC_i	<i>Productivity</i>	Latpr	Log of annual turnover divided by numbers of rooms
	<i>Labour quality</i>	Overeducated	Ratio of workers in each establishment who are overeducated
		Mean schooling ⁵	Mean years of schooling of workers in the hotel
	<i>Working conditions</i>	Profit	1 if the firm offers profit sharing to employees, 0 otherwise
		Permanet full time contract	1 if open-ended full-time contract, 0 otherwise
		Stars	Hotel category by number of stars
	<i>Internal labour market</i>	Training	1 if the hotel offers on-the-job training
		Promotion	1 if worker has been promoted internally, 0 otherwise

⁴ The five occupational categories have been established taking as reference those in García Pozo et al. (2011) and grouping the code occupational of the ISCO-88 numbers 421, 422, 51 and 52 in “Other services workers” and the major groups 6, 7, 8 and 9 in “Manual workers”. The remaining categories have been kept including the same codes of the ISCO-88 that in the work indicated.

⁵ The years of schooling assigned to each educational level are detailed in Marchante et al. (2005).