EFFECT OF LABOUR FLEXIBILITY ON PRODUCTIVITY IN THE SPANISH HOTEL INDUSTRY

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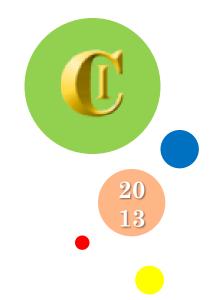University of Malaga (Spain)

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Introduction

- In this paper, we analyze the effect of labour flexibility on productivity in the Andalusian hotel industry.

- For this purpose, we use the data obtained by the *Quality, Productivity and Competitiveness in the Hospitality Industry for Andalusia* project (PO7/SEJ-02889).

- We used an expanded version of the Cobb-Douglas production function distinguishing two employment shares: full-time permanent (standard work) and temporary plus part-time employees (non-standard work).

Theorethical Model

- The labor flexibility not only consist in part-time contracts but also includes temporary contracts and outsourcing or subcontracted services.

- This practice is usually called numerical flexibility to differentiate functional flexibility (Arvanitis, 2005) and aims to adapt the workload to meet the needs of production or service.

- In this paper we focus on numerical flexibility.

Theorethical Model

- We extend the standard production function by distinguishing between part-time, temporary, and full-time labour inputs. We follow Nelen et al. (2009), among others, in the way they model the productivity effects of different employment shares. This so-called share-approach to including heterogeneous labor inputs assumes that different types of employees are perfect substitutes, but may have different marginal productivities.

- We divide the workforce into two employment shares: full-time permanent and temporary plus part-time employees

Theorethical Model

- The proposed empirical equations to be estimated are as follow:

$$Ln\left(\frac{Y}{L}\right)_i = LnA + \alpha LnK_i + (\beta - 1)LnL_i + \gamma^*_{ns}NS_i \quad [1]$$

- If it is further assumed that the described technology has constant returns to scale in L & K (that is, α+ẞ=1), the expression would be:

$$Ln\left(\frac{Y}{L}\right)_i = LnA + \alpha Ln\left(\frac{K}{L}\right)_i + \gamma^*_{ns}NS_i \quad [2]$$

- Adding to the expressions (1) and (2) a vector of control variables, as well as random disturbance terms independently distributed as N~(⟦0,ϑ⟧ ^2) with ϑ^2 being constant, we obtain the equations that will be estimated below . [3]

Data

- The database was created as part of the Quality, Productivity and Competitiveness in the Hospitality Industry for Andalusia project (PO7/SEJ-02889).

- It includes representative parameters from 232 Andalusian hotels (96 rated as 3 star, 126 as 4 star, and 10 as 5 star) offering a total of 64,036 beds representing 34.99% of the total beds offered by these types of establishments in Andalusia at the end of 2009.

- These parameters were obtained from semi-structured questionnaires administered to the hotel managers by the researchers.

Table 1 Apparent labor productivity of the hotels as possible determinants
(Index numbers. Average value of the whole sample = 100)

	GVA / N# of full-time equivalents jobs (prices of 2008)		Number of establishments	% on the total of each group
	Mean	Standard Deviation		
Sample	34311.39	20359.81	181	
Size of the establishment by number of full-time equivalents employees				
up to 20 employees	97.32	142.89	63	(34.81)
from 20 to 49 employees	99.03	64.32	60	(33.15)
over 50 employees	103.92	70.84	58	(32.04)
Size of the establishment by number of rooms				
up to 50 rooms	83.48	91.87	49	(27.07)
from 50 to 99 rooms	94.27	56.09	45	(24.86)
from 100 to 199 rooms	117.37	154.80	40	(22.10)
Over 200 rooms	107.92	71.79	47	(25.97)
Quality of the establishment by number of stars				
rate as 3 star	82.84	52.09	75	(41.44)
rate as 4 star	113.37	124.72	96	(53.04)
rate as 5 star or higher	100.40	33.31	10	(5.52)
Location of the establishment				
Capital	114.23	131.45	78	(43.09)
Coastal	93.47	65.53	74	(40.88)
Inland	78.38	47.67	29	(16.02)
Property belonging to a chain				
No Hotel Chain	86.90	118.64	70	(38.67)
Hotel Chain	108.26	83.84	111	(61.33)
Outsourcing of services by the establishment				
No Subcontracted Services	85.85	50.17	46	(25.41)
Subcontracted Services	104.82	111.02	135	(74.59)
Property Ownership				
Family ownership	96.92	112.09	117	(64.64)
Business ownership	105.62	72.79	64	(35.36)

Source: [PO7/SEJ-02889].

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Table 2 *Descriptive statistics of the estimated variables*

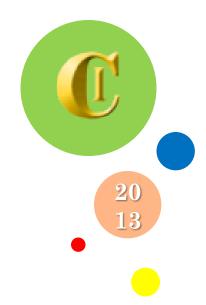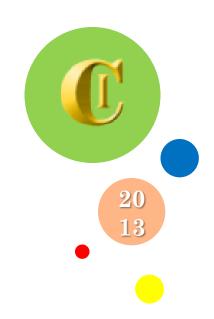| Variable	Measure	Mean	Std. Dev.
GVA / Nº of equivalents full-time jobs (prices of 2008)	Euros	34311.4	20359.8
Rooms of the establishment	Number	141.92	147.39
Equivalents full-time jobs	Number	46.98	45.90
Non-Standard employees	% employees	45.44	0.29
Category of the establishment	Stars	3.64	0.59
dummy =1 if the establishment belongs to a chain	% of establishments	61.33	0.49
dummy =1 if the establishments is family owned	% of establishments	64.64	0.48
dummy =1 if the establishment is located in a capital city	% of establishments	43.10	0.50
dummy =1 if the establishment is located in and inland city	% of establishments	16.02	0.37
dummy =1 if the establishments is located in a coastal city	% of establishments	40.88	0.49
dummy =1 if the establishment subcontracts services	% of establishments	74.59	0.44

Source: [PO7/SEJ-02889].

Table 3 Determinants of apparent labor productivity

Variable/equation	(1)	(2)	(3)
LnK	0.2556*		
	(0.0764)		
LnL	- 0.2294**		
	(0.0900)		
LnK-LnL		0.2491*	0.2262*
		(0.0769)	(0.0724)
Nonstandard work	- 0.2680**	- 0.2504**	
	(0.1224)	(0.1227)	
Category	0.1213***	0.1404**	0.1526*
	(0.0668)	(0.0549)	(0.0557)
Chain	0.1751**	0.1906*	0.1573**
	(0.0699)	(0.0645)	(0.0727)
Subcontracted services	0.1683*	0.1658*	0.1522**
	(0.0596)	(0.0602)	(0.0617)
Family-owned	-0.0871	-0.0852	-0.0885
	(0.0593)	(0.0588)	(0.0597)
Inland	- 0.1270***	- 0.1376***	- 0.1408***
	(0.0754)	(0.0726)	(0.0751)
Cons	9.4899*	9.5014*	9.4016*
	(0.2392)	(0.2391)	(0.2468)
Obs.	181	181	181
R^2 ajusted	0.2098	0.2129	0.1918
F test	(8,172)7,56*	(7,173) 8,56*	(6,174) 9,38*
RSS	27.3485	27.4000	28.2970
Wald's Test : H_0: α+β=1	0,22 (0,6359)		

Source: [PO7/SEJ-02889].

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Conclusions

- The results obtained in this study support the conclusion that numerical flexibility reduces labor productivity in the hospitality industry.

- In particular, equality of other factors, an increase of ten percentage points in the proportion of jobs full time equivalent contracts held by workers with part-time and / or temporary leads to an average reduction between 2.6% and 2.5% in labor productivity level of the hotel establishment.

- In addition, the productivity of workers on temporary contracts and / or part-time is reduced by 33% to 35% compared to workers with full-time permanent contracts. Therefore, the use of non-standard contracts Andalusian hospitality involves not only a reduction in labor costs but also a decrease in productivity and hence corporate profits.

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