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Environment and Strategic Behaviour: The Case of Hotelsin and Alusia (SPAIN)

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ABSTRACT: A new way of thinking is influencing the behaviour of both consumers and firms: any tourism activity has a sizeable environmental impact and the roots of environmental problems in this industry lie in human behaviour. Accordingly, in recent years tourists have been taking into account the environment as a factor in their purchasing decisions and firms are using this factor in their competitive positioning. Using a hotel database created by the Quality, Productivity and Competitiveness in the Hospitality Industry in Andalusia project, this paper has two aims:first, we classify the hotels in Andalusia (Spain) -using the variable environment as a factor in its competitive positioning-into strategic groups;and, second, we measure theeconomic performance of thestrategy usedby establishments in each group. We obtained two main results: first, we demonstrated the existence offour strategic groups based on their position toward the environment and a positive association between proactive environmental strategies and the economic performance of hotels in Andalusia; secondly, our results show that strategies that make clients aware of the environmental measures implemented by hotels may improve occupancy levels, and increase sales and the added value generated by the establishment.

Key words: Competitive strategies, Environment, Hospitality, Productivity, Quality

INTRODUCTION

The roots of environmental problems lie in human behaviour (Mossalanejad, 2011; Arsalan *et al.*, 2011).Thus environmental responsibility is a task fundamentally shared by the administration, companies, consumers and the media, which, through the information they give out, put pressure on in favour of environmental protection (Spanou *et al.*, 2011; Pirani and Secondi, 2011; Mondejar-Jiménez *et al.*, 2011; Bruni *et al.*, 2011; Garcia-Pozo *et al.*, 2011; Martinez-Paz and Perni, 2011; Segarra-Ona *et al.*, 2011; Perez-Caldern *et al.*, 2011; Junquera, 2012). This new way of thinking is influencing the behaviour of both consumers and firms. Many authors have shown that in the demand side of the tourism sector, tourists consider the environment as one of the main factor–sometimes decisive- when making purchasing decisions (González andLeón, 1998, Hillery *et al.*, 2001) and client behaviour is increasingly influenced by the variable environment in terms of their reason for travelling and their final choice of destination and service provider (Bosch *et al.*, 1998, Casanueva *et al.*, 2000, Gutierrez and Garcia, 2001, García-Pozo *et al.*, 2011). In the supply side, Ferrari et al. (2010) suggests that the environmental perceptions of entrepreneurs are included into business management defining an "*ecopreneurial management*". In response to this situation, the environment is being used by firms as a differentiatingelement to increase market competitiveness.Evidenceof this trend is the abundance of environmental quality labels displayed by many establishments. This behaviour, which is driven by changes in demand, highlights the need to understand the relationship between the hotels' commitment to the environment and its outcome in terms of economic performance. In this sense, environmental sustainability has an impact on the competitive positioning of firms, generating new markets for environmentally benign products and a new field of academic studies (Segarra-Oña *et al.*, 2011). Despite this, few studies have analysed the use of the environment as a competitive strategy in the tourism business,and what motivates this strategy(Chan andWong, 2006). These kinds of studies are particularly scarce in Spain;among them being able

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to highlightthe studies conducted by Alvarez-Gil et al.(1999and 2001), Garcia-Rodriguez et al. (2002) and Claver-Cortés et al.(2006 and2007). Many authors claim that a firm's environmental commitment can be a potential source of comparative advantage could and translate into higher revenues that could offset the additional costs involved in implementing environmentally friendly measures (Porter and Van der Linde, 1995, Kirk, 1998; Hu and Wall, 2005, Vargas-Vargas, 2010). However, according to other authors, the growing commitment of companies to the environment is just a defensive response driven by the need to maintain their market share, increasing cost and reducing the competitiveness (Jaffe *et al.*, 1995; Claver-Cortés and Molina-Azorín, 2000). Currently, the evolution of consumer behaviour seems to confirm the first hypothesis. The increasing environmental awareness of customers has led to greater demand for respectful goods and services with the environment (Ludevid, 2000). In this sense, some author has even led to the definition of the "green consumer" (Bigné, 1997; Chan and Wong, 2006). Providing that the environmental setting is valued by clients, it becomes a differentiating output. The customers can be made aware of such environmental improvements in two ways: 1) as perceived quality, where the firm's commitment to the environment becomes a quality item; or 2) by displaying an eco-label or eco-indicator. In both cases, environmental compliance may be considered an element that increases the quality of the tourism product and that has value in economic terms for the consumer. The literature has addressed the effects of quality on business competitiveness from two different viewpoints: 1) the external quality effects that show the impact of changes in quality perceived by consumers on competitiveness, primarily indicated by the price customers are willing to pay (Cronin andTaylor, 1992, Boulding *et al.*, 1993, Dube andRenagham, 1999, Choi andChu, 2001, Kim andCha, 2002); and 2) the internal quality effects that measure the changes in total factor productivity and, therefore, in production costs (Phillips *et al.*, 1983; Fine, 1983; Endosomuran, 1988, Hwang andChang, 2003). Some studies have analysed both effects together (e.g., Phillips et al. (1983), Garvin (1988), Rust et al. (1995), Camisón (1996) and Campos-Soriaet al. (2005)). Despite its obvious importance, there is a lack of empirical studies supporting the relevance of such effects (Sinclair and Stabler, 1997).

The study and measurement of internal quality effects on competitiveness has been mainly analyzed by examining their impact on productivity. The particular characteristics of the service industry, such as intangibility and non-storability, makes quality a multidimensional concept that only exists in the mind of the consumer, and hence it is difficult to incorporate this into a measurement of productivity. Attempts to measure productivity in the hotel sector by using methodological approaches (Heap, 1996; Vourinen *et al.*, 1998), statistical analysis (Johns andWheeler, 1991; Kontoghiorghes, 2003), nonparametric techniques (e.g., data envelopment analysis) or the approach suggested in Ball et al. (1986)have not been completely successful in developing productivity indicators in hotels adjustedfor variations in service quality, as in the case of respect for the environment.

Whether by the existence of an ecological label or via the quality perceived by tourists, the establishments can take a different competitive positioning. In this sense, the concept of strategic groups to business analysis is justified by its descriptive validity, predictive capacity, potential for dynamic analysis, and as an aid in understanding the fundamentals of competition between firms and different strategic groups (Claver-Cortés *et al.*, 2007). Despite its potential, very few studies have applied this methodology to the hotel sector. Some exceptions are studies byEdgar et al. (1994),Lant and Baum (1995), and Kirk (1998); for Spain, exceptions are those of Alvarez-Gil et al. (1999and2001),Garcia-Rodriguez et al. (2002), and Claver-Cortés et al. (2006 and 2007).

Usinga hoteldatabase created by the Quality, Productivity and Competitiveness in the Hospitality Industry in Andalusia project [PO7/SEJ-02889] this study has two main aims: to classify the hotels in Andalusia into strategic groups in terms of how they use the variable environment as a factor in competitive positioning, and to assess the economic impact of the strategy adopted by the analysedestablishments.

MATERIALS & METHODS

According to Turespaña Hotel Guide[1],in 2009 the region of Andalusiahada totalof 822 hotel establishments withcategory equal or higher than 3stars. We used in our research a database that includes representative parameters from 216 of these establishments (91 classified as 3 star, 116 as 4 star, and 9 as 5 star), that offer a total of 58,088 beds. Therefore,the sample includes26.3% ofthe establishments in theregion,representing aconfidence level of94.28%. The fieldwork was conducted in person by researchers from the universities of Malaga, Granada and Seville during spring-summer 2010.

These parameters were obtained from semi-structured questionnaires given to the hotel managers by the researchers, and the economic data was obtained directly via those questionnaires and from the annual accounts filed by firms in the Mercantile Registry[2].The position of the establishments toward

the environment was assessed using the labels awarded to the hotel by qualified certification bodies, such as ISO 14001, EMAS, and Biosphere, and other specific labels either awarded by hotel chains or public administration bodies, such as the "Q-*verde*".

In order to compare our results to those obtained in previous studies conducted in Spain, we chose a methodology and a set of variables similar to those used by Alvarez-Gil et al. (1999and 2001) and Claver-Cortes et al. (2006 and 2007) but we also used additional information available in our database.Eight questions in the questionnaires were used to evaluatethe environmental strategies. The hotel managers answered these questions on a standard Likert-type scale where 5 represented the highest level of involvement and 1 the lowest.

To improve the interpretation of the results, some descriptive variables were included: 1) category (stars); 2) size (number of rooms); 3) part of a hotel chain or not; 4) family ownership; 5) location (coastal, inland, or capital city); 6) publicly owned hotels; 7) establishment managed under leasing contract; 8) nationalityof the guests; 9) main purpose of the trip (business or leisure); 10) definition and implementation of strategic plans; 11) periodsince the last major renovation of the hotel; 12) quality certifications; and 13) environmental certifications.

Finally, objective measurements were selected to assess the economic consequences of implementing environmental strategies and to compare the different groups: 1) productivity; 2) average wage per worker; 3) monthly occupancy rate; 4) gross operating income per room; 5) gross value added (GVA) per room; 6) unit labour cost per establishment; and 7) gross operating surplus (GOS) per room.

In order to classify the hotels in terms of the environmental strategies implemented, a non-hierarchical cluster analysis[3] was performed assuming that each establishment is represented by a vector that includes the values of the variables outlined above. Thus, these variables provide the data necessary to generate the aggregation variable to group the establishments.

The aggregation variable obtained was tested using Pearson's chi-squared test for the environmental variables, as suggested by Sprent and Smeeton (2007). The values obtained indicate that all the variables were statistically significant, were independent of the aggregation variable, and therefore were relevant to identifying the strategic groups. In addition, discriminant analysis was used to verify a posteriori the correct classification of the observations within groups, showing that 96.87% were correctly classified.

The descriptive variables were tested using Pearson's chi-squared test or the Kruskal-Wallis test depending on the type of variable. The Kruskal-Wallis test is normally used for analyzing the differences between the mean values of continuous variables of three or more groups (Sprent and Smeeton, 2007).

RESULTS & DISCUSSIONS

Table 1 show the variables grouped according to their purpose, as well as the type of variable, mean and standard deviation.The results show that the most common environmental strategies applied by the sample hotels are related to energy and water savings (rating 3.78 out of 5) and recycling waste (3.35 out of 5). However, the scores provided by the managers to some of the other questions suggest that other environmental strategies are also applied. It should be noted that these business management tools have only recently been introduced in the Spanish hospitality sector, as reported by Claver-Cortés *et al.* (2007).

The representative establishment would be a hotel with 3.63 stars, 126 rooms, owned by a hotel chain, and with 1 quality certification and no environmental certification from public or private agencies. In addition, the establishment that is representative of the sample has implemented a strategic plan for the development of its activity and its last major reform was made 5.75 years ago. Finally, and as we expected, leisure is the main reason for travelling.

Concerning the variables of economic character, the representative hotel would show a labour productivity of € 31,620.91, an average wage per worker of € 22,581.36, a mean annual occupancy of 65.06%, a gross operating income of € 26,935 per room, and GVA per room of € 13,016.14.

Although it appears that some of the environmental variables have little influence on the management of hotels, our hypothesis is that by identifying the environmental strategies followed by hotels we can classify them into strategic groups that demonstrate how the implementation of certain environmental measures may have a positive economic impact in this highly competitive market. Subsequently, and based on the studies by Alvarez *et al.* (1999) and Henriques and Sadorsky (1999), groups were identified according to the hotels' environmental positioning (Table 2).

Group 1: Proactive. Environmental management was fully implemented in this group. 6.94% of the sample hotels were included in this group and had the highest values for all variables, including both the internal and external aspects of the business, indicating their high commitment to environmental issues.

Table 1. Variables used in the sample and descriptive statistics

Variables	Type of variable	Mean	SD
1. Evaluation of environmental strategies			
The establishment quantifies environmental costs and savings	Categorical	2.22	1.24
The establishment provides employees with training on environmental issues	Categorical	2.23	1.07
The establishment applies "green purchasing" policies	Categorical	1.63	0.87
The variable environment is used in marketing strategies and campaigns	Categorical	2.04	0.99
The establishment applies energy and water saving measures	Categorical	3.78	0.41
The establishment recycles waste	Categorical	3.35	0.40
The establishment encourages environmental awareness among employees through meetings and advice	Categorical	1.69	0.79
The variable environment is actively taken into account by the establishment or chain in relation to Corporate Social Responsibility	Categorical	1.60	0.80
2. Descriptive variables of the establishment			
Hotel category (stars)	Continuous	3.63	0.60
Number of rooms	Continuous	126.08	133.16
The establishment is part of a chain	Dummy	0.61	0.49
The hotel is a family-owned business	Dummy	0.63	0.49
Establishment located on the coast	Dummy	0.36	0.48
Establishment located inland	Dummy	0.19	0.39
Publicly ownedhotels	Dummy	0.03	0.18
Establishment managed under leasing contract	Dummy	0.17	0.38
Mostly foreign tourists	Dummy	0.35	0.48
Mostly leisure tourists	Dummy	0.73	0.44
Establishment implements strategic plans	Dummy	0.72	0.45
Period since the last major renovation of the establishment	Continuous	5.75	6.06
Number of quality certifications	Continuous	0.93	1.13
Number of environmental quality certifications	Continuous	0.16	0.46
3. Economic assessment of implementing environmental strategies			
Labour productivity (€)	Continuous	31620.91	9181.75
Average wage per worker (€)	Continuous	22581.36	4478.84
Mean yearly occupancy of rooms (%)	Continuous	65.06	11.44
Gross operating income (€) per room	Continuous	26935.00	16813.58
GVA (€) per room	Continuous	13016.14	8530.97
Labour unit cost per establishment	Continuous	0.76	0.22
GOS (€) per room	Continuous	3504.39	3610.56
N= 216			

Source: Quality, Productivity and Competitiveness in the Hospitality Industry project [PO7/SEJ-02889] and own data

Table 2. Means and statistical tests for all groups

	Mean values				Statistic	
Variables	Group 1 (n=15)	Group 2 (n=39)	Group 3 (n=45)	Group 4 (n=117)	Pearson´s chi squared	Kruskal-Wallis
The establishment quantifies environmental costs and savings	4.50	4.12	2.01	1.36	114.822*	
The establishment provides employees with training on environmental issues	4.21	3.75	2.27	1.44	102.731*	
The establishment applies "green purchasing" policies	3.37	2.96	1.24	1.10	82.334*	
The variable environment is used in marketing strategies and campaigns	3.71	3.55	2.02	1.32	70.272*	
The establishment applies energy and water saving measures	4.52	4.15	3.85	3.54	22.033*	
The establishment recycles waste	4.33	3.63	3.28	3.15	25.797*	
The establishment encourages environmental awareness among employees through meetings and advice	3.21	2.91	1.40	1.19	43.338*	
The environment variable is actively taken into account by the establishment or chain in relation to Corporate Social Responsibility	3.45	2.73	1.24	1.13	49.365*	
Hotel category (stars)	3.84	4.05	3.75	3.42	45.163*	
Number of rooms	103.27	205.21	152.27	93.19		29.660 *
The establishment is part of a chain	0.71	0.85	0.73	0.48	20.597*	
The establishment is a family business	0.54	0.67	0.59	0.63	0.801	
Establishment located on the coast	0.21	0.38	0.43	0.34	3.323	
Establishment located inland	0.58	0.08	0.05	0.23	24.921*	
Publicly ownedhotels	0.19	0.03	0.02	0.00	13.882*	
Establishment managed under leasing contract	0.00	0.23	0.20	0.17	13.715*	
Mostly foreign tourists	0.63	0.52	0.18	0.31	16.787*	
Mostly leisure tourists	0.81	0.80	0.72	0.71	1.847	
Establishment implements strategic plans	0.94	0.87	0.77	0.62	14.535*	
Period since the last important renovation of the hotel	2.67	4.11	4.37	6.53		16.696*
Number of quality certifications	3.74	1.82	0.92	0.22		125.823*
Number of environmental quality certifications	1.00	0.46	0.00	0.00		46.764*

Note: *$P \leq 0.001$

Source: Quality, Productivity and Competitiveness in the Hospitality Industry (PO7/SEJ-02889) and own data

Regarding the descriptive variables, they had a mean rating of 3.84 stars, had fewer rooms, were generally inland located, and belonged to a hotel chain. Their inland location may be due to the fact that these establishments seek to offer a sustainable product that is fully integrated in the environment. Their smaller size, as indicated by the number of rooms, suggests a commitment to quality through a more personalized customer service. This is reinforced by the fact that Group 1 had the highest number of quality certifications (mean 3.74) and environmental certifications (mean 1.00). Other relevant aspects that establishments of this group show are: first, the commitment to theenvironmentby the managers is especially high inthe management ofpublicly ownedhotels (ParadoresNacionales) because the vast majority of these are integrated in this group of proactiveestablishments; second, the importance of implementing strategic plans to the management of environmentally proactive hotels; third, most of the customers of these establishments(63%) are foreigner; fourth, these establishments improve their facilities more frequently than other groups because their last major renovationwas made over the last three years; and fifth, none of them are managed under leasing contract.

Group 2: Accommodating. This group was characterized by moderate environmental awareness and variability in the items with high scores. There were 39 establishments in this group (18.06% of the sample). Their environmental awareness was more focussed on external variables, mainly on marketing, and the scores for this variable were almost as high as in Group 1 (3.55 versus 3.71). The values of the descriptive variables show that these establishments were large and had, on average, twice the number of rooms as in Group 1. In addition, 85% of these establishments belonged to a chain and were mainly located in capital cities and in some coastal areas. It is of note that they had quality certification (1.82) but only 0.46 had environmental quality certification. On the demand side, most of the customers of these establishments (52%) are foreigner. In addition, the use of strategic plans is consolidated in these establishments: 87% use strategic plans as management tools.

Group 3: Defensive. 20.83% of the sample hotels were in this group. Apart from adopting energy and water saving measures and having some commitment to recycling waste, the environmental values of this group were less than 3.Their environmental awareness was moderate but, in contrast to Group 2, the items with high scores were more homogenous. The most significant result in terms of descriptive variables was the scarcity of quality certifications (mean 0.92) and the complete absence of environmental quality certifications. It is important to point out that tourists who come to these establishments are mostly Spanish; only 18% of establishments report that their guests are mostly foreigners.

Group 4: Reactive. This was the largest group in the sample (54.17%) and their commitment to environmental policies was very low. Their environmental performance was the lowest of all groups. Most of the scores were below 2. Regarding the descriptive variables, these hotels had a lower mean number of stars, only half belonged to a hotel chain, had no environmental quality certifications and form the group ofestablishments whose managers take more time to make renovations (6.53 years). Their limited resources and poor managerial skills may lead these hotels to focus their capacities on other areas as a means to increase their market competitiveness. These establishments have mostly designed and implemented a strategic plan, but 38% of them do not use this management instrument.

Therefore, it appears that the strategic environmental efforts are positively associated with establishments being inland and having environmental quality certifications and give great importance to strategic planning and an ongoing concern to improve the premises of establishment. In addition, being part of a hotel chain and having a higher star rating are positively associated with implementing environmental strategies, as shown by the differences between the first Groups 1 and 2 and the other two groups. On the otherhand,is remarkablethe commitment tothe environment of thepublicly ownedhotelbecause, in the sample,the vast majority of them are part of this group of establishments environmentally proactive. It is also noteworthy that medium-sized establishments in Andalusia make the greatest efforts to implement environmental policies, which contrasts with the data obtained by Claver-Cortés *et al.* (2007) for Alicante. This may be explained by the specific characteristics of the hotels in the Alicante area—highly focused on sun and beach tourism and medium-sized hotels—which differ from the more diversified offer in Andalusia (sun and beach, cultural, and outdoor tourism). This suggests that the grouping of the establishments is influenced by where hotels are located. Although our study identifies four groups rather than three, as described by Claver-Cortés *et al.* (2007), the other variables present similar mean values in both studies.

The aim of our study was to test whether the strategic groups that implement environmental measures have a better economic performance than those that are not environmentally proactive. Thus,

we analysed seven specific variables, listed in Table 1, to study differences in business performance in relation to each environmental strategy.

The economic literature presents conflicting results regarding the association between a firm's environmental strategies and their financial performance. Some authors, such as Klassen and McLaughlin (1996), Alvarez-Gil *et al.* (1999) and Claver-Cortés *et al*. (2007)—the last two studies focussed on tourism—have reported a positive association, whereas Cordeiro and Sarkis (1997) obtained negative results.

As shown in Table 3, of the seven variables analysed, differences in the value of labour productivity, average wage per worker, mean occupancy, operating income per room, and GVA per room were statistically significant as determined by the Kruskal-Wallis non-parametric test.

It is particularly relevant that the variables that clearly refer to economic activity and performance show increased mean values as environmental strategies are increasingly implemented. Thus, in Group 1,labour productivity increases as we move from a less active group to others more environmentally active, surpassing 22.3% the average of the environmentallyreactive hotels (Group 4);the mean yearly occupancy of rooms exceeds 11% the averageof theseless environmentally activeestablishments. The differences between these two groups are greater in gross operating income (97.5%) and GVA per room (52.8%). Therefore, it appears that strategies aimed at raising the awareness of clients regarding the environmental measures introduced in hotels can improve the occupancy level, and that more environmentally proactive strategies can increase labour productivity, sales and the added value of the establishment. The results also show that in this group of establishments, higher productivity and income enhance the ability to reward their workers with higher wages, leading to better working conditions for employees.

In summary, given these results, our hypothesis is not refused by the empirical evidence of a positive association between proactive environmental strategies in the Andalusian hospitality sector and the economic performance of establishments. These findings are consistent with those of Alvarez-Gil *et al.* (1999) and Claver-Cortés *et al.* (2007), despite the fact that some of the variables used are different and the establishments are located in different geographical areas.

Table 3. Economic variables and strategic groups

Variables	Mean values				Kruskal-Wallis test
	Group 1	Group 2	Group 3	Group 4	
Labour productivity (€)	35929.36	33976.28	32861.94	29386.73	18.530*
Average wage per worker (€)	24158.87	23794.89	23616.46	21527.69	18.601*
Mean yearly occupancy of rooms (%)	73.42	66.92	66.82	62.63	17.921*
Gross operating income (€) per room	44307.71	31210.25	27522.02	22435.37	35.215*
GVA (€) per room	18527.19	13453.41	12992.67	12128.47	12.631*
Labour unit cost per establishment	0.74	0.71	0.75	0.79	3.781
GOS (€) per room	5130.3	4286.91	3391.86	3063.59	5.52

Note: *$P \leq 0.001$

Source: Quality, Productivity and Competitiveness in the Hospitality Industry (PO7/SEJ-02889) and own data

CONCLUSION

The main aim of our study was to test whether the establishments that implement environmental measures have a better economic performance than those that are not environmentally proactive, using for this goal the strategic group methodology. We utilized a sample of 216 Andalusian hotels with 3 to 5 stars in 2009, which comprised 26.3% of the statistical population of this type of hotel. By applying non-hierarchical cluster analysis, and based on the classification developed by Henriques and Sadorsky (1999) for large industrial firms and adapted to the hospitality sector in Spain by Alvarez-Gil *et al*., four strategic groups were identified (proactive, accommodating, defensive, and reactive) as characterised by their implementation of environmental strategies. The groups presented statistically significant mean values in the eight variables that measured the environmental commitment of the firms.

Fourteen descriptive variables were also included to obtain a more comprehensive overview of this issue.Of those fourteen variables, eleven showed statistically significant results for each of the

groups.The two groups with higher environmental commitment also showed a strong commitment to quality. The proactive group appears to design strategies based on total quality, with a high-quality service focused on customers. This is shown by their lower mean number of rooms per establishment (103.27 rooms), higher employee/client ratio, and better environmental conservation strategies and respect for the environment, and by their quality and environmental certifications. It is also noteworthy that most of the publicly owned establishments are among the environmentally proactivegroup, which demonstrates the commitment of public managers in the implementation of environmental measures.In addition, none of the proactive establishments is managed under leasing contract, the vast majority of their customers are foreignersand their interest in ongoing improvement of the premises is reflected in the short time since the last important renovation of the establishment (2.67 years).On the other hand, the accommodating group has a moderate commitment to quality—the number of rooms per establishment is twice the number in the proactive group—but they also have quality certifications, do not have environmental certification, and respect for the environment functions as a marketing strategy more than a corporate commitment.Finally, establishments less involved in the implementation of environmental improvement measures, show values of most of the descriptive variables far away from those achieved by proactive and accommodative groups.

We highlight that the implementation of strategic plans for the development of hotel business is increasingly common in Andalusia; this management tool is used more frequently in those establishments with greater environmental commitment(it has been implemented in 94% of the proactive establishments).

The second point under discussion was whether the strategic groups identified as being strongly committed to implementing environmental measures have better economic performance than those not environmentally proactive. Thus, the mean values of seven economic variables in each strategic group were calculated by cluster analysis. The differences between environmental strategies in labour productivity,average wage per worker, mean occupancy rate, gross operating income per room and GVA per room were statistically significant. Our results showas the greater the environmental commitmentof the group, the higher mean values of the economic variables analysed are especially in the proactive group. In the case of labor productivity,the difference between the values displayed by the proactive group is22.3% higher than to the average of the environmentally reactive establishments(Group 4)andtheaverage occupancy rate is higher by about 11% to that presented in those hotels less environmentally involved. The differences between these two groups are greater in terms of gross operating income (97.5%) and GVA per room (52.8%); results also show that for this group of establishments, higher productivity and income enhance the ability to reward their workers with higher wages, leading to better working conditions for employees.In view of the results obtained for these economic variables, and as hypothesised, we can conclude that there is empirical evidence for a positive association between proactive environmental strategies in the Andalusian hospitality sector and the economic performance of establishments. In other words, the greater the environmental commitment, the better the economic outcome.

These findings are similar to those presented in the study by Alvarez-Gil *et al*. (1999, 2001) and Claver-Cortés *et al*. (2007), despite the fact that some of the variables used by these authors were different and the establishments were located in different geographical areas.

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