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# Environmental Management Certification and Performance in the Hospitality Industry: A Comparative Analysis of ISO 14001 Hotels in Spain

María-del-Val Segarra-Oña Ph.D.

Angel Peiro-Signes Ph.D.

Rohit Verma Ph.D.

*Cornell University*, [rv54@cornell.edu](mailto:rv54@cornell.edu)

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# Environmental Management Certification and Performance in the Hospitality Industry: A Comparative Analysis of ISO 14001 Hotels in Spain

## **Abstract**

As the number of hotels that are strongly interested in sustainability-related issues increases, the hotel industry is still seeking consensus on how sustainability can be measured and managed. One standard that provides both measurement and policies for sustainability management is ISO 14001, which is being adopted by an ever growing number of hotels, especially in Europe. Using a sample of over 2,000 independent hotels in Spain, this report analyzes the differences between those hotels that have implemented the ISO 14001 standard and those that haven't. Also considered are the possible effects on the business results of such companies of moderating factors such as company size and the market segment in which the hotel operates. On balance the certified hotels recorded stronger sales and earnings before taxes and depreciation than those that were not certified. Certified hotels in Spain tended to be larger than uncertified properties, and certified hotels in city and beach locations enjoyed considerably stronger performance than those without the certification. The report challenges the often-heard contention that adopting sustainability programs will diminish hotels' performance. Instead, these data show the reverse to be the case.

## **Keywords**

hotel, ISO 14001, environmental management certification, standards, guest satisfaction

## **Disciplines**

Business | Hospitality Administration and Management

## **Comments**

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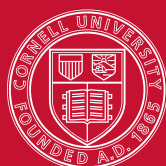
## Environmental Management Certification and Performance in the Hospitality Industry: A Comparative Analysis of ISO 14001 Hotels in Spain

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by María-del-Val Segarra-Oña, Ph.D., Ángel Peiró-Signes, Ph.D., and Rohit Verma, Ph.D.

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Center for Hospitality Research  
Cornell University  
School of Hotel Administration  
489 Statler Hall  
Ithaca, NY 14853

Phone: 607-255-9780  
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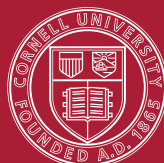
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### EXECUTIVE SUMMARY

**A**s the number of hotels that are strongly interested in sustainability-related issues increases, the hotel industry is still seeking consensus on how sustainability can be measured and managed. One standard that provides both measurement and policies for sustainability management is ISO 14001, which is being adopted by an ever growing number of hotels, especially in Europe. Using a sample of over 2,000 independent hotels in Spain, this report analyzes the differences between those hotels that have implemented the ISO 14001 standard and those that haven't. Also considered are the possible effects on the business results of such companies of moderating factors such as company size and the market segment in which the hotel operates. On balance the certified hotels recorded stronger sales and earnings before taxes and depreciation than those that were not certified. Certified hotels in Spain tended to be larger than uncertified properties, and certified hotels in city and beach locations enjoyed considerably stronger performance than those without the certification. The report challenges the often-heard contention that adopting sustainability programs will diminish hotels' performance. Instead, these data show the reverse to be the case.

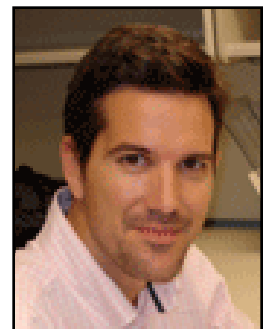
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## ABOUT THE AUTHORS



**María-del-Val Segarra-Oña**, Ph.D., is a visiting scholar at the Cornell University Center for Hospitality Research at the School for Hotel Administration, where she studies the relationships between ecoinnovation, environmental orientation, and firms' characteristics at the hospitality industry. An associate professor at the Industrial Engineering School at Polytechnic University of Valencia (Spain), her research is focused on eco-innovation, sustainability, and environmental proactivity and its economic valuation. She has published more than twenty articles in academic and professional journals including the *International Journal of Environmental Research*, *European Planning Review*, and *Environmental Engineering and Management Journal*. She is the author of several book chapters published by prestigious editors such as Nova Publishers and Springer-Verlag.

**Ángel Peiró-Signes**, Ph.D., is a visiting scholar at the Center for Hospitality Research, where he studies the relationships between eco-innovation, environmental orientation, and firms' characteristics in the hospitality industry. A freelance consultant in industrial engineering related topics, he is an industrial engineer and materials engineer who holds a Master in Business Administration in addition to his Ph.D. in management from the Polytechnic University of Valencia, where he is an assistant professor. His research interests include the economics of eco-innovation, especially the way in which environmental regulations affect the innovation process at firms. He has published several research papers and book chapters in prestigious journals.



**Rohit Verma**, Ph.D., is professor of operations management and executive director of the Center for Hospitality Research at the Cornell University School of Hotel Administration (rohit.verma@cornell.edu). Among his research interests are product-and-service design and innovation, customer choice modeling, and quality process improvement of supplier selection strategies. His work has appeared in such publications as *MIT Sloan Management Review*, *Journal of Operations Management*, and *Cornell Hospitality Quarterly*.

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**A**fter France, Spain is the world's second most popular tourist destination, with 59.2 million visitors each year. The hospitality sector in Spain includes 358,979 firms, including 22,662 hotels.<sup>1</sup> Tourism is a resource-intensive industry that leaves a considerable footprint on the environment.<sup>2</sup> Therefore, close attention should be given to the services sector, especially to the hotel industry,<sup>3</sup> which is one of the most important economic activities due to the amount of employment it provides and its effects on regional development.<sup>4</sup>

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<sup>1</sup> Instituto de turismo, 2008, <http://www.tourspain.es/en/HOME/ListadoMenu.htm>.

<sup>2</sup> Hunter, C. & Shaw, J. (2007). The ecological footprint as a key indicator of sustainable tourism. *Tourism Management*, 28 (1), 46-57.

<sup>3</sup> Moscardo, G. (2008). Sustainable tourism innovation: Challenging basic assumptions. *Tourism and Hospitality Research*, 8 (1), 4-13.

<sup>4</sup> Holjevac, I. A. (2003). A vision of tourism and the hotel industry in the 21st century. *International Journal of Hospitality Management*, 22, 129-134.



Business companies are giving more and more consideration to aspects connected with sustainable development, environmental awareness, eco-innovation, and environmental management. These are first-class strategic assets.<sup>5</sup>

In this context, the management of sustainable development becomes a crucial process, and eco-efficiency is considered as one of the major challenges for R&D practice.<sup>6</sup> Many hospitality firms seek to demonstrate their implementation of quality control mechanisms that ensure that their products and services comply with stipulated standards of excellence related to the principles and practices of sustainability and value creation through environmental certification<sup>7</sup> and especially through ISO 14001.<sup>8</sup>

Some authors have detected that worldwide hotel managers are trying to improve the sustainability of their operations while analyzing measures for environmental sustainability in hotels in two main areas:<sup>9</sup> operating factor-related activities and behavioral policies. ISO 14001 certification can have a positive influence in both of these.

ISO 14001 is the most frequently used global environmental management standard,<sup>10</sup> with Spain and Italy being the European countries with the highest number of ISO 14001 certifications in the services sector.<sup>11</sup>

To date, some studies show that hotels that have put ISO 14001 into practice have recognized its advantages, although they have not identified them.<sup>12</sup> As described by Chan and Wong, the motivation for the adoption of the ISO 14001 standard is determined more by internal forces than by external forces. Those researchers identified two motivating factors

for the adoption of ISO 14001 by the hospitality industry: corporate governance and legislation.<sup>13</sup>

## Previous Studies

Some authors have pointed out a relationship between hotels' environmental responsibility and their economic performance.<sup>14</sup> A correlation has also been found between environmental orientation and performance in the tourist sector.<sup>15</sup> The studies which have reviewed implementation of environmental management tools, have analyzed both the external and internal factors influencing the implementation of environmental management systems.<sup>16</sup> Researchers have also examined the conditions of environmental certification in the Spanish hotel industry.<sup>17</sup>

In this context, the need has been detected to compare cases of implementation of organizational eco-innovation systems in the tourist sector to evaluate the relationship between the use of one of the most frequently used environmental tools, the ISO 14001 standard, and business results.

The environmental practices of the Spanish hospitality industry have been broadly studied. Researchers have found that the commitment to quality and environmental practices influences hotel performance and stated that environmentally proactive hotels have a higher level of economic performance and demonstrate a positive relationship between environmental management and firm performance.<sup>18</sup> On the other hand, it has been shown that the most strategically advanced proactive hotels are also the most competitive.<sup>19</sup> However, there is a lack of research on the correlation between ISO 14001 certified hotels and their economic performance in crisis situations and also as the standard relates to urban, rural, and beach hotels.

<sup>5</sup> Esty, D.C. & Winston, A.S. (2006). *Green to Gold, How smart companies use environmental strategy to innovate, create value, and build competitive advantage*. Hoboken, New Jersey: John Wiley & Sons.

<sup>6</sup> Noci, G. & Verganti, R. (1999). Managing 'green' product innovation in small firms. *R&D Management*, 29 (1), 3-15

<sup>7</sup> Raines, S.S. (2002). Implementing ISO 14001—An international survey assessing the benefits of certification, *Corporate Environmental Strategy*, 9 (4), 418-426

<sup>8</sup> McKeiver, C. & Gadenne, D. (2005). Environmental management systems in small and medium businesses. *International Small Business Journal*, 23 (5), 513-537; and Vastag, G. (2004). Revisiting ISO 14000 diffusion: a new "look" at the drivers of certification. *Production and Operations Management*, 13 (3), 260-267.

<sup>9</sup> Zhang, J. J., Joglekar, N. & Verma, R. (2010). Developing measures for environmental sustainability in hotels: an exploratory study. *Cornell Hospitality Report*. The Center for Hospitality Research. Cornell University.

<sup>10</sup> Chan, E. S. W. & Hawkins, R. (2009). Attitude towards EMSs in an international hotel: An exploratory case study. *International Journal of Hospitality Management*. 29 (4), 641-651

<sup>11</sup> Bonilla, M.J. (2008). Analysis of environmental statements issued by EMAS-Certified Spanish Hotels, *Cornell Hospitality Quarterly* 49 (4), 381-394.

<sup>12</sup> For example, see: Chan, E. S. W. & Wong, S. C. K. (2006). Motivations for ISO 14001 in the hotel industry. *Tourism Management*, 27, 481-492.

<sup>13</sup> *Ibid*.

<sup>14</sup> García Rodríguez F. J. & Armas Cruz, Y. M. (2007). Relation between social-environmental responsibility and performance in hotel firms. *International Journal of Hospitality Management*, 26, 824-839.

<sup>15</sup> Claver-Cortes, E., Molina-Azorín, J. F. & Pereira-Moliner, J. (2007). Competitiveness in mass tourism. *Annals of Tourism Research*, 34 (3), 727-745; Molina-Azorín, J.F., Claver-Cortés, E., Pereira-Moliner, J. & Tarín, J.J. (2009). Environmental practices and firm performance: an empirical analysis in the Spanish hotel industry, *Journal of Cleaner Production* 17, 516-524; and Kim, Y. and Han H. (2010): Intention to pay conventional-hotel prices at a green hotel—A modification of the theory of planned behaviour. *Journal of Sustainable Tourism*, 18 (8), 997-1014.

<sup>16</sup> El Dief, M and Font, X (2010): The determinants of hotels' marketing managers' green marketing behaviour. *Journal of Sustainable Tourism*, 18 (2), 157-174.

<sup>17</sup> Bonilla, *op.cit*.

<sup>18</sup> Tari, J. J., Claver-Cortes, E., Pereira-Moliner, J. & Molina-Azorín, J. F. (2010). Levels of quality and environmental management in the hotel industry: Their joint influence on firm performance. *International Journal of Hospitality Management*, 29 (3), 500-510.

<sup>19</sup> Claver-Cortés *et al.* (2007), *op.cit*.

### Classification of establishments studied according to type and size

	City hotels	Beach hotels	Rural hotels
<b>Without ISO 14001</b>	800	814	394
Fewer than 50 employees	659	578	377
50 to 249 employees	128	194	17
250 employees or more	13	42	0
<b>With ISO 14001</b>	27 (3.4%)	45 (5.5%)	36 (9.2%)
Fewer than 50 employees	13	24	36
50 to 249 employees	7	18	0
250 employees or more	7	3	0
<b>Total</b>	827	859	430

Source: IHOBE and SABI databases.

In this regard we have identified a research gap linking the implementation of management tools with economic performance, or the relationship between both concepts according to the type of hotels involved as regards the importance of size and segment.

#### Objectives of the Study

Our purpose in this report is to make a contribution to understanding the role of proactive environmental management tools in creating value for hotels by analyzing the effects of adopting ISO 14001, as indicated by the experience of Spanish hotels. For this study, we segmented the hotels according to location (i.e., urban, beach, and rural)<sup>20</sup> and by size.

#### Research Questions

One of the enduring concerns for hotel and tourism businesses is that engaging in sustainability programs will cost money and hurt profits. Consequently, we wanted to analyze whether achieving ISO 14001 certification helps the economic performance of hotels. Our main hypothesis states: *Environmental management through ISO 14001 in hotel companies affects their economic performance*. From this line of study, we will determine whether it is possible to identify moderating factors that influence this link, considering the variables *size of the firm* and *geographic segment to which the hotel belongs*. With this framework, we conducted an analysis and evaluation of a Spanish hotel sample that has implemented ISO 14001 and compared

those properties to a sample of hotels that have not adopted this standard. In the remainder of this report, we explain the empirical relationships between environmental management using ISO 14001 and economic performance. After the statistical analysis and discussion of the results, we offer conclusions and implications.

#### The Sample

The sample of hotels that we analyzed were all located in Spain, and all had a classification of three stars or greater. None had a flag belonging to a large commercial chain. Although at first we had thought of adopting smaller and more homogeneous regions for the sample, we considered that analyzing a broader geographic area could help us to obtain better results. Given the strategic importance of the tourist industry in Spain, we included hotels from all of Spain's regions.

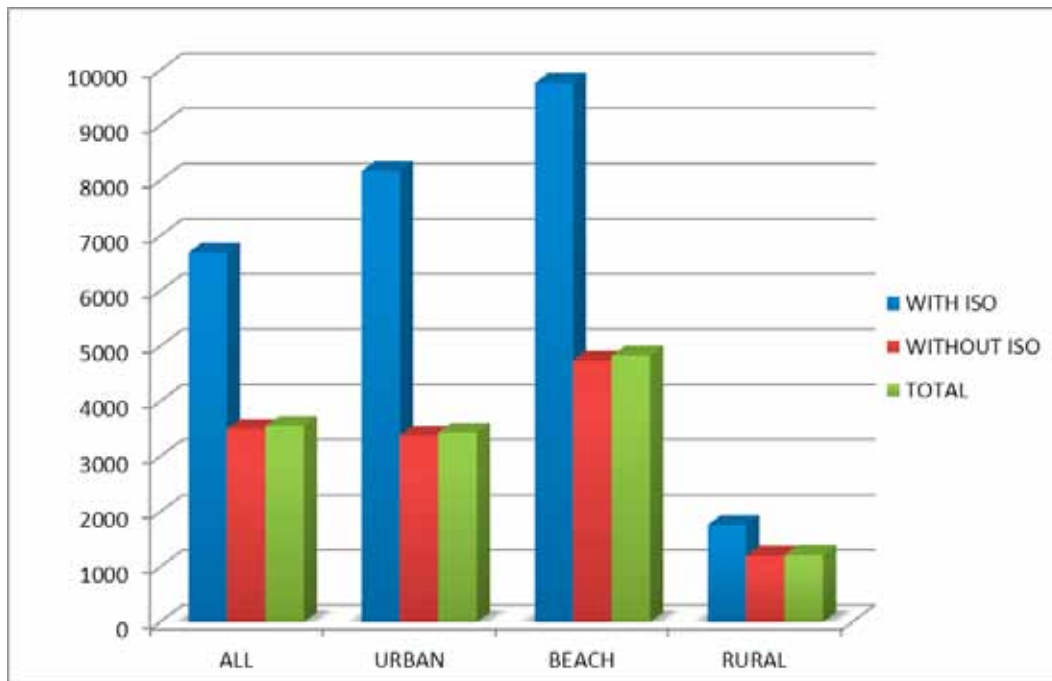
The sample of hotels with environmental certification was drawn from the IHOBE database,<sup>21</sup> which consists of a monthly updated comprehensive list of Spanish companies certified according to the ISO 14001 standard, with a search system by sector, National Spanish Activities Classification (CNAE), or province. Affiliate level information includes name of the affiliate; host-region, and economic activity as defined by the CNAE codes, the address, and the certifying organization.

For the 2,116 Spanish hotels identified, economic information was obtained from the SABI economic database for the year 2008. Of these hotels, 108 had ISO 14001 certification. Exhibit 1 shows the sample divided into city, beach, and rural hotels by segments, total hotels, and hotels with

<sup>20</sup> Smolyayinova, J. (2007) Hospitality Market Opportunities for the Business Market Segment in Borlänge Dissertation, [www.du.se/Page-Files/5054/Smolyaninova.pdf](http://www.du.se/Page-Files/5054/Smolyaninova.pdf). Lewis, R.C. & Chambers, R.E. (1989). *Marketing leadership in hospitality: Foundations and practices*. Van Nostrand Reinhold.

<sup>21</sup> <http://www2.ihobe.net/CertMed.nsf/FCERTESTADO?OpenForm>.

### Total mean income comparison between hotels with ISO14001 certification and those without



ISO certification. We excluded 34 establishments that did not fit any of the three geographic categories.

We measured company size by the number of employees. Those with fewer than 50 were considered to be small companies, between 50 and 249 were considered to be medium size, and those with 250 and over were classified as large companies.<sup>22</sup>

#### Data Analysis: Mean Differences Analysis

We applied an ANOVA test to detect mean differences between hotels with the ISO 14001 certification and results from non-certified firms, using the following specific performance indicators: trading income (TI), net sales (NS), size by number of employees (SZ), and earnings on sales before interest, taxes, depreciation and amortization (EBITDA). In choosing these indicators we noted an earlier study used to analyze economic performance in Spain's food industry.<sup>23</sup> To construct the indicators, we processed information taken from the SABI database.

The database was analyzed using the analysis of variance test in SPSS.17.0. ANOVA analysis seeks to break down the

variability in a study into independent components that can be assigned to different causes. It is a statistical technique designed to analyze the significance of the mean differences of the different populations, and as such, it is considered as an extension of the means difference test, and is used to study the relationship between nominal, ordinal, and interval variables.<sup>24</sup> The ANOVA technique indicates whether we reject the null hypothesis that reflects the equal means value for each  $\alpha$  level of significance. In this way we confirm whether the mean of the variable performance is significantly different for the firms according to their ISO 14001 environmental certification.

After analyzing the overall mean value of the eight studied variables, we found that TI, NS, SZ, and EBITDA all revealed significant differences between hotels with ISO 14001 certification and those without.

It is interesting to note that the mean values of both trading income and net sales of ISO-certified hotels are twice those of non-certified establishments. Considering the mean size gives some indication of the relationship between size, process organization, and economic performance. This indication is supported by the EBITDA value.

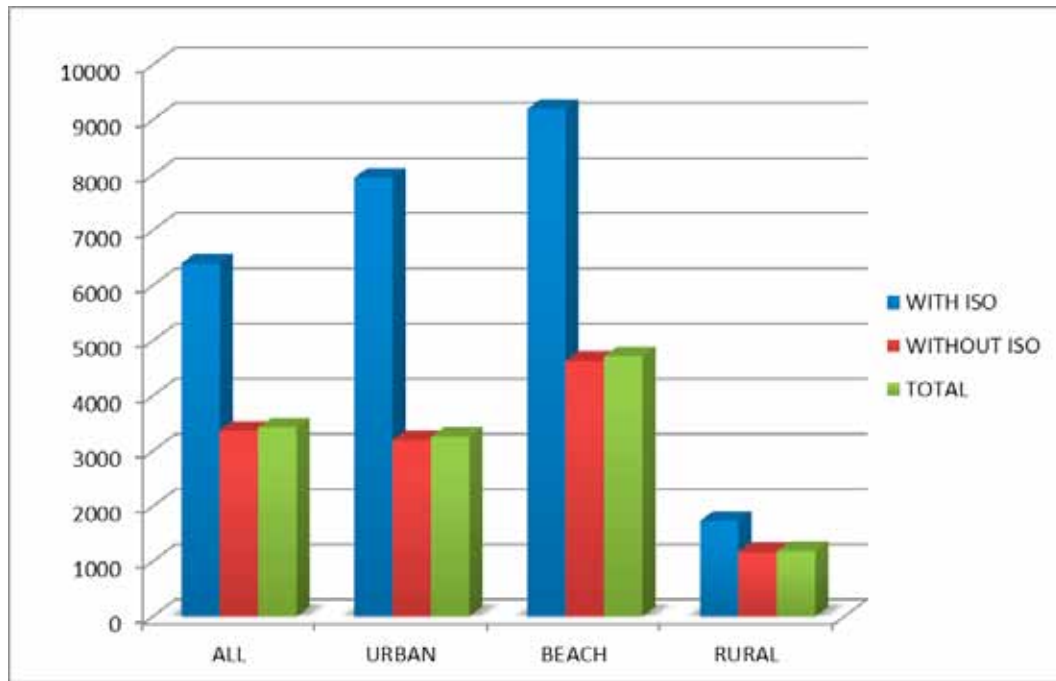
**Geographic segments.** A total of four one-way analyses of variance were conducted on each of the different perfor-

<sup>22</sup> European Commission, 2003. On 6 May 2003 the Commission adopted Recommendation 2003/361/EC.

<sup>23</sup> Segarra-Oña, M, Miret-Pastor, L., Peiró-Signes, A. (2011), Is The Food Industry Taking A Proactive Stance On Environmental Issues? Results From An Empirical Analysis, *Review of Business Information Systems*, 15 (5), 11-16.

<sup>24</sup> Hair, J.F., Anderson, R.E., Tatham, R.L. & Black, W.C. (1998). *Multivariate Data Analysis*, 5th ed. (Englewood Cliffs, NJ: Prentice-Hall).

### Net sales mean comparison between hotels with ISO14001 certification and those without



mance measures to examine differences among the three segment groups identified.

Urban hotels' results were similar to those of the whole sample, with TI, NS, SZ, and EBIDTA revealing significant differences between hotels with ISO 14001 certification and those without. This was true of SZ, NS, and TI. Here again, a relationship between size, organizational innovation, and performance can be observed.

The data obtained from the ANOVA analysis of beach hotels shows significant results for TI, NS, SZ, and EBIDTA, but we found no significant correlation between the ISO 14001 hotels and the remainder in the rural hotel segment. We should note that these rural hotels are all relatively small (< 50 employees).

The results can be seen graphically in the following figures, where each of the variables has been compared for the whole sample and also considering each individual segment.

Exhibit 2 shows a comparison of mean income for the two groups, showing important differences especially in urban and beach segments. The whole sample shows mean differences of €7,400,560 for firms with certification and €3,512,390 for firms without certification.

Exhibit 3 compares net sales means between certified and non-certified hotels for the sample as a whole and for different geographical subsamples. Once again, as can be seen in the bar chart, in all the segments analyzed, mean

net sales stood higher in those hotels that achieved the ISO 14001 certification.

It is interesting to see that hotels that have ISO 14001 certification are larger on average than those without, a finding consistent with previous studies (see Exhibit 4).<sup>25</sup> Mature companies seem to be able to better organize and better accomplish with standardization and regulations. The outcome was better results and performance.

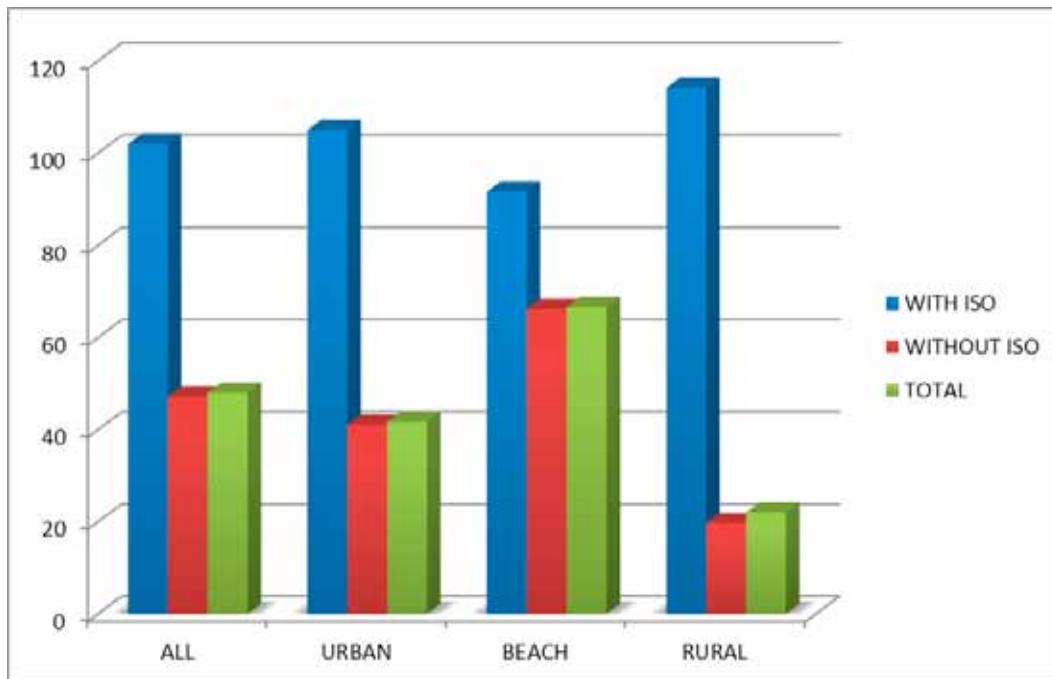
### Discussion

Many studies analyze the economic outcomes for firms that have implemented ISO 14001. Empirical evidence suggests that this standard improves both environmental and economic results by reducing costs, improving quality, or improving reputation.<sup>26</sup> Such improvements are due to the fact that the ISO 14001 helps to generate valuable resources to

<sup>25</sup> Greiner, L. E. (1997). Evolution and Revolution as Organizations Grow: A company's past has clues for management that are critical to future success. *Harvard Business Review*, 10 (4) July–August 1972.

<sup>26</sup> Melnyk, S., Sroufe, R. & Calantone, R. (2002). Assessing the impact of environmental management systems on corporate and environmental performance. *Journal of Operations Management*, 336, 1-23; Kelly, J.; Haider, W.; Williams, P. & Englund, K. (2007). Stated Preferences for EcoEfficient Destination Planning Options. *Tourism Management*. 28 (2), 377-390 and Montabon, F., Melnyk, S., Sroufe, R. & Calantone, R. (2000). ISO 14000: Assessing its perceived impact on corporate purchasing performance. *Journal of Supply Chain Management*, 36 (2), 4-15.

### Size comparison (by mean number of employees) between hotels with ISO14001 certification and those without



maintain or create competitive advantages.<sup>27</sup> Other authors suggest that environmental management systems provide a company with an information system that not only reduces contamination but also helps to improve corporate results.<sup>28</sup>

Most ISO 14001 certifications have occurred in the tourist industry, although they are also taking place at a steady rate in the services sector throughout the world.<sup>29</sup>

Our findings showed that the use of ISO 14001 as an environmental management tool had a significant impact on several economic performance variables, which led us to conclude that there is a relationship between ISO 14001 and corporate performance, thus validating our main hypothesis, which stated that environmental management through the application of ISO 14001 contributes to value creation in the hotel industry by improving business results.

The ANOVA test revealed significant differences in total business performance in the total sample, which was composed of all Spanish hotels with ISO 14001 environ-

mental certification (in 2008), with 3 or more stars and not belonging to large chains.

In the analysis of the sample segmented by geographic location it can be seen that size is also acting as a moderating factor for urban, beach, and rural hotels. In urban and beach segments, the mean establishment size can be classified as medium, that is, between 50 and 250 employees, as compared to the mean size of rural hotels, all of which have fewer than 50 employees. (Mean of entire sample, SZ=50.48, with ISO 14001, SZ=112; Urban Hotels, SZ=43, with ISO 14001, SZ=115; Beach Hotels, SZ=68, with ISO 14001, SZ=101; Rural Hotels, SZ=27, with ISO 14001, SZ=36.)

The ANOVA did not reveal any significant differences in business results among rural hotels with ISO 14001 and those hotels without that certification.

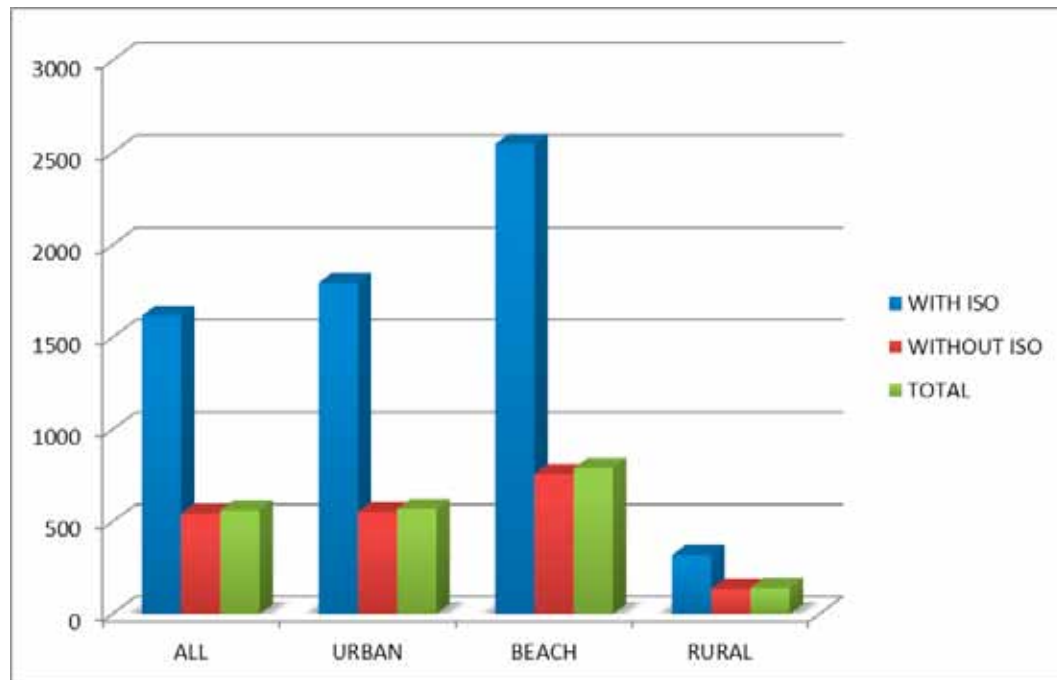
The second hypothesis is validated by the fact that the influence of the so-called organizational eco-innovation on the hotel results depends in part on their location. This is evident in the difference between the urban and beach segments as compared to rural hotels. The most important difference with regard to the ISO 14001 results is the relatively large size of those that have adopted it. Hotels in natural surroundings such as the rural hotels are forced to respect the environment, and one consequence of this fact may well be the small hotel size for this segment. Beyond that, small hotels can give individual attention to customers and integrate themselves

<sup>27</sup> Cañón, J. & Garcés, C. (2006). The economic repercussions of ISO 14001 environmental certification. *Cuadernos de Gestión* 6 (1), 45-62.

<sup>28</sup> Russo, M. V & Fouts, P. A. (1997). A Resource-Based perspective on corporate environmental performance and profitability, *Academy of Management Journal*, 40 (3), 534-559 and Melnyk et al. (2002).

<sup>29</sup> Font, X. (2002). Environmental certification in tourism and hospitality: progress, process and prospects. *Tourism Management*, 23, 197-205.

## EBITDA mean comparison between hotels with ISO14001 certification and those without



more thoroughly with the environment, apart from any specific regulations. The influence of size and organizational evolution can be detected in the correlation between implementation of management organizational tools and business results.

On the other hand, it is reasonable to assume that the clientele of rural hotels is environmentally aware and purposely looks for this type of establishment, so that possessing ISO certification does not give any advantage over non-certified hotels, since both types can basically be considered to be environmentally friendly, without the need for official certification.

A large number of empirical studies have confirmed the use of formal systems for changes that characterize an organization's evolutionary periods.<sup>30</sup> This could explain the relationship between new innovative organizational systems and improvement of business management and performance.

The data analyzed in this research seem to be in agreement with other studies. The results show that firms with proactive practices exhibited a significantly positive eco-

nomonic performance.<sup>31</sup> In addition, as could be expected from the theory,<sup>32</sup> small firms need support systems to help managers in their development needs, while larger firms can afford to have a team of specialists. Rural hotels with a proactive attitude can assess current challenges as soon as they enter in a "resource maturity" stage.<sup>33</sup>

To sum up, our analysis shows that the best performing hotels in the Spanish hospitality industry are those that have adopted the ISO 14001 proactive environmental management tool, and, considering that size acts as a moderating factor, urban and beach hotels show better performance in this regard than rural hotels. Another interpretation of the difference between these segments could be that for rural hotels, given their association with natural surround-

<sup>31</sup> Aragón-Correa, J. A., Hurtado-Torres, N., Sharma, S. & García-Morales, V. J. (2008). Environmental strategy and performance in small firms: A resource-based perspective, *Journal of Environmental Management*, 86 (1), 88-103 and Martín-Tapia, et al. (2010). Environmental strategy and exports in medium, small and micro-enterprises. *Journal of World Business*, 45 (3), pp. 266-275.

<sup>32</sup> Kroeger, C. V. (1974). Managerial development in the small firm. *California Management Review*, 17 (1), 41-47.

<sup>33</sup> Churchill, N. C. & Lewis, V. L. (1983). The five stages of small business growth. *Harvard Business Review*. 61 (3), 30-50.

<sup>30</sup> Greiner (1972); Tushman, M.L., Newman, W.H. & Romanelli, E. (1986). Convergence and upheaval: Managing the unsteady pace of organizational evolution. *California Management Review*, 29 (1), 29-44.

ings, sustainable development, and environmental protection, being ISO certified does not provide any competitive advantage.

The results offer quantitative support to the notion that implementing ISO 14001 is worthwhile for hotels, something that most hoteliers had previously detected in a tacit way. These data explain why the number of certified hotels is increasing and also why some of the most important hotels are adopting ISO 14001 certification in all their establishments, especially in Europe. For instance, Paradores Nacionales in Spain have gained certification,<sup>34</sup> and Groupe Accor has certified all of its Ibis hotels.<sup>35</sup>

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<sup>34</sup> <http://www.parador.es/en/green-parador>.

<sup>35</sup> <http://www.ibisenvironment.com/gb/index.html>.

The principal limitations of this research involve the available sample and data and the proportion of rural hotels which somehow by-pass the statistical analysis. Future research will focus on the use of different methodologies with more complex analysis (a larger variety of organizational factors) and larger data bases as well as longitudinal studies. An in-depth case qualitative study will be necessary to obtain further information on the results obtained by the different hotel segments. Another line of research will consist of the analysis of hotels' eco innovative performance in other countries, such as France and Italy, which have a different customer profile than Spain and where tourism means a considerable contribution to the GDP, as well as in the USA, where the international environmental management systems and ISO standards are much less common. ■

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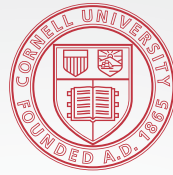
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