Indicators on the Profitability of the Hotel Sector

INE

INSTITUTO NACIONAL DE ESTADISTICA

Methodology

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1. Introduction

The main objective of the Indicators on the Profitability of the Hotel Sector is to compile two indicators enabling the hotel sector in its decision-making. The indicators are the ADR, *Average Daily Rate,* and *the RevPAR, Revenue per Available Room.*

These two variables, together with the level of occupancy by room, constitute an important source of information for hotel establishments, which enables them to evaluate their pricing policy or *revenue management*.

The value of these variables is above all at the level starting from which establishments set their pricing policy, therefore information must enable comparability with surrounding hotels or their direct competitors.

The INE collects, on a monthly basis, information relating to prices, which hotel businesspersons apply to their clients for the service in a double room with a bathroom, excluding taxes and any other service. This information is requested in the Hotel Occupancy Survey questionnaire (hereafter, HOS).

Until the year 2007, prices were requested, distinguishing between the following rates: normal, weekend, tour operators and travel agencies, groups and companies. Due to the changes that occurred in the sector, due, among other aspects, to the introduction of new technologies in sales processes, as of 2008 the question has been amended relating to prices, going from explicitly requesting the ADR double room with a bathroom, excluding taxes and any other service, and distinguishing between different types of customer and sales channels:

- Traditional tour operators

- Traditional travel agencies

- Enterprises

- Groups

- Direct hiring on the hotel website or the hotel chain website

- Online tour operators

- Online travel agencies

This information is used for calculating the HPI (Hotel Price Index). Calculation and dissemination of the new indicators will extend the information required by the sector, thus the now great usefulness of the HOS. These are therefore not in response to a regulatory requirement by the EU, but to the need for information stated by the actual sector. The large coverage of the HOS will provide users with homogeneous data, comparable at a broad level of detail.

Whether a fixed structure should be maintained in order to calculate HPI and the HII, since both are indices[*] which enables coherent comparison between two different time periods (in these indices certain structures in the same month for two consecutive years remain unchanged, since interannual comparisons are made,

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[*] In the case of the HPI, the hotel structure and occupied rooms are set, whereas in the case of the HII, only the hotel structure is fixed.

rather than intermonthly ones), for the ADR and the RevPAR there is no need to act in this way, since the actual situation is to be collected at a specified time. This implies that interannual and intermonthly variation rates may be calculated, all the while bearing in mind that the fluctuations are caused by changes to a number of factors: variation in price, supply and occupancy

2. Definition of the indicators

The ADR or Average Daily Rate is daily average income per occupied room.

The RevPAR, on the other hand, is average income per available room.

In both definitions income refers to that earned by hoteliers for the provision of accommodation services, excluding other types of services which the establishment is able to provide, such as catering services, minibar, spa, gymnasium, organisation of meetings or events,...

The following relationship exists between the two indicators:

$$\mathrm{Re}\,vPAR \cong ADR * \mathrm{Level\,of\,occupancy\,per\,rooms}$$

Note: they are not exactly equal, due to the fact that the level of occupancy by room is calculated according to Hotel Occupancy Survey criteria, without having taken all of them into account when estimating the ADR and RevPAR for methodology reasons.

3. Scope

Data collection for calculating the ADR and RevPAR is carried out within the HOS, therefore the sample scopes and design are from the aforementioned survey

a. Time scope

The HOS are monthly and the estimated data refers to the activity carried out by each hotel establishment during the month corresponding to the reference period.

In the HOS the data requested refer to seven consecutive days, such that establishments in the sample are distributed throughout the month, so that each day of the reference month in sufficiently represented.

b. Population scope

The population under study for the Hotel Occupancy Survey comprises all establishments in their modalities of hotel, parador, hotel-apartment, apart-hotel and motel -whether or not these are residential- with the categories of five, four, three, two and one stars and guesthouses -whether or not these are residential- inns and boarding houses of a single category and of three, two and one stars -in accordance with the regulations of each Community-.

c. Geographical scope

The scope of the survey encompasses the entire country.

4. Sample design

As the framework for the selection of the informant units, the survey uses the directories of the Tourist Offices of the Autonomous Communities and other sources, which include, in those that appear, amongst other data, the following information for each establishment: name, address, category, normal opening period, number of vacancies, number of rooms. number of holiday apartments and lots.

These directories are updated on a permanent basis.

The framework is divided into strata, the latter being defined by the crossing of the variables category/province (or category/island in the case of the island provinces). Establishments are ordered according to number of places, from greatest to least, selecting the sample by means of a systematic procedure with random start in each stratum.

The survey is exhaustive in all provinces, except in some categories, for the provinces detailed hereunder (sample design 2014):

CPro	Provinces	Islands	3 gold	2 gold	1gold	2 and 3 silver	1 silver
03	Alicante		2/3	2/3	1/2		*See the list below*
06	Badajoz					1/2	
07	Baleares	Mallorca	1/3 1/2	2/5	1/3	1/3	
		Menorca	2/3				
		Ibiza-	1/2	2/3		1/2	
		Formentera	E	E	E	2/3	
08	Barcelona		1/2	2/5	2/5	1/5	
09	Burgos					2/3	
10	Cáceres					1/2	
11	Cádiz			2/3	2/3	1/2	
12	Castellón			2/3			
13	Ciudad Real					1/2	
15	A Coruña			1/2	2/3	1/3	
16	Cuenca					2/3	
17	Girona		1/2	2/5	2/5	1/3	
18	Granada		2/3	2/3	2/3	1/2	
20	Guipúzcoa				2/3	1/2	
22	Huesca			2/3	2/3	1/2	
24	León					1/2	
25	Lleida			2/3	2/3	1/2	
27	Lugo					1/2	
28	Madrid		1/2	2/3		1/5	
29	Málaga		1/2	1/2	2/3	1/2	
31	Navarra					1/3	
33	Asturias		1/2	1/3	1/2	1/2	
36	Pontevedra			1/2	2/5	2/5	

37	Salamanca					2/3	
38	S.C. Tenerife	*Tenerife*		1/2			
		La Palma					
		La Gomera					
		Hierro					
39	Cantabria			2/3	2/3	1/3	
41	Sevilla			2/3		2/3	
43	Tarragona			2/3	2/3	2/5	
44	Teruel					1/2	
45	Toledo					1/2	
46	Valencia		2/3	2/3			
50	Zaragoza					1/2	

The divisions of the Illes Balears are distinctions between summer (April - October) and winter (March -November), respectively.

Cell values indicate the stratum sampling fraction. Blank values indicate that they are exhaustive.

For 1-silver-star category sample strata, rather than setting a sampling fraction, the number of items to be selected is determined:

CPro	Provinces	Islands	No. of items	
01	Álava		12	
02	Albacete		24	
03	Alicante		30	
04	Almería		24	
05	Ávila		16	
06	Badajoz		24	
07	Baleares	Mallorca	16	24
		Menorca	8	8
		Ibiza	12	24
		Formentera	12	E
08	Barcelona		40	
09	Burgos		20	
10	Cáceres		24	
11	Cádiz		36	
12	Castellón		24	
13	Ciudad Real		20	
14	Córdoba		16	
15	A Coruña		60	
16	Cuenca		24	
17	Girona		24	
18	Granada		30	
19	Guadalajara		20	
20	Guipúzcoa		16	

21	Huelva		16
22	Huesca		16
23	Jaén		16
24	León		36
25	Lleida		24
26	La Rioja		24
27	Lugo		61
28	Madrid		56
29	Málaga		16
30	Murcia		12
31	Navarra		20
32	Ourense		30
33	Asturias		30
34	Palencia		24
35	Las Palmas	Gran Canaria	12
		Lanzarote	4
		Fuerteventura	4
36	Pontevedra		32
37	Salamanca		30
38	S. C. de Tenerife	Tenerife	8
		La Palma	4
		La Gomera	8
		Hierro	4
39	Santander		36
40	Segovia		20
41	Sevilla		24
42	Soria		20
43	Tarragona		8
44	Teruel		8
45	Toledo		20
46	Valencia		24
47	Valladolid		20
48	Vizcaya		16
49	Zamora		16
50	Zaragoza		24
51	Ceuta		8
52	Melilla		4

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5. General calculation method

   a. ADR

The ADR for month *m* in province *j* and for category *k* is calculated using the following mathematical expression:

$$ADR_{jk}^m = \frac{\sum_{i=1}^{e_{jk}}\sum_{t=1}^{8} M_{ijkt}^m \cdot B_{ijkt}^m \cdot D/7 + \sum_{i=1}^{e_{jk}^{"}}\sum_{t=1}^{8} M_{ijkt}^m \cdot B_{ijkt}^m}{\sum_{i=1}^{e_{jt}}\sum_{t=1}^{8} B_{ijkt}^m \cdot D/7 + \sum_{i=1}^{e_{jk}^{"}}\sum_{t=1}^{8} B_{ijkt}^m}$$

where:

M: price.

B: number of rooms occupied.

D: number of days in the .

e_{jk}: number of establishments in the sample for province j in category *k* which have answered the weekly HOS questionnaire.

$e_{jk}^{"}$: number of establishments in the sample for province j in category *k* which have sent the HOS questionnaire as an XML file.

i: establishment.

j: province (the 50 provinces, plus Ceuta and Melilla are considered)

k: category (7 types of different categories are considered, 5 of which are gold stars, and 2 of which are silver stars).

t: type of customer or sales channel (8 types of customer are defined).

m: reference month.

In the preceding formula, subindex *j* refers to the province, but it could equally be a municipality or a tourist region.

Subsequent groupings of the ADR may be calculated as a weighted average of ADR_{jk}^m, using occupied rooms to obtain weights:

$$ADR_{j}^m = \frac{\sum_{k} ADR_{jk}^m \cdot \widehat{B}_{jk}}{\sum_{k} \widehat{B}_{jk}}$$

$$ADR_{ck}^m = \frac{\sum_{j \in C} ADR_{jk}^m \cdot \widehat{B}_{jk}}{\sum_{j \in C} \widehat{B}_{jk}} \qquad ADR_{c}^m = \frac{\sum_{k} ADR_{ck}^m \cdot \widehat{B}_{ck}}{\sum_{k} \widehat{B}_{ck}}$$

where *C* is an Autonomous Community (17 Autonomous Communities plus Ceuta and Melilla are considered).

The ADR is likewise calculated at a national level:

$$ADR_{k}^m = \sum_{C=1}^{19} ADR_{ck}^m \frac{\widehat{B}_{ck}}{\sum_{C=1}^{19} \widehat{B}_{ck}}$$

$$ADR^m = \sum_{k=1}^{7} ADR_k^m \frac{\widehat{B}_k}{\sum_k \widehat{B}_k}$$

b. RevPAR

Conversely, the RevPAR for month *m* in province *j* and that of category *k* is calculated applying the following formula:

$$\mathrm{Re}\,vPAR_{jk}^m = \frac{\sum\limits_{i=1}^{e_{jk}}\sum\limits_{t=1}^{8} M_{ijkt}^m \cdot B_{ijkt}^m \cdot D\Big/7 + \sum\limits_{i=1}^{e_{jk}^{''}}\sum\limits_{t=1}^{8} M_{ijkt}^m \cdot B_{ijkt}^m}{\sum\limits_{i=1}^{e_{jk}} H_{ijk}^m \cdot D + \sum\limits_{i=1}^{e_{jk}^{''}} H_{ijk}^m \cdot dm_{ijk}}$$

where:

M: price

B: number of rooms occupied

H: the number of available rooms

D: number of days in the reference month.

dm_{ijk}: number of days the establishment has been open during the reference month.

e_{jk}: number of establishments in the sample for province j in category *k* which have answered the survey.

$e_{jk}^{''}$: number of establishments in the sample for province j in category *k* which have sent the HOS questionnaire as an XML file.

i: establishment.

j: province (the 50 provinces, plus Ceuta and Melilla are considered)

k: category (7 types of different categories are considered, 5 of which are gold stars, and 2 of which are silver stars).

t: type of customer or sales channel (8 types of customer are defined).

m: reference month.

Calculations of this variable by Autonomous Community, category or national total, will be carried out according to the same philosophy as the ADR, but replacing occupied rooms with available rooms in the weightings.

6. Data collection. XML tourism

Information will be collected by means of the Provincial INE delegations specialising in tourist occupancy surveys. These are those of Pontevedra, Cantabria, Álava, Huesca, Girona. Illes Balears, Castellón, Málaga, Cáceres, Toledo, S. C. de Tenerife, Asturias and Valencia.

The regular data collection procedure employed has been by post, with telephone and fax support. The informant may also complete and submit the survey online (ARCE System). Alternatively, and so long as the informant requests or approves it, electronic questionnaires may also be used, submitted and/or received by email.

For the HOS, a new optional telematic information collection via XML files system has also been implemented, basically consisting of hotel establishment case-handling software extracting from hotel database records all information required in the questionnaire with regard to guests, overnight stays, occupied rooms and days open.

The sample selected is monthly. Nevertheless, for the purposes of the questionnaires used, the sample is distributed weekly. Thus, each informant is assigned each month to a specific reference week. In addition, 3, 4 and 5 gold stars have to also provide a monthly data questionnaire.

The variables relating to prices and to occupied rooms are included in the weekly questionnaire, the question being as follows:

6. Average Daily Rate (ADR) by type of customer (in euros, excluding VAT)

Please indicate the ADR (Average Daily Rate) for each type of customer per night including accommodation only, with no breakfast, half board or full board **of an en suite double room.**
Please also indicate the **approximate percentage of rooms occupied by each type of customer** of the total – **the same as for section 4.3-** in the reference week (this percentage may be zero in some cases).

	ADR in euros	%[2]
...r operators		
...vel agencies[1] (including vouchers and cheques)		
...(includes normal rate and weekend rate)		
...n the hotel website or the hotel chain website		
...erators		
...gencies		
		100 %[2]

...ve redeemed **hotel vouchers and/or cheques** in exchange for services rendered must be ...is customer type.
...e will be zero if there have been no rooms occupied during the reference week.

The HOS use two weekly questionnaire models, the fundamental difference being the list of countries of origin of guests and overnight stays. For hotels in higher categories (in other words, 3, 4 and 5 gold stars) the list includes more countries than for the remainder of categories. This does not influence the question of prices, which is identical in both cases.

7. Dissemination of results

As has already been mentioned in this document, the usefulness of these two variables is greater, the closer each hotel establishment is to the overall direct competition.

Since we are aware that the INE website is not the appropriate communication channel for providing such a detailed level of information, two different diffusion channels are discussed:

- Via the INE website, a standard monthly publication of the ADR and RevPAR variables on a national level and by category, and on an Autonomous Community level.

- For each establishment completing the HOS using XML files, customised information will be submitted: the ADR, RevPAR and level of occupancy by room for their establishment, as well as these three same variables for their same province and category, so long as the significance and statistical secrecy criteria of this survey are fulfilled.

8. Statistical secrecy

It could be provided information about all those strata (or data geographical groups) where the number of establishments with incidence 1 (open or with movement) is equal to or higher than 5.

9. Link coefficients

The methodological changes or extraordinary updates of the directories constituting the framework of the survey imply that the data published introducing said changes is not directly comparable with the previously published data.

In order to avoid this break in the series, and allow for comparability, linking coefficients are calculated to be applied to the published data before introducing the improvements.

Linking coefficients

Given the strong seasonal nature of these series, we have decided to obtain different linking coefficients for each month, thus maintaining the interannual variation rates of the series, although the same does not apply to the inter-monthly rates.

For each month, the linking coefficient for a variable X is obtained as the quotient between the estimated value of said variable in said month of year T, considering all of the available information (methodological changes and/or improvements in the directory) and the estimated value in the same month without considering the innovations.

$$CX_{i,T} = \frac{X_{i,T}^{with\ improvements}}{X_{i,T}^{without\ improvements}}$$

where:

i =1…12 months

$X_{i,T}^{with\ improvements} =$ Estimated value of variable X in month i of year T, using all of the information available.

$X_{i,T}^{without\ improvements} =$ Estimated value of variable X in month i of year T without considering the innovations.

Linked series

The series that are linked and comparable with the data published are calculated by multiplying the published series (prior to the date on which the improvements are introduced) by the linking coefficient of the corresponding month.

$$X_{i,T-j}^{linked} = X_{i,T-j}^{pub} \times CX_{i,T}$$

where:

i = 1..12 months

$X_{i,T-j}^{pub}$ = Published estimated value of variable X in month i of year $T-j$ (where $j \succ 0$)

$CX_{i,T}$ = Linking coefficient for variable X in month i

Given that the linking coefficients are calculated independently for each geographical breakdown, each category or each nationality, the linked series lose their additivity.