43rd European Congress of the Regional Science Association,
Jyväskylä, Finland. August 27-30, 2003.

Tourism and productivity: Case study of the hotel and catering industry in the Andalusian region.

Authors:

Eva Isabel González Guerrero. Teacher of Applied Economy (Economic Structure) Department, Málaga University, Málaga. E-mail: eigonzalez@uma.es, fax: 952 132075.

José López Rubio. Teacher of Applied Economy (Economic Structure) Department, Málaga University. Málaga. E-mail: jlopezr@uma.es, fax: 952 132075.

Abstract.

The object of this paper is to analyse the situation and evolution of the productivity of the tourism industry in the Andalusian region, and more specifically of the hotel and catering branch, relating it to the organisational structure of its businesses. First of all, the issue of the definition and limitation of the concept of productivity applied to the services sector is addressed, as traditionally this concept is focused on manufacturing, and different ways of measuring and the analysis methods are reviewed. Then, using the accounting information provided by the *Central de Balances de Andalucía* (CBA), are analysed the general features of the organisational structure of the hotel and catering industry in the Andalusian region, stratifying the samples by the size of the companies and examining the medium size of the Andalusian hotel and catering businesses. Once the organisational structure of the sector is analysed, it is related to the state and evolution of its productivity, using a simple ratio between the Gross Added Value and the personnel expenses, and completing this analysis with a relative efficiency index, the Baldwin efficiency index, with which the technical efficiency of each company is compared to the mass of most efficient companies. As a result of this research it is observed that the productivity indexes increase with the size of the companies and during the considered period, especially in the case of the medium sized and large companies. Nevertheless, these productivity increases are less relevant than the increase of employment, especially in case of smaller companies.

Key words : Region, tourism and productivity. **Classification JEL**: L83, R11, O47.

INDEX.

1.- Introduction.

This paper analyses the situation and evolution during the second half of the nineties of the productive efficiency of the hotel and catering branch in Andalusia, relating it to the organisational structure of the companies, based on the figures given by the *Central de Balances de Andalucía* (CBA).

One of the distinctive features of any developed economy, as is the case of the Spanish economy, is the considerable weight of the services sector, taking into account both production and employment (table 1).

The interest in analysing that sector and its main branches, increases when it becomes evident that it is one of the leading sectors in compensating the exterior commerce deficit of the Spanish economy, due to the characteristic positive balance of the Tourism and Travelling item.

Table 1

Importance of the services sector and the hotel and catering branch in the Spanish and Andalusian economies, 2000

	Spain	Andalusia
GVAbp serv. / GVAbp total current terms	69,48%	72,22%
GVAbp serv. / GVAbp total constant terms	66,98%	69,05%
Employment serv. / total employment (IV trim. 2001, EPA)	62,47%	64,30%
GVAbp hotel sector / GVAbp serv. Current terms[a]	11,26%	10,81%
GVAbp hotel sector / GVAbp serv. Constant terms[a]	10,93%	10,31%

a: data for 1998
Source: Regional accounting of Spain/Contabilidad Regional de España, INE, base 95 (GVAbp = Gross Value Added basic prices).

Within the service sector, the hotel and catering branch has considerable importance in Spain and Andalusia, both in terms of production and employment (table 1), and is even superior to other EU countries and regions (Núñez y Pérez, 2000).

The interest in studying the productivity of the service sector and more specifically in this case, the hotel and catering branch, is justified from a macro and micro economical perspective. From the macro-economical point of view, the labour productivity is one of the determining factors of the evolution of the per capita income. The productivity variations explain the majority of the interregional per capita income disparities within Spain. The level of productivity efficiency of one region will depend on the combination of two factors: *the inter-sectorial efficiency* (efficiency of each of the productive sectors or activity branches of the region) and the *composition efficiency* (which depends on the weight of the more or less efficient sectors). Recent studies, like the Villaverde report (2001) conclude that the aggregated productivity growth of each autonomous community (and in the whole of the country) in most cases has taken place thanks to the growth in productivity of each of the activity sectors. Given the great importance of the hotel&catering branch in the tertiary production and for the Andalusian economy, it is therefore indispensable to analyse the evident labour productivity of this sector as a convergence source of the Andalusian economy with the other Spanish and even European regions.

From a micro-economical point of view, the administration of the productivity is a *gain of efficiency problem*, which means of the *administration of the economical results*. The search for productivity increases makes sense if it leads to improvements in the economical results, if not, there will be no gain of efficiency. Improving the productivity will be a concern to the service sector companies of the developed economies, as the increase in benefits will in most cases, only be originated by the increases in productivity, due to the state of maturity of its life-cycle.

Also, the use of a common European currency will produce efficiency improvements of the resources assignments, which will result in real welfare improvement, if the companies adapt to the new context of higher productivity demands.

Once the interest of the productivity study is justified, the problem is the definition of the concept for the case of the services sector. As will be indicated in the second epigraph, the traditional concept of productivity has been developed for manufacturing and with the assumption of constant quality, which does not seem to be adequate, considering the wide variation of the contents and quality of the input and output of the services companies.

This paper analyses the state and evolution during the period between 1995-1999, of the productivity efficiency of the hotel and catering industry in Andalusia, relating it simultaneously with the organisational structure of the companies. To do this, following this introduction, in the second epigraph the concept of productivity in the service sector is defined, underlining the problems to define it and the limitations of the traditional concept, which is focused on manufacturing. In the third epigraph the general features of the organisational structure of the sector in this region is defined, using the data provided by the *Central de Balances de Andalucía*, examining the average size of the Andalusian hotel and/or catering companies.

Once the organisational structure of the branch has been analysed, in the fourth epigraph it will be compared to the state and evolution of its production efficiency. Using the same source, a first approach to the report is made with a simple ratio between the gross added value and the personnel expenses, to then elaborate a relative efficiency index, a Baldwin efficiency index (1992), which will compare the production efficiency of each company with the group of most efficient companies. That way we attempt to answer questions such as whether the smallest companies are the ones presenting a lower efficiency index, if during the considered period, efficiency has increased or for which size company it has increased more, if there has been an increase.

2.- Services Productivity: concept, measuring and analysis methods. Special reference to the hotel and catering industry.

In economical literature, the concept of productivity is often used as synonymous of efficiency, but, even though they are intimately related, they do not exactly correspond.

The concept of *productive efficiency* is based on the behaviour of the companies directed to maximise the benefits. This maximisation demands:

a) The choice of the company of the output that maximises the benefits (level at which the income and the marginal costs are equal). This means that the company has to produce on an optimal scale, presenting *scale efficiency* (SE).

b) To work on the production function, avoiding the waste of resources and using the minimum amount of inputs, obtaining the maximum possible output. The company also has to show *technical efficiency* (TE). One firm will be working

with *global technical efficiency* (GTE) when it will have showing technical and scale efficiency. Thus, GTE = TE * SE.

c) The choice of the combination of possible inputs to produce such output, that minimises the production costs (level at which the marginal product of each factor is equal to its price). In this case, the company will be in a situation of *allocative efficiency* (AE), when it combines the inputs in a proportion that minimises its production costs.

The concept of productivity is usually explained in a simple way as: the effective transformation of the input resources in output, the quality of which is considered invariable (*constant quality supposition*).

$$\text{Productivity} = \frac{\text{Produced Outputs}}{\text{Inputs used}} \qquad \text{(with the assumption of constant quality)}$$

This means that the concept of *productivity* refers to the amount of produced output units by each factor unit used, for example, the *apparent labour productivity* (P_L) is used for the output obtained per employee. Notwithstanding, the usefulness of that average productivity of a factor as efficiency measure of a company, is scarce, as its value depends on the considered factor. It has been attempted to avoid this inconvenience by using the concept of *Total Productivity of the Factors* (TFP), which is defined as the ratio between a weighting sum of outputs and a weighting sum of inputs.

The productivity increases can proceed from:

a) Improvements of the *global technical efficiency*, due to output increases for the same amount of inputs (*technical efficiency*), and/or to choose the optimum scale of production (*scale efficiency*).

b) A growth of the technical progress during the time.

c) A combination of both factors.

The concept of productivity is less broad than that of efficiency, as it exclusively refers to the productive part, while the latter includes the maximising dimension of the benefits. In any event, it is evident that these concepts are intimately related, and it is common to study productivity through the global technical efficiency, taking as main indicators for it the labour productivity or the apparent labour productivity (P_L), or the Total Productivity of the Factors (TFP).

For the case of the services industry, the definition of productivity is complicated. The traditional concept of productivity has been developed for manufacturing or physical goods; Grönroos, C. y Ojasalo K. (2000) point out that this concept is based on the assumption that production and consumption are separate processes, leaving the consumer separated from the production process, which for manufacturing makes perfect sense, but not for the service industry, where both processes are simultaneous. The specific features of the services and the subjacent assumptions of the traditional productivity concept, make the traditional productivity models and measuring instruments inadequate in this case.

The problem is the precise definition of what is considered output and input in the service sector, and measuring these. The production measuring by comparing an output with an input unit, requires both indicators to be quantifiable. The majority of the measuring problems in the services sector originate from the output quantification, its multi-dimensional character (some elements or aspects can not by quantifiable, but remain relevant), its intangible nature, the existence of external factors and the difficulty in evaluating quality, among others, are some of the difficulties to be found when attempting to measure the output, which are serious impediments to measure productivity in this sector.

According to Adam Jr. et al. (1981), the output is easy to measure when it is presented as a production of physical units of a limited type, with the possibility of being stored. As opposed to other economical sectors, the hotel and catering industry and the tertiary production in general, offer a varied range of services, many of which are complicated to measure. For the hotel and catering industry, Renaghan´s (1981) points out that the problem is accentuated as the experience of a client in a hotel is considered or perceived as a whole, while the services received are several: lodging, meals, etc. The output could be measured exactly if this output is identified first. But it is rarely possible to clearly define a “services unit”, so the productivity measurements in the services sector are generally partial measurements, such as how many clients are served during a period by a waiter in a restaurant. This can be interesting information, but does not offer information about the efficiency degree of the transformation of all the used inputs.

Identifying and measuring the input is also complex. The produced output is usually the consequence of a combination of inputs like labour, capital, raw materials, energy. In hotels, as the labour expenses is one of the highest expenses, as productivity

measurement ratios such as: output / number of employees, amount of working hours or wages, are used. Bernolak (1980), indicates that the input *labour* can be considered in many cases as a good alternative to a more complete multiple input to be used when defining the productivity concept.

When a service is produced, a change in the selection of inputs can easily alter the *quality* of the outputs. For that reason, despite an apparently more efficient use of the resources, the value for the client of the service can be changing, even lowering, and the ability of the company to generate income will not be the same as initially. If the quality diminishes and the value for the clients and the income lowers, as a consequence of the sales drop, clearly a higher efficiency in the use of inputs does not result in a productivity improvement. This means that the inputs will not have been used in the most efficient manner, the change in selection of inputs will have resulted in a lower output value and therefore a reduced productivity. In the service industry, there are often conflicts between productivity and quality, higher productivity ratios can imply lower quality ratios (see Rathmell, 1974, Gummesson, 1992). Several researches argument that the *quality* of the service provided has to be included in the productivity concept (e.g. Grönroos, 1990, Gummesson, 1992). Only if the output production quality is constant and if there is not a significant variation of the ratio between the inputs used and the outputs produced with these, the productivity can be measured with the traditional methods (Grönroos, y Ojasalo, 2000).

In the service industry one or several inputs can produce a single or several outputs (McLaughlin y Coffey, 1990), the problem is to determine which inputs and outputs must be part of the productivity calculation. Some measuring techniques are just ratios with one output over one input, while others use multiple outputs as result of multiple inputs. Hence there are several alternatives to measure the productivity in services, *partial productivity ratios* can be used (Kendrick, 1985), which relate the output with some sort of input; or *total productivity ratios* (Kendrick, 1985), which will consider the global behaviour of the company, relating the output total with the input total used in production. Also physical measures, financial measures or mixed measures can be used, which combine both physical and monetary variables, in which case the physical amount of one is compared to the monetary value of the other. The less frequently used are the purely financial measurements, and traditionally the most frequently used have been the physical measurements (Cooper y Kaplan, 1991). In case of the services sector,

the most correct would be the first ones, as the physical measurements ignore characteristic aspects of the outputs as would be the intangibility and heterogeneity. The problem of the financial measurements is that they can be affected by the price changes. Some examples of the various ratios can be found on tables 2 and 3.

Table 2

Examples of the partial and total productivity ratios for the services sector.

	PHYSICAL MEASUREMENTS	FINANCIAL MEASUREMENTS	MIXED MEASUREMENTS
PARTIAL PRODUCTIVITY (output / 1 input)	clients served / employee – hours	income / labour expenses	income / number of employees
TOTAL PRODUCTIVITY	clientsserved / resources amount	income / resource costs	clientsserved / resource costs

Table 3

Examples of the labour productivity ratios for the specific case of the hotel and catering industry.

	FHYSICAL MEASUREMENTS	FINANCIAL MEASUREMENTS	MIXED MEASUREMENTS
HOTELS	nº of rooms / nº employees nº occupied rooms / nº reception employees nº beds / nº empleados guest / nº employees – hour	income / total salary reception added value / personal expenses	income rooms sold / nº reception employees loding revenue / nº housekeeping staff revenue / nº rooms (*) revenue / nº beds (*)
RESTAURANTS	nº tables / nº employees rest. nº seats / nº employees rest.	restaurant revenue / rest. expenses personel	revenue rest. / hours worked in rest.

(*) Ratios appeared in the "Encuesta sobre Estructura de las Empresas Hoteleras"

Physical and financial measurements have their advantages and inconveniences (table 4). As has been pointed out earlier, in the service sector measuring productivity requires both a qualitative and a quantitative dimension, in fact, the qualitative dimension of the output is basic for any productivity consideration in most service

industries. The higher the importance of the service quality to be considered, less appropriate becomes the physical measuring. Considering the advantages indicated on chart 4, the most adequate measurements are the financial or monetary, as they will offer the most precise information. This fact, together with the lack of accurate information about the amount of employees in the sector, has lead to the use of purely monetary ratios in the next epigraph, to analyse the productivity and efficiency of the hotel and catering industry in Andalusia.

Table 4

Advantages and inconveniences of the various productivity measurements

MEASUREMENTS	ADVANTAGES	INCONVENIENCES
PHYSICAL	- Easily obtained	- The intangibility and heterogeneity of the services make them inappropriate. - Quality or value variations are ignored. - Combining the amounts of resources is difficult and reflects on the total productivity measures. - It is complicated to obtain exact information about the quantities.
FINANCIAL	- They do reflect the intangibility and heterogeneity of the services. - They reflect quality on an aggregated level. - The evaluation error in time is smaller as the numerator and denominator are expressed in monetary terms.	- Numerator and denominator can have a different price indicator in which case it would be necessary to deflate these.
MIXED		- They have the same problems as the physical measurements. - Price indicators are hended as numerator and denominator are not simultaneously expressed in monetary terms.
Produced by the authors, based on several articles: d'Alcantara (1987), Lovelock (1991), Gummesson (1992 y 1993), Armistead (1990), Cooper y Kaplan (1991)		

3.- Organisation structure of the hotel branch in Andalusia: general features.

The object of this epigraph is to analyse what type of company dominates the Andalusian hotel industry, as far as size is considered. The analysis of the organisational structure of the hotel and catering industry in Andalusia can be done through 2 statistics: average size of the companies of this branch, measured by the ratio between the total added value of the branch and the amount of companies; and through the weight the companies have over the total amount of companies and the total added value of the companies according to their size. The following can be distinguished: micro-companies, with an added value equal to or below 180.500 euros (€) per year; small companies with a added value up to 900.500 €; medium -sized companies, with and added value up to 1.805.000 €; and large companies with a yearly added value over 1.805.000 €.

Table 5

Average size of the companies of the hotel and catering branch in Andalusia

Año	GAV[(1)] per firm (10^3 € curr./ firm)	Average Productivity (GAV/PE[(1)])
1995	409,70	1,31
1996	575,57	1,39
1997	461,85	1,41
1998	572,70	1,48
1999	632,81	1,50

[(1)] GAV = Gross Added Value; PE = Personnel Expenses
Source: The authors. Elaborated based on the data given by the CBA.

The table 5 shows that the average Andalusian hotel and catering company is medium-sized or small, although with a tendency to grow, which is not surprising in an economy like the Spanish, with a typical predominance of small and medium-sized companies. It has to be considered that the sampling used for this paper, does not include the large hotel chains with registered offices outside the Andalusian territory (see appendix: selection of the sampling).

The weight of the different sizes of companies, table 6 indicates how the representativity within the test-group, diminishes in equal proportion to the size; in 1999 more than half of the total of companies are micro-companies, followed by small companies: 30,66%, medium-sized: 8,73% and finally large companies with just 8,02%. The order is inverted as far as the added value of each group is concerned. In that case the larger companies hold more than half of the added value of the branch, while the micro-companies only supply 5,32% of the total. This means that the production has a high degree of concentration, as just 8,02% of the companies, which are the largest, produce more than half of the added value of the branch (57,10%).

It can also be observed how the bigger companies, medium-sized and large, have increased their representativity during the studied period. The only companies that decrease in importance, both as a percentage of the total amount of companies, and in terms of added value, are the micro-companies. Small companies have a smaller importance in relation to the added value they produce, although their representation within the total of companies is increasing.

Table 6

Distribution of the Andalusian hotel companies according to their sizes.

	Weight within the total of companies [1]			Weight regarding the total GAV [1]		
	1995	**1999**	**T.M.A.** [2]	**1995**	**1999**	**T.M.A** [2]
Micro-companies	65,27	52,58	-5,26	8,74	5,32	-11,67
Small companies	23,49	30,66	6,88	23,39	21,02	-2,63
Medium-sized companies	5,37	8,73	12,92	15,77	16,56	1,23
Large companies	5,87	8,02	8,11	52,11	57,10	2,31
The whole sample	100	100	--	100	100	--
Total companies	596	561				

[1] Percentages
[2] Average accumulated variation rate
Source: the authors, based on the information of the CBA.

4.- Efficiency and organisation structure in the hotel and catering branch: relation between efficiency and the size of the companies.

One of the distinctive features of the services sector in developed economies, which distinguishes it from the manufacturing, is the slower productivity growth rhythm, both of the labour productivity and the total productivity of the factors, with even noticeable differences between the various services activities.

The size-based structure of the companies that form part of a specific activity branch can be one of the factors that explains productivity level and growth observed for the branch in general, specially in case of production processes characterized by scaled economies and with access to imperfect capital markets. In scaled economies, the small companies will show a lower productivity than the larger companies. On the other hand, the outside financing restrictions, usually more prominent for smaller companies, can imply a relatively smaller investment level, which determines a reduced growth and productivity of these companies. In general, as a result of the aforementioned, it can be observed that the apparent labour productivity growths together with the size of the companies.

Based on the data provided by the *Central de Balances de Andalucía*, on table 7 a first approach of the apparent labour productivity for the Andalusian hotel and catering industry is given, according to the companies sizes, by the ratio between the gross added value and the total yearly personnel expenses. This ratio shows the added value obtained in euros, for each euro spent on personnel.

Table 7

Productivity by sizes: GAV/PE[(1)]

	1995	1996	1997	1998	1999	T.M.A[(2)](%)
Micro-company	1,17	1,22	1,23	1,26	1,25	1,67
Small company	1,30	1,33	1,34	1,35	1,38	1,50
Medium-sized company	1,31	1,47	1,38	1,47	1,47	2,92
Large company	1,35	1,40	1,50	1,58	1,59	4,17
Total	1,31	1,39	1,41	1,48	1,50	3,44

(1) GAV = Gross Added Value; PE: Personnel expenses
(2) T.M.A.: Average accumulative variation rate
Source: the authors, based on the information of the CBA.

Analysing the results of this table, indicates in the first place that in every year of the considered period, the larger companies show larger productivity ratios. Secondly, during this period the productivity of all company groups has increased, independently of their size, although a larger increase is observed for the bigger companies, that reach an average accumulative rate of 4,17%, followed by the medium-sized companies, with a rate of 2,92%, opposed to the micro and small companies with rates below 2%. As the average size of the Andalusian hotel and catering companies obtained from the available data is small, due to the predominance of the micro- and small companies, a very high total productivity ratio of the branch can be expected. In fact, in third place it can be pointed out that the average apparent labour productivity of the whole branch in general, is not over 1,5 euros obtained per euro spent on personnel, although the ratio grows at a considerable average accumulative rate per annum of 3,44%.

To get deeper into the subject, a relative efficiency index, according to Baldwin (1992) is elaborated. This index compares the added value from the personnel expenses of each company with the added value of the personnel expenses of the group of most productive companies of the branch. The efficiency indicator for a company is defined as the ratio between the observed added value and the potential added value, calculated for each company as the result of its personnel expenses multiplied by the efficient level of added value, obtained for each euro spent on personnel. The efficient level of added value is defined as the sum of the added values of personnel expenses of the total of most productive companies of the branch.

This procedure implicates that the companies should imitate those who achieve the highest added value per personnel expenditure, assuming that the labour and technology used are homogeneous, and a fixed combination of labour and the remaining productive

factors of the whole branch. The proposed index is in that way more an approach to the real indicator, more than an exact measurement of the technical efficiency. But the Baldwin index seems to be very related to other more perfected measurements. (Baldwin, 1992).

In this paper, the group of reference companies E, is formed by the most productive companies of the test group, which produce a minimum of 10% of the added value of the branch (calculated using the companies of the test group) (1).

The companies' efficiency indicator *i*, which will be denominated $e10_i$, will be:

$$e10_i = \frac{GAV_i}{GAV_i^P} \qquad [1]$$

where:

$$GAV_i^P = \frac{GAV_E}{PE_E} \bullet PE_i \qquad [2]$$

GAV_i = Gross Added Value observed at company i; GAV_i^P = Potential Gross Added Value of company i; GAV_E = Aggregated Gross added value of the group E of most productive companies; PE_E = Aggregated Personnel Expenses of the E group of most productive companies; PE_i = Personnel expenses observed in company i.

This way, the first factor of the expression [2] is the added value level per monetary unit spent on efficient personnel.

Once the efficiency level for each company *i* has been calculated, the average efficiency level for each size company is calculated. The results obtained figure on table 8.

Table 8

Baldwin efficiency index, hotel and catering industry, Andalusia.

	1995	1996	1997	1998	1999	T.M.A.(1)(%)
Micro-company	0,46	0,52	0,55	0,50	0,53	3,60
Small company	0,50	0,59	0,63	0,54	0,58	3,78
Medium-sized company	0,51	0,63	0,64	0,59	0,65	6,25
Large company	0,53	0,58	0,68	0,61	0,65	5,23
Total	0,47	0,55	0,61	0,54	0,59	5,85

(1) Accumulative average variation ratio
Source: the authors, based on the data of CBA.

The conclusions to be extracted from this table, are similar to the previous. The average efficiency index increases with the size of the companies, in this way, in 1999 the large or medium-sized companies show an average efficiency index 1,2 times higher than the micro-companies. The temporary evolution of the indicator increases for the whole test group (5,85% of annual average accumulative ratio), and for all groups, the increase is higher for the superior stratums, although in this case, the medium-sized companies show the largest growth ratios (6,25% of annual average accumulative ratio), followed by the large companies, with 5,23%.

As Núñez and Pérez (2000), deduct from their investigations, one of the distinct features of the Spanish economy in comparison to other developed economies is the anti-cyclical nature of the services productivity. Hereafter it will be analysed if the same is observed in case of the hotel and catering industry in Andalusia in the period between 1995-1999.

Among the conditioning elements of the productivity level of a production sector or branch, is the level of demand, which can even have a crucial role. An expansive phase of the economical cycle, as is studied in this paper (1995-1999), with a strong demand, can positively affect the productivity through the increase of internal efficiency (costs efficiency). But, if the demand were to be excessive, it would harm the perception of quality of the consumer, which would affect the external efficiency in a negative way (income efficiency), and could in the end lead to a reduction of the productivity. The behaviour of productivity in the hotel and catering industry in Andalusia during the period 1995-1999 has been explained, but: which has been the contribution of its growth to the total production growth of the sector? Are there noticeable differences in it due to the size of the companies?

An increase of the generated added value in any branch, sector or economy, can be obtained either by increasing the used labour, or by increasing the productivity of each employee. In this paper, considering the lack of data about the number of employees, and considering that in any case monetary variables have been used to calculate the productivity, substituting the variable “amount of employees” by “personnel expenses”, the relation between the growth of the total added value of the hotel and catering branch in Andalusia and the evolution of its productivity (GAV/PE) and its global personnel expenses.

Table 9

Growth and productivity of Labour in the hotel and catering industry, 1995-1999

(real annual accumulative variation ratios).

	Real contribution to growth (%)	GAV real (GAV^R)	Real Productivity (GAV^R/PE^R)	Real Personnel expenses(PE^R)
Micro-companies	**-0,55**	**-6,25**	**0,65**	**-6,90**
Small companies	**0,78**	**3,29**	**0,64**	**2,65**
Medium-sized companies	**1,17**	**7,30**	**2,12**	**5,18**
Large companies	**4,47**	**8,39**	**3,30**	**5,09**
Total	**6,10**	**6,10**	**2,49**	**3,52**

Source: the authors, based on data from CBA and INE.

The obtained results figure on table 9, prepared based on the nominal data from CBA, and the information about the evolution of prices obtained from the Instituto Nacional de Estadística (INE). Specifically, as price indicator and added value deflator, the Consumer Price Index has been used (IPC), base 92, for Andalusia of the "hotels, cafés and restaurant"(2) group; while as personnel expenses deflator, the national Consumer Price Index, also base 92 has been used, of the special general group, that does not include non-elaborated foods nor energetic products.

On the table we can observe how the branch has experienced a considerable growth in real terms, surpassing 6%, with an increase of the added value produced by all sorts of companies, as far as the size is concerned, except the smallest companies of the test group, the so-called micro-companies, who find their real added value decreasing by 6,25%. This reflects the already mentioned loss of representativeness within the test group, as far as their number and, in consequence, their weight within the total added value. The larger the companies are, the higher the real production growth ratios become.

The experienced added value variations have to approach the sum of the productivity variation plus the personnel expenses variation. For the whole sample group, the real production increases proceed simultaneously from productivity increases and employment increases (represented by the personnel expenses), although mostly from the latter, representing an average accumulative ratio that is about one percent higher than the productivity. Within this total, again, the micro-companies are a clear exception to the rule. That is the only group that sees its personnel expenses decrease instead of rise, as its representation within the sample group gets reduced. The modest increase of

its productivity cannot overcome the decrease in employment, which is the reason for the drop in the value of its real production.

The increase of productivity is lower than the increase of personnel expenses, and difference is more accentuated in the smaller companies. The productivity growth of the small companies is 4 times lower than their personnel expenses, while within the large companies it is only 1,5 times lower. This means that the larger the size of the company, the higher the contribution of the productivity in the growth of the production value. This increase of the personnel expenses, higher than the productivity expenses, is just a reflection of the statement of De Bandt (1990) about services: the production increases pass for employment increases as not many efforts are made to incorporate technology and proceed to substitute labour for capital.

In the last place, the contribution to the total production growth increases with the size of the company the larger weight of and the growth of employment, productivity and added value of the largest companies, leads them to contribute more to the growth of the sector, contributing with 4,47 points of the total growth of 6,10 points, almost 4 times more than the medium-sized companies, with a contribution of 1,17%.

5.- Conclusions.

Regarding the organisational structure of the Andalusian hotel and catering company:

- The Andalusian hotel and catering company is small/medium-size, measured by the average added value per company.

- There is a high degree of production concentration: 57,10% of the total added value of the branch is produced by only 8,02% of the companies, which are the largest.

- The micro-companies are predominant, but with a tendency to decrease in numbers within the sample group, in favour of the other sizes of companies, with an increase of the importance of the medium-sized companies with an average accumulative growth ratio of 12,92%. This reduction of importance of the amount of micro-companies, leads to the equal reduction of their presence in terms of added value, which causes their contribution to the growth of the global real added value of the branch to be negative (-0,55%).

- The small companies increase their representativeness in the sample group and increase their added value. But their importance within the total of the branch decreases, although their contribution to the total growth is positive.

- Medium-sized companies: it is important to point out the noticeable increase in their representativeness within the sample group, which leads to the increase of their added value, and of its influence on the added value of the branch, and to contribute positively to the growth of the sector.

- Large companies: their presence has increased moderately, but they show a superior increase of their added value, of the weight of that added value within the global added value and their contribution to the growth is superior as web, considering their higher production capacity.

As far as productivity is concerned:

- As was to be expected, a positive relation appears between the size and productivity of the companies, both in terms of obtained added value per personnel expenses as in terms of the calculated Baldwin relative efficiency index.

- Productivity increases are observed during the studied period, 1995-1999, for the whole sample group and for each of the size strata, which is higher for the medium-sized and large companies. Using the Baldwin efficiency indicator, the biggest growth corresponds to the medium-sized companies, while the GAV/PE ratio (nominal and real) gives the lead to the largest companies.

- In spite of these productivity increases of the whole of the sample group, the real production levels increases are in the largest percentage due to the increase of labour used, represented in the personnel expenses (3,52%), instead of to the productivity increase (2,49%). The smaller the size of the company, the less important become the productivity increases in the total production increase, except the case of the micro-companies, as they reduce their representation within the sample group, their total personnel expenses are also reduced.

6.- Appendix. Selection of the sample group.

The statistic source used for this study has been the individual information of the companies within the hotel and catering industry, that are included in the *Central de Balances de Andalucía* (CBA) during 1995-1999. This source registers the 15.000 most

important companies of the region, belonging to all productive sectors, providing information about the economical and financial results given by the companies to the Andalusian Registry of Companies, which means that the companies that are not compelled to present their balances at the Registry of Companies, are not included, neither those who do not fulfil that legal requirement. The companies that are established in Andalusia but whose registered offices are outside the region, are excluded. This fact is an inconvenience as it can cause distortions in the results of this study, as the sample group can be limited by a smaller presence of the large hotel chains, as those with headquarters outside of Andalusia, are not included.

The sample group is formed by about 600 companies of the hotel and catering sector per year, which are selected by criteria such as availability of the figures 3 years in a row, or the consistency of the economical and financial information, which means, without accounting incoherencies. Also, before the figures have been used to obtain the productivity ratio and the Baldwin relative efficiency index, those findings that included null or negative figures in the following fields were eliminated: personnel expenses, tangible fixed assets, gross added value, share capital and financial expenses. Once the basic productivity ratio was obtained, the sample group has been filtered again, eliminating the non-typical figures, to avoid distorting the results.

7.- Notes.

(1) Increasing the percentage to 20% or 30% does not vary the results significantly.

(2) According to the international classification of consumption: COICOP.

8.- Bibliographic references.

Adam, E. Jr. Hershauer, J. and Ruch, W. (1981), *Productivity and Quality – Measurement as a Basis for Improvement*. Prentice Hall, New Jersey.

Álvarez Pinilla, A. (2001), coordinador, *La medición de la eficiencia y la productividad,* ediciones Pirámide, Madrid.

d'Alcantara, G. (1987), "From Service Productivity to Service Regulation and Regulating Services", *The Service Industries Journal,* Vol. 7, No. 2, April, 143-152.

Armistead, C. G. (1990), "Productivity and Quality in Service Operations", en Teare, R., L. Moutinho and N. Morgan (eds.): *Managing and Marketing Services in the 1990s*, London: Cassell, 92-109.

Baldwin, D. (1992), "Industry efficiency and plant turnover in the Canadian manufacturing industry", en Caves, R. (ed.), *Industrial efficiency in six nations*, MIT Press, Cambridge.

Ball, S. D., Johnson, K. and Slattery, P. (1986), "Labour productivity in hotels: an empirical analysis", *Int. J. Hospitality Management*, vol. 5, No. 3, 141-147. Pergamon Journals Ltd. Printed in Great Britain.

Bernolak, I. (1980), *The measurement of outputs and capital inputs. Productivity Measurement: an International Review of concepts, Techniques, Programmes and Current Issues*, Bailey, D. and Hubert, T. (eds.), Gower, Farnborough.

Cooper, R. and Kaplan R. S. (1991), *The Design of Cost Management Systems: Text, Cases, and Readings*, Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

De Bandt, J. (1990), "El problema de la productividad en el sector servicios", *Papeles de Economía Española*, nº 42.

Fariñas, J.C. and Jaumandreu, J. (coord.) (1999), *La empresa industrial en la década de los noventa*, Colección Economía Española, Fundación Argentaria - Visor Dis.

Fest., H. (1990), "Productivity in the service sector", *Instituto Valenciano de Investigaciones Económicas, Working Papers*, WP-EC 90-03.

Genaro Moya, M. D., and Navarro Espigares, J. L. (2001), "La productividad en los servicios", *Cuadernos Económicos de Granada*, nº 13.

Grönroos, Ch. (1990), *Service Management and Marketing. Managing the Moments of Truth in Service competition*, Lexington, MA: Lexington Books.

Grönroos, Ch. and Ojasalo, K. (2000), "Service productivity: toward a conceptualisation of the transformation of inputs into customer value in services", *Meddelanden Fran Svenska Handelshögskolan, Swedish School of Economics and Business Administration Working Papers*, 419, Mars.

Gummesson, E. (1992), "Service Productivity: A Blasphemous Approach", *University of Stockholm, Department of Business Administration, Studies in Action and Enterprise*, PP1992:2.

Gummesson, E. (1993), *Quality Management in Service Organizations*, International Service Quality Association, New York.

Gummesson, E. (1998), "Productivity, quality and relationship marketing in service operations", *International Journal of Contemporary Hospitality Management*, Vol. 10, No. 1, 4-15.

Hayes, R. H. Wheelwright, S.C. and Clark, K.B. (1998), *Dynamic Manufacturing*, New York: The Free Press.

Hernández de Cos, P. and González-Páramo, J.M., Argimón, I. (2000), "¿Afecta la titularidad pública a la eficiencia empresarial? Evidencia empírica con un panel de datos del sector manufacturero español", *Banco de España, Servicios de Estudios, Documento de Trabajo* nº 0019.

Hernando, I. and Vallés, J. (1994), "Algunas diferencias en la productividad de las empresas manufactureras españolas", *Investigaciones Económicas*, Vol. XVIII (1), 117-141.

Kendrick, J. W. (1985), "Measurement of output and productivity in the service sector", en Inman; R. P. (ed): *Managing the Service Economy, Prospects and Problems*, Cambridge: Cambridge University Press, 111-123.

Lovelock, C.H. (1991), *Services Marketing*, New Jersey: Pretice-Hall International, Inc.

McLaughlin, C. P. and Coffey, S. (1990), "Measuring Productivity in Services", *International Journal of Service Industry Management*, vol. 1, nº 1, 46-64.

Núñez, S. (2000), "La estructura por tamaño de empresas de las ramas de servicios", *Banco de España, Boletín Económico*, diciembre.

Núñez, S. and Pérez, M. (2000), "La rama de servicios en España: un análisis comparado", *Banco de España, Servicios de Estudios, Documento de Trabajo* nº 0007.

Ojasalo, K. (1999), *Conceptualizing productivity in services*, Hanken Svenka handelshögskolan, nº 75, Helsingfors.

Pedraja, F. and Ramajo, J. (1999), "Eficiencia productiva del sector industrial español: Un análisis espacial y sectorial", *Papeles de Economía Española*, nº 80.

Rathmell, J. M. (1974), *Marketing in the Service Sector*, Cambridge, MA: Winthrop Publishers, Inc.

Renaghan, L. (1981), "A new marketing mix for the hospitality industry", *Cornell Hotel and Restaurant Administration Quarterly*, August.

Velázquez, F.J. (1995), "La convergencia desde la óptica de la eficiencia", *Papeles de Economía Española*, nº 63.

Villaverde Castro, J. (2001), "La distribución espacial de la renta en España: 1980-1995", *Papeles de Economía Española*, nº 88.