

# **TOUR OPERATORS' PRICE STRATEGIES IN THE BALEARIC ISLANDS\***

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# **Tour operators' price strategies in the Balearic Islands.**

## Abstract

In this paper we analyse the package tours prices from a sample of British and German tour operators. The offers correspond to one-week tourist packages in the Balearic Islands in a specific hotel establishment. The period studied comprises the 2002 and 2003 high seasons, what provides us with a dynamic perspective. The paper shows the existence of persistent differences in the mean prices from tour operators, as well as price distributions with different dispersion and shape among tour operators and markets. The time variation of these distributions seems to be linked to the market situation and structure. Although the paper is presented as an empirical investigation, the results can be interpreted in the context of theoretical literature on price dispersion.

**Keywords:** price dispersion, tour operators' industry

**JEL Classification:** L11, L83

## **I. INTRODUCTION**

The concept of price dispersion makes reference to the existence of a non-degenerated distribution of prices from the sellers of a product or service with similar features. Although price dispersion is a clear reality in the tour operators' market, the analysis of such dispersion and prices oscillation in the package tours has received very little attention.

Among the papers studying the tour operators' price dispersion, those by Taylor (1998) and Lehmann (2003) stand out. Taylor (1998) analyses the package tour market, suggesting a model in which tour operators establish mixed price strategies. A consequence of this strategy would be dispersion in prices, which would oscillate according to the demand. Lehmann (2003) studies in an empirical way the different prices dispersion in tourist packages offered by conventional ways and by the Internet. Sinclair et al. (1990), Aguiló, Alegre and Riera (2001), Papatheodorou (2002) and Aguiló, Alegre and Sard (2003) also study price dispersion through analysing the structure and features of the tour operators' markets. In the previous papers statistically significant price differences are detected among tour operators. This situation makes it clear that there are price deviations within the tour operating industry with respect to the competitive model. One reason for these deviations could be the specific tour operating

industry's features and the different search costs the tourists fall into due to the limited information available for them when booking a package tour.

The objectives of this article are twofold. On the one hand, to give new empirical evidence about the importance of price dispersion in package tours. On the other, to show the link among price dispersion and the structure and characteristics of the package tours market. With that purpose, we used information about the package tours in the Balearic Islands, made by German and British tour operators in the 2002 and 2003 high seasons.

The economic theory models that analyse the market's behaviour in situations of limited information suggest that situations of equilibrium with multiple prices can take place (Stigler, 1961, Salop y Stiglitz, 1977; Stiglitz, 1989; Carlton y Perloff, 1994). This would give a justification for the existence of price dispersion in the market. To make it possible to have equilibrium price dispersion, it is not only necessary the existence of limited information but there must also be some heterogeneity among buyers and/or sellers (Diamond, 1971). Lach (2002) summarises the possible reasons for heterogeneity that are present in several models: (1) differences in the sellers' production costs (Reinganum, 1979); (2) differences in the buyers' search costs (Rob, 1985); (3) different costumers' expectations about price distribution (Rothschild, 1974); (4) differences in the purchase recurrence and the client's loyalty (McMillan and Morgan, 1988); (5) differences in the information received by buyers (Butters, 1977; Burdett and Judd, 1983). Arnold (2000) suggests that price dispersion can not only be found in markets with asymmetric information or with different buyers' search costs but also in markets with homogeneous buyers and with perfect information, if the firms' capacity restrictions make it impossible for them to guarantee that the product will be in stock when buyers go to buy it.

Existing the above mentioned theoretical reasons explaining deviations from the law of one price, it seems appropriate to briefly discuss some of the tour operating industry's features. From the supply point of view, tour operators are characterized by negotiating with the several segments of the tourist industry (flying companies, coaches, hotels,...). certain conditions to contract in advance each one of the elements making up a tourist

package. The fact that each one of these components is contracted approximately with a year of advance makes the fixing of their offer capacity specially important.

Kreps and Scheinkman (1983) and Davidson and Deneckere (1986) study oligopoly models where firms first choose capacity levels, and then engage in Bertrand price competition for customers. These models are in line with the tour operators' behaviour. Kreps and Scheinkman's (1983) model gives as a result the values from the Cournot model, in which by increasing the number of firms, prices get near perfect competition. In spite of that, Davidson and Deneckere (1986) show that this result depends on the rationing rule. One of the most interesting results from the analysis by Davidson and Deneckere (1986) is that firms establish mixed or random strategies when competing in prices. In practice these strategies result in price dispersion, in our case, similar package tours sold at different prices by different tour operators. These models would coincide with the study by Taylor (1998) that reveals price dispersion in the British tour operators and interprets it in terms of mixed strategies.

From the demand point of view, consumers face a multiplicity of offers for an apparently homogeneous product, but with lots of complementary alternatives and options. Tour operators offer the potential tourists a variety of holiday packages in their brochures: to different destinations, with different lengths of stay, in hotels with different features, etc. Consumers face an excess of information, sometimes not easy to compare, what makes it difficult to take the optimum decision. Paradoxically and despite the amount of available information, consumers must take their decision in the most of cases based on limited or incomplete information, specially regarding to the real quality of the package tour. The information about the product available for consumers before the purchase is always limited. This incomplete information can be more important in the case of services, given "their intangibility, heterogeneity, perishability and inseparability" (Mitchell and Grottel 1993).

Consumers must analyse and compare different package tours offered both by the same tour operator and by others, in order to decide which tour operator they are going to book with and where they are going to spend their holidays. The efficiency in this search process depends on the consumer's ability and knowledge, in the same way that on his/her willingness to accept the derived search costs, to make the necessary effort

and to spend time to get and assess the information (Stewart and Vogt, 1999; Jones, Mothersbaugh and Beatty, 2002; Bansal and Eiselt, 2003).

The paper is organized as follows. In the next section we present some features of this tourist destination and describe the selected sample. After that, we show different descriptive analysis about price dispersion in package tours. In a third section we present the results of the econometric analysis, based essentially on hedonic price regressions and quantile regressions based upon previous estimates residuals. In the same way, we compare these residuals distributions for the two years and among the different tour operators. Finally, we discuss some of the main conclusions.

## **II. DATA**

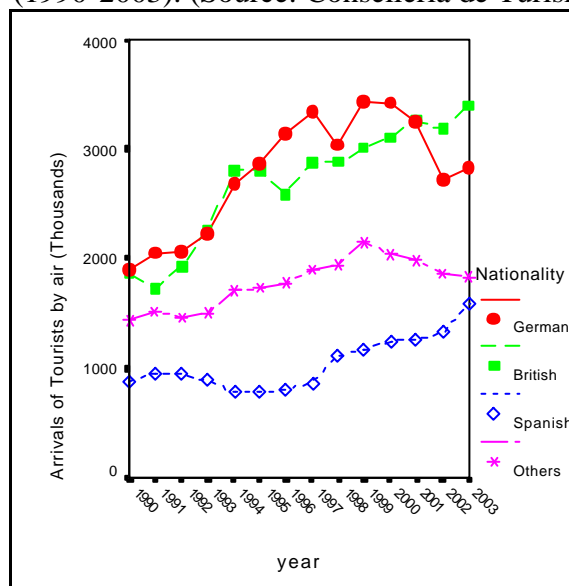
The Balearic Islands are one of the main Mediterranean *sun and sand* destinations. In 2003 they received 10.2 million tourists, of which a 65% were German or British (Conselleria de Turisme, 2004). In that year, 61.1% of the German tourists and 51.3% of the British tourists stayed in hotel establishments. The tourist package is the way of booking a trip that 90% of the German and 78% of the British tourists visiting the Balearic Islands chose. Therefore this tourist destination presents a high dependence on the German and British tourism marketed through tour operators.

The fall in the tourist demand experienced by one of the main countries of origin produces a serious impact in the archipelago. This is the situation of the German tourism from about year 2000. The stagnation of the German GDP and the increase in the country unemployment rates since year 2001 have had as a consequence a dramatic fall in the tourist demand (see Figure 1 showing the airway arrivals of tourists).

In situations of low demand in one of their markets, tourist establishments located in the Balearic Islands try to fill their room capacity by reducing their prices. This strategy, however, is no longer effective when the fall in the demand is the result of structural factors that discourage people from consuming tourist products. In the decision of making a tourist trip, its price can be less relevant than other economic conditionings

(such as the income expectations). Lower prices can cause a change in the destination chosen but they may have a minor effect in the decision of making the journey (Alegre y Pou, 2004). In the case of the present crisis that the German market is facing, the price lowering has not been able to recover the demand to the levels previous to the crisis. A decrease in prices does not seem to be the appropriate strategy if it is unable to achieve a reaction in demand, since it also implies a decrease in incomes. The alternative has been to promote an increase in demand in other markets (essentially in the British and Spanish markets) through strong decreases in package tours prices. This strategy has been important since year 2003. In view of the sharp decreases in the prices of hotel accommodation, the British market has suffered a redefinition of its own prices strategies. The comparative analysis of years 2002 and 2003 developed in this paper show that the British tour operators profited from a strong prices lowering, that has been transferred to consumers in different ways by each of them. The results show that the British tour operators' market has homogenized its prices, although it has kept its own strategies with regard to consumers.

**Figure 1.** Airway arrivals of tourists to the Balearic Islands (1990-2003). (Source: Conselleria de Turisme, 2004)



The sample analysed in this paper is based on the information published in the package tours brochures from a representative group of German and British tour operators for years 2002 and 2003. 5,870 offers were collected in hotel establishments for the 2002 high season and 5,287 offers for the same period of 2003. In order to do that, 24

brochures were collected, 12 from German tour operators and 12 from British operators, valid in both years. Tables 1 and 2 show the tour operators included in the sample and the number of package tours and hotels contracted by each tour operator.

**Table 1.** Distribution of the number of package tours and hotels contracted by British tour operators.

British TTOO	Package tours in the sample				Hotels in the sample			
	2002		2003		2002		2003	
	n	%	n	%	n	%	n	%
2WENTYS	11	0.6	8	0.5	5	1.2	4	1.0
AIRTOURS	164	9.6	52	3.3	54	13.1	24	6.2
ASPRO	71	4.2	63	4.0	26	6.3	20	5.2
COSMOS	78	4.6	148	9.5	16	3.9	38	9.8
ECLIPSE	142	8.3	155	9.9	32	7.8	32	8.2
FIRST CHOICE	161	9.4	110	7.0	39	9.5	27	7.0
FREE STYLE	18	1.1	12	0.8	6	1.5	4	1.0
JUST	9	0.5	9	0.6	9	2.2	9	2.3
PANORAMA	183	10.7	173	11.1	46	11.2	44	11.3
PORTLAND DIRECT	193	11.3	178	11.4	38	9.2	41	10.6
SKYTOURS	91	5.3	79	5.0	20	4.9	21	5.4
THOMSON	585	34.3	578	36.9	121	29.4	124	32.0
Total	1706	100.0	1565	100.0	412	100.0	388	100.0

**Table 2.** Distribution of the number of package tours and hotels contracted by German tour operators.

German TTOO	Package tour in the sample				Hotels in the sample			
	2002		2003		2002		2003	
	n	%	n	%	n	%	n	%
AIR MARIN	327	8.0	398	10.7	103	8.4	113	10.5
ALLTOURS	308	7.5	327	8.8	168	13.7	133	12.3
FTI	191	4.7	112	3.0	77	6.3	40	3.7
ITS	324	7.9	272	7.3	92	7.5	79	7.3
JAHN REISEN	365	8.9	300	8.1	90	7.3	69	6.4
LTU PLUS	570	14.0	277	7.4	116	9.5	66	6.1
NECKERMANN	721	17.7	795	21.4	208	17.0	209	19.4
OLIMAR	79	1.9	84	2.3	27	2.2	27	2.5
PHOENIX REISEN	97	2.4	126	3.4	49	4.0	59	5.5
SCHAUINSLAND REISEN	135	3.3	154	4.1	50	4.1	70	6.5
TJAEREBORG	363	8.9	340	9.1	103	8.4	90	8.3
TUI	604	14.8	537	14.4	142	11.6	125	11.6
Total	4084	100.0	3722	100.0	1225	100.0	1080	100.0

Package tours promoted by tour operators with the same nationality for the same establishment vary in price depending on the specific characteristics of the package tour offered (number of beds, type of board, sea views) and on other variables, essentially the departure airport, the length of stay and the time of the year. In order to neutralize the effect of the two latter variables, only one-week offers were collected (7 nights) departing from a specific airport. The reference airport for the German tour operators' brochures has been Düsseldorf airport, which channels about 20% of German tourists visiting the Islands, and in the case of the British tourism we have chosen Gatwick airport, from which about 30% of British tourists coming to the Islands departs<sup>1</sup>. It must be pointed out that the mean price of a flight to the Balearic Islands from Düsseldorf or Gatwick does not present significant differences, being located both airports at a similar distance with respect to the Balearic Islands. With regard to the period booked, we have taken into account the prices of the first week of August (7 nights), specifically the weekend from July 26<sup>th</sup>, 27<sup>th</sup> or 28<sup>th</sup> to August 2<sup>nd</sup>, 3<sup>rd</sup> or 4<sup>th</sup> 2002 and from August 1<sup>st</sup>, 2<sup>nd</sup> or 3<sup>rd</sup> to August 8<sup>th</sup>, 9<sup>th</sup> or 10<sup>th</sup> 2003. The dates diversity is due to the fact that some tour operators do not fly every day to that destination.

As for the specific features of the tourist packages appearing in the brochures, the econometric models have included those that have been found statistically significant: (1) area where the establishment is located; (2) type of establishment (hostel or hotel) and official rating (from 1 to 5 stars); (3) number of adult beds in the room; (4) type of board: bed accommodation, bed & breakfast, half board, full board or all inclusive; (5) If the establishment is considered centric; (6) picturesque establishment; (7) lift availability; (8) nursery service; (9) infant park; (10) entertainment; (11) air conditioned in the room; (12) gardens; (13) pool availability; (14) sauna; (15) golf facilities; (16) sea views from the room; (17) distance to the beach in metres; (18) Establishment being part of any hotel chain.

The different package tours' brochures describe all the above mentioned characteristics in detail and give global prices for tourist packages, without itemizing market prices for each one of the offers components. Therefore, tourist packages are nothing else than the supply of a set of goods and services although without breaking down the market prices of each one of their components in an explicit way.

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<sup>1</sup> See Conselleria de Turismo (2000), "El Turismo a les Illes Balears. Dades informatives. Any 1999".



### III. DESCRIPTIVE ANALYSIS OF PRICE DISPERSION

1. **Price heterogeneity.** The same type of hotel accommodation is offered by the tour operators at different prices. In this first descriptive analysis we try to detect the importance of price dispersion for accommodation under identical conditions. In order to do that, we have defined as homogeneous offers, those made in the same hotel, on the same type of board, with the same number of beds in the room and with or without sea views. Table 3 shows the frequency distribution of the number of multiple offers.

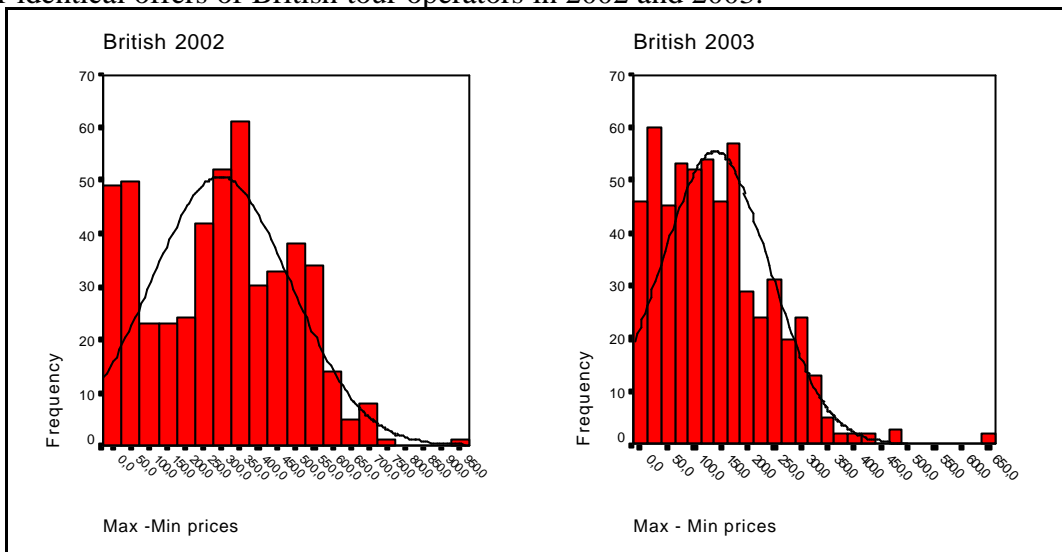
**Table 3.** Frequency distribution of multiple offers

Multiple offers	British		German	
	2002	2003	2002	2003
1	63.9	62.5	47.2	54.0
2	22.4	20.6	26.8	22.0
3	5.9	9.0	10.9	11.6
4	4.3	4.4	6.8	6.5
5	2.0	2.6	4.3	3.1
6	0.8	0.7	2.4	1.7
7 or more	0.7	0.2	1.6	1.1
Total	100.0	100.0	100.0	100.0

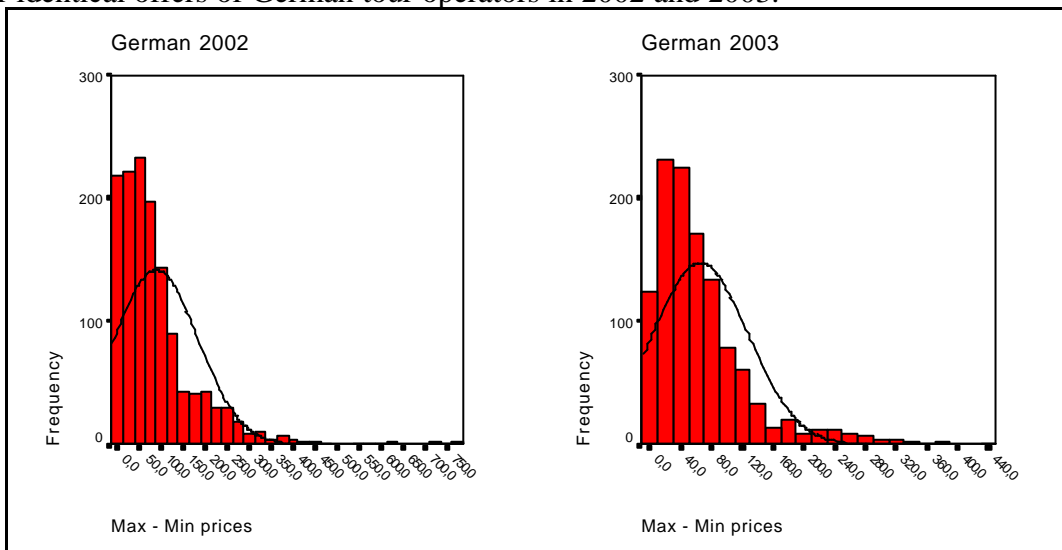
As a measure of price heterogeneity, we have calculated the differences between the highest and the lowest price in the brochures for each one of the package tours. Therefore we have not taken into account those prices for which one single offer is available in the brochures. The histograms showing the differences between the maximum and minimum price can be seen in Figures 3 and 4, corresponding to the British and German tour operators in years 2002 and 2003, respectively.

From Figures 3 and 4 and from statistics in Table 4, it can be concluded that: (1) despite the fact that the German and British markets present different behaviours, the existence of multiple prices is detected in both markets; (2) price heterogeneity becomes important in a great number of offers; (3) the German market distribution, on the contrary to the British, presents fewer probabilities of big price differences; (4) the values of price differences have decreased from 2002 to 2003 in both markets.

**Figure 3.** Histograms showing the maximum and minimum price differences detected for identical offers of British tour operators in 2002 and 2003.



**Figure 4.** Histograms showing the maximum and minimum price differences detected for identical offers of German tour operators in 2002 and 2003.



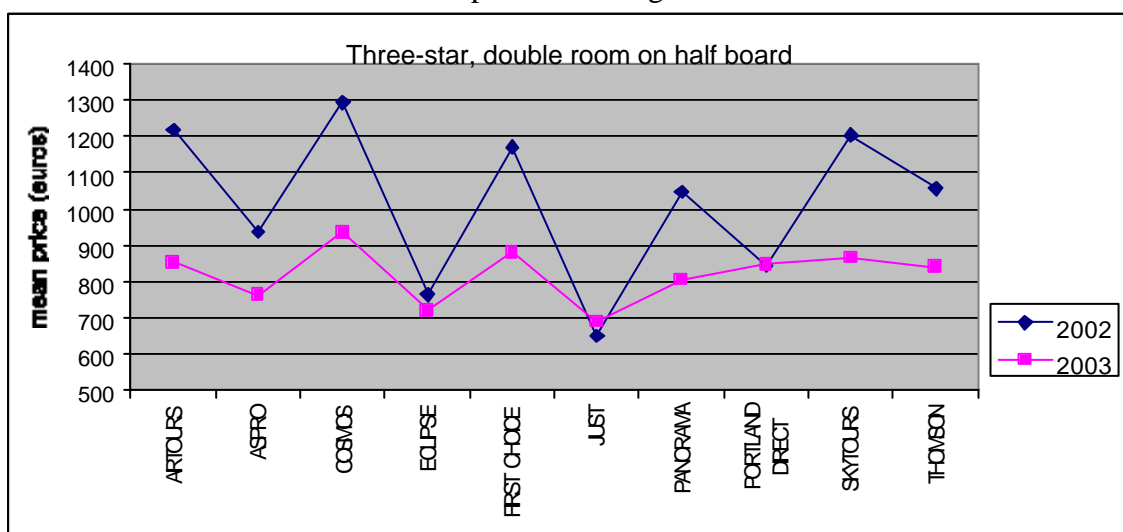
**Table 4.** Statistics about the differences between maximum and minimum prices.

TTOO	British		German	
	2002	2003	2002	2003
Standard Deviation	191.51	102,43	95.3	62.4
Mean	295.3	139.1	87.9	65.5
Coefficient of variation	64.85%	73.64%	108.42%	95.27%
N	488	570	1357	1153
Percentiles				
5	0	0	10.96	8.25
10	3	8	24.04	14.27
25	26	23	121.73	56.75
50	63	49	297.17	127.06
75	113.75	85	439.64	198.44
90	207.6	137	546.28	278.39
95	263.15	205.6	599.02	313.37

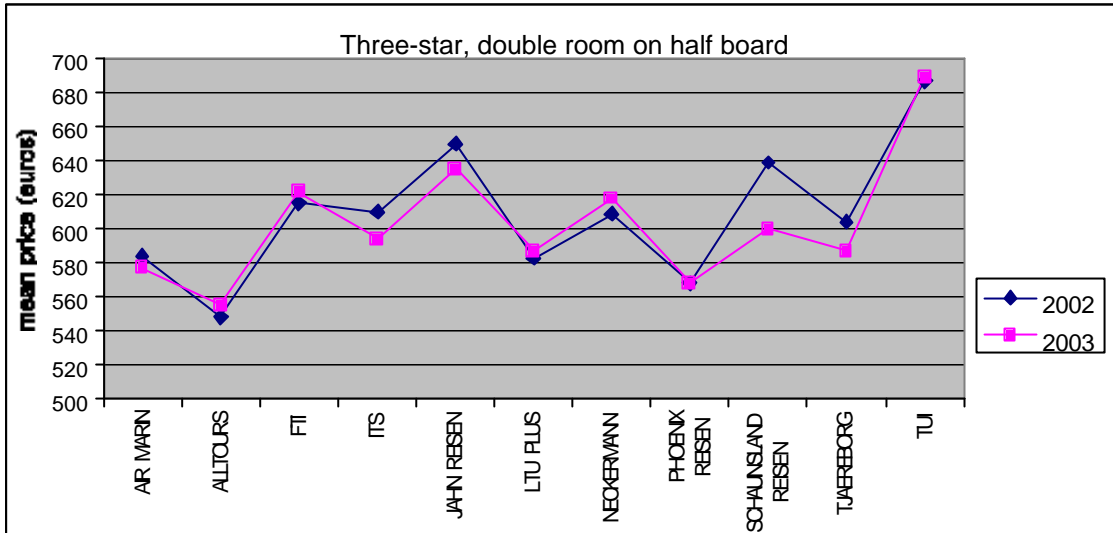
## 2. Price dispersion among the tour operators and within the same tour operator.

A second descriptive analysis of price dispersion is shown here. We take as reference the mean prices from each tour operator for a basic package tour that can be considered homogeneous: accommodation in a three-star hotel, on half board, in a double room. For each tour operator and year, we measure the mean price for this type of offer in all the hotels that are contracted. Figures 5 and 6 show the mean prices for this kind of offer from British and German tour operators, respectively. Figures 7 and 8 display a dispersion measure, the coefficient of price variation for each tour operator and year.

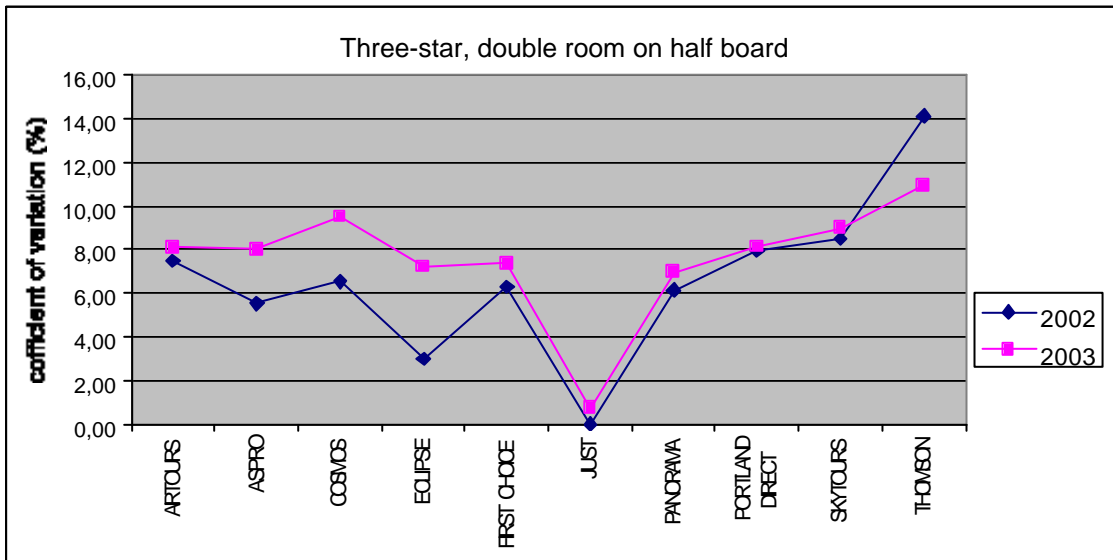
**Figure 5.** Mean prices for package tours for a stay at a three-star hotel, in a double room and on half board from British tour operators during 2002 and 2003.



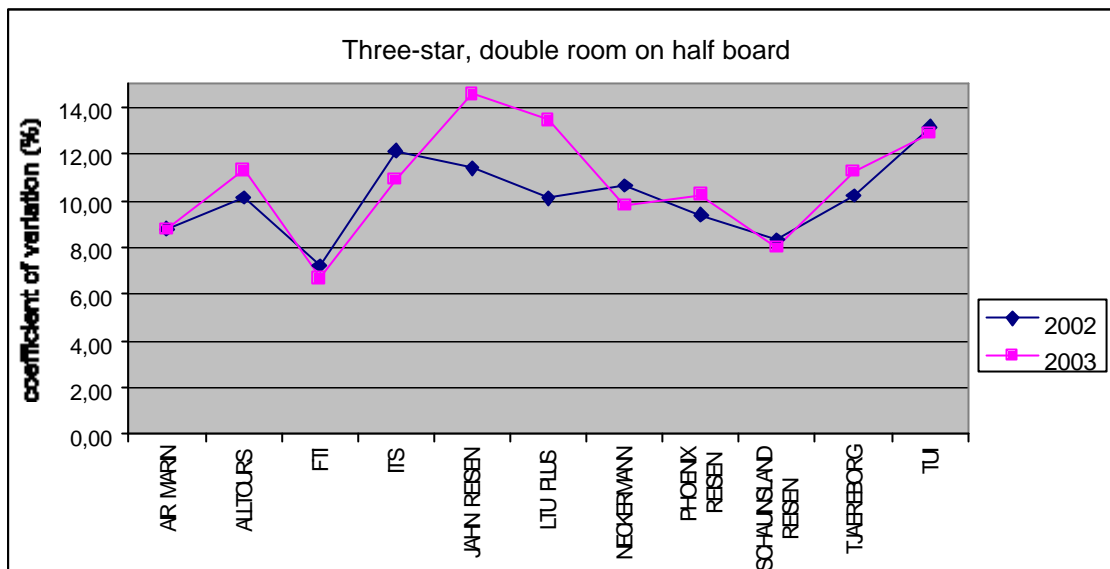
**Figure 6.** Mean prices for package tours for a stay at a three-star hotel, in a double room and on half board from German tour operators during 2002 and 2003.



**Figure 7.** Coefficient of variation (in percentage) of package tours prices for a stay at a three-star hotel, in a double room and on half board in 2002 and 2003 from British tour operators



**Figure 8.** Coefficient of variation (in percentage) of package tours prices for a stay at a three-star hotel, in a double room and on half board in 2002 and 2003 from German tour operators



From the above mentioned results we firstly highlight that despite the fact that prices are not deflated, a sharp fall in the mean prices between 2002 and 2003 can be seen in the British market. This fall is not detected in the German market that remains stable with similar mean prices. As we have previously outlined, although the British market stagnates in 2002, the German market is the country facing a recession. The sharpest price falls are however found in the British market, susceptible of increasing its tourist demand to this destination through a price decrease. It must also be noticed that although the transport costs are similar in both cities of origin, prices are considerably higher in the British market, providing greater margins for a decrease in prices. With regard to dispersion among the different tour operators, both in the British and in the German case, mean prices differ among tour operators in a significant way. It is also remarkable that the pattern of differences that is present in the mean prices from the British tour operators in 2002 decreases in 2003. That is not the case in the German market, where the pattern of differences remains virtually stable.

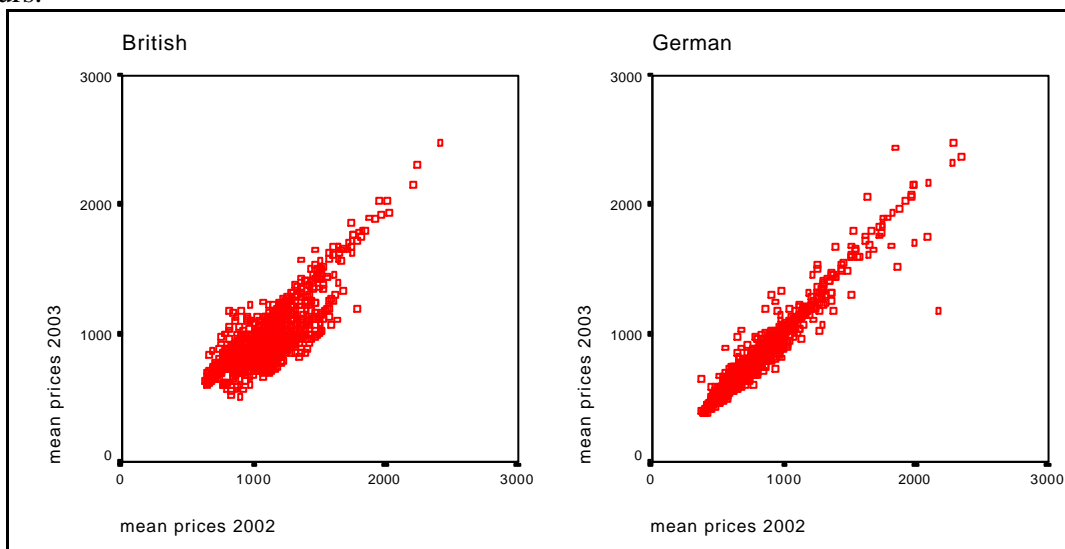
As for intra-firm price dispersion, that corresponding to the price variations that can be found in package tours from the same tour operator, we must firstly stand out the stability in the coefficients of variation when comparing 2002 and 2003. Secondly, we find remarkable the higher relative dispersion in the prices from the German tour operators, with coefficients of variation of more than 10% in most cases.

These patterns of dispersion, both among tour operators (inter-firm) and within each tour operator (intra-firm), are confirmed in the econometric analysis that we present further on. This econometric estimation is necessary since it is through this estimation that we guarantee the comparison of homogeneous products, including for that the maximum number of package tours characteristics in a model of hedonic prices.

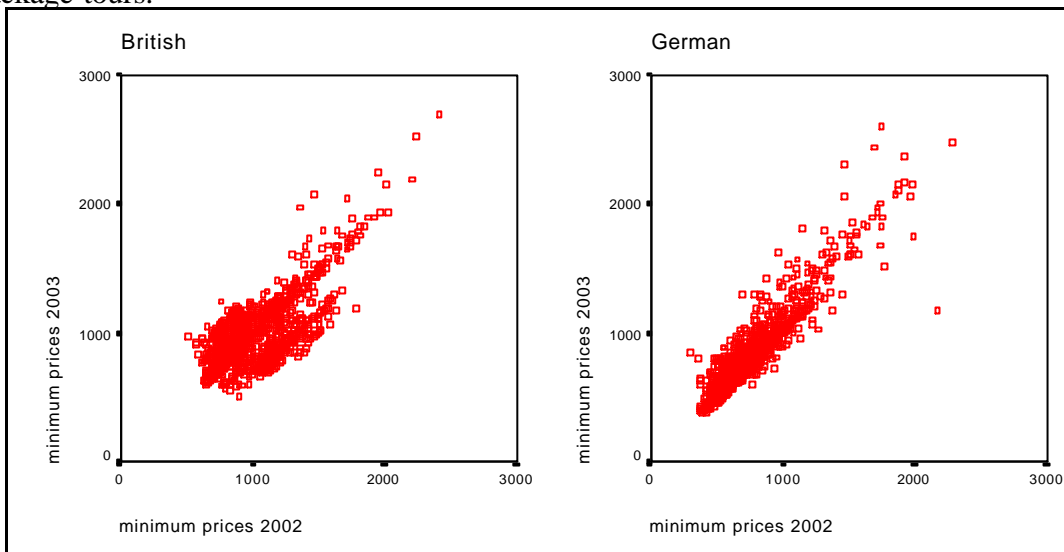
### 3. Price stability in the time

A different evolution of package tours prices in the German and British markets can be clearly detected between 2002 and 2003 when taking into account the totality of packages. Figures 9 to 11 compare the package tours prices evolution in both markets. In this case we have defined as identical, those package tours corresponding to accommodation in the same hotel, on the same type of board, with the same number of beds in the room and with or without sea views. In Figure 9 there is a comparison between the package tours mean prices from the British and German tour operators. In Figures 10 to 11 we compare the package holidays maximum and minimum prices. The results suggest the price stability in German tour operators' prices and a greater variability in British tour operators' prices.

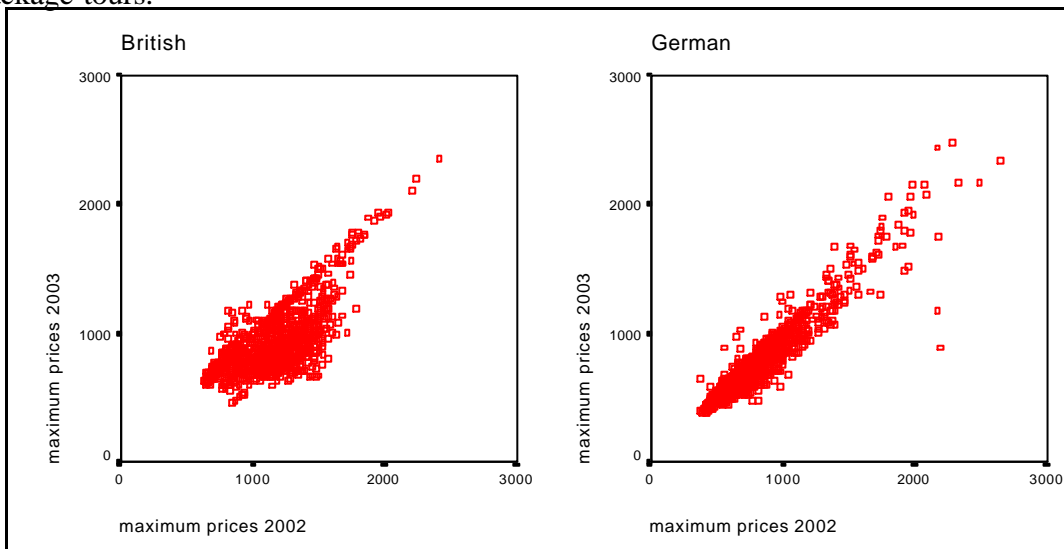
**Figure 9.** Comparison between the 2002 and 2003 mean prices for identical package tours.



**Figure 10.** Comparison between the 2002 and 2003 minimum prices for identical package tours.



**Figure 11.** Comparison between the 2002 and 2003 maximum prices for identical package tours.



The above description is restricted to the comparison of package tours in the same tourist establishment. The intertemporal variability detected allows us to exclude the possibility that the tour operator's price variability is due to the hotel offered. Despite that, it still seems appropriate to value the importance of the recurrence of the same hotel establishments in the brochures of both years.

#### **4. Stability in the negotiations**

Tour operators offer similar packages each year in their markets of origin, which can correspond, however, to different tourist establishments. It is necessary to consider if part of the price dispersion that can be detected in the sample is consequence of the inconstancy in the hotels contracted. The percentage of hotels that the same tour operator contracted both in 2002 and 2003 is in general not very high (see Table 5). In the sample, only 63.6% of the hotels remain in the brochures of the same British tour operator both years. The percentage corresponding to the German market is even fewer, with a 55,2%.

If we take as reference the sample hotels, around the 80% of the sample has a contract with any of the tour operators in 2002-2003 (see Table 6). However, only a half of these hotels signs with the same tour operator for the two consecutive years. Taking into account that the information used is limited to the brochures sample, it must be highlighted the fact that around the 20% of the hotels appears in the brochures just once.

These figures indicate that hotel contracts are not guaranteed and that there is no automatic renewal. It is easy that contracts are not finally signed as a result of the negotiations between hoteliers and tour operators. This fact confirms the pressure under which hotels stand when negotiating their prices.

In spite of that, the variability of hotels between 2002 and 2003 cannot be responsible for price variability in these two years. As can be seen in Table 5, there is a high percentage of stable offers in 2002 and 2003 (around a 82.4% in the British tour operators and a 72.6% in the German tour operators). That is, although the stability of hotel contracts made by each tour operator is low, most of the package tours for both years were made with the same hotels and under the same conditions. Summing up, although the percentage of recurrence in hotel contracts is moderated, the percentage of recurrent package tours is very high, so price variability at that time is not a single result of this effect.



**Table 5.** Percentage of hotels and package tours contracted by each tour operator in one or both years.

	<b>Hotels</b>			<b>Package tours</b>		
	2002 or 2003	2002 and 2003	Total	2002 or 2003	2002 and 2003	Total
<b>British TTOO</b>						
2WENTYS	20.0%	80,0%	100%	10,5%	89,5%	100%
AIRTOURS	65.5%	34,5%	100%	55,6%	44,4%	100%
ASPRO	41.4%	58,6%	100%	23,9%	76,1%	100%
COSMOS	65.0%	35,0%	100%	41,6%	58,4%	100%
ECLIPSE	27.0%	73.0%	100%	11.1%	88.9%	100%
FIRST CHOICE	56.5%	43.5%	100%	36.2%	63.8%	100%
FREE STYLE	33.3%	66.7%	100%	16.7%	83.3%	100%
JUST	71.4%	28.6%	100%	55.6%	44.4%	100%
PANORAMA	23.5%	76.5%	100%	11.2%	88.8%	100%
PORTLAND DIRECT	11.9%	88.1%	100%	4.3%	95.7%	100%
SKYTOURS	21.7%	78.3%	100%	9.4%	90.6%	100%
THOMSON	22.5%	77.5%	100%	9.4%	90.6%	100%
Total	36.4%	63.6%	100%	17.6%	82.4%	100%
<b>German TTOO</b>						
AIR MARIN	38.8%	61.2%	100%	24.3%	75.7%	100%
ALLTOURS	48.7%	51.3%	100%	28.5%	71.5%	100%
FTI	74.2%	25.8%	100%	59.1%	40.9%	100%
ITS	48.7%	51.3%	100%	35.6%	64.4%	100%
JAHN REISEN	52.8%	47.2%	100%	35.1%	64.9%	100%
LTU PLUS	66.2%	33.8%	100%	47.3%	52.7%	100%
NECKERMANN	26.3%	73.8%	100%	13.4%	86.6%	100%
OLIMAR	20.0%	80.0%	100%	15.7%	84.3%	100%
PHOENIX REISEN	43.5%	56.5%	100%	26.9%	73.1%	100%
SCHAUINSLAND REISEN	55.4%	44.6%	100%	34.6%	65.4%	100%
TJAEREBORG	53.8%	46.2%	100%	35.3%	64.7%	100%
TUI	19.6%	80.4%	100%	10.3%	89.7%	100%
Total	44.8%	55.2%	100%	27.4%	72.6%	100%

**Table 6.** Frequency with which hotels appear in the tour operators' brochures.

<b>Establishments (%)</b>	<b>British Brochures</b>	<b>German Brochures</b>	<b>Total Brochures</b>
Contract for a single year	22.17	26.67	19.31
Contract for both years but with different tour operators	37.00	20.00	40.61
Contract during both years with the same tour operator	40.83	53.33	40.08
Total	100.00	100.00	100.00

#### IV. ECONOMETRIC ANALYSIS

Two types of analysis have been considered with the objective of knowing how the several tour operators behave in relation to market prices. Firstly, the analysis of the package tours mean prices, using hedonic regressions. Secondly, the analysis of price dispersion, using the comparison of the residuals distributions and making estimates of the quantile regressions upon these residuals.

The hedonic prices methodology states that the price of a product or service depends on its own features. For each year and nationality, regression models have been estimated. These models explain the package tour price through the package tour characteristics, including the tour operator making the offer as another explanatory variable as well. The coefficients corresponding to each tour operator can be interpreted as marginal effects in prices. A positive and statistically significant coefficient indicates that the corresponding tour operator establishes an overprice that is not justified by the features published in the brochure. This overprice is the result of several tour operator's features. Some of them can be related to the tour operator's reputation or quality. The tour operator's dominant position in markets characterised as oligopolies is also at stake (Aguiló, Alegre and Sard, 2003). Based on the coefficients, we have calculated the indexes that describe the tour operators' relative position with respect to the package tours prices.

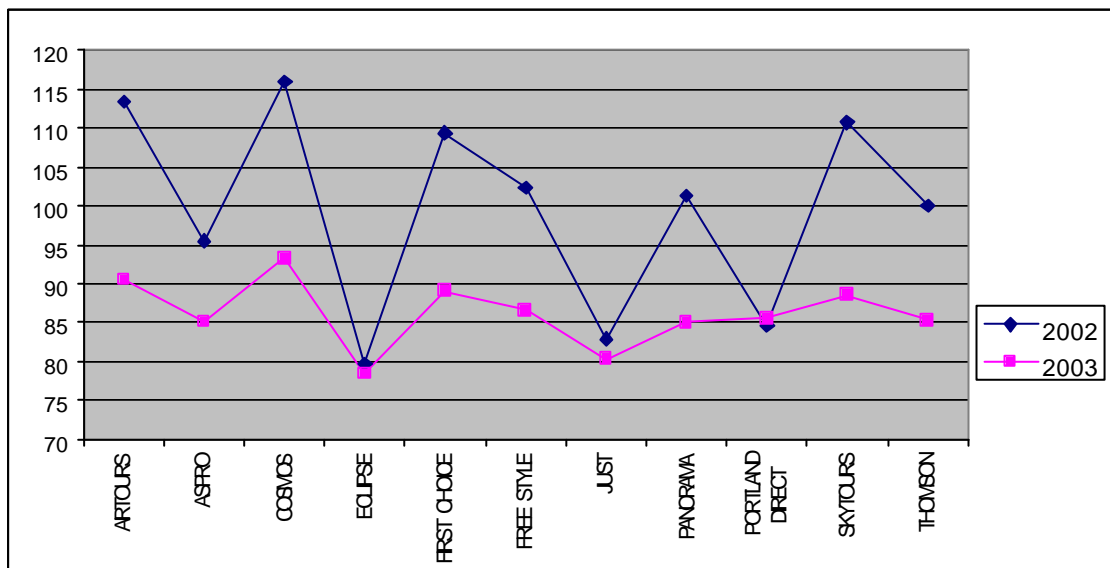
The residuals of the previous hedonic regression capture the fluctuation over the package tour price, which cannot be explained through its characteristics. In a competitive market, these residuals should show a purely random behaviour, even when separately analysed for each tour operator. The results obtained show that there are systematic differences in the residuals distributions corresponding to tour operators.

**1. Level of relative prices.** Regression models have been estimated with lineal functional forms, including the package tours characteristics and the tour operator's identity as explanatory variables. Regressions have been estimated for each nationality and year, separately. We have obtained high adjustment coefficients ( $R^2$  of 0.866 and 0.811, for 2002 and 2003 British prices and of 0.811 and 0.821, for the German). The estimated coefficients for each tour operator can be interpreted as implicit prices. These

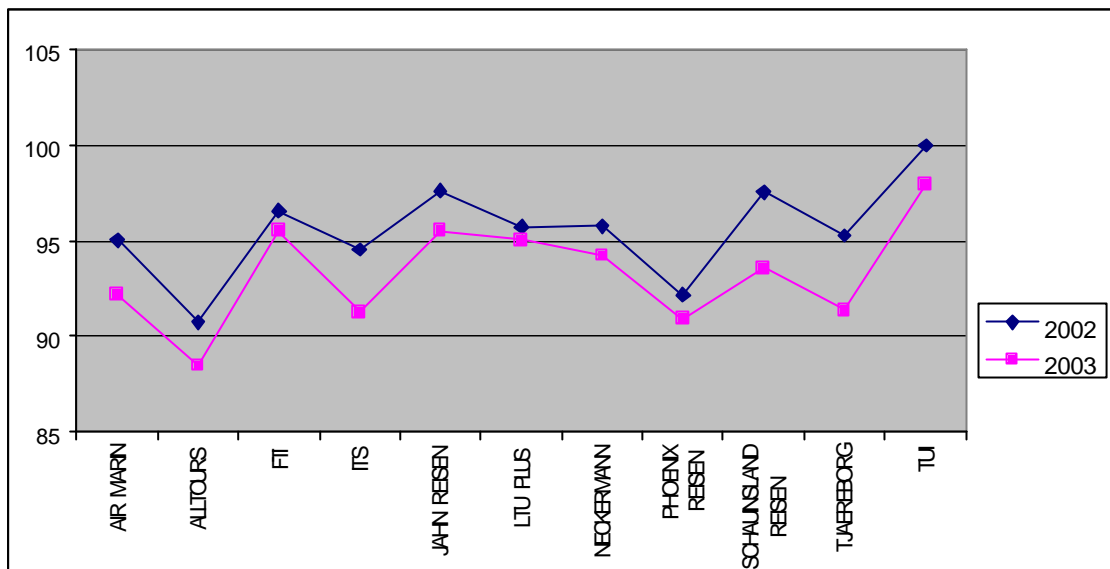
coefficients would capture the price variations attributable to the fact that the package tour is made by a specific tour operator, leaving out or neutralizing the effect of the remaining package tour characteristics. Presented as indexes, these can be interpreted as tour operators' relative prices, comparable upon an equivalent base.

Figures 12 and 13 show the hedonic price indexes corresponding to the British and German tour operators, respectively. We take as 100 base 2002 prices from Thomson and TUI, for British and German tour operators, respectively. The model results suggest the existence of statistically significant differences in the prices established by tour operators in both markets. The stability in the price dispersions of 2002 and 2003, in the German market in particular, confirms the existence of a permanent heterogeneity among tour operators. As has been detected in the previous descriptive analysis, the fall in prices in the British market has a homogenizing effect in the tour operators' positions.

**Figure 12.** Hedonic price indexes in the British tour operators (Thomson, base 100 in 2002).



**Figure 13.** Hedonic price indexes in the German tour operators (TUI, base 100 in 2002).

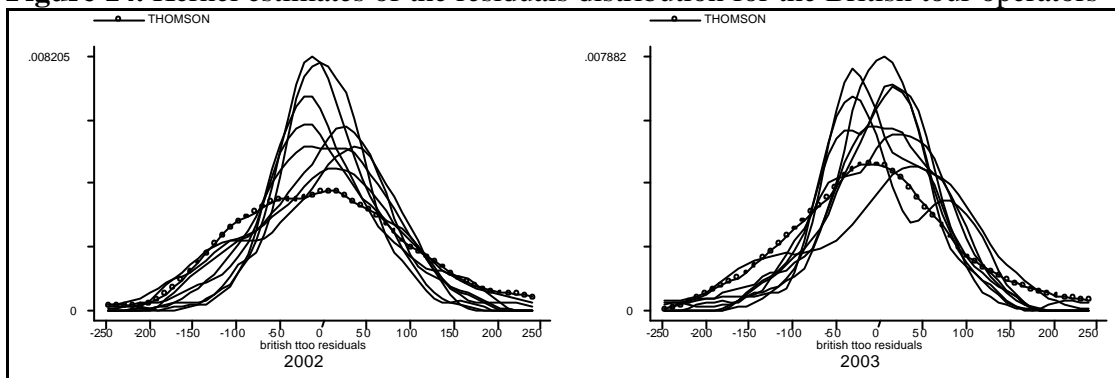


**2. Dispersion analysis.** The hedonic regression models explain the expected mean price, in function of the package tour characteristics. In order to analyse price dispersion we have used estimate residuals of hedonic regressions. The residuals capture the difference between the fixed price and the price that would correspond to the package tour characteristics, including the specific tour operator. These residuals dispersion is therefore the price variability that cannot be explained through the package tour characteristics. The comparative analysis of each tour operator's residuals distribution and its evolution in the time, allows us to notice the different tour operators' price dispersion strategies. In case prices differ from the mean values in a random way, the residuals distribution would present non-systematic behaviours by segmenting the distribution depending on the tour operator. On the contrary, if tour operators establish deviations in the mean prices using specific commercial strategies, the residuals distributions would differ among them.

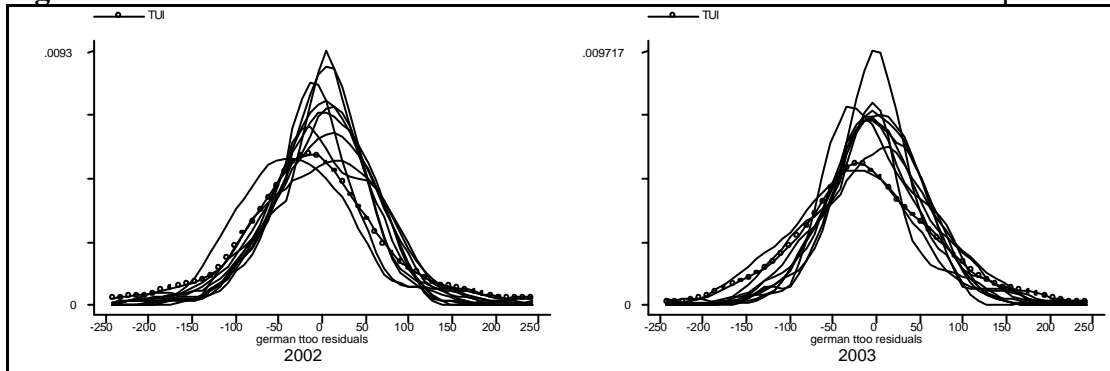
The Kernel estimates representation of the residuals distribution in 2002 and 2003 for the British and German tour operators is shown in Figures 14 and 15, respectively. In those figures we have used Thomson and TUI as the reference tour operator for each market. In the annexe, we show the distributions corresponding to each tour operator for the two years in a separately way.

The following conclusions can be drawn from the distribution estimates: (1) In general, residuals distributions differ among tour operators; (2) These distributions present more similarities among them in the case of the German tour operators; (3) The German tour operators' distributions do not seem to change between 2002 and 2003, tending in any case to a greater homogenization in their distribution shape; (4) In the British case, distributions change between 2002 and 2003, but maintaining their disparity among tour operators.

**Figure 14.** Kernel estimates of the residuals distribution for the British tour operators



**Figure 15.** Kernel estimates of the residuals distribution of the German tour operators



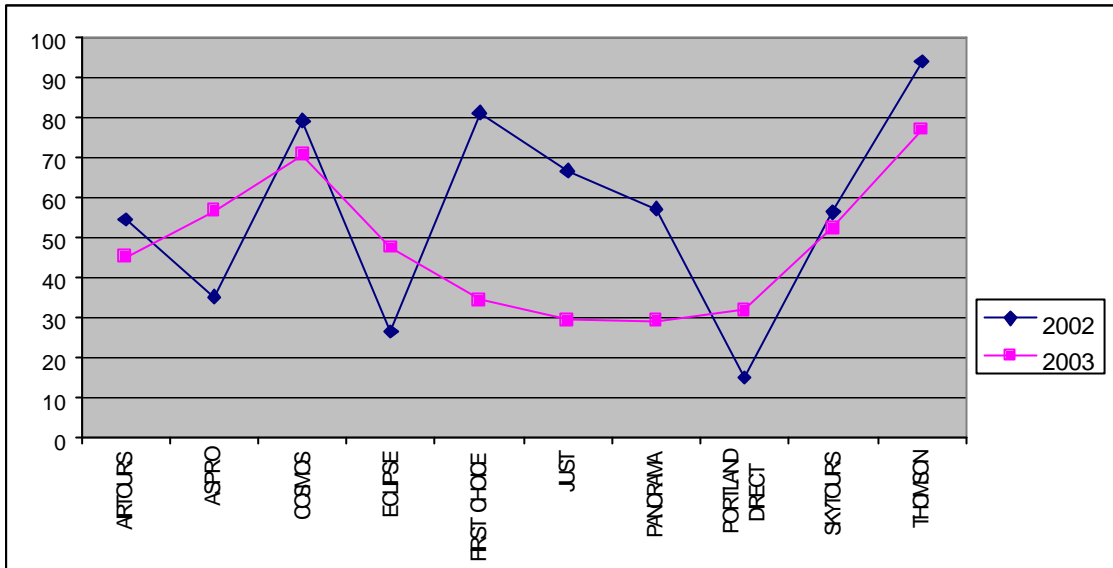
A way of measuring the distributions stability is to calculate the correlation between the 2002 and 2003 residuals. The results (see Table 7) show a very low correlation in most of British tour operators. On the contrary, the stability in the residuals relative positions get confirmed for the German market.

**Table 7.** Coefficients of correlation between 2002 and 2003 of the hedonic regressions residuals (for coincident offers).

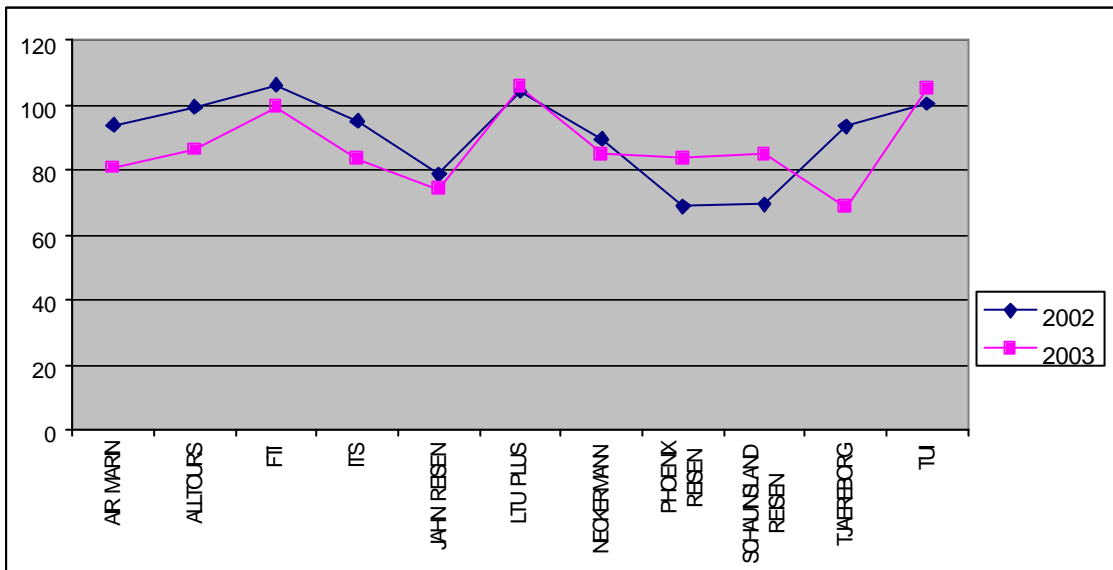
<b>British TTOO</b>	<b>Pearson correlation (sig.)</b>	<b>N</b>	<b>German TTOO</b>	<b>Pearson correlation (sig.)</b>	<b>N</b>
2WENTYS	0.337 (0.51)	6	AIR MARIN	0.598 (0.00)	218
AIRTOURS	0.006 (0.97)	38	ALLTOURS	0.654 (0.00)	163
ASPRO	0.643 (0.00)	42	FTI	0.753 (0.00)	50
COSMOS	0.286 (0.06)	45	ITS	0.671 (0.00)	176
ECLIPSE	0.314 (0.00)	119	JAHN REISEN	0.914 (0.00)	162
FIRST CHOICE	0.394 (0.00)	76	LTU PLUS	0.951 (0.00)	161
FREE STYLE	-0.510 (0.09)	12	NECKERMANN	0.662 (0.00)	490
JUST	0.697 (0.51)	3	OLIMAR	0.780 (0.00)	20
PANORAMA	0.426 (0.00)	151	PHOENIX REISEN	0.487 (0.00)	69
PORTLAND DIRECT	0.577 (0.00)	154	SCHAUINSLAND	0.649 (0.00)	61
SKYTOURS	0.409 (0.00)	64	TJAEREBORG	0.651 (0.00)	185
THOMSON	0.349 (0.00)	393	TUI	0.789 (0.00)	289
Total	0.350 (0.00)	1103	Total	0.785 (0,00)	2044

Using the quantile regression model it is possible to estimate the specific effect to which tour operators contribute in the residual amplitude. For that, we have run several regressions of the differences between the first and third quartile. Regressions have included as explanatory dispersion variables: hotel type and category, type of board, number of beds in the room, tourist area, if the room has sea views and finally the tour operator making the offer. The coefficients corresponding to tour operators are estimates of the tour operators' marginal effect in the interquartile range. The results obtained are represented in Figures 14 and 15. In them we show the existence of systematic differences among tour operators when the price distribution amplitude is defined. As detected in the distribution analysis, differences among tour operators in 2002 change in 2003 but maintaining disparity among them.

**Figure 14.** Marginal effects in the British tour operators' interquartile range



**Figure 15.** Marginal effects in the German tour operators' interquartile range



## V. CONCLUSIONS

In this paper we show the importance of the price dispersion in the tour operating industry. Price dispersion presents a triple dimension. Firstly, there is a price dispersion result of the tour operators' positioning in their mean prices. As has been indicated, this heterogeneity can be the result of multiple causes (different average costs, better quality of the tour operator's services, reputation, etc). The oligopolistic structure of this industry in the German and British markets can be another decisive factor. In that sense,

price dispersion would be the result of the different tour operators' market power and of their different strategic positioning (Aguiló, Alegre and Sard, 2003). The second dimension is provided by the price dispersion present within each tour operator. Marketing strategies can establish a more or less disperse price or even with possible asymmetries with respect to the mean price. The existence of this dispersion strongly depends on the existence of significant search costs for consumers. These search costs do not only depend on the consumers' characteristics but they can also be modified by tour operators. In this case, the confluence of the tour operators' individual strategies for price dispersion would increase the final search costs. The third dimension of price dispersion is given by the temporal dimension. The dispersion persistence over time is compatible with two market situations. In the first, differences and price dispersion detected at a moment would be maintained over time. In the second, price distributions would be the result of random processes. In this case, dispersion would remain over time, but the offers positioning in the prices distribution would change in a random way.

The results obtained show that the three dimensions of price dispersion are present in the German and British tour operating markets. The main difference between them is provided by the greater mobility of the British market. Price dispersion in the German tour operators' market seems stable in the three above mentioned dimensions. In the British case, we notice some homogenization in its price dispersion between 2002 and 2003. In the same way, a greater random factor in the dispersion positioning in the temporal evolution can be mentioned. Varian (1980) interprets random distributions as an attempt that firms make to avoid consumers from learning about the best prices with their experience. According to Varian (1980) price dispersion persistence over time would be incompatible with consumers' learning process. The results obtained in this paper do not support this hypothesis. In the British market, both the random dispersion in the temporal dimension and the dispersion homogenization in the non-temporal dimensions are interpreted as a consequence of a change in the strategies adopted by tour operators in a moment of significant falls in prices.

One of the remarkable results of this paper is the evidence of the mutual influence between two apparently isolated markets. The crisis in the tourist demand experienced by the German market cannot be solved with lower prices, so an increase in the demand that is necessary to fill the tourist industry capacity takes place with sharp price



decreases in the British market, whose demand is still elastic to price. With the objective of increasing the demand, the intensity of the price falls has created a wide margin to redefine price strategies by the British tour operators.

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**ANEXE.** Residuals distribution of hedonic regressions. Kernel estimate for each tour operator in 2002 and 2003.

Figure 1. Airtours.

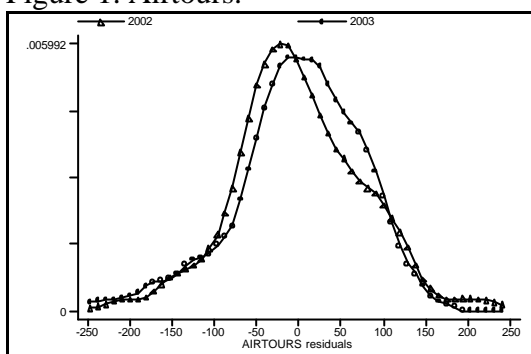


Figure 2. Aspro.

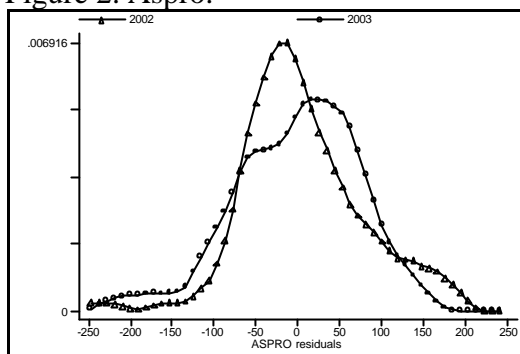


Figure 3. Cosmos

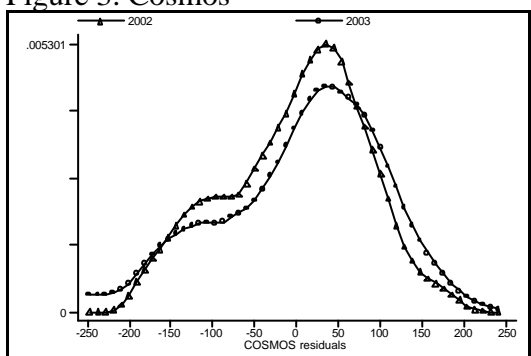


Figure 4. Eclipse.

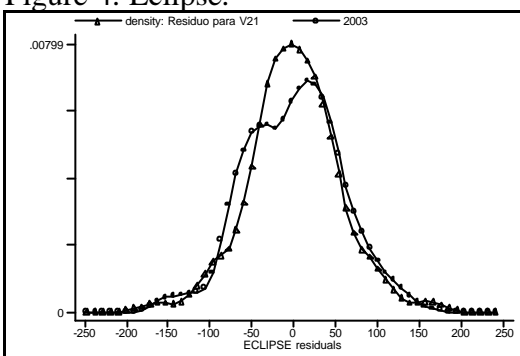


Figure 5. First Choice.

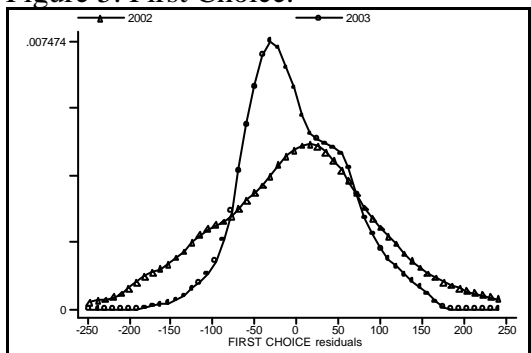


Figure 6. Panorama.

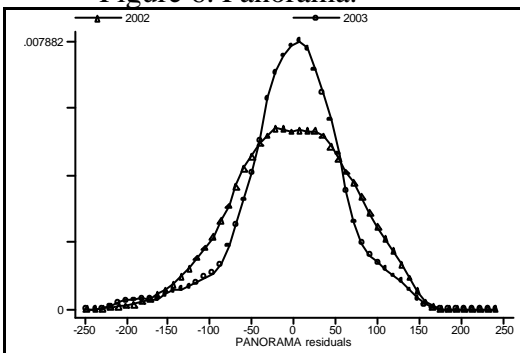


Figure 7. Portland Direct.

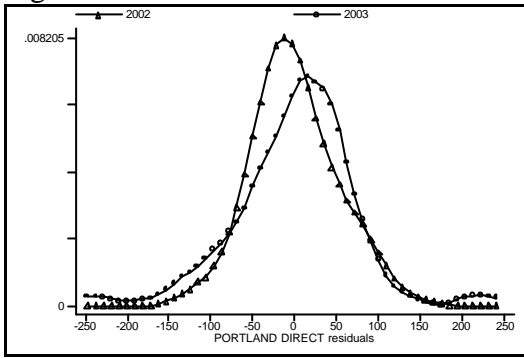


Figure 8. Skytours.

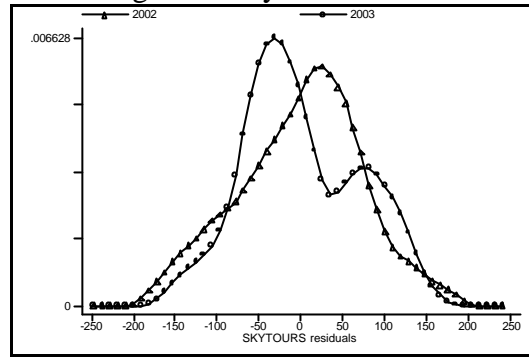


Figure 9. Thomson.

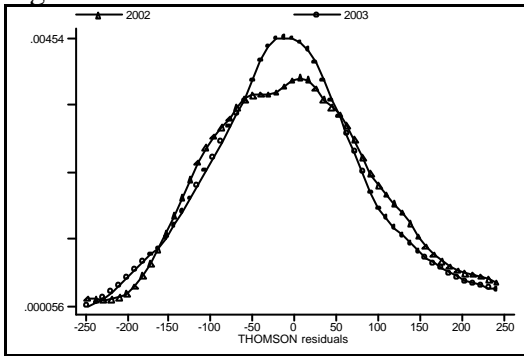


Figure 10. Air Marin.

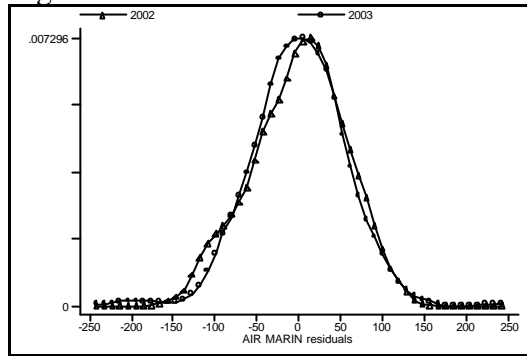


Figure 11. Alltours.

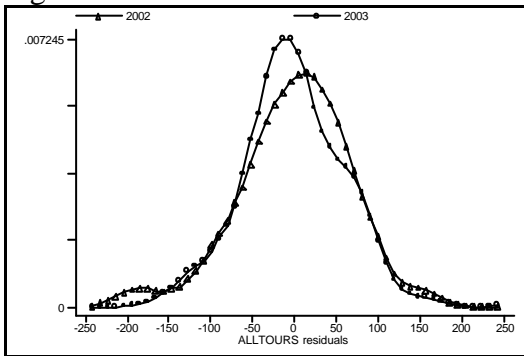


Figure 12. FTI.

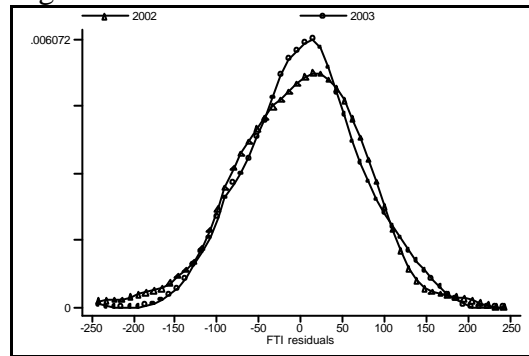


Figure 13. ITS.

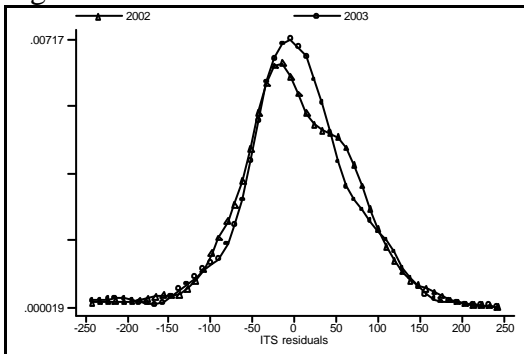


Figure 14. Jahn Reisen.

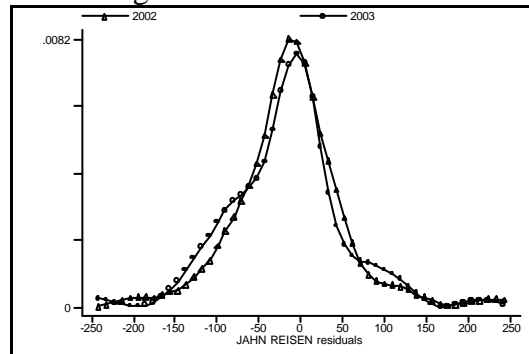


Figure 15. LTU.

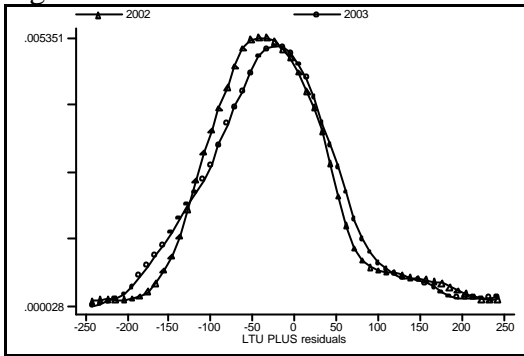


Figure 16. Neckermann.

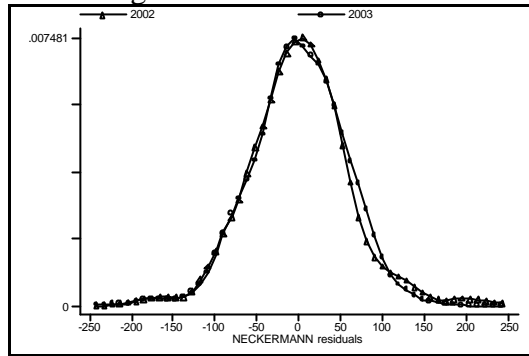


Figure 17. Phoenix Reisen.

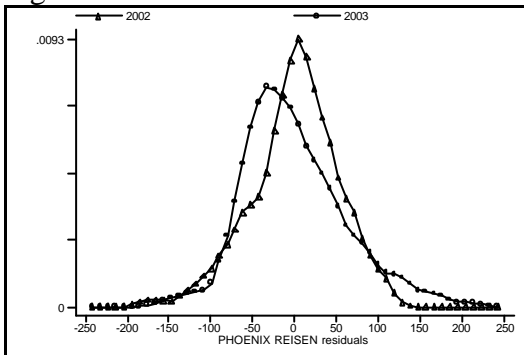


Figure 18. Schauinsland Reisen.

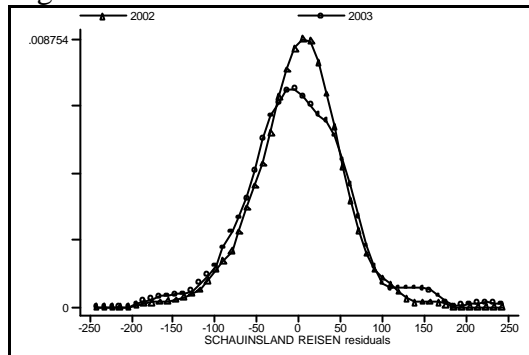


Figure 19. Tjaereborg.

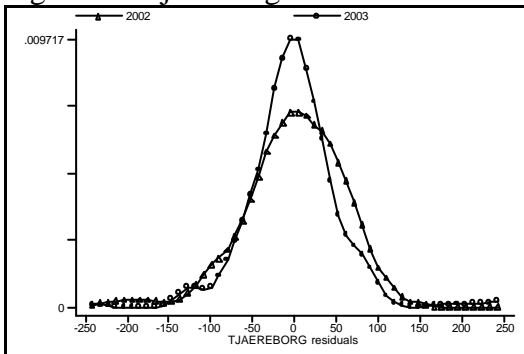


Figure 20. TUI.

