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The impact of inbound demand on price levels in tourism municipalities: empirical evidence from Catalonia

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It is usually argued that tourism exerts negative economic impacts in host jurisdictions through the increase in prices linked to increasing demand for basic services and goods from tourists. This paper surveys 149 products in 45 tourism and non-tourism jurisdictions in Catalonia (which represent a total of 18,500 prices) in order to test empirically several hypotheses related to differences in price levels in tourism and non-tourism jurisdictions. The main results show that prices in tourism jurisdictions are not significantly higher than those in non-tourism ones. The analysis suggests that tourists are likely to pay higher prices than natives for some products.

Keywords: tourism demand; price level and price dispersion; traded and non-traded goods; search costs

Wherever tourism is a major economic activity, debates abound regarding the benefits and costs of inbound tourism demand for local jurisdictions. One of those debates is concerned with increased tourism flow as a source of inflation in host municipalities. (This paper uses the terms 'municipality' and 'jurisdiction' as synonyms.) It is usually argued that tourists push demand up, thus increasing consumer prices (which must be understood in a broad sense, including consumption goods, housing, or land plots, for instance) in tourism jurisdictions and widening the gap between price levels in tourism and non-tourism municipalities. Indeed, according to the United Nations (UNEP; UNEP and UNWTO, 2005), even though tourism impinges many positive economic impacts on host communities (such as foreign exchange earnings, contribution to government revenues, generation of employment, stimulation of infrastructure investment and contribution to local economies), it also exerts negative impacts through the increase in prices linked to increased demand for

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basic services and goods from tourists. Other negative impacts are related to the emergence of the local jurisdiction's economic dependence on tourism or the seasonal character of jobs (see also Kim *et al*, 2006). Furthermore, the negative effects of increasing prices may spread beyond the economic sphere and give rise to sociocultural issues. Consider, for instance, the side effects of tourism demand on the increase of house prices and the ensuing difficulty for young generations born and raised in second-home jurisdictions to find affordable dwellings in their native villages (Gallent and Tewdwr-Jones, 2000; Fountain and Hall, 2002; Gallent *et al*, 2005).

A few studies exist on the impact of tourism on prices (and other variables, such as gross domestic product, employment and exchange rates) from a macroeconomic point of view (Hazari and Ng, 1993; Adams and Parmenter, 1995; Zhou *et al*, 1997; Nowak *et al*, 2003; Narayan, 2004; Chao *et al*, 2005, 2006). These studies rely on strong assumptions rather than on empirical results (see the 'theoretical framework' section). Since, in a macroeconomic setting, tourism is understood as a demand shock that increases the prices of non-traded goods, these studies assume a positive relationship between tourism and price levels without testing whether this hypothesis actually holds in the real world.

To the best of the authors' knowledge, the present study is the first to analyse the effects of tourism demand on prices from a microeconomic perspective, sidestepping general equilibrium (GE) models and relying instead on survey data. Thus, this paper collects about 18,500 retail prices in a sample of 149 products sold in 45 tourism and non-tourism municipalities in Catalonia (in the north-east of Spain, on the shores of the Mediterranean Sea), where tourism is one of the major industries. In contrast to GE models, the paper's perspective makes it possible to test empirically several refutable hypotheses regarding differences in price levels in tourism and non-tourism jurisdictions.

To do so, the paper proceeds in seven sections, in addition to this introduction. It starts with some preliminary considerations needed to understand the paper's framework of analysis and to dispel some common misunderstandings. Then, basic principles of economic analysis are used to set up the empirical framework. The design of the survey used for collecting prices is described next. A section underlying the framework of statistical analysis precedes the testing of the hypotheses. The relevance of the results and their validity for other destinations and countries is discussed before the last section, which summarizes the paper's main results.

Inflation, price levels and tourism prices

Measuring the cost of living is notoriously difficult in general (Deaton, 1998). This is especially so when one wishes to discern the effects of tourists and visitors on the cost of living faced by local residents. A first difficulty arises because in practice there is some confusion among three similar terms, which in this paper will be summarized as *prices related to leisure and tourism*, *tourism consumption prices* and *price levels in tourism jurisdictions*. To understand clearly the effects of tourism on a jurisdiction's existing prices, the relevant terms used in this paper are defined first.

- *Prices related to leisure and tourism* refer to the prices of goods and services typically bought by tourists at their destination and considered as related directly to tourism, although local residents may also consume them. For instance, hotel and restaurant prices fit this definition, since they are consumed mostly by tourists and visitors, but also by locals during their leisure time. In Spain, these prices are measured with hotel price indices and the component of the consumer price index (CPI) including the prices charged by hotels, restaurants and other tourism-related business (INE, 2001).
- *Tourism consumption prices* refer to the prices of goods and services bought by tourists either at their destination or at their region of origin, such as hotels and restaurants, but also food, transport and leisure, for instance. These prices are at the basis of both tourism expenditure (UNWTO, 1995) and the competitiveness of different jursidictions.
- *Price levels in tourism jurisdictions* refer to the cost of living in tourism municipalities. The comparison of prices in tourism and non-tourism municipalities, after controlling for the relevant variables, yields interesting insights regarding the effects of tourism demand (and the flow of immigrants working in the tourism sector). In order to capture these prices, a general price index (not limited to goods and services consumed by tourists) is needed.

Arguably, these three categories are closely related. Thus, one can imagine a situation where it is found that prices in tourism jurisdictions (in the sense of the third category above) are systematically higher than in non-tourism municipalities. Then, a relevant question is whether price differences are significantly higher for goods and services consumed by tourists (second category above).

This paper elucidates whether (as claimed, for instance, by the UNEP and the UNWTO) tourism exerts negative impacts on tourism jurisdictions through the increase in prices linked to increasing demand for basic services and goods from tourists. Thus, the paper analyses price differences between tourism and non-tourism jurisdictions in the sense of the third category above. That is, the prices of some representative products consumed by both tourists and local residents are taken into account and differences in prices between tourism and non-tourism jurisdictions are analysed. Thus, products/services sold by firms catering mainly for tourists or lacking uniformity between jurisdictions are not considered here.

Theoretical framework

In an ideal world with perfectly competitive markets, arbitrage and consumer mobility ensure that in equilibrium the prices of identical traded goods are the same, since the exchange of goods results in price convergence. This is known as the law of one price (see, for instance, Isard, 1977). In this ideal world, price differences for identical traded goods are a symptom of temporary disequilibrium or relevant transport costs. The Balassa–Samuelson hypothesis (Balassa, 1964; Samuelson, 1964) suggests that the prices of traded goods (easily

transportable) must converge between locations, but that the prices of non-traded goods will differ (Kravis *et al*, 1983; Bhagwati, 1984; De Gregorio *et al*, 1994). Although it is not always straightforward to distinguish between traded and non-traded goods (Woodland, 2008), it seems clear that many services related to tourism are non-traded. This suggests that tourism can be understood as a demand shock that increases the prices of non-traded goods.

This reasoning is the point of departure of many studies that consider the impact of tourism on prices from a macroeconomic point of view. For instance, Adams and Parmenter (1995) analyse the economic effects of tourism on the industrial and regional structures of the Australian economy and find that Queensland would be a net loser from an economy-wide expansion of tourism. Chao *et al* (2005) examine the impact of tourism in a cash-in-advance economy and find that as a result of the expansion in tourism, the price of the non-traded good increases. This gives rise to a terms-of-trade improvement but also worsens the distortion in consumption caused by cash in advance. Chao *et al* (2006) examine the effects of an expansion in tourism on capital accumulation, industry output and resident welfare in an open economy with an externality in the traded good sector. They find that although an expansion of tourism increases the relative price of the non-traded good, improves the tertiary terms of trade and yields a gain in revenue, it results in a lowering of the demand for capital used in the traded sector, with a subsequent de-industrialization in the traded good sector which may lower resident welfare. Hazari and Ng (1993) analyse the consequences of tourists' consumption of non-traded goods and services on the domestic economy of the country receiving the tourist. They show how the consumption of non-traded goods and services affects the domestic consumption possibility locus and how this may reduce the welfare of the local residents. Besides, they find that an increase in the foreign demand for non-traded goods and services may lower welfare because of monopoly power in the trade of non-traded goods and services. Narayan (2004) uses a computable general equilibrium (CGE) model to assess the long-run impact of a 10% increase in tourist expenditure on Fiji's economy. Nowak *et al* (2003) present a model that captures the interdependence between tourism and the rest of the economy and find that the tourist boom may 'immiserize' the residents when the non-traded tourism sector is more labour-intensive than the agricultural traded sector. Zhou *et al* (1997) use a CGE model to examine the impacts of tourism on the economy of a region.

The previous macroeconomic approaches are based on GE models and on simulations performed in a CGE setting (Johansen, 1960), and rely on strong assumptions (Sandler, 2001; Croes and Severt, 2007). Those models limit themselves first to calibrate a GE with the relevant macroeconomic data and then to perform simulations with the help of the calibrated model. Thus, in Fiji, for instance, an increase in consumer expenditure leads to an increase in domestic prices and wages (Narayan, 2004). In Hawaii, a 10% reduction in visitor expenditure is at the origin of a reduction in prices ranging from 0.089% to 3.060% (Zhou *et al*, 1997). Summing up, GE and CGE studies assume a positive relationship between tourism and price levels, but do not test whether this relationship actually holds in the real world.

This paper sheds light on the actual validity of that assumed relationship.

The paper proceeds by testing several hypotheses related to differences in price levels in tourism and non-tourism jurisdictions:

- Hypothesis 1: General differences (that is, for both traded and non-traded goods) exist in price levels between tourism and non-tourism jurisdictions.
- Hypothesis 2: Differences exist only at the height of the tourism season, when demand is at its highest level in tourism jurisdictions.
- Hypothesis 3: Differences exist only for different groups of products, particularly those purchased by tourists. That is, the demand shock caused by tourists affects only certain products.
- Hypothesis 4: Differences exist when sales are taken into account. It could be argued that retailers resort to sales in order to differentiate among several types (informed and uninformed) of customers (Varian, 1980). If sales are used as a tool for charging different prices in tourism and non-tourism jurisdictions (and presumably higher in the former), then list prices will not reflect the actual price differences between both types of jurisdictions.
- Hypothesis 5: Differences exist when the distribution channel is taken into account. It is reasonable to assume that distribution channels with pricing strategies relying on higher prices are located in tourism jurisdictions. (Of course, the cause–consequence link might go in the opposite direction: higher prices in tourism municipalities may attract distribution channels with pricing strategies based on high prices and repel retailers with pricing strategies based on low prices.)
- Hypothesis 6: Differences exist for non-traded goods only, that is for goods (such as personal services or pub drinks) that must be consumed where they are purchased (that is, for which no resale opportunities exist). This is a form of the Balassa–Samuelson hypothesis (Balassa, 1964; Samuelson, 1964).
- Hypothesis 7: Differences exist in price levels in tourism and non-tourism zones within a particular tourism jurisdiction. It could be argued that informed natives know the prices charged for identical products by different sellers and always go to low-priced stores, while uninformed tourists shop at random (Salop and Stiglitz, 1977). Indeed, if individuals must incur search costs (Diamond, 1971) to obtain information, then the market equilibrium may be characterized by price dispersion (Stiglitz, 1979; Carlton and Perloff, 2005).

Survey design

No institution exists, either in Catalonia or in Spain, which collects systematically the prices of different products in tourism and non-tourism, compares them and analyses their evolution throughout time. In Spain, the CPI is computed at national, regional and local level by the Spanish National Statistics Institute. However, because of sample design, it is not possible to disaggregate the CPI data to take into account prices in tourism and non-tourism jurisdictions. Therefore, this paper starts from scratch, building a representative bundle of goods and services, determining a sample of establishments and of tourism and non-tourism jurisdictions, collecting prices and analysing them. The statistical analysis consists of mean-comparison tests for the prices in

tourism and non-tourism municipalities of every product surveyed (see the 'statistical framework' section). This section goes into the details of the survey and the sample design.

Sample of jurisdictions

The study considers 45 tourism and non-tourism jurisdictions in Catalonia and 6 districts of the city of Barcelona. Determining which Catalan jurisdictions should be classified as tourism is not straightforward. It is not possible to rely on international tourist arrivals and international tourist receipts since this information, although available at country level (UNWTO, 2008), does not exist for individual jurisdictions. Nevertheless, the Statistical Institute of Catalonia (2009) measures the *de facto* population for the Catalan jurisdiction with more than 5,000 *de jure* inhabitants (Costa and Rovira, 2001). *De facto* population (Siegel, 2002) takes into account both temporary and permanent residents. However, not all temporary residents are tourists, since temporary residents can be categorized as (Smith, 1989): daytime production (for example, job commuters), daytime consumption (for example, hospitalization, shoppers, daytime tourists), overnight production (for example, temporary workers) and overnight consumption (for example, owners of second homes, overnight tourists). Thus, *de facto* population must be complemented with other data, such as the presence of major tourism attractions in the jurisdiction.

Indeed, it could be argued that jurisdictions hosting major tourism attractions can be classified directly as tourism jurisdictions without taking into account the *de facto* population. However, in many instances this is not sensible. For instance, Figueres is a town with 40,000 inhabitants close to the Costa Brava, which hosts the Salvador Dalí Theatre-Museum that attracts tourists from around the world (for instance, the museum received more than 837,000 visitors in 2005 [Rigall-I-Torrent, 2007]). Nevertheless, Figueres can hardly be considered as a tourism jurisdiction, since nowadays most visitors to the town are daytime tourists staying at hotels on the Costa Brava (Rigall-I-Torrent, 2007). These tourists are unlikely to exert significant impacts on the prices of the products considered in this paper. This suggests that a third dimension, hospitality infrastructure (that is, hotel and camping capacity, second homes, etc), must be considered.

Thus, this study classifies a jurisdiction along three dimensions:

- the ratio of non-registered (*de facto*) residents over *de jure* inhabitants in the jurisdiction
- the ratio of hospitality infrastructure per capita in the jurisdiction
- major tourism attractions located in the jurisdiction.

The specific variables used for classifying municipalities between tourism and non-tourism along these dimensions are (Rigall-I-Torrent, 2003):

- ratio of the *de facto* over *de jure* population
- hotel capacity per 1,000 *de jure* inhabitants
- camping capacity per 1,000 *de jure* inhabitants
- second homes per 1,000 *de jure* inhabitants
- restaurants per 1,000 *de jure* inhabitants

- local police officers per 1,000 *de jure* inhabitants
- ratio of the *de facto* population in June–July over the *de jure* population
- ratio of the *de facto* population in November–December over the *de jure* population
- presence of major tourism attractions (beaches, ski resorts or renowned museums, for instance).

Table 1 shows the municipalities included in the sample, together with the values taken by the variables considered. Notice how all the values for Lloret the Mar (an outstanding Catalan tourism jurisdiction) are above Catalonia's average, while those for Figueres (except the number of local tourism officers) are below average. The variables in Table 1, together with the authors' knowledge of the different jurisdictions and the opinion of experts at the Observatory of Tourism of Catalonia (a public institution which studies, researches and keeps an ongoing eye on tourism), are at the basis of the final classification of tourism and non-tourism jurisdictions.[1]

The particular jurisdictions in Table 1 were selected according to their number of inhabitants and proximity between jurisdictions, so that a representative cross section of similar tourism and non-tourism jurisdictions was available for comparison (that is, so that the *ceteris paribus* clause holds). All the tourism municipalities surveyed are located along the coast and in the Pyrenees, whereas the non-tourism municipalities are distributed across the region (see Figure 1).

Sample of retailers

Prices come from a sample of retailers. Since different retailers may apply different marketing and pricing strategies, the sample includes the main supermarket chains with broad geographical presence in the jurisdictions analysed (Caprabo, Dia, Suma, Carrefour, Mercadona, Bon Preu, Condis and Lidl). Besides, some prices were collected in local markets (fresh foods), bakeries (bread) and bars (certain drinks).[2] Thus, prices are available for 225 supermarkets and 204 bars, bakeries and local markets in 45 jurisdictions and 6 districts of the city of Barcelona. Table 2 shows the distribution of supermarket chains in the sample. As stands to reason, retail outlets catering mainly for tourists are not considered, since if they display higher prices, then informed locals are unlikely to shop there.

Sample of products

The sampling scheme relies on the criteria set up by the Spanish Statistical Institute regarding the consumption patterns of a representative consumer (INE, 2001). Since this paper's goal is to evaluate price differences between tourism and non-tourism jurisdictions (rather than absolute price levels for both types of jurisdictions), the sample does not include any products or services which, because of their characteristics, lack uniformity between different municipalities, or whose prices do not differ systematically between municipalities. For instance, regulated goods and services (such as butane gas, tobacco or prescription drugs), products with prices set at a national level (such as services related to telecommunications), products whose quality and

Table 1. Jurisdictions in the sample and selection criteria (tourism jurisdictions in bold).

Jurisdiction	*De jure* population (2007)	Ratio of *de facto*/ *de jure* population (2003)	Hotel capacity per 1,000 inhabitants (2003)	Camping capacity per 1,000 inhabitants (2003)	Second homes per 1,000 *de jure* inhabitants (2001)	Restaurants per 1,000 *de jure* inhabitants (2000)	Local police officers per 1,000 inhabitants (2006)	*De facto* population June–July/ *de jure* population (1996)	*De facto* population November–December/ *de jure* population (1996)	Tourism attractions
Calafell	21,871	1.40	92.74	25.18	1,236.44	9.41	3.31	5.80	4.98	Beach
Calella	18,034	1.62	900.97	121.30	181.12	9.04	2.66	4.32	3.21	Beach
Calonge	10,009	1.92	162.40	900.63	923.09	7.81	2.22	7.61	5.59	Beach
Cambrils	29,112	1.46	230.86	379.28	714.48	10.43	2.33	5.07	4.03	Beach
Castell-Platja d'Aro	9,766	2.66	592.66	1,226.57	1,307.51	14.65	3.28	9.91	6.80	Beach
L'Escala	9,330	2.18	118.34	770.04	1,549.68	10.98	2.84	8.49	6.62	Beach
Lloret de Mar	34,997	2.07	1,218.01	134.38	331.84	11.72	2.63	5.72	4.07	Beach
Malgrat de Mar	17,822	1.31	399.06	265.27	92.94	4.31	2.62	3.26	2.63	Beach
Mont-Roig del Camp	10,292	1.66	79.40	1,568.44	679.97	9.13	2.01	7.96	5.38	Beach
Pineda de Mar	25,568	1.15	169.37	122.23	169.52	3.79	2.31	3.53	3.11	Beach
Puigcerdà	8,949	1.10	95.59	98.95	219.06	6.66	1.35	2.96	2.74	Nature, sports
Roses	18,139	1.96	459.75	142.74	1,259.53	11.43	2.04	6.11	4.90	Beach
Salou	23,398	2.49	1,500.41	315.07	957.43	18.76	2.93	9.89	7.22	Beach
Santa Susanna	3,019	N/A	3,734.77	1,061.33	446.39	6.29	5.44	13.69	7.82	Beach
Sitges	26,225	1.17	175.51	106.30	264.00	7.61	3.12	3.50	3.00	Beach
Sort	2,264	1.32	259.88	714.66	384.91	3.35	0.00	3.81	3.33	Nature, sports
Torroella de Montgrí	10,924	2.16	220.80	1,324.28	633.81	10.65	2.27	6.55	4.30	Beach
Tossa de Mar	5,662	N/A	1,545.55	1,369.41	1,028.72	29.08	4.99	10.81	6.73	Beach
Vielha	5,385	1.37	528.92	229.82	406.09	13.77	0.00	4.01	3.56	Nature, sports
Vila-Seca	18,678	1.47	456.42	58.43	583.98	2.82	1.68	4.12	3.60	Beach
Balaguer	15,781	0.94	8.67	0.00	22.89	1.36	1.20	1.84	1.84	–
Banyoles	17,451	0.99	13.05	0.00	46.13	1.33	1.62	1.91	1.94	Lake

Cassà de la Selva	8,994	0.96	2.70	0.00	26.16	0.78	2.28	1.98	1.99	–
Castelldefels	58,955	0.95	27.80	25.05	116.87	2.33	1.47	2.11	1.93	Beach
Cervera	9,093	1.01	9.62	0.00	49.18	2.15	0.86	2.20	2.11	–
El Vendrell	33,340	1.24	65.59	115.81	656.22	3.06	2.25	3.87	3.34	Beach
Esparreguera	21,260	0.93	2.16	0.00	55.54	0.64	1.61	2.04	1.95	–
Figueres	41,115	1.01	34.45	5.78	44.18	2.12	1.64	1.88	1.90	Dalí Museum
Girona	92,186	1.06	13.24	0.00	66.07	2.74	1.49	1.79	1.83	Monuments
Lleida	127,314	1.02	18.27	4.53	61.54	2.57	1.44	1.77	1.86	Monuments
Mataró	119,035	0.95	3.48	4.36	9.70	1.28	1.36	1.81	1.89	Beach
Mollerussa	13,086	1.00	13.27	0.00	20.28	1.67	1.43	2.04	1.98	–
Montblanc	6,818	1.06	24.11	83.44	84.64	2.32	2.07	2.22	2.10	Monuments
Olot	32,337	0.97	10.49	20.07	17.89	1.64	1.44	1.89	1.91	–
Reus	104,835	0.96	8.11	0.00	27.08	1.47	1.41	1.70	1.82	Monuments
Sabadell	201,712	0.94	4.39	0.00	11.65	1.08	1.29	1.78	1.88	–
Santa Coloma de Farners	11,090	0.98	21.46	0.00	69.57	1.47	1.80	1.95	1.91	–
Santa Maria de Palautordera	8,235	0.96	1.91	0.00	149.37	1.11	2.22	2.21	2.07	–
Tarragona	134,163	1.04	20.80	56.09	60.02	2.24	1.61	1.87	1.93	Beach, monuments
Tordera	14,017	0.97	6.27	0.00	67.49	1.84	2.09	2.32	2.07	–
Torredembarra	14,524	1.25	34.34	191.53	688.46	7.84	3.77	4.10	3.43	Beach
Tortosa	34,832	1.01	21.72	0.00	47.65	1.22	1.61	1.97	1.95	Monuments
Valls	23,948	0.99	6.28	0.00	42.40	1.28	1.76	2.03	1.97	–
Vic	38,321	1.06	9.93	0.00	43.26	2.51	1.63	1.97	1.98	Monuments
Vilafranca del Penedès	36,656	0.97	12.70	0.00	28.24	1.97	1.63	1.91	1.91	–
Catalonia	**7,210,508**	**1.29**	**38.08**	**35.94**	**80.95**	**2.23**	**1.44**	**2.11**	**2.08**	**–**

Source: Own elaboration with data from the Statistical Institute of Catalonia (2009).

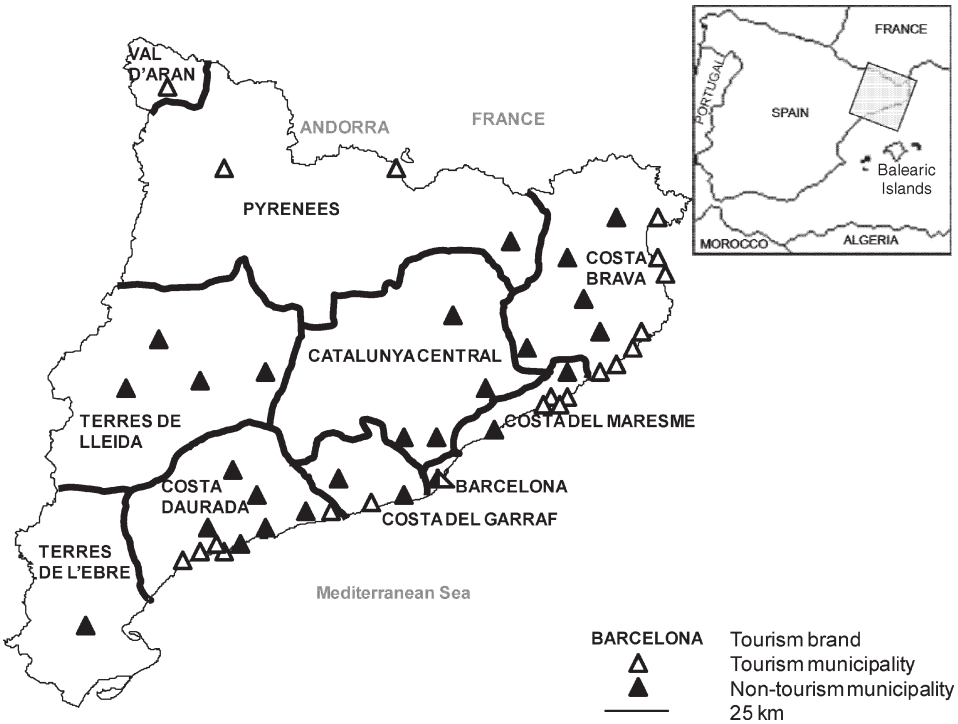

Figure 1. Tourism and non-tourism jurisdictions surveyed.

composition may differ between jurisdictions (for example, clothing, footwear, furniture, or housing), goods and services not consumed by tourists (for example, education) and products with a small weight in the CPI shopping basket (for example, culture and leisure) are not considered. Other services, such as hotels, are also ignored, since they are typically consumed only by tourists and they are not included in the shopping basket of local residents. Following CPI conventions, the prices considered include value-added taxes. The final sample contains 149 different products which range from fresh food, bread, bar drinks, cleaning and drugstore products. Table 3 presents a summary of the products analysed. (A complete list of the products surveyed featuring their brand, characteristics and establishment where prices were surveyed is available from the authors on request.)

Pilot and definitive survey

A pilot survey was conducted in six jurisdictions (including Barcelona) prior to the definitive survey. The pilot revealed that certain products were not available at every supermarket chain surveyed. Unavailable products were replaced with similar ones that were more widely available. In the definitive survey, prices were collected twice. First, prices were recorded for the low tourism season (from 6 November 2006 to 15 December 2006). Another survey was conducted for the high tourism season (from 18 June 2007 to 16 July

Table 2. Sample of supermarket chains, bakeries, bars and local markets.

Jurisdiction	Supermarket chain								Bakeries	Bars	Local markets
	Caprabo	Dia	Carrefour	Mercadona	Lidl	Condis	Suma	Bon Preu			
Calonge		x	x		x		x		x	x	x
Castell-Pl. Aro	x	x	x	x	x				x	x	x
L'Escala			x				x		x	x	x
Lloret de M.	x	x				x		x	x	x	x
Puigcerdà	x		x					x	x	x	x
Roses	x	x	x	x	x	x	x	x	x	x	x
Torroella M.	x	x	x		x		x	x	x	x	x
Tossa de Mar	x	x							x	x	x
Calella	x	x		x			x	x	x	x	x
Malgrat M.	x	x		x		x			x	x	x
Pineda M.	x	x	x			x	x		x	x	x
Sta. Susanna			x						x	x	x
Sitges	x	x			x	x	x		x	x	x
Barcelona-Rambla	x	x	x						x	x	x
Barcelona-S. Família	x	x		x	x	x		x	x	x	x
Barcelona-P. Olímpic		x	x	x	x	x			x	x	x
Calafell	x						x		x	x	x
Cambrils		x		x	x		x		x	x	x
Mont-Roig	x						x		x	x	x
Salou		x		x			x		x	x	x
Vila-Seca		x		x					x	x	x
Sort		x							x	x	x
Viella	x								x	x	x
Girona	x	x	x	x	x	x	x	x	x	x	x
Figueres	x	x	x	x	x		x	x	x	x	x
Olot	x	x	x		x		x	x	x	x	x
Banyoles	x	x			x	x	x		x	x	x
Sta. Coloma F	x	x							x	x	x
Cassà Selva	x	x							x	x	x
Sabadell	x	x		x	x	x	x		x	x	x
Mataró	x	x		x	x	x	x		x	x	x
Castelldefels	x	x	x	x	x	x	x		x	x	x
Vic	x	x	x	x	x	x		x	x	x	x
Vilafranca P.	x	x		x	x		x	x	x	x	x
Esparreguera	x	x		x		x	x		x	x	x
Tordera		x					x	x	x	x	x
Sta. Maria P.									x	x	x
Barcelona-El Clot	x	x	x	x	x	x	x	x	x	x	x
Barcelona-Gràcia	x	x			x	x	x	x	x	x	x
Barcelona-Sarrià	x	x	x						x	x	x
Tarragona	x	x	x	x	x		x	x	x	x	x
Reus	x	x	x	x	x		x		x	x	x
Tortosa	x	x	x	x	x		x		x	x	x
El Vendrell	x	x				x	x		x	x	x
Valls	x	x	x	x	x			x	x	x	x
Torredembarra	x	x					x		x	x	x
Montblanc	x	x							x	x	x
Lleida	x	x	x	x	x		x	x	x	x	x
Balaguer	x	x		x	x				x	x	x
Mollerussa	x	x		x					x	x	x
Cervera	x	x					x	x	x	x	x

Table 3. Summary of products surveyed.

Product code	Product	Product code	Product	Product code	Product
10	Cola drink (can)	391	Chickpeas	1061	Manchego cheese
12	Cola drink (bottle)	399	Tomato sauce	1064	Grated cheese
19	Fruity soft drink	402	Tomato sauce	1074	Petit suisse cheese
25	Lemonade	407	Mayonnaise	1084	Fresh cheese
39	Cola drink (bottle)	419	Ketchup	1091	Melted cheese
85	Beer (can)	450	Instant coffee powder	1106	Sliced cheese
90	Beer (bottle)	495	Anchovy-stuffed olives	1123	Pressed cheese
118	Still mineral water	509	Salted almonds	1144	Skinless hake fillet
132	Still mineral water	523	Chocolate milkshake	1155	Cheese-filled escalope
138	Sparkling mineral water	528	Cocoa powder	1182	Cheese and ham pizza
152	Fruit juice	545	Chocolate	1194	Stewed vegetables
166	Fruit juice	561	Crème de cacao	1221	Liquid laundry soap
182	Red wine	565	White sugar	1230	Liquid laundry soap
198	Red wine	572	Peach jam	1320	Liquid toilet cleaner
204	Sparkling wine	573	Honey	1350	Disinfectant
231	Brandy	585	Drinking yoghurt	1356	Laundry bleach
237	Irish cream liqueur	588	Drinking yoghurt	1384	Dishwasher detergent
301	Canned tuna	596	Plain yoghurt	1454	Aluminium foil
321	Canned cockles	616	Sweetened yoghurt	1516	Deodorant
336	Olive oil	620	Flavoured yoghurt	1551	Shower gel
337	Olive oil	635	Flavoured yoghurt	1568	Toothpaste
356	Sunflower oil	656	Ice cream	1603	Styling gel
358	Rabbit meat	699	Vinegar	1640	Shampoo
359	Pork chop	705	Fine salt	1665	Shaving foam
361	Veal (1st class)	719	Cooked ham	1667	Panty liners
362	Pork loin	729	Cooked ham	1699	Diapers
363	Catalan sausage	766	Frankfurter	1723	Batteries
364	Shoulder of lamb	774	Cured pork sausage	2036	Toilet paper
366	Lamb chops	781	Pâté	2117	Dishwashing foam
367	Chicken	785	Country bread	8383	Apples
368	Leg of lamb	786	French loaf	9002	Tea bags
369	Veal (2nd class)	787	Baguette	9003	Potato crisps
370	Mussels	826	Corn flakes	9004	Sandwich bread
371	Blue whiting	840	Cookies	9007	Roasted ground coffee
372	Hake	868	Chocolate-stuffed brioche	9010	Washing powder
373	Sardine	876	Doughnut	9012	Floorcloths
374	European anchovies	884	Madeleine	9015	Fresh cheese
375	Shredded salt cod	895	Rice	9016	Fabric softener
378	Eggs	903	Penne	9029	Cured ham
380	Bananas	920	Chicken stock cubes	9031	Canned crushed tomatoes
381	Pears	924	Dry soup stock	84000	Cookies
382	Oranges	934	Cannelloni	BC1/BT1	Mineral water (bar)
383	Apples	944	Mashed potatoes	BC2/BT2	Beer (bar)
384	Potatoes	947	Semi-skimmed milk	BC3/BT3	Chocolate milkshake (bar)
385	Lettuce	958	Whole milk	BC4/BT4	Cola drink (bar)
386	Onion	959	Skimmed milk	BC6/BT6	White coffee (bar)
387	Green beans	975	Condensed milk	BC7/BT7	Black coffee (bar)
388	Tomatoes	1033	Margarine	BC8/BT8	Tea (bar)
389	White kidney beans	1040	Crème caramel	BC5/BT5	Espresso coffee with a dash of milk (bar)
390	Lentils	1060	Fresh Manchego cheese		

2007). Since low-season prices refer to 2006, whereas high-season prices refer to 2007, price differences between periods may be due to end-of-year price revisions linked to general inflation, rather than to tourism demand. Nevertheless, it is unlikely that tourism and non-tourism municipalities display different patterns of general inflation (see the 'discussion' section).[3]

University students were trained as pollsters. They recorded each product's price (regular and sale price of products on sale) in a questionnaire. If a certain product was unavailable, the pollsters collected the price of the closest (in terms of characteristics, weight and volume) substitute, staying with the original brand or, when this was not possible, resorting to distributor brands. The prices of fresh food at local markets were collected randomly: the pollsters entered the market through its main entrance and surveyed the first vendor on their right-hand side, proceeding to adjacent vendors until the price of every product on the list was recorded. A similar procedure was used for bars and bakeries. For bars in tourism jurisdictions, prices were collected (and recorded separately) for establishments located in tourism and non-tourism zones within the jurisdiction.

At the end of the process, a sample containing a total of 18,500 prices resulted. The analysis of the prices recorded reveals a few 'outliers' (that is, individual prices which differ a lot from one certain jurisdiction or supermarket to another). Since it is not possible to discard the hypothesis that those differences are motivated by particular marketing strategies, outlier prices are kept in the sample. (In any case, if outliers are true errors, then they are likely to be distributed randomly among jurisdictions, so that they do not affect the paper's results).

Statistical framework

The statistical analysis of the data collected through the survey relies on two kinds of mean comparison tests. First, it is assumed that population variances are unknown and equal. Thus, two independent random samples of prices of the same product (denoted by j) are available, with respective sizes n_{jX} and n_{jY} (where X and Y refer, respectively, to tourism and non-tourism jurisdictions), drawn from normally distributed populations with respective means μ_{jX} and μ_{jY} and identical variances. The pooled variance estimator is computed from the sample variances s^2_{jX} and s^2_{jY} (Newbold *et al*, 2003):

$$s^2_p = \frac{(n_{jX} - 1)s^2_{jX} + (n_{jY} - 1)s^2_{jY}}{n_{jX} + n_{jY} - 2} . \quad (1)$$

The null hypothesis (H_0) states that no differences in prices exist between tourism and non-tourism municipalities, whereas the alternative hypothesis (H_1) states that differences do exist. Formally,

$$H_0 : \mu_{jX} - \mu_{jY} = 0 \text{ and } H_1 : \mu_{jX} - \mu_{jY} \neq 0. \quad (2)$$

At a significance level of 5%, the null hypothesis is rejected when

$$\frac{\bar{j}_X - \bar{j}_Y}{\sqrt{\frac{s_p^2}{n_{j_X}} + \frac{s_p^2}{n_{j_Y}}}} < -t_{n_{j_X}+n_{j_Y}-2;2.5\%}, \text{ or } \frac{\bar{j}_X - \bar{j}_Y}{\sqrt{\frac{s_p^2}{n_{j_X}} + \frac{s_p^2}{n_{j_Y}}}} > t_{n_{j_X}+n_{j_Y}-2;2.5\%}, \tag{3}$$

where $\bar{j}_X$ and $\bar{j}_Y$ are, respectively, the sample means of the prices of product j in tourism and non-tourism jurisdictions and $t_{n_{j_X}+n_{j_Y}-2;2.5}$ is the value for which Prob($t_{n_{j_X}+n_{j_Y}-2;5}$) = 5%.

A second mean comparison test assumes that population variances are unknown and different. Samples of size n_{j_X} and n_{j_Y}, respectively, are drawn from normally distributed populations of prices of product j with respective means μ_{j_X} and μ_{j_Y}. The number of degrees of freedom of the statistic t, υ, is computed through (Newbold *et al*, 2003):

$$\upsilon = \frac{\left[\left(\frac{s_{j_X}^2}{n_{j_X}}\right) + \left(\frac{s_{j_Y}^2}{n_{j_Y}}\right)\right]}{\frac{\left(\frac{s_{j_X}^2}{n_{j_X}}\right)^2}{n_{j_X} - 1} + \frac{\left(\frac{s_{j_Y}^2}{n_{j_Y}}\right)^2}{n_{j_Y} - 1}}. \tag{4}$$

The null and the alternative hypotheses are identical as before. At a significance level of 5%, the null hypothesis is rejected when:

$$\frac{\bar{j}_X - \bar{j}_Y}{\sqrt{\frac{s_p^2}{n_{j_X}} + \frac{s_p^2}{n_{j_Y}}}} < -t_{\upsilon;2.5\%}, \text{ or } \frac{\bar{j}_X - \bar{j}_Y}{\sqrt{\frac{s_p^2}{n_{j_X}} + \frac{s_p^2}{n_{j_Y}}}} > t_{\upsilon;2.5\%}. \tag{5}$$

Levene's statistic for equality of variances is used to decide which of the two contrasts above is the most appropriate (Levene, 1960):

$$L = \frac{(n_{j_X} + n_{j_Y} - 2)[n_{j_X}(\bar{Z}_{j_X} - \bar{Z})^2 + n_{j_Y}(\bar{Z}_{j_Y} - \bar{Z})^2]}{\sum_{i=1}^{n_{jX}} (Z_{j_X i} - \bar{Z}_{j_X})^2 + \sum_{i=1}^{n_{jY}} (Z_{j_Y i} - \bar{Z}_{j_Y})^2}, \tag{6}$$

where

$$k = X,Y, Z_{ki} = |j_{ki} - \bar{j}_k|, \bar{Z}_{jk} = \frac{\sum_{i=1}^{n_{jk}} Z_{ki}}{n_{j_k}}, \text{ and } \bar{Z} = \frac{\bar{Z}_{j_X} + \bar{Z}_{j_Y}}{n_{j_X} + n_{j_Y}}. \tag{7}$$

The null and the alternative hypotheses are, respectively,

$$H_0 : \sigma_{j_X} = \sigma_{j_Y} \text{ and } H_1 : \sigma_{i_X} \neq \sigma_{j_Y} . \quad (8)$$

Levene's test rejects the null hypothesis of equal variances whenever

$$L > F(5\%,1,n_{j_X} + n_{j_Y} - 2).$$

This statistical framework (with the appropriate minor modifications) is used to test the seven hypotheses formulated in the theoretical framework. The main results of the empirical analysis are presented in the next section.

Results

Hypothesis 1

When the high- and low-season prices for all supermarkets, bakeries and local markets (excluding bars) are pooled, only 4 (product codes 1144, 321, 868, 9012; see Table 3 for details) out of 149 products surveyed, that is, fewer than 3% of all the products analysed, have significantly (that is, at a 95% confidence level) higher prices in tourism jurisdictions. The prices of 10 products (product codes 1106, 362, 363, 364, 366, 367, 368, 372, 388, 9016), that is, fewer than 7% of the total, are significantly higher in non-tourism municipalities. Thus, no statistically significant price differences exist for 135 products, that is, for more than 90% of the products surveyed.

Table 4 shows the results of the analysis of list prices (excluding sales) for all the establishments available in the sample (excluding bars). (Detailed subsequent results are not displayed in tables for reasons of space. A complete list of tables with detailed results is available from the authors on request.)

These results include the districts of Barcelona in the sample. Since the dimensions of these districts are much bigger than those of the rest of the jurisdictions in the sample (in 2007, Barcelona had a total population of 1,595,110) and it is not easy to define the boundaries of its tourism districts, it is reasonable to test the effects on the results of excluding Barcelona from the analysis. When Barcelona's districts are excluded from the sample, the results do not change substantially. For instance, when low- and high-season prices are pooled, 5 products (product codes 144, 868, 895, 9012, 934) have higher prices in tourism municipalities (4 when Barcelona's districts are included in the sample) and 5 (product codes 364, 367, 368, 380, 388) have higher prices in non-tourism jurisdictions (10 when Barcelona is included). This suggests that the paper's results are robust to small changes in the sample composition.

Hypothesis 2

With few variations, the above observations remain valid for the trough and the height of the tourism season. Whereas for the low tourism season only 2 products (product codes 9012, 975) have higher prices in tourism municipalities (1.4% of all the products surveyed), at the height of the season the prices of 9 products (product codes 1144, 1640, 182, 321, 616, 774, 868, 9007, 934), that is 6.4% of all the products, are higher in tourism jurisdictions.

Table 4. List prices (excluding sales) for all the establishments available in the sample (excluding bars).

Product code	Test for equality of price variances			Test for equality of price means							Data summary				
									Confidence interval for the difference (95%)						
		F	Sig	*t*	df	Sig (bilateral)	Difference of means	Typical error of difference	Inferior	Superior	Type of jurisdiction	*N*	Price mean	Typical deviation	Typical error of mean
10	Equal variances	2.464	0.121	1.182	73	0.241	0.00903	0.00763	–0.00619	0.02424	Tourism	29	1.2321	0.04670	0.00867
	Different variances			0.995	33.306	0.327	0.00903	0.00907	–0.00942	0.02747	Non-tourism	46	1.2230	0.01800	0.00265
1033	Equal variances	1.276	0.262	–1.387	71	0.170	–0.03852	0.02777	–0.09389	0.01685	Tourism	25	1.4344	0.18021	0.03604
	Different variances			–1.047	25.993	0.305	–0.03852	0.03678	–0.11411	0.03708	Non-tourism	48	1.4729	0.05065	0.00731
1040	Equal variances	5.428	0.022	–1.223	84	0.225	–0.02739	0.02240	–0.07194	0.01715	Tourism	30	1.0860	0.01037	0.00189
	Different variances			–1.667	56.472	0.101	–0.02739	0.01643	–0.06030	0.00551	Non-tourism	56	1.1134	0.12212	0.01632
1060	Equal variances	0.132	0.718	0.212	43	0.833	0.09245	0.43654	–0.78792	0.97282	Tourism	19	10.8705	1.45803	0.33449
	Different variances			0.211	38.630	0.834	0.09245	0.43751	–0.79276	0.97766	Non-tourism	26	10.7781	1.43795	0.28200
1061	Equal variances	1.147	0.285	0.898	349	0.370	0.14455	0.16096	–0.17202	0.46112	Tourism	130	10.6414	1.19501	0.10481
	Different variances			0.965	328.566	0.335	0.14455	0.14973	–0.14999	0.43910	Non-tourism	221	10.4968	1.58956	0.10693
1064	Equal variances	0.694	0.406	–0.794	221	0.428	–0.07132	0.08984	–0.24837	0.10573	Tourism	82	0.9046	0.13196	0.01457
	Different variances			–1.027	152.626	0.306	–0.07132	0.06947	–0.20857	0.06592	Non-tourism	141	0.9760	0.80654	0.06792
1074	Equal variances	0.483	0.489	–0.382	86	0.703	–0.00695	0.01820	–0.04313	0.02922	Tourism	30	1.3967	0.07581	0.01384
	Different variances			–0.394	63.932	0.695	–0.00695	0.01765	–0.04221	0.02831	Non-tourism	58	1.4036	0.08341	0.01095
1084	Equal variances	0.033	0.855	0.344	76	0.731	0.00312	0.00905	–0.01490	0.02113	Tourism	27	1.6770	0.03781	0.00728
	Different variances			0.345	53.452	0.731	0.00312	0.00902	–0.01498	0.02121	Non-tourism	51	1.6739	0.03811	0.00534
1091	Equal variances	0.553	0.460	1.766	70	0.082	0.00626	0.00354	–0.00081	0.01333	Tourism	25	1.3926	0.01201	0.00240
	Different variances			1.904	60.232	0.062	0.00626	0.00329	–0.00032	0.01283	Non-tourism	47	1.3864	0.01538	0.00224
1106	Equal variances	0.131	0.719	–2.177	44	0.035	–0.99706	0.45793	–1.91995	–0.07417	Tourism	17	8.2229	1.62587	0.39433
	Different variances			–2.101	30.101	0.044	–0.99706	0.47454	–1.96606	–0.02805	Non-tourism	29	9.2200	1.42165	0.26399
1123	Equal variances	0.231	0.632	0.217	70	0.829	0.00400	0.01840	–0.03270	0.04070	Tourism	27	2.1133	0.06674	0.01284
	Different variances			0.228	62.830	0.821	0.00400	0.01757	–0.03110	0.03910	Non-tourism	45	2.1093	0.08038	0.01198
1144	Equal variances	0.396	0.531	2.443	79	0.017	0.42407	0.17360	0.07853	0.76962	Tourism	27	4.8956	0.66258	0.12751
	Different variances			2.569	59.646	0.013	0.42407	0.16506	0.09386	0.75429	Non-tourism	54	4.4715	0.77022	0.10481
1155	Equal variances	0.180	0.673	–0.011	42	0.991	–0.00094	0.08756	–0.17763	0.17575	Tourism	18	1.1094	0.37345	0.08802
	Different variances			–0.010	24.139	0.992	–0.00094	0.09679	–0.20065	0.19877	Non-tourism	26	1.1104	0.20530	0.04026
118	Equal variances	5.492	0.020	0.850	420	0.396	0.00742	0.00873	–0.00975	0.02458	Tourism	152	0.4458	0.07483	0.00607
	Different variances			0.899	367.417	0.369	0.00742	0.00825	–0.00881	0.02364	Non-tourism	270	0.4384	0.09185	0.00559

1182	Equal variances	1.533	0.219	0.269	77	0.789	0.01040	0.03872	–0.06671	0.08751	Tourism	29	2.3200	0.11414	0.02120
	Different variances			0.305	76.841	0.761	0.01040	0.03414	–0.05758	0.07838	Non-tourism	50	2.3096	0.18923	0.02676
1194	Equal variances	0.479	0.492	0.390	55	0.698	0.01064	0.02730	–0.04408	0.06536	Tourism	18	1.8950	0.09775	0.02304
	Different variances			0.385	32.288	0.702	0.01064	0.02760	–0.04557	0.06685	Non-tourism	39	1.8844	0.09495	0.01520
12	Equal variances	1.045	0.307	–0.208	406	0.835	–0.00097	0.00464	–0.01009	0.00816	Tourism	146	0.4414	0.01209	0.00100
	Different variances			–0.271	303.648	0.786	–0.00097	0.00356	–0.00797	0.00604	Non-tourism	262	0.4424	0.05532	0.00342
1221	Equal variances	4.904	0.037	0.904	23	0.375	0.17708	0.19592	–0.22821	0.58237	Tourism	11	1.6464	0.64608	0.19480
	Different variances			0.836	13.644	0.418	0.17708	0.21188	–0.27848	0.63263	Non-tourism	14	1.4693	0.31183	0.08334
1230	Equal variances	0.003	0.955	0.175	70	0.861	0.00669	0.03813	–0.06936	0.08274	Tourism	26	2.7254	0.09827	0.01927
	Different variances			0.204	69.967	0.839	0.00669	0.03273	–0.05860	0.07198	Non-tourism	46	2.7187	0.17945	0.02646
132	Equal variances	0.212	0.647	0.236	54	0.815	0.00675	0.02865	–0.05069	0.06420	Tourism	18	1.2583	0.11633	0.02742
	Different variances			0.216	27.403	0.830	0.00675	0.03120	–0.05722	0.07072	Non-tourism	38	1.2516	0.09176	0.01488
1320	Equal variances	1.045	0.310	0.452	72	0.652	0.01037	0.02292	–0.03533	0.05607	Tourism	26	2.3531	0.03185	0.00625
	Different variances			0.588	59.174	0.559	0.01037	0.01762	–0.02490	0.04563	Non-tourism	48	2.3427	0.11418	0.01648
1350	Equal variances	1.114	0.295	–0.489	76	0.626	–0.00923	0.01888	–0.04684	0.02838	Tourism	26	2.3662	0.02531	0.00496
	Different variances			–0.660	64.039	0.512	–0.00923	0.01399	–0.03718	0.01872	Non-tourism	52	2.3754	0.09432	0.01308
1356	Equal variances	8.612	0.004	1.837	80	0.070	0.08290	0.04513	–0.00691	0.17271	Tourism	30	1.4637	0.30797	0.05623
	Different variances			1.445	31.435	0.158	0.08290	0.05739	–0.03408	0.19987	Non-tourism	52	1.3808	0.08274	0.01147
138	Equal variances	0.262	0.610	0.950	82	0.345	0.00661	0.00695	–0.00723	0.02044	Tourism	28	0.9186	0.02864	0.00541
	Different variances			0.973	57.630	0.335	0.00661	0.00679	–0.00699	0.02021	Non-tourism	56	0.9120	0.03071	0.00410
1384	Equal variances	0.988	0.323	0.691	79	0.492	0.19869	0.28766	–0.37388	0.77125	Tourism	30	7.8730	1.62788	0.29721
	Different variances			0.608	41.224	0.546	0.19869	0.32652	–0.46063	0.85801	Non-tourism	51	7.6743	0.96569	0.13522
1454	Equal variances	1.869	0.176	0.082	76	0.935	0.00167	0.02040	–0.03896	0.04230	Tourism	28	1.4761	0.03457	0.00653
	Different variances			0.103	65.476	0.918	0.00167	0.01616	–0.03060	0.03395	Non-tourism	50	1.4744	0.10453	0.01478
1516	Equal variances	0.450	0.505	–0.971	63	0.335	–0.10018	0.10320	–0.30641	0.10605	Tourism	22	3.5077	0.59219	0.12626
	Different variances			–0.762	24.563	0.453	–0.10018	0.13142	–0.37108	0.17072	Non-tourism	43	3.6079	0.23908	0.03646
152	Equal variances	0.298	0.588	–0.418	42	0.678	–0.00588	0.01409	–0.03432	0.02255	Tourism	10	1.5700	0.02108	0.00667
	Different variances			–0.593	31.437	0.557	–0.00588	0.00991	–0.02609	0.01433	Non-tourism	34	1.5759	0.04279	0.00734
1551	Equal variances	0.064	0.802	0.842	70	0.403	0.00607	0.00722	–0.00832	0.02047	Tourism	27	2.0507	0.04260	0.00820
	Different variances			0.704	31.679	0.487	0.00607	0.00863	–0.01151	0.02366	Non-tourism	45	2.0447	0.01804	0.00269
1568	Equal variances	0.026	0.871	–0.777	343	0.437	–0.01501	0.01930	–0.05297	0.02296	Tourism	128	1.8702	0.16111	0.01424
	Different variances			–0.800	290.208	0.424	–0.01501	0.01876	–0.05193	0.02192	Non-tourism	217	1.8852	0.17990	0.01221
1603	Equal variances	0.035	0.853	–0.716	36	0.479	–0.13660	0.19086	–0.52368	0.25047	Tourism	12	3.3842	0.53378	0.15409
	Different variances			–0.725	22.184	0.476	–0.13660	0.18838	–0.52708	0.25388	Non-tourism	26	3.5208	0.55255	0.10836
1640	Equal variances	1.279	0.259	1.022	317	0.307	0.03046	0.02980	–0.02816	0.08908	Tourism	123	3.0082	0.27944	0.02520
	Different variances			0.992	234.306	0.322	0.03046	0.03069	–0.03001	0.09093	Non-tourism	196	2.9778	0.24538	0.01753

Table 4 continued.

Product code	Test for equality of price variances			Test for equality of price means							Data summary				
									Confidence interval for the difference (95%)						
		F	Sig	*t*	df	Sig (bilateral)	Difference of means	Typical error of difference	Inferior	Superior	Type of jurisdiction	*N*	Price mean	Typical deviation	Typical error of mean
166	Equal variances	0.118	0.731	0.157	364	0.875	0.00137	0.00875	–0.01583	0.01858	Tourism	134	1.5764	0.08897	0.00769
	Different variances			0.150	242.341	0.881	0.00137	0.00914	–0.01664	0.01938	Non-tourism	232	1.5750	0.07544	0.00495
1665	Equal variances	1.321	0.254	0.040	73	0.969	0.00316	0.07989	–0.15606	0.16238	Tourism	24	2.4371	0.26769	0.05464
	Different variances			0.043	57.010	0.966	0.00316	0.07295	–0.14291	0.14923	Non-tourism	51	2.4339	0.34513	0.04833
1667	Equal variances	6.941	0.009	–1.423	364	0.155	–0.02793	0.01962	–0.06652	0.01066	Tourism	137	2.4853	0.09583	0.00819
	Different variances			–1.690	340.085	0.092	–0.02793	0.01653	–0.06045	0.00458	Non-tourism	229	2.5132	0.21730	0.01436
1699	Equal variances	1.802	0.184	1.111	63	0.271	0.46248	0.41642	–0.36967	1.29463	Tourism	21	15.5095	1.99173	0.43463
	Different variances			0.966	28.799	0.342	0.46248	0.47859	–0.51665	1.44161	Non-tourism	44	15.0470	1.32907	0.20037
1723	Equal variances	1.061	0.304	–0.745	210	0.457	–0.09175	0.12309	–0.33440	0.15090	Tourism	75	4.6939	0.99930	0.11539
	Different variances			–0.691	122.674	0.491	–0.09175	0.13276	–0.35455	0.17104	Non-tourism	137	4.7856	0.76846	0.06565
182	Equal variances	1.614	0.208	–0.168	81	0.867	–0.00103	0.00610	–0.01317	0.01112	Tourism	29	3.0614	0.01481	0.00275
	Different variances			–0.204	80.226	0.839	–0.00103	0.00503	–0.01104	0.00898	Non-tourism	54	3.0624	0.03096	0.00421
19	Equal variances	1.768	0.187	1.613	84	0.111	0.01346	0.00835	–0.00314	0.03007	Tourism	30	1.0540	0.05544	0.01012
	Different variances			1.280	33.720	0.209	0.01346	0.01052	–0.00792	0.03485	Non-tourism	56	1.0405	0.02144	0.00287
198	Equal variances	0.031	0.860	–0.208	65	0.836	–0.02329	0.11203	–0.24703	0.20045	Tourism	25	0.7160	0.40025	0.08005
	Different variances			–0.216	56.813	0.830	–0.02329	0.10770	–0.23897	0.19240	Non-tourism	42	0.7393	0.46696	0.07205
2036	Equal variances	5.041	0.028	–1.072	77	0.287	–0.13101	0.12225	–0.37444	0.11242	Tourism	28	1.9243	0.23075	0.04361
	Different variances			–1.344	70.044	0.183	–0.13101	0.09744	–0.32535	0.06333	Non-tourism	51	2.0553	0.62231	0.08714
204	Equal variances	5.598	0.022	–1.769	47	0.083	–0.16171	0.09140	–0.34558	0.02215	Tourism	14	2.4486	0.50654	0.13538
	Different variances			–1.179	13.710	0.259	–0.16171	0.13720	–0.45656	0.13313	Non-tourism	35	2.6103	0.13179	0.02228
2117	Equal variances	0.010	0.921	–1.051	177	0.295	–0.06090	0.05795	–0.17526	0.05345	Tourism	74	1.7408	0.39310	0.04570
	Different variances			–1.042	152.237	0.299	–0.06090	0.05846	–0.17641	0.05460	Non-tourism	105	1.8017	0.37365	0.03646
231	Equal variances	0.206	0.652	–1.099	53	0.277	–0.14260	0.12970	–0.40276	0.11755	Tourism	19	5.3468	0.46847	0.10748
	Different variances			–1.087	35.584	0.284	–0.14260	0.13121	–0.40882	0.12361	Non-tourism	36	5.4894	0.45161	0.07527
237	Equal variances	6.251	0.014	1.278	81	0.205	0.54785	0.42873	–0.30518	1.40089	Tourism	29	11.5590	0.09675	0.01797
	Different variances			1.747	53.348	0.086	0.54785	0.31366	–0.08117	1.17688	Non-tourism	54	11.0111	2.30113	0.31314
25	Equal variances	3.502	0.065	–1.000	72	0.321	–0.01140	0.01140	–0.03412	0.01133	Tourism	28	0.6214	0.07663	0.01448
	Different variances			–0.783	27.540	0.440	–0.01140	0.01455	–0.04123	0.01844	Non-tourism	46	0.6328	0.00981	0.00145

301	Equal variances	0.151	0.698	1.359	308	0.175	0.05226	0.03844	–0.02339	0.12790	Tourism	112	2.3409	0.32484	0.03069
	Different variances			1.360	230.822	0.175	0.05226	0.03843	–0.02346	0.12797	Non-tourism	198	2.2886	0.32533	0.02312
321	Equal variances	5.646	0.020	2.433	79	0.017	0.44064	0.18114	0.08009	0.80120	Tourism	29	3.6428	0.84427	0.15678
	Different variances			2.347	52.191	0.023	0.44064	0.18775	0.06392	0.81736	Non-tourism	52	3.2021	0.74494	0.10330
336	Equal variances	0.174	0.678	–0.235	81	0.815	–0.02745	0.11675	–0.25974	0.20484	Tourism	31	3.0577	0.54458	0.09781
	Different variances			–0.230	58.578	0.819	–0.02745	0.11957	–0.26675	0.21185	Non-tourism	52	3.0852	0.49597	0.06878
337	Equal variances	3.548	0.060	0.436	344	0.663	0.02397	0.05504	–0.08429	0.13224	Tourism	119	4.1634	0.40849	0.03745
	Different variances			0.470	294.179	0.639	0.02397	0.05103	–0.07646	0.12441	Non-tourism	227	4.1395	0.52241	0.03467
356	Equal variances	0.334	0.565	0.280	83	0.780	0.00618	0.02205	–0.03767	0.05003	Tourism	30	1.2100	0.10954	0.02000
	Different variances			0.264	50.495	0.793	0.00618	0.02338	–0.04076	0.05313	Non-tourism	55	1.2038	0.08976	0.01210
358	Equal variances	0.026	0.872	–1.596	61	0.116	–0.51106	0.32031	–1.15155	0.12943	Tourism	26	6.1346	1.19614	0.23458
	Different variances			–1.617	56.373	0.112	–0.51106	0.31610	–1.14419	0.12207	Non-tourism	37	6.6457	1.28879	0.21188
359	Equal variances	1.841	0.180	–0.860	60	0.393	–0.26035	0.30290	–0.86624	0.34555	Tourism	27	6.0622	1.49350	0.28742
	Different variances			–0.806	39.418	0.425	–0.26035	0.32309	–0.91364	0.39294	Non-tourism	35	6.3226	0.87300	0.14756
361	Equal variances	2.426	0.124	–0.920	62	0.361	–0.73276	0.79667	–2.32527	0.85975	Tourism	27	14.3078	3.59042	0.69098
	Different variances			–0.884	47.253	0.381	–0.73276	0.82883	–2.39991	0.93438	Non-tourism	37	15.0405	2.78417	0.45772
362	Equal variances	3.516	0.066	–2.409	61	0.019	–0.65787	0.27308	–1.20392	–0.11182	Tourism	27	7.6652	0.87249	0.16791
	Different variances			–2.519	60.960	0.014	–0.65787	0.26112	–1.18003	–0.13571	Non-tourism	36	8.3231	1.19988	0.19998
363	Equal variances	0.001	0.976	–2.441	61	0.018	–0.83241	0.34096	–1.51419	-0.15062	Tourism	27	7.0948	1.34595	0.25903
	Different variances			–2.438	55.894	0.018	–0.83241	0.34139	–1.51632	-0.14849	Non-tourism	36	7.9272	1.33425	0.22238
364	Equal variances	6.747	0.012	–2.939	61	0.005	–1.50731	0.51285	–2.53282	–0.48181	Tourism	27	9.6119	1.23710	0.23808
	Different variances			–3.202	54.526	0.002	–1.50731	0.47070	–2.45080	–0.56383	Non-tourism	36	11.1192	2.43629	0.40605
366	Equal variances	0.125	0.725	–2.360	62	0.021	–2.15177	0.91179	–3.97441	–0.32914	Tourism	27	18.9944	3.90666	0.75184
	Different variances			–2.305	50.987	0.025	–2.15177	0.93348	–4.02582	–0.27772	Non-tourism	37	21.1462	3.36551	0.55329
367	Equal variances	6.372	0.014	–2.216	62	0.030	–0.39843	0.17979	–0.75782	–0.03904	Tourism	27	2.8448	0.55848	0.10748
	Different variances			–2.342	61.895	0.022	–0.39843	0.17014	–0.73855	–0.05831	Non-tourism	37	3.2432	0.80230	0.13190
368	Equal variances	3.692	0.059	–3.856	61	0.000	–2.28343	0.59218	–3.46756	–1.09930	Tourism	26	9.6285	1.74595	0.34241
	Different variances			–4.133	60.833	0.000	–2.28343	0.55250	–3.38828	–1.17858	Non-tourism	37	11.9119	2.63749	0.43360
369	Equal variances	0.596	0.443	–1.889	61	0.064	–1.09629	0.58043	–2.25693	0.06435	Tourism	26	8.9188	2.01382	0.39494
	Different variances			–1.952	59.246	0.056	–1.09629	0.56165	–2.22006	0.02748	Non-tourism	37	10.0151	2.42911	0.39934
370	Equal variances	0.744	0.392	–1.599	54	0.116	–0.57358	0.35874	–1.29280	0.14564	Tourism	23	3.2022	0.75295	0.15700
	Different variances			–1.796	48.478	0.079	–0.57358	0.31942	–1.21566	0.06850	Non-tourism	33	3.7758	1.59800	0.27818
371	Equal variances	0.039	0.844	0.527	55	0.600	0.47594	0.90342	–1.33456	2.28643	Tourism	25	5.8900	3.30530	0.66106
	Different variances			0.530	52.657	0.599	0.47594	0.89877	–1.32705	2.27892	Non-tourism	32	5.4141	3.44461	0.60893
372	Equal variances	1.522	0.223	–2.415	53	0.019	–3.73348	1.54597	–6.83431	–0.63265	Tourism	23	12.0865	5.40419	1.12685
	Different variances			–2.445	49.567	0.018	–3.73348	1.52672	–6.80064	–0.66631	Non-tourism	32	15.8200	5.82703	1.03008

Table 4 continued.

Product code	Test for equality of price variances			Test for equality of price means							Data summary				
									Confidence interval for the difference (95%)						
		F	Sig	*t*	df	Sig (bilateral)	Difference of means	Typical error of difference	Inferior	Superior	Type of jurisdiction	*N*	Price mean	Typical deviation	Typical error of mean
373	Equal variances	2.713	0.105	–1.326	55	0.190	–0.37274	0.28100	–0.93587	0.19039	Tourism	25	3.6632	0.91080	0.18216
	Different variances			–1.365	54.983	0.178	–0.37274	0.27305	–0.91994	0.17446	Non-tourism	32	4.0359	1.15061	0.20340
374	Equal variances	0.563	0.456	–0.605	53	0.548	–0.38966	0.64367	–1.68071	0.90138	Tourism	23	6.6457	2.13802	0.44581
	Different variances			–0.621	51.294	0.537	–0.38966	0.62736	–1.64897	0.86965	Non-tourism	32	7.0353	2.49698	0.44141
375	Equal variances	0.018	0.895	0.295	52	0.769	0.32677	1.10851	–1.89762	2.55116	Tourism	19	16.1711	4.03479	0.92564
	Different variances			0.290	35.278	0.774	0.32677	1.12775	–1.96204	2.61558	Non-tourism	35	15.8443	3.81118	0.64421
378	Equal variances	1.555	0.217	–0.985	61	0.329	–0.08851	0.08986	–0.26820	0.09117	Tourism	26	1.7550	0.23573	0.04623
	Different variances			–1.078	58.904	0.285	–0.08851	0.08210	–0.25281	0.07578	Non-tourism	37	1.8435	0.41272	0.06785
380	Equal variances	6.399	0.014	–3.082	64	0.003	–0.29350	0.09523	–0.48374	–0.10326	Tourism	28	2.0057	0.50492	0.09542
	Different variances			–2.816	37.420	0.008	–0.29350	0.10423	–0.50461	–0.08239	Non-tourism	38	2.2992	0.25852	0.04194
381	Equal variances	0.076	0.784	0.103	43	0.918	0.02577	0.24980	–0.47799	0.52953	Tourism	19	1.9800	0.81070	0.18599
	Different variances			0.104	39.711	0.918	0.02577	0.24841	–0.47639	0.52793	Non-tourism	26	1.9542	0.83963	0.16467
382	Equal variances	1.262	0.266	–0.247	63	0.806	–0.02949	0.11943	–0.26815	0.20917	Tourism	26	1.8600	0.52306	0.10258
	Different variances			–0.238	46.789	0.813	–0.02949	0.12396	–0.27889	0.21992	Non-tourism	39	1.8895	0.43462	0.06959
383	Equal variances	0.516	0.475	–1.400	65	0.166	–0.16636	0.11880	–0.40362	0.07089	Tourism	28	1.5611	0.43860	0.08289
	Different variances			–1.434	62.658	0.156	–0.16636	0.11599	–0.39818	0.06545	Non-tourism	39	1.7274	0.50671	0.08114
384	Equal variances	0.491	0.486	–1.389	64	0.170	–0.05314	0.03826	–0.12958	0.02330	Tourism	28	0.9161	0.14304	0.02703
	Different variances			–1.414	61.688	0.162	–0.05314	0.03758	–0.12827	0.02199	Non-tourism	38	0.9692	0.16092	0.02610
385	Equal variances	0.486	0.488	–1.335	65	0.187	–0.06452	0.04834	–0.16106	0.03201	Tourism	28	0.8821	0.20799	0.03931
	Different variances			–1.310	54.098	0.196	–0.06452	0.04926	–0.16329	0.03424	Non-tourism	39	0.9467	0.18546	0.02970
386	Equal variances	0.413	0.523	–0.796	64	0.429	–0.07954	0.09993	–0.27917	0.12008	Tourism	27	1.0581	0.32611	0.06276
	Different variances			–0.841	63.700	0.404	–0.07954	0.09462	–0.26859	0.10950	Non-tourism	39	1.1377	0.44222	0.07081
387	Equal variances	0.326	0.570	–1.242	62	0.219	–0.29395	0.23676	–0.76722	0.17933	Tourism	26	4.0900	1.06394	0.20866
	Different variances			–1.185	44.803	0.242	–0.29395	0.24813	–0.79377	0.20587	Non-tourism	38	4.3839	0.82776	0.13428
388	Equal variances	1.030	0.314	–2.873	64	0.006	–0.29291	0.10196	–0.49661	–0.08922	Tourism	28	1.5089	0.43163	0.08157
	Different variances			–2.831	55.009	0.006	–0.29291	0.10347	–0.50027	–0.08556	Non-tourism	38	1.8018	0.39238	0.06365
389	Equal variances	1.014	0.319	0.270	51	0.789	0.07258	0.26914	–0.46774	0.61289	Tourism	20	3.5750	0.62292	0.13929
	Different variances			0.307	50.853	0.760	0.07258	0.23661	–0.40247	0.54762	Non-tourism	33	3.5024	1.09872	0.19126

39	Equal variances	0.390	0.534	0.227	86	0.821	0.00718	0.03167	–0.05578	0.07015	Tourism	31	1.1361	0.15682	0.02816
	Different variances			0.216	53.757	0.830	0.00718	0.03324	–0.05947	0.07383	Non-tourism	57	1.1289	0.13328	0.01765
390	Equal variances	1.924	0.171	1.139	51	0.260	0.22076	0.19374	–0.16819	0.60971	Tourism	20	3.5050	0.53922	0.12057
	Different variances			1.236	49.524	0.222	0.22076	0.17855	–0.13796	0.57948	Non-tourism	33	3.2842	0.75652	0.13169
391	Equal variances	0.828	0.367	0.865	51	0.391	0.20053	0.23177	–0.26477	0.66583	Tourism	20	3.4075	0.76456	0.17096
	Different variances			0.888	43.526	0.380	0.20053	0.22587	–0.25482	0.65588	Non-tourism	33	3.2070	0.84796	0.14761
399	Equal variances	4.225	0.043	0.956	82	0.342	0.00644	0.00674	–0.00696	0.01984	Tourism	31	0.3610	0.04316	0.00775
	Different variances			0.791	36.224	0.434	0.00644	0.00814	–0.01006	0.02294	Non-tourism	53	0.3545	0.01803	0.00248
402	Equal variances	0.444	0.506	0.170	344	0.865	0.00153	0.00895	–0.01608	0.01913	Tourism	125	0.5887	0.06342	0.00567
	Different variances			0.186	324.176	0.852	0.00153	0.00819	–0.01460	0.01765	Non-tourism	221	0.5872	0.08792	0.00591
407	Equal variances	0.340	0.562	–0.364	75	0.717	–0.00134	0.00369	–0.00868	0.00600	Tourism	27	0.8993	0.01299	0.00250
	Different variances			–0.391	65.156	0.697	–0.00134	0.00343	–0.00819	0.00550	Non-tourism	50	0.9006	0.01659	0.00235
419	Equal variances	1.699	0.196	0.456	78	0.650	0.01610	0.03530	–0.05417	0.08637	Tourism	28	1.4932	0.05498	0.01039
	Different variances			0.590	66.179	0.557	0.01610	0.02728	–0.03836	0.07056	Non-tourism	52	1.4771	0.18187	0.02522
450	Equal variances	6.163	0.014	1.279	338	0.202	2.14060	1.67388	–1.15194	5.43314	Tourism	129	4.7709	24.33481	2.14256
	Different variances			0.999	128.021	0.320	2.14060	2.14265	–2.09899	6.38018	Non-tourism	211	2.6303	0.27992	0.01927
495	Equal variances	2.802	0.099	–1.415	68	0.162	–0.01827	0.01291	–0.04402	0.00749	Tourism	25	0.5244	0.04369	0.00874
	Different variances			–1.516	60.121	0.135	–0.01827	0.01205	–0.04237	0.00583	Non-tourism	45	0.5427	0.05565	0.00830
509	Equal variances	7.057	0.011	1.796	45	0.079	1.79204	0.99754	–0.21710	3.80119	Tourism	15	3.6527	5.65149	1.45921
	Different variances			1.225	14.135	0.241	1.79204	1.46272	–1.34236	4.92645	Non-tourism	32	1.8606	0.57258	0.10122
523	Equal variances	0.319	0.574	0.465	73	0.644	0.00533	0.01147	–0.01753	0.02819	Tourism	26	1.2696	0.03965	0.00778
	Different variances			0.501	62.721	0.618	0.00533	0.01063	–0.01592	0.02658	Non-tourism	49	1.2643	0.05079	0.00726
528	Equal variances	1.363	0.244	0.588	262	0.557	0.05293	0.09004	–0.12436	0.23021	Tourism	92	3.6430	0.66224	0.06904
	Different variances			0.602	198.718	0.548	0.05293	0.08797	–0.12054	0.22640	Non-tourism	172	3.5901	0.71491	0.05451
545	Equal variances	2.220	0.140	–0.876	80	0.384	–0.04688	0.05351	–0.15336	0.05961	Tourism	27	0.8719	0.12686	0.02441
	Different variances			–1.089	79.996	0.279	–0.04688	0.04303	–0.13251	0.03876	Non-tourism	55	0.9187	0.26281	0.03544
561	Equal variances	0.981	0.325	–0.667	82	0.507	–0.01823	0.02732	–0.07257	0.03612	Tourism	29	1.3141	0.05865	0.01089
	Different variances			–0.834	78.961	0.407	–0.01823	0.02185	–0.06172	0.02526	Non-tourism	55	1.3324	0.14047	0.01894
565	Equal variances	0.872	0.351	0.091	360	0.928	0.00070	0.00775	–0.01455	0.01595	Tourism	131	0.9357	0.06038	0.00528
	Different variances			0.097	322.261	0.923	0.00070	0.00728	–0.01361	0.01502	Non-tourism	231	0.9350	0.07620	0.00501
572	Equal variances	4.971	0.029	1.171	74	0.246	0.18503	0.15808	–0.12994	0.50001	Tourism	24	3.0654	0.50555	0.10320
	Different variances			1.312	59.875	0.194	0.18503	0.14101	–0.09703	0.46710	Non-tourism	52	2.8804	0.69291	0.09609
573	Equal variances	0.586	0.447	1.112	66	0.270	0.05467	0.04916	–0.04348	0.15282	Tourism	27	2.7430	0.23599	0.04542
	Different variances			1.040	43.401	0.304	0.05467	0.05256	–0.05131	0.16065	Non-tourism	41	2.6883	0.16945	0.02646
585	Equal variances	2.974	0.088	1.157	80	0.251	0.07442	0.06433	–0.05359	0.20244	Tourism	30	2.9600	0.03129	0.00571
	Different variances			1.520	52.401	0.134	0.07442	0.04896	–0.02380	0.17264	Non-tourism	52	2.8856	0.35062	0.04862
588	Equal variances	0.251	0.618	0.967	65	0.337	0.01307	0.01351	–0.01392	0.04006	Tourism	23	1.4374	0.01888	0.00394
	Different variances			1.269	55.777	0.210	0.01307	0.01030	–0.00757	0.03371	Non-tourism	44	1.4243	0.06315	0.00952

Table 4 continued.

Product code	Test for equality of price variances			Test for equality of price means							Data summary				
									Confidence interval for the difference (95%)						
		F	Sig	*t*	df	Sig (bilateral)	Difference of means	Typical error of difference	Inferior	Superior	Type of jurisdiction	*N*	Price mean	Typical deviation	Typical error of mean
596	Equal variances	0.052	0.819	0.443	376	0.658	0.00338	0.00764	–0.01164	0.01841	Tourism	143	0.9366	0.05066	0.00424
	Different variances			0.494	375.948	0.621	0.00338	0.00684	–0.01007	0.01684	Non-tourism	235	0.9332	0.08236	0.00537
616	Equal variances	13.02	0.001	1.802	74	0.076	0.07494	0.04159	–0.00792	0.15781	Tourism	28	1.1554	0.11520	0.02177
	Different variances			2.064	73.991	0.043	0.07494	0.03631	0.00259	0.14729	Non-tourism	48	1.0804	0.20132	0.02906
620	Equal variances	3.178	0.079	–1.108	72	0.272	–0.04609	0.04161	–0.12903	0.03685	Tourism	26	0.8881	0.04271	0.00838
	Different variances			–1.471	53.913	0.147	–0.04609	0.03133	–0.10891	0.01673	Non-tourism	48	0.9342	0.20918	0.03019
635	Equal variances	2.162	0.162	0.283	15	0.781	0.04742	0.16740	–0.30939	0.40424	Tourism	6	1.6283	0.23198	0.09471
	Different variances			0.324	14.510	0.750	0.04742	0.14615	–0.26500	0.35985	Non-tourism	11	1.5809	0.36917	0.11131
656	Equal variances	0.231	0.632	0.713	81	0.478	0.03554	0.04985	–0.06364	0.13473	Tourism	29	4.1152	0.14527	0.02698
	Different variances			0.827	80.180	0.411	0.03554	0.04299	–0.05001	0.12109	Non-tourism	54	4.0796	0.24597	0.03347
699	Equal variances	7.307	0.009	1.784	69	0.079	0.03088	0.01730	–0.00364	0.06539	Tourism	27	0.4381	0.11283	0.02171
	Different variances			1.410	26.858	0.170	0.03088	0.02189	–0.01406	0.07581	Non-tourism	44	0.4073	0.01847	0.00278
705	Equal variances	0.190	0.664	–0.329	84	0.743	–0.00375	0.01141	–0.02645	0.01894	Tourism	31	0.5181	0.03894	0.00699
	Different variances			–0.364	80.389	0.717	–0.00375	0.01033	–0.02430	0.01679	Non-tourism	55	0.5218	0.05634	0.00760
719	Equal variances	0.150	0.699	1.396	175	0.164	0.05986	0.04288	–0.02477	0.14448	Tourism	57	1.6854	0.26713	0.03538
	Different variances			1.394	109.823	0.166	0.05986	0.04293	–0.02522	0.14493	Non-tourism	120	1.6256	0.26627	0.02431
729	Equal variances	9.599	0.003	–1.620	54	0.111	–0.06439	0.03974	–0.14407	0.01529	Tourism	20	1.5070	0.10016	0.02240
	Different variances			–1.843	53.186	0.071	–0.06439	0.03494	–0.13446	0.00568	Non-tourism	36	1.5714	0.16089	0.02682
766	Equal variances	0.901	0.346	–0.264	74	0.793	–0.01609	0.06103	–0.13770	0.10552	Tourism	24	1.3058	0.21125	0.04312
	Different variances			–0.285	54.789	0.776	–0.01609	0.05638	–0.12910	0.09692	Non-tourism	52	1.3219	0.26197	0.03633
774	Equal variances	2.153	0.143	0.802	331	0.423	0.00996	0.01241	–0.01446	0.03438	Tourism	128	1.5759	0.09784	0.00865
	Different variances			0.836	304.431	0.404	0.00996	0.01191	–0.01348	0.03339	Non-tourism	205	1.5659	0.11722	0.00819
781	Equal variances	1.016	0.316	–0.351	81	0.727	–0.01376	0.03926	–0.09188	0.06435	Tourism	30	1.0213	0.16946	0.03094
	Different variances			–0.353	61.437	0.726	–0.01376	0.03902	–0.09178	0.06426	Non-tourism	53	1.0351	0.17315	0.02378
785	Equal variances	0.303	0.583	0.918	93	0.361	0.07678	0.08360	–0.08922	0.24278	Tourism	41	2.1659	0.38737	0.06050
	Different variances			0.927	89.084	0.356	0.07678	0.08279	–0.08773	0.24129	Non-tourism	54	2.0891	0.41536	0.05652
786	Equal variances	6.019	0.016	–0.504	93	0.615	–0.01428	0.02832	–0.07051	0.04195	Tourism	41	1.1915	0.16237	0.02536
	Different variances			–0.481	68.131	0.632	–0.01428	0.02969	–0.07353	0.04497	Non-tourism	54	1.2057	0.11355	0.01545

787	Equal variances	0.465	0.497	–0.617	94	0.539	–0.01307	0.02117	–0.05510	0.02897	Tourism	42	0.7929	0.09211	0.01421
	Different variances			–0.632	93.520	0.529	–0.01307	0.02069	–0.05416	0.02802	Non-tourism	54	0.8059	0.11053	0.01504
826	Equal variances	0.090	0.764	0.956	293	0.340	0.02447	0.02559	–0.02590	0.07483	Tourism	108	2.2098	0.21314	0.02051
	Different variances			0.953	221.517	0.341	0.02447	0.02566	–0.02611	0.07504	Non-tourism	187	2.1853	0.21094	0.01543
8383	Equal variances	0.146	0.702	0.649	388	0.517	0.02599	0.04008	–0.05281	0.10479	Tourism	139	1.5828	0.37561	0.03186
	Different variances			0.651	288.367	0.515	0.02599	0.03992	–0.05257	0.10456	Non-tourism	251	1.5568	0.38097	0.02405
840	Equal variances	0.862	0.356	0.937	71	0.352	0.00661	0.00705	–0.00746	0.02068	Tourism	26	1.7838	0.02639	0.00518
	Different variances			0.974	57.721	0.334	0.00661	0.00679	–0.00698	0.02020	Non-tourism	47	1.7772	0.03012	0.00439
84000	Equal variances	0.111	0.740	–0.959	238	0.339	–0.03406	0.03552	–0.10403	0.03591	Tourism	83	1.6853	0.20700	0.02272
	Different variances			–1.057	215.743	0.292	–0.03406	0.03222	–0.09757	0.02945	Non-tourism	157	1.7194	0.28630	0.02285
85	Equal variances	1.970	0.165	1.607	71	0.112	0.01753	0.01091	–0.00422	0.03928	Tourism	28	0.5946	0.03097	0.00585
	Different variances			1.800	70.891	0.076	0.01753	0.00974	–0.00189	0.03695	Non-tourism	45	0.5771	0.05221	0.00778
868	Equal variances	3.808	0.054	2.150	83	0.034	0.02000	0.00930	0.00150	0.03850	Tourism	30	2.1120	0.04342	0.00793
	Different variances			2.092	55.181	0.041	0.02000	0.00956	0.00085	0.03915	Non-tourism	55	2.0920	0.03960	0.00534
876	Equal variances	0.001	0.970	–0.056	52	0.955	–0.00271	0.04793	–0.09889	0.09347	Tourism	19	1.6716	0.14611	0.03352
	Different variances			–0.060	43.827	0.952	–0.00271	0.04513	–0.09367	0.08826	Non-tourism	35	1.6743	0.17879	0.03022
884	Equal variances	1.778	0.187	–0.620	72	0.537	–0.03243	0.05228	–0.13665	0.07178	Tourism	27	0.8978	0.13664	0.02630
	Different variances			–0.720	71.874	0.474	–0.03243	0.04503	–0.12220	0.05733	Non-tourism	47	0.9302	0.25060	0.03655
895	Equal variances	1.804	0.180	1.959	411	0.051	0.03441	0.01756	–0.00012	0.06893	Tourism	148	0.9714	0.17255	0.01418
	Different variances			1.952	300.983	0.052	0.03441	0.01763	–0.00028	0.06910	Non-tourism	265	0.9369	0.17038	0.01047
90	Equal variances	4.419	0.039	1.865	68	0.066	0.08653	0.04640	–0.00605	0.17911	Tourism	21	2.9143	0.31168	0.06801
	Different variances			1.260	20.772	0.222	0.08653	0.06866	–0.05636	0.22942	Non-tourism	49	2.8278	0.06596	0.00942
9002	Equal variances	0.038	0.847	0.738	83	0.462	0.01651	0.02236	–0.02797	0.06099	Tourism	29	1.5628	0.09713	0.01804
	Different variances			0.740	57.240	0.462	0.01651	0.02230	–0.02813	0.06115	Non-tourism	56	1.5463	0.09806	0.01310
9003	Equal variances	0.100	0.752	–0.346	405	0.729	–0.00323	0.00934	–0.02160	0.01513	Tourism	144	1.0140	0.09262	0.00772
	Different variances			–0.342	283.686	0.733	–0.00323	0.00946	–0.02186	0.01539	Non-tourism	263	1.0173	0.08871	0.00547
9004	Equal variances	4.460	0.036	–1.217	220	0.225	–0.04400	0.03616	–0.11526	0.02726	Tourism	83	1.2602	0.13915	0.01527
	Different variances			–1.443	206.872	0.150	–0.04400	0.03049	–0.10412	0.01611	Non-tourism	139	1.3042	0.31114	0.02639
9007	Equal variances	0.716	0.400	–0.290	75	0.773	–0.00793	0.02739	–0.06250	0.04664	Tourism	25	1.4588	0.09833	0.01967
	Different variances			–0.309	56.368	0.758	–0.00793	0.02564	–0.05929	0.04343	Non-tourism	52	1.4667	0.11866	0.01646
9010	Equal variances	0.010	0.920	–0.210	58	0.835	–0.06798	0.32393	–0.71640	0.58044	Tourism	23	8.4839	0.98836	0.20609
	Different variances			–0.225	56.206	0.823	–0.06798	0.30190	–0.67271	0.53675	Non-tourism	37	8.5519	1.34196	0.22062
9012	Equal variances	6.403	0.014	2.507	73	0.014	0.75391	0.30076	0.15450	1.35332	Tourism	23	4.2439	1.01497	0.21164
	Different variances			2.736	52.332	0.008	0.75391	0.27559	0.20099	1.30684	Non-tourism	52	3.4900	1.27291	0.17652
9015	Equal variances	1.512	0.222	–0.899	81	0.371	–0.04561	0.05074	–0.14656	0.05534	Tourism	30	1.6453	0.08928	0.01630
	Different variances			–1.129	69.487	0.263	–0.04561	0.04039	–0.12617	0.03495	Non-tourism	53	1.6909	0.26902	0.03695
9016	Equal variances	11.15	0.004	–2.653	16	0.017	–0.27925	0.10524	–0.50235	–0.05615	Tourism	8	1.0038	0.10569	0.03737
	Different variances			–2.899	11.987	0.013	–0.27925	0.09633	–0.48915	–0.06935	Non-tourism	10	1.2830	0.28075	0.08878

Table 4 continued.

Product code	Test for equality of price variances			Test for equality of price means							Data summary				
									Confidence interval for the difference (95%)						
		F	Sig	*t*	df	Sig (bilateral)	Difference of means	Typical error of difference	Inferior	Superior	Type of jurisdiction	*N*	Price mean	Typical deviation	Typical error of mean
9029	Equal variances	3.665	0.065	0.378	32	0.708	0.98924	2.61424	–4.33578	6.31427	Tourism	12	21.8833	8.73645	2.52200
	Different variances			0.345	17.580	0.734	0.98924	2.86684	–5.04408	7.02256	Non-tourism	22	20.8941	6.39391	1.36319
903	Equal variances	1.182	0.278	–0.373	372	0.709	–0.01736	0.04650	–0.10879	0.07407	Tourism	132	0.6896	0.11533	0.01004
	Different variances			–0.491	281.180	0.624	–0.01736	0.03534	–0.08692	0.05220	Non-tourism	242	0.7070	0.52708	0.03388
9031	Equal variances	1.604	0.210	–0.439	66	0.662	–0.01013	0.02308	–0.05620	0.03595	Tourism	27	0.3396	0.08447	0.01626
	Different variances			–0.453	61.351	0.652	–0.01013	0.02236	–0.05484	0.03458	Non-tourism	41	0.3498	0.09832	0.01536
920	Equal variances	2.274	0.136	–0.335	70	0.738	–0.00125	0.00373	–0.00869	0.00619	Tourism	24	0.8775	0.00676	0.00138
	Different variances			–0.433	66.935	0.667	–0.00125	0.00289	–0.00701	0.00451	Non-tourism	48	0.8788	0.01758	0.00254
924	Equal variances	0.001	0.980	–0.008	75	0.994	–0.00035	0.04429	–0.08858	0.08787	Tourism	30	1.1367	0.19422	0.03546
	Different variances			–0.008	60.063	0.994	–0.00035	0.04469	–0.08975	0.08904	Non-tourism	47	1.1370	0.18649	0.02720
934	Equal variances	21.13	0.000	2.509	83	0.014	0.06448	0.02570	0.01337	0.11560	Tourism	30	0.9167	0.18764	0.03426
	Different variances			1.871	29.716	0.071	0.06448	0.03447	–0.00594	0.13491	Non-tourism	55	0.8522	0.02820	0.00380
944	Equal variances	1.202	0.277	–0.820	60	0.415	–0.15130	0.18445	–0.52025	0.21765	Tourism	22	1.6555	0.58022	0.12370
	Different variances			–0.883	53.130	0.381	–0.15130	0.17130	–0.49485	0.19226	Non-tourism	40	1.8068	0.74941	0.11849
947	Equal variances	0.195	0.660	0.531	87	0.597	0.00727	0.01371	–0.01997	0.03452	Tourism	31	0.7845	0.06994	0.01256
	Different variances			0.498	51.447	0.621	0.00727	0.01460	–0.02204	0.03659	Non-tourism	58	0.7772	0.05672	0.00745
958	Equal variances	0.325	0.569	–0.531	348	0.596	–0.00467	0.00881	–0.02200	0.01265	Tourism	127	0.7869	0.06072	0.00539
	Different variances			–0.585	335.429	0.559	–0.00467	0.00799	–0.02038	0.01104	Non-tourism	223	0.7915	0.08804	0.00590
959	Equal variances	4.156	0.045	–1.413	74	0.162	–0.14693	0.10396	–0.35408	0.06021	Tourism	28	0.4954	0.07147	0.01351
	Different variances			–1.838	49.728	0.072	–0.14693	0.07994	–0.30752	0.01365	Non-tourism	48	0.6423	0.54588	0.07879
975	Equal variances	0.111	0.740	0.250	62	0.803	0.01126	0.04500	–0.07870	0.10121	Tourism	22	2.1086	0.23560	0.05023
	Different variances			0.209	27.409	0.836	0.01126	0.05384	–0.09914	0.12165	Non-tourism	42	2.0974	0.12562	0.01938
BC1	Equal variances	5.869	0.017	–1.859	102	0.066	–0.09000	0.04841	–0.18601	0.00601	Tourism	39	0.9769	0.15595	0.02497
	Different variances			–2.120	101.696	0.036	–0.09000	0.04245	–0.17420	–0.00580	Non-tourism	65	1.0669	0.27674	0.03433
BC2	Equal variances	0.087	0.769	1.179	104	0.241	0.05898	0.05004	–0.04024	0.15820	Tourism	40	1.4113	0.24271	0.03838
	Different variances			1.192	85.335	0.237	0.05898	0.04948	–0.03941	0.15736	Non-tourism	66	1.3523	0.25381	0.03124
BC3	Equal variances	1.043	0.310	1.154	103	0.251	0.05653	0.04899	–0.04063	0.15368	Tourism	39	1.4974	0.24574	0.03935
	Different variances			1.148	78.530	0.255	0.05653	0.04925	–0.04152	0.15457	Non-tourism	66	1.4409	0.24066	0.02962

BC4	Equal variances	3.463	0.066	–1.594	104	0.114	–0.07519	0.04716	–0.16870	0.01832	Tourism	40	1.3938	0.15283	0.02416
	Different variances			–1.816	103.479	0.072	–0.07519	0.04140	–0.15730	0.00692	Non-tourism	66	1.4689	0.27313	0.03362
BC5	Equal variances	2.142	0.146	0.710	103	0.479	0.11452	0.16134	–0.20546	0.43450	Tourism	40	1.2538	1.25975	0.19918
	Different variances			0.567	41.136	0.574	0.11452	0.20188	–0.29314	0.52218	Non-tourism	65	1.1392	0.26509	0.03288
BC6	Equal variances	0.706	0.403	–0.558	104	0.578	–0.01920	0.03442	–0.08746	0.04905	Tourism	40	1.1763	0.10500	0.01660
	Different variances			–0.643	102.127	0.521	–0.01920	0.02984	–0.07840	0.03999	Non-tourism	66	1.1955	0.20148	0.02480
BC7	Equal variances	0.475	0.492	–0.990	104	0.325	–0.03076	0.03108	–0.09238	0.03087	Tourism	40	0.9700	0.10789	0.01706
	Different variances			–1.110	103.994	0.270	–0.03076	0.02772	–0.08572	0.02421	Non-tourism	66	1.0008	0.17748	0.02185
BC8	Equal variances	6.776	0.011	–1.977	103	0.051	–0.11027	0.05579	–0.22091	0.00037	Tourism	40	1.1305	0.20275	0.03206
	Different variances			–2.183	102.742	0.031	–0.11027	0.05050	–0.21043	–0.01011	Non-tourism	65	1.2408	0.31460	0.03902
BT1	Equal variances	5.685	0.021	2.100	51	0.041	0.13814	0.06579	0.00606	0.27022	Tourism	43	1.3281	0.20190	0.03079
	Different variances			3.233	31.151	0.003	0.13814	0.04273	0.05101	0.22527	Non-tourism	10	1.1900	0.09369	0.02963
BT2	Equal variances	1.581	0.214	2.079	51	0.043	0.08651	0.04161	0.00298	0.17005	Tourism	43	1.0665	0.12681	0.01934
	Different variances			3.004	26.076	0.006	0.08651	0.02880	0.02732	0.14571	Non-tourism	10	0.9800	0.06749	0.02134
BT3	Equal variances	0.486	0.489	1.603	50	0.115	0.08476	0.05288	–0.02145	0.19098	Tourism	42	1.1598	0.14923	0.02303
	Different variances			1.565	13.269	0.141	0.08476	0.05416	–0.03200	0.20152	Non-tourism	10	1.0750	0.15501	0.04902
BT4	Equal variances	2.018	0.162	0.946	51	0.349	0.10221	0.10810	–0.11481	0.31923	Tourism	43	1.6072	0.32834	0.05007
	Different variances			1.328	24.268	0.196	0.10221	0.07695	–0.05651	0.26093	Non-tourism	10	1.5050	0.18477	0.05843
BT5	Equal variances	4.858	0.032	1.792	51	0.079	0.24407	0.13616	–0.02929	0.51743	Tourism	43	1.6291	0.42219	0.06438
	Different variances			3.099	43.738	0.003	0.24407	0.07876	0.08531	0.40283	Non-tourism	10	1.3850	0.14347	0.04537
BT6	Equal variances	0.898	0.348	0.975	50	0.334	0.11810	0.12110	–0.12514	0.36133	Tourism	42	1.3631	0.36040	0.05561
	Different variances			1.197	18.463	0.246	0.11810	0.09863	–0.08876	0.32495	Non-tourism	10	1.2450	0.25761	0.08146
BT7	Equal variances	0.114	0.737	0.829	51	0.411	0.08535	0.10290	–0.12124	0.29194	Tourism	43	1.1753	0.29970	0.04570
	Different variances			0.907	15.106	0.379	0.08535	0.09410	–0.11511	0.28580	Non-tourism	10	1.0900	0.26013	0.08226
BT8	Equal variances	1.466	0.232	1.802	48	0.078	0.22062	0.12241	–0.02550	0.46675	Tourism	41	1.7595	0.35512	0.05546
	Different variances			2.687	23.721	0.013	0.22062	0.08210	0.05106	0.39018	Non-tourism	9	1.5389	0.18162	0.06054

Note: The differences highlighted in grey are significant at the 95% confidence level.

Hypothesis 3

No particular group of products displays higher prices in tourism jurisdictions. The only significant differences in prices arise for fresh food in local markets. However, for these products, prices in tourism jurisdictions are significantly lower than in non-tourism ones. Specifically, 8 fresh foods (product codes 362, 363, 364, 366, 367, 368, 372, 388) out of 29, that is, 28% of all the fresh foods considered, have significantly higher prices in non-tourism jurisdictions. Notice, however, that the quality of (unbranded) fresh food is not easy to assess. Therefore differences in prices may hide differences in qualities.

Hypothesis 4

There are no significant changes in the above results when sale prices are taken into account. Besides, although advantages may exist for customers carrying supermarket membership cards, no general schemes exist in Catalonia similar to those in place in, for instance, Hawaii (Kreps, 2004). Hawaiian supermarkets close to tourism areas display very high prices by American mainland standards but, for a lot of items, a second and substantially lower price is given for the holders of the supermarkets' membership cards, which are available to Hawaiian residents only. Thus, the hypothesis that retailers resort to sales strategies in order to differentiate among types of customers (tourists and local residents) must be rejected (However, see the discussion of Hypothesis 6 for non-traded goods and Hypothesis 7 for goods with search costs).

Hypothesis 5

No significant price differences between tourism and non-tourism jurisdictions are revealed when the distribution channel is taken into account. The only significant differences arise for fresh foods sold in local markets and drinks sold in bars. Fresh food prices are significantly higher in non-tourism jurisdictions. Specifically, 10 different products (product codes 1106, 362, 363, 364, 366, 367, 368, 372, 380, 388), 34.5% of all the products considered, have higher prices in non-tourism jurisdictions (and no products have higher prices in tourism jurisdictions). It is also remarkable that at the height of the tourism season, the number of products with significant differences in prices increases with respect to the trough of the tourism season (that is, there are more products with higher prices in non-tourism jurisdictions). Two additional facts about the magnitude of price differences are: first, when price differences are significant, prices in non-tourism municipalities are, on average, 16% higher; and second, price differences are wider at the height of the tourism season.

Hypothesis 6

Prices of drinks sold in bars are used to test the hypothesis that differences exist for non-traded goods. Bars exhibit prices significantly higher in tourism municipalities: 7 out of 8 products surveyed (that is, all of them except beer) have higher prices. For bar drinks, prices in tourism municipalities are 10% higher than prices in non-tourism jurisdictions. This observation is in accordance with the Balassa–Samuelson hypothesis. Besides, differences are higher

at the height of the tourism season; that is, the cyclical component of bar prices is marked for tourism jurisdictions. Nevertheless, differences disappear when the prices of bar drinks in non-tourism jurisdictions are compared to the prices charged in non-tourism zones within tourism jurisdictions. This evidence cannot be rationalized by the Balassa–Samuelson hypothesis and suggests that price dispersion exists within tourism jurisdictions (see Hypothesis 7).

Hypothesis 7

In the case of bars in tourism jurisdictions, differences exist in the prices of products offered by bars located in tourism and non-tourism zones within the jurisdiction, with the former having higher prices. This observation is in accordance with the predictions of tourists-and-natives models (Salop and Stiglitz, 1977; Stiglitz, 1979; Carlton and Perloff, 2005). That is, if there are two types of individuals (uninformed tourists and informed natives), then a two-price equilibrium may exist: natives shop at low-price stores and tourists shop randomly.

Discussion

The main result of the paper is that no significant differences in prices exist between tourism and non-tourism jurisdictions in Catalonia for a broad variety of products. However, the analysis shows that bar drinks have significantly higher prices in tourism zones within tourism jurisdictions. This suggests that tourists are likely to pay higher prices than natives. Although the paper has some limitations, the methodology, the survey and the results are relevant for other tourism (and non-tourism) destinations and developed (and developing) countries.

One of the paper's limitations is that it takes into account only a reduced amount of products. For instance, prices of property and rents, or personal services (hairdressers, discotheques or restaurants, for instance) are not considered. These are non-traded goods, that is, they must be consumed where (and by whom) they are purchased, so that no possibility of arbitrage exists. Nevertheless, consideration of the prices of bar drinks (which are essentially non-traded) provides some hints for non-traded goods and services.

Another limitation is methodological and arises from the reliance on microeconomic data collected in two time periods. The paper does not take into account the adjustment processes leading to an equilibrium considered by GE models. Therefore, it is not possible to assert whether the markets for traded and non-traded goods are in equilibrium.

A possible additional limitation is that Catalonia is a top destination for both international and domestic tourism and that tourism and non-tourism jurisdictions are relatively close to each other. This may explain the general lack of price differences in Catalonia. Certainly, one could still hope to find price differences in an isolated tourist municipality with limited arbitrage and consumer mobility. However, the paper's results show price differences in the case of bars, so the jurisdictions used in our study are not so close in that respect.

The paper shows that it is important to distinguish price differences caused by the impossibility of arbitrage from differences caused by search costs. The observation that the prices of products sold in bars located in tourism zones within a jurisdiction are higher than the prices charged by bars located in non-tourism zones within the same (tourism) jurisdiction suggests that search costs play an important role. Uninformed tourists are likely to end up paying prices higher than those paid by (informed) local residents for identical goods. This is consistent with theoretical models based on search costs (Salop and Stiglitz, 1977; Stiglitz, 1979; Carlton and Perloff, 2005).

Experiences of market power based on search costs and asymmetries between tourists and residents have been documented widely in the tourism literature. For instance, during slack periods, hotels in Hawaii offer special (far lower than standard) rates for customers who can prove Hawaiian residency (Phillips, 2005). In some Latin American cities, McDonald's has experimented with charging different prices for meals according to the relative wealth of their neighbourhoods (The Economist, 2004). In Denver, ski resorts use purchase location to segment sales of list tickets so that price-sensitive locals can buy discounted tickets at grocery stores and self-service gas stations (Nagle and Hogan, 2006). As a final example, the prices for being at the beach in New Jersey are US$6 for one day, US$12 for one week, or US$24 for the season (but only US$19 for the season if bought before Memorial Day), so that permanent residents informed about the deal spend US$19 (Hamermesh, 2008).

Besides prices, another obvious mechanism exists which can yield opposite outcomes. The increased demand generated by tourism can be matched by an increased supply: more production of goods and services, particularly those which are non-traded. If tourists pay all the costs they generate (that is, if no externalities exist), local residents who sell products and services to tourists will be better off, whereas local residents with no stakes in the tourism sector will be no worse off. That is, local residents will experience a Pareto improvement in their economic welfare from an increased tourist flow (Clarke and Ng, 1993).

The lack of confirmatory evidence about price differences between tourism and non-tourism jurisdictions could also be viewed as indirect evidence of this quantity effect. Of course, further indirect evidence comes from the fact that tourism jurisdictions consistently enjoy higher levels of per capita income (Rigall-I-Torrent, 2003).

Conclusion

The empirical evidence collected, based on a comprehensive sample containing more than 18,500 prices gathered in 225 supermarkets and 204 bars, bakeries and local markets of 45 jurisdictions in Catalonia and 6 districts of Barcelona at peak and trough periods of the tourism season, shows that for a vast majority of products, first, there is no evidence that systematic differences exist between prices in tourism and non-tourism jurisdictions. Second, as a consequence of the preceding conclusion, there is no evidence of general differences in prices between tourism and non-tourism jurisdictions. Third, no general differences are observed in the prices of those products which are particularly consumed by tourists. Fourth, for those products whose prices differ significantly in

tourism and non-tourism municipalities, no significant evidence of seasonality exists in the behaviour of their prices. Fifth, drinks sold in bars show prices significantly higher in tourism municipalities and a marked cyclical component (with higher differences at the peak of the tourism season) in those jurisdictions. However, differences disappear when the prices of bar drinks in non-tourism jurisdictions are compared to the prices charged in non-tourism zones within tourism jurisdictions. Sixth, differences exist in the prices of products offered by bars located in tourism and non-tourism zones within the jurisdiction, with the former having higher prices.

Summing up, for an immense majority of products the hypothesis that prices are, in general, higher in tourism jurisdictions does not stand close scrutiny in Catalonia. The increased demand derived from tourism seems to have a rather large quantity effect: more production, more jobs and increased economic welfare. The convergence of prices for traded goods means that the quantity effect goes well beyond tourism jurisdictions, affecting the whole economy. The paper's findings also suggest the importance of the distinction between traded and non-traded goods and services between jurisdictions and search costs within jurisdictions.

Endnotes

1. Since data of the *de facto* population are not available at the district level, districts in Barcelona are classified according to the presence of major tourism attractions in the district, the authors' knowledge of the different districts and the opinion of experts at the Observatory of Tourism of Catalonia. The inclusion of Barcelona's districts in the sample does not change the paper's results substantially.
2. A bar is a typical catering establishment in Spain and Catalonia similar to a pub or cantina.
3. Since the CPI is not computed at the jurisdiction level and the list of products included in the CPI is not disclosed publicly, it is not possible to check whether this is true in practice or whether the same products in June–July 2007 had higher prices than in November–December 2006.

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