When Differentiation Does Not Pay:

A note on the development of hotel characteristics in the Majorcan accommodation sector, 1971-1998.

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Note to Reader: This is a very preliminary paper that is designed to give the reader a basic idea of the issue and data that we wish to examine. Comments are very welcome.

JEL classification: L15, L8, D12, N93

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1. Introduction

We track the development of hotel characteristics and their corresponding prices in Majorca from 1971 to 1998. This period gives us a broad overview of the development of the Majorcan accommodation industry from its early development to relative maturation. Despite a relatively homogenous demand environment, price sensitive consumers, as well as an intensive competition we observe tremendous growth in terms of the variety of hotel characteristics over this period. Empirically, we analyze via a Hedonic Price Model (HPM) how well various product differentiation strategies enabled firms to charge relatively higher prices.

Specifically, we distinguish between three product differentiation strategies: upgrading, diversification, and divergence. Upgrading refers to hotels offering more facilities related to specific consumption activities, such as swimming and engaging in social interaction. Diversification refers to the strategy of hotels offering an increased number of packages which enable consumers to select packages according to their particular preferences.. Finally, divergence refers to hotels offering a mix of characteristics that is different from what other hotels offer. We discuss how a greater understanding of which characteristics are subject to differentiation and the timing of differentiation can be attained by respectively examining the nature of the consumption act and the developmental trajectory of the industry.

A basic hypothesis is that given the relatively homogenous, uncomplicated and growing nature of demand, hotels characteristics would tend to specialize in upgrading characteristics related to the consumption activities. However, while it would increase their ability to charge higher prices, this strategy does not enable hotels to differentiate their offerings from the competition since it is adopted by many other competing hotels. Consequently, in order to successfully differentiate their product, hotels will have to also engage in diversification and divergence strategies.

Paradoxically, our results show that both diversification and divergence had a negative impact on the average prices charged by hotels. That is, the more types of packages hotels offered and the more their facilities differed from those facilities offered

by the average hotel, the less able were they to offer a higher price. A possible explanation for the fact that these differentiation strategies do not pay off is that larger hotels were less interested in achieving higher prices but rather looked to achieve profit by increasing the quantity of packages.

The paper is structured as follows. Section 2 reviews the theory of product differentiation and highlights the different strategies by which firms may achieve differentiation. Section 3 discusses the demand environment faced by the Majorcan accommodation sector and shows how insights into the nature of the consumption activity can be used to study which hotel characteristics would be subject to intensive differentiation over time. We then empirically investigate how these differentiation strategies impacted the average price offered by hotels in a HPM model presented in section 4. Section 5 concludes.

2. Variety growth and product differentiation

A significant feature of developed economies is the large variety of products and services available on their markets. This feature reflects the fact that over the course of industrialization, the consumption patterns of ordinary workers have transformed themselves beyond recognition and enveloped an immense variety of new goods and services (Lebergott 1993). In mainstream economics, this variety is typically seen to be the result of product differentiation strategies by firms. Product differentiation is a process by which producers attempt to distinguish their product from the competition. As Chamberlain notes, there are indeed many ways in which differentiation can occur (Chamberlin 1933:56):

"…. A general class of product is differentiated if any significant basis exists for distinguishing the goods or services of one seller from those of another. Such a basis may be real or fancied… Differentiation may be based upon certain characteristics of the product itself, such as exclusive patented features; trademark…It may also exist with respect to the conditions surrounding its sale. In retail trade, to take only one instance, these conditions include such factors as the convenience of the seller's location, the general tone or character of his establishment, his way of doing business, is reputation for fair dealing, courtesy, efficiency, and all there personal links which attach his customers either to himself or those employed by him. In so far as these and other intangible factors vary from seller to seller, the "product" in each case is different, for buyers take the into account, more or less, and may be regarded as purchasing them along with the commodity itself. When these two aspects of differentiation are held in mind it is evident that

virtually all product are differentiated, at least slightly, an that, over a wide range of economic activity, differentiation is of considerable importance,"

In Chamberlain's model of imperfect competition, preferences refer to the set of all goods. The classical assumption of quasi-concave utility function implies that the consumer has a taste for variety, in the sense that all goods are purchased by each consumer and her utility is higher, the higher is number of products purchased.[1] Demand is assumed to be homogenous and is modeled via a representative agent. Each firm is a monopolist producer of a distinct good and faces a downward sloping aggregate demand curve. However, it is not monopolistic on the industry level, where an industry is defined as a group of firms with a similar cost structure and whose products have a degree of substitutability. The presence of positive profits in the industry, together with the absence of entry barriers, attracts new firms to enter the industry with a new variant. This leads to a decrease in the residual demands for incumbent firms. When the demand is tangent with the average cost curve, price is equal to marginal cost and marginal revenue is equal to marginal cost: the profit for firms and thus for industry is zero, thus entry stops and is the industry reaches equilibrium. As such, differentiation tendencies are constrained by the degree of product substitutability, the fixed cost of production, and the market size.

At the same time, there is something paradoxical about assuming that demand is homogenous when discussing product *differentiation.* Address models relax this assumption, which date back to the seminal paper by Hotelling (1929), "Stability in Competition"**.** He assumes preferences are distributed across variants of the good. Consumers can rank them and will buy the one that best fits their preferences. They have heterogeneous preferences and, therefore, rank the varieties of products differently. In order to depict these assumptions, Hotelling describes a model where firms compete on more than one characteristic: for instance, in his paper, they compete on location and price. The model introduced a single dimensional space, a street for instance, where firms can locate to sell their products. The products, although homogenous, differ for the consumer in terms of location. Consumers are uniformly distributed along the street and they have to bear transport cost to reach the location of a firm.

[1] In this body of literature, the most popular contributions are **Dixit and Stiglitz (1977) and Hart(1985) Perloff and Salop (1985).**

More recently, a new body of work has emerged which examines the link between variety growth and technological change (Saviotti and Metcalfe 1984). The general motivations for this work stems from the notion in evolutionary economics that a chief driver of economic growth is the accumulation of knowledge. Knowledge is accumulated by entrepreneurs, firms and industries and embodied in new technologies *vis-à-vis* new products and services. This process is ultimately what is responsible for innovation and the growth of variety in products of services (Schumpeter 1934). Saviotti and Metcalfe utilize Lancaster's insight that a commodity (either a product or service) is not desired for its own sake, but rather it is desired because of the bundle of attribute or characteristics which it offers. They enrich this analytical framework by distinguishing between the 'technical characteristics' and 'service characteristics' of the product. This allows them to study the processes through which technological progress (change in technical characteristics) has impacted the variety growth (change in service characteristics).

At the same time, while this approach utilizes a new type of demand analysis, its emphasis on technological change means that it has advanced without saying much about demand itself. The demand side is not insignificant in the evolutionary economic approach given that it forms the so-called 'selection environment' in which new characteristics and innovations are introduced (Andersen 2004). However, ever since the seminal work by Mowrey and Rosenberg (1979) which points to real difficulties in identifying the impact of demand on innovation processes, researcher have tended to treat the demand environment as an exogenous factor, a type of parameter constraint on innovation that can not be ignored but neither be properly analyzed.

Nevertheless, just as standard price theory needed to discover some regularities in the nature of market demand to model equilibrium price (i.e. the law of demand), so too does an evolutionary theory of product characteristics require some observations of the nature of demand for characteristics to gain a proper understanding of how characteristics evolve. Here Andersen notes that a major problem is that there are a huge number of characteristics that are of potential relevance to any buyer of the good. For instance, the 'performance' of computers may be split up in a near-infinity of characteristics (Andersen 2004). Starting from Simon's notion of bounded rationality, Earl suggests that it is likely that they express their preferences for goods in terms of lexicographic

orderings of the characteristics (Earl 1986). This means that consumers select the variant of a good that is best with respect to the most preferred characteristic. If two variants are equal with respect to this characteristic, they base their choice on a secondary characteristic, and so on. In this way buyers economise their limited amount of attention on a few crucial characteristics.

The chief implication is that given some degree of uniformity between consumer orderings, supplier's competition would focus mainly on providing these few crucial characteristics rather than other, less relevant characteristics. Secondly, these orderings reveal there are two potential ways in which one can account for consumers demanding higher 'quality' (and more expensive) products, which is a stylized fact of market growth. On the one hand, in what we dub demand 'diversification', the demand for higher quality products may translate into an extension of the ordering over the set of available characteristics. For example, rather than judging a car only in terms of fuel efficiency and speed, consumers may begin to consider a new aspect of the car, such as car safety. On the other hand, in what we dub demand 'specialization', higher quality products may be demanded given that consumers have changed via cognitive learning the criteria by which they select the variant of good with respect to a particular characteristic (Witt 2001). For instance, consumers with accumulated experience in driving cars may no longer be satisfied with a 55 horsepower engine in their car, but rather may begin to demand a 57 or 58 horsepower engine.

This simple distinction between what 'specialization' and 'diversification' of consumer preferences, can have a large impact on how industries evolve. In industry studies, the set of stylized facts about industry development known as the Industry Life Cycle (ILC) suggests that product differentiation is more likely to occur in phases of industry development before a dominant design emerges (Tether et al. 2001). This is especially the case for industries which are scale intensive and face relatively homogenous demand conditions. Others have also pointed out that after the emergence of dominant design and shakeout, markets may undergo a process of "dematuration" whereby the standardized product is adapted to particular needs of consumer sub-groups (Clark 1985). More recently, it has been argues that if demand is sufficiently heterogeneous, the life cycle may be characterized by a distinct market niches, each with

its own dominant design, rather than market convergence to a single design (Windrum 2005). In both cases, demand heterogeneity which impedes or leads to the break up of a dominant design is generally more consistent with demand 'diversification' since this implies a selection environment in which firms are able to successfully sell variants of goods that are distinctly different from each other in terms of the characteristics they possess. Of course, in some circumstances, it may be the case that heterogeneity is achieved via the performance of characteristics, as there may be relatively large difference between what consumers consider to be sufficient performance in one particular characteristic, (e.g. novice versus expert consumers) (Adner and Levinthal 2001).

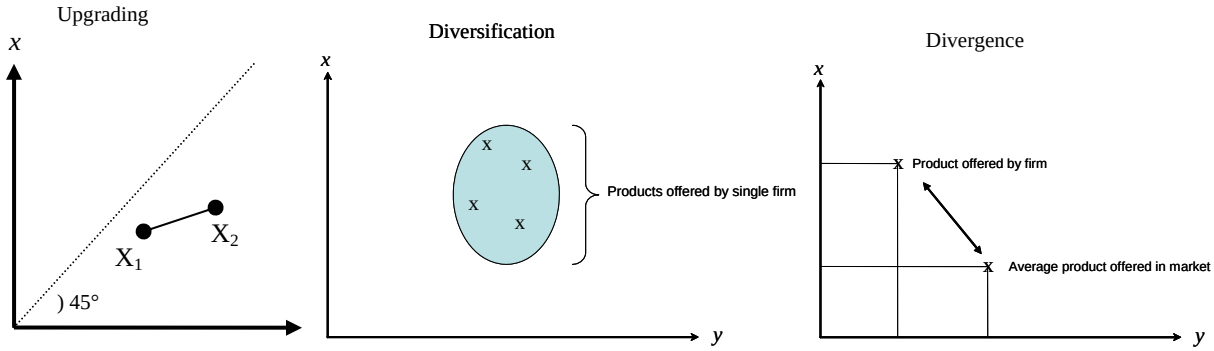
All in all, these contributions call for a more nuanced approach to understanding the timing and nature of product differentiation by taking into account more on the nature of the industry and how products are used in the consumption act. In the following paper we therefore examine three specific types of product differentiation strategies (as illustrated in figure 2 below):

Upgrading: Firms may differentiate their product by relatively increasing how much of a characteristic the product offers with respect to the other characteristics. For example, a characteristic of a holiday may be the type of sporting activities a consumer undertakes. Thus by increasing the number of sport facilities a hotel can offer, keeping everything else equal, they are able to differentiate their product from other hotels which offer relatively little sporting facilities. Of course, as mentioned above, which facilities belong to the same category is uncertain and depends on the subjective perceptions of individual consumers.

Diversification: firms may also differentiate their product in giving consumers not a single mix of characteristics, but rather a choice of characteristics from which they may choose. As such this strategy increases the characteristics space in which a product is offered. As such, firms which enable consumers to choose from a larger mix of characteristics may successfully differentiate their product from other firms which only offer a single fixed mix of characteristics (see figure 2.2).

Divergence: On the industry level, another way of measuring differentiation is by measuring the relative distance between the product characteristics offered by one firm versus those offered, on average, by other firms. Please note that while specialization and diversification are a measure of product differentiation internal to the firm boundaries, divergence is relative to other firm's behavior.

Figure 2: Various Product differentiation strategies in the Lancaster Space.

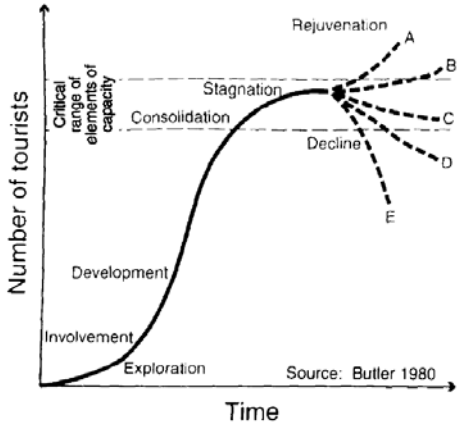


3. Variety growth in the Majorcan accommodation sector

A particularly interesting context in which to examine the influence of demand on the evolution of product characteristics is the growth and development of tourist regions. The tourist industry is one of the fastest growing industries of the 20th century (Clancy 1998). It has been estimated to contribute US$ 3.3 trillion (11%) to global GDP and employs an estimated 207 million workers worldwide (representing 8% of all jobs). In the tourism literature, the destination life cycle is a popular analytical framework used to examine the evolution of tourist destinations (see figure below). It charts the stylized development of destinations in terms of a series of stages defined by the change in the number of tourist visitor and infrastructure level (Agarwal 1997). The growth of tourism visitors typically grows in an S-shaped manner, with some saturation limit signifying at the end point where the number of visitors reaches a maximum, after which there many destination experience a decline, whilst others enjoy second growth phase depending on a number of

conditions. Along this growth path the type of consumers who visit the destination changes significantly. In the exploration stage only a small number of 'adventurous' tourists visit, but over time, along with the development of infrastructure, a larger number of tourists composed of mainly family-orientated consumers begin to dominate (Butler 1980). On the supply side, tourism infrastructure steadily consolidates itself in the form of a growing accommodation capacity, the emergence of tourism-orientated small enterprises, and rising public infrastructure (e.g. parks and transport facilities).

Figure 3: The destination life cycle



An interesting feature about this observed set of stylized fact point to a type of co-evolution of supply and demand, where a change in the infrastructure is accompanied by a change demand. Intriguingly, it seems to suggest certain constraints to economic growth that emerge endogenously as a result of the interplay between infrastructure development and consumer preferences: Because of infrastructure growth, the type of consumers which the destination may attract changes, leading to a slowdown in visitor numbers and hence a slowdown in growth. Notwithstanding the observed limitations of this have been emphasized both in conceptually based critiques (Haywood 1986; Prosser 1995; Wall 1982) and in case study applications (Bianchi 1994; Getz 1992; Hovinen 1982; Russell and Faulkner 1998), many conclude that the destination life cycle concept provides a useful framework for research that seeks to enhance understanding of development processes and their implications (Agarwal 1997).

Here Majorca, a popular tourism destination since the 1960s, has been seen by many to be in a stagnation period since the 1990s (Morgan 1998). According to Priestly it

faced the following problems: in spite of an increase in the price-quality ration, bad quality public infrastructure had aged and run into fundamental problems, accommodation was old and obsolete, there was downturn in investment on a local level, and natural resources such as beaches and coastal areas were deteriorating due to overuse (Priestly and Mundet 1998). Furthermore, changes in consumer habits seemed also to casue problems for this tourism regions, as a new type of tourist emerged, described as independent and experienced, with a respect for the environment, and demanding certain levels of quality ink eeping with the price of the service provided (Poon 1993).

At the same time, looking at the long rung trend in international arrivals (Figure A), we can observe a near exponential increase in the number of visiting tourist between 1960 and 2000. Indeed Aguilo et. al. argue that far from being in stagnation, Majorca enjoys a very stable demand environment, with extensive surveys revealing a high number of repeat visitors and a good level of tourist satisfaction (Aguilo et al. 2005). These authors argue that Majorca managed to avoid stagnation by consistently improving the 'quality' of its accommodation. In particular a radical reduction in the number of lowest quality hotels (one and two star hotels), and a rise in the number of three, four and five star hotels has lead to the overall maintenance of the regions viability as a tourist destination (Aguilo et al. 2001:226). This argument is supported by our own analysis of the evolution of the price distribution, which shows tremendous change in the higher end of the market (Figure D).

Given that the Majorcan accommodation sector in particular has been singled out as a critical factor in the region's contemporary development, let us investigate how precisely the characteristics of Majorcan hotels changed over time. In particular, it is worth examining whether hotels pursued the specialization or diversification strategies mentioned in the previous section. In terms of the demand side, survey data suggests that hotels face a relatively homogenous and stable demand environment (Aderhold 2000). In the latter, survey data in figure C reveals a relatively stable pattern of activities which are strongly focused on a core set of holliday activities. In terms of what types of tourists visited and the types of activities they engaged in, By far, the most popular activity was to go swimming and get a sun tan, which was undertaken by around 90% of those

surveyed.[2] Less frequent but still significant were a number of active (walking, visiting attractions) as well as non active activities (reading, talking). It is plausible that these results reflect the fact that most consumers indeed had a lexicographical ranking of preferences over hotel characteristics. Concerning income groups, the large majority of those traveling are in the middle to high income groups, with combined household income more than 3000 Deutschmarks per month (see figure B).

Furthermore, the large majority of these visitors used "all inclusive" holiday packages that usually included, but not limited to, transport and accommodation. Due to the scale intensive nature, these packages are relatively cheap, and also require little organizational effort and knowledge on the part of consumers. Many of these rely on special deals with the accommodation sector, where only particular dates are available for a set period (e.g. at least 7 days). Moreover, given that such packages rely on excess capacity in hotels and the ability to 'bulk-buy', destinations are limited to where the accommodation sector is well-established (Papatheodorou 2004).

As such, the market conditions faced by hotels are characterized by rapid growth and dominated by tourists using cheap and convenient holidays who seek mainly non-active, rest and recreation experiences. In terms of what how hotel characteristics will evolve with the growing competition and market size, the homogenous natures of demand and their lexicographical ranking of accommodation facilities clearly seems to suggest that competition would focus on two or three core characteristics, such as the distance from beach, providing a hotel swimming pool, restaurant and sun terrace. As shown in figure E, evidence for a dominant design can be seen in that certain types of creative characteristics have been adopted by the entire hotel population, such as swimming pools, restaurant and bar facilities.

However, against expectations, there seems to have been an explosion in hotel characteristics over the growth period, suggesting hotel engage in the diversification strategy. Consider the following simple list of hotel characteristics advertised in the TUI travel catalogues between the years 1971-1998:

Terrace	conf. room	Sauna	reading room	Lift
swimming pool	water sports	BBQ	German mgt.	table tennis

[2] Other survey results also confirm this general pattern of tourist activity (Espinet et al. 2003).

Telephone	Boutique	Restaurant	horse hire	fashion show
Bar	Hairdresser	Gym	television	playground
Satellite TV	fitness courses	Recreational room	boat hire	billiards
Cafeteria	Solarium	Playroom	cinema	Tennis court
Garden	beauty farm	Volleyball	golf course	air condition
Salon	Kindergarten	Mini golf	wellness	indoor pool
distance from beach	Disco	Stars	Bowling	Radio

What can explain this growth variety that occurs in the face of homogenous demand? A possible explanation is that the standardization of relatively important facilities makes it increasingly hard for hotels to be able to differentiate their services from each other. Standardization leads consumers to become familiar with and habituated to hotel characteristics. Consequently, alternative characteristics, such as fashion shows, tend to emerge which are relatively exclusive and are not possessed by all hotels (figure E). From a behavioral perspective, the tendency for consumers to become habituated to standardized characteristics is of particular concern in the context of recreational consumption, since aspects of the consumer demand for entertainment can be understood in hedonic terms as a novelty-seeking exercise (Scitovsky 1976). Because the novel nature of characteristics tends dissipate with prolonged exposure, hotels must periodically introduce new characteristics to replace existing characteristics. This may explain the fad-like manner in which certain characteristics diffuse rapidly through the hotel population only to disappear again, such as hairdressers (Friseur) and solariums. As such we can expect to see some degree of continuous turnover in the entertainment-related characteristics feature at resorts.

However, a question that remains open is whether such differentiation enables hotels to charge higher prices, given the homogenous nature of demand. Thus while these new characteristics may function to differentiate hotels, do consumers ultimately have a higher willingness to pay for such novel characteristics?

4. Data analysis

In the last section we have discussed how differentiation took place in a specific set of hotel characteristics. In this section we investigate whether differentiation enable hotels to charge higher than average prices via the Hedonic Price Model method. It calculates how sensitive the sensitivity average price of the hotel changed with the characteristics.

The hypothesis underlying this approach assumes that a good could be considered as a bundle of attributes and that there is a function (hedonic function) that explains the price as function of those attributes. This approach is perfectly consistent with the Lancastrian approach of a product being a bundle of characteristics suggested before. Secondly, as Rosen (1974) highlighted, the hedonic function is determined by both the buyer's distribution preferences and seller's strategies' choice. The basic model with linear hedonic function can be described as follows

$$\overline{p} = \overline{\beta} X + \overline{\varepsilon}$$

where p is the m dimension vector of price, X the matrix of the k covariates and ε the error term.

In order to perform this analysis we used an original database collected from the TUI catalogue. The originality of this data collection consists of the fact that for each hotel we can observe, over a period of almost two decades, the characteristics of the various packages it is offering. Thus, this database is suitable to analyze the impact of various differentiation strategies. Here the dependent variable used is the price. We considered for each hotel, prices of all its packages and we use the mean corrected for inflation. Due to the high skewness of this variable we then calculate the logarithm, as often done in hedonic price literature.

Concerning the explanatory variables, we face the common problem that it is not possible to run the regression for the entire hotel characteristics, since there are simply too many to calculate (Espinet et al. 2003). While some researchers tend to drop all but a handful of characteristics, this move tends to ignore the fact that many of the characteristics are closely related to each other in that they serve the same underlying consumption activity. For example, a mini golf course and a tennis court tend to serve the same underlying consumption activity for active sport. In order to recognize the consumer may specialize in offering specialize, we aggregate dummies into the following indicator categories, taken from figure C:

1. Swimming, sunbathing: swimming pool, indoor pool, solarium, sun-terrace

2. Sport: golf, tennis court, gym, water sport, table tennis, horse and boat hire
3. celebrating, dancing: bar, disco, restaurant
4. reading watching tv: Reading room, television, cinema
5. Cultural activities: fashion show
6. Social interaction: café, hairdresser, boutique, garden

For each hotel, the indicator value was calculated by dividing the number of category characteristics each hotel possesses by the total number of category characteristics. Hence if a hotel possesses a disco, but not a bar or a restaurant, then its indicator value for this category is 0.33 (1/3). This allows us to calculate how specialization in the above consumption categories tended to impact the average hotel price. Note that this method weights each of the characteristics equally such that bars and restaurants increase the hotel's appeal in this category equally. Unfortunately, there is no information about how each characteristic allows proper calibration. Also, note that the categories are mutually exclusive, such that no two categories possess the same characteristic. The 6 characteristic define the product in a 6 dimensions space and, over time, describe the path of **upgrading** of each hotel.

As noted in the theoretical section, we are interested in observing not only vertical differentiation but also both diversification and divergence behaviour over time. The rich data collection provides information on packages for each hotel. This information is used to calculate the proxy of the **diversification** conceived as the degree of variety in the offer of each single resort. Variety is measured through the use of an entropy index. The use of entropy is widely accepted to measure diversity (Theil, 1972) and has been recently suggested as measure of industrial concentration (Kodama, 1990; Frenken, 2004). The entropy statistics H for a firm is:

(1) $$H = \sum_{i=1}^{n} p_i \log_2 \left(\frac{1}{p_i} \right)$$

(2) $$p_i \log_2 \left(\frac{1}{p_i} \right) = 0 \qquad \text{if } p_i = 0,$$

where p_i is the observed probability of having a peculiar characteristics *i* in the range of the packages of a single hotel. This methodology was employed to calculate the variables div_people (diversification in the number of people per room per hotel), div_food (diversification in the type of meal) and div_binary, which takes into account all the possible options described as dummy variables and varying within hotels.

On the other hand, **divergence** has been calculated as Euclidian distance from the centroids, that is the geometrical centre of an entity in n-dimensional characteristics space. The n-dimensions are given by the six groups of characteristics. Is should be noticed that the Euclidian distance is always a positive number and, thus, it does not take into account the direction of the divergence, which is already captured by the diversification. Given the importance of the location for a hotel, as measure of divergence, we also used the percentage of competitors in the same bay of the island. A hotel is said to be diverging from others when in a more isolated location.

Together with these variables we use other covariates, as control variable. The stars-category is employed as a continuous variable in order to avoid the use of dummy for stars. There are many latent characteristic not explicitly described in the catalogue and stars-category should act as a residual explanation. The number of beds captures the size of each hotel and distance from the beach is widely acknowledged in the literature to have an important explanatory power in the variation of sea tourism resort prices. Figure F in the appendix summarizes the descriptive statistics for each variable.

Table G

Variables	Coefficient	Rob St. Err
party&dancing	0,2735*	0,1052
swimming&sun	0,5039***	0,1234
sport	0,551***	0,1866
social interaction	0,2288	0,1565
reading&television	0,3452**	0,1227
cultural activities	-0,1854	0,2805
divergenge	-0,4378**	0,16993
div_people	-0,0238	0,0412
div_food	-0,0551	0,0458

div_binary	0,1058	0,07028
dummy_breakfast	0,6357***	0,1005
dummy_lunch	0,5932***	0,0734
competition	-1,6605**	0,6833
stars	0,9788***	0,2494
distance_beach	1,73e-07***	9,28e-08
size	-0,002***	0,0001
dummy_95	0,88211***	0,0821
dummy_98	1,0788***	0,0976
constant	4,881846***	0,24399

Number of observation: 275
F-statistics: 416,01***
R-squared: 0,79
1% level of significance***, 5%**, 1%*

Table G shows the preliminary results of this investigation.

Note that we do not explore the time dimension of the dataset for two reasons. First, the panel is very unbalanced and every year the hotels in our sample are different from the year before. Secondly, the distribution of observations across years is very skewed with 42,6% of the observations in the last two years. Therefore we run a regression adding dummy variables for years 95 and 98. Also, due to the lack of the time dimension, results do not suffer from autocorrelation. However, the year is an additional source of heteroskedasticity in the variance-covariance matrix. For this reason we run the regression with robust standard error. The F-test is rejected and the coefficients have an explanatory power statistically different from zero.

The results reveal that almost all the coefficients of the upgrading variables, defining the hotel position on the dimension space, are positive and significant with the exception of “Kulturelles” and “Gespräch”, which are not significant.

None of the three diversification variables are significant, while both the coefficient divergence variables are significant and negative. Stars and dummy variables for years are significant. The behavior of the significant upgrading variables is not surprising. The more a hotel is offering a specific characteristic, the higher the price it can charge. On the other hand, the small value of the parameters is surprising.

Furthermore, diversification strategies seem not to have a significant on price. The positive (or negative) impact of a variables in an hedonic price analysis is partly

explained by willingness to pay consumers for a specific characteristic, but also by increased production costs. Producing more variety, that means a less standardized good, should increase costs. However, part of the hotel industry, especially the one concerning the offer of packages in catalogues, can be considered as a service and, therefore, it might show a different structure in the cost of producing variety than in the manufacturing industry.

A second but not trivial result of the analysis is that divergence variables not only show a negative and significant coefficient but also a high value. This result is unexpected if we interpret the industry within both the usual Hotelling and imperfect competition framework. In Hotelling types of models, where price and distance form the centre are strategic complements, that is they should be positively correlated. Similarly, a higher concentration within a precise location of the island should have a decrease in price. However, in our case the explanation of the result should not be found in the strategic interaction of firms, but rather in the distribution of demand preferences. Traditional models assume that demand is uniformly distributed in the characteristics space, while we know that, for tourism in Baleares island, this is not the case. Tourists only want a few things and want them all. This analysis shows that for a hotel it is not profitable to offer something different or in a different location. Crowded beaches with parties, bars, discos, and restaurants are the dominant design consumers are looking for. Offering these services is a necessary condition for being in the market and not a strategic advantage. This also explains the small coefficient of the diversification variables. Moreover, each attempt of moving from the dominant design is punished by consumers.

Hotels are thus similar, differing only in the vertical quality of their product. All of them have a swimming pool, restaurant and bar, and only the quality, elegance, and exclusivity of the resort can be different. This is captured not by the description of the characteristic in the catalogue but by the stars, and mainly by the price itself.

5. Conclusion

This paper empirically investigated how variety in hotel characteristics developed during the growth of the Majorcan accommodation sector. While in many cases this

differentiation process is undoubtedly motivated by strategic competition between firms, the results in this paper show that in the face of a growing, price sensitive and homogenous demand environment, there is a negative relationship between particular differentiation strategies and the average price. In particular the further away firms are from the average characteristics offered by the market (divergence), and greater is the number of products an individual firms offers, the lower is the average price they may charge. For a better understanding of how product differentiation takes place in markets, empirical research must also focus on the consumption context in which a product is used in order to understand in which dimensions differentiation occurs.

Appendix

Figure A: Number of passengers, Palma airport 1960-2000 (total arrivals and departures)

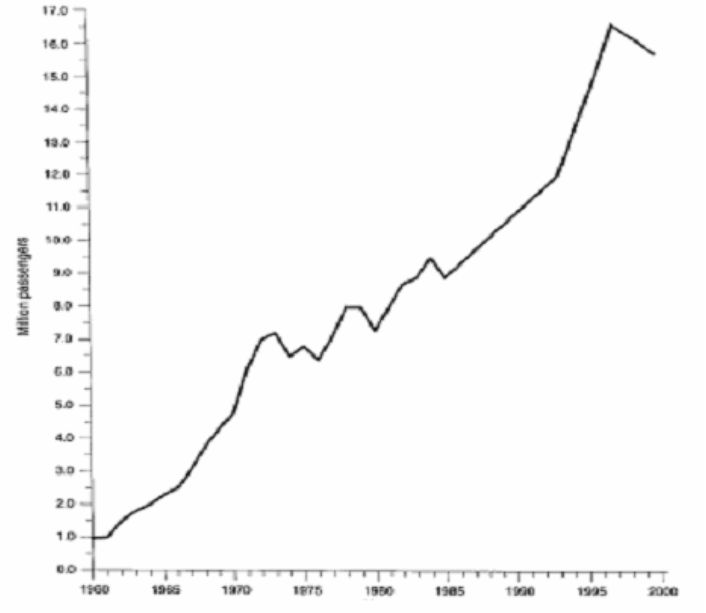
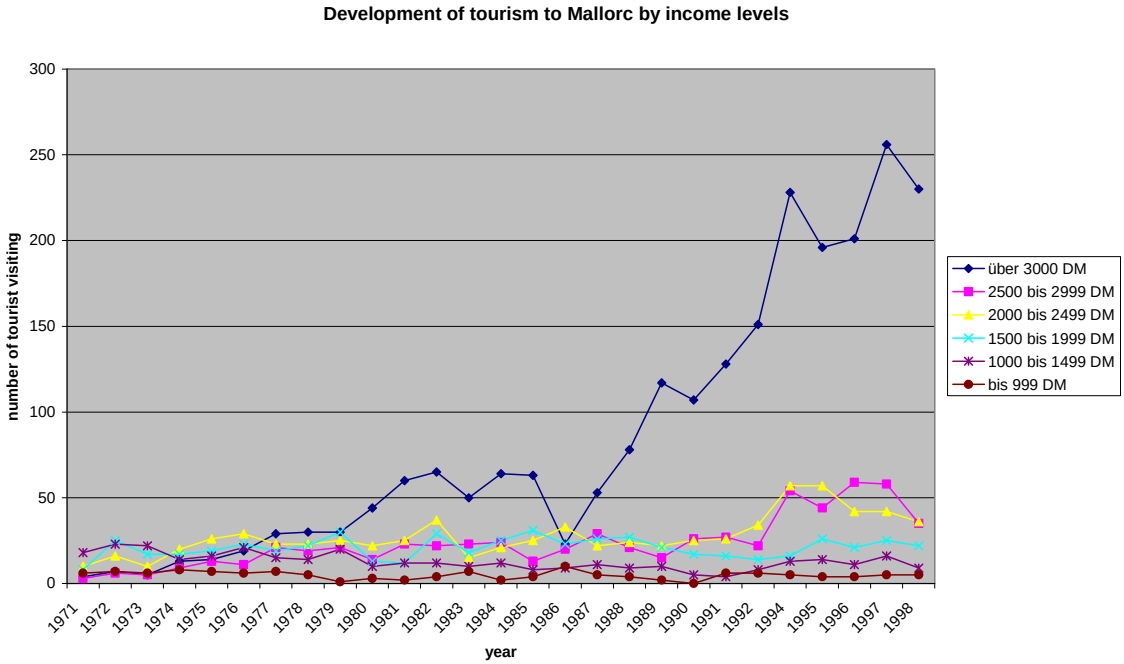
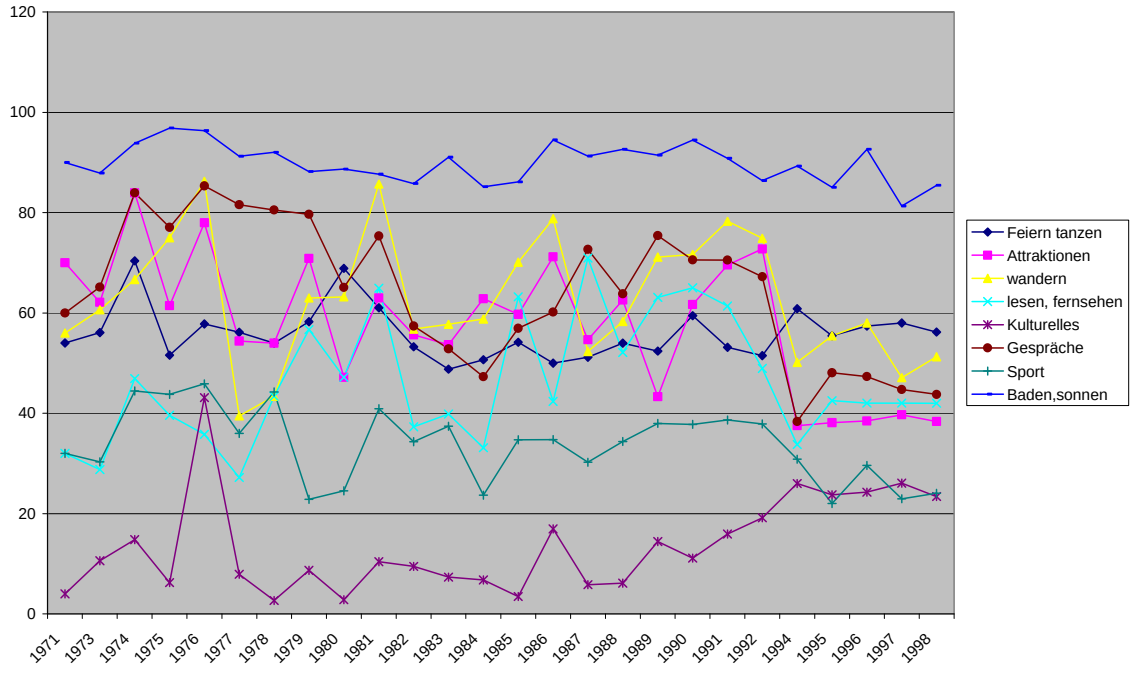


Figure B: Growth of tourism by income group



Source: (Forschungsgemeinschaft Urlaub + Reisen e.V. 2006)

Figure C: observed frequency of consumption activities



Source: (Forschungsgemeinschaft Urlaub + Reisen e.V. 2006)

Figure D: Evolution of price distribution for hotel price in Majorca, 1970-1998

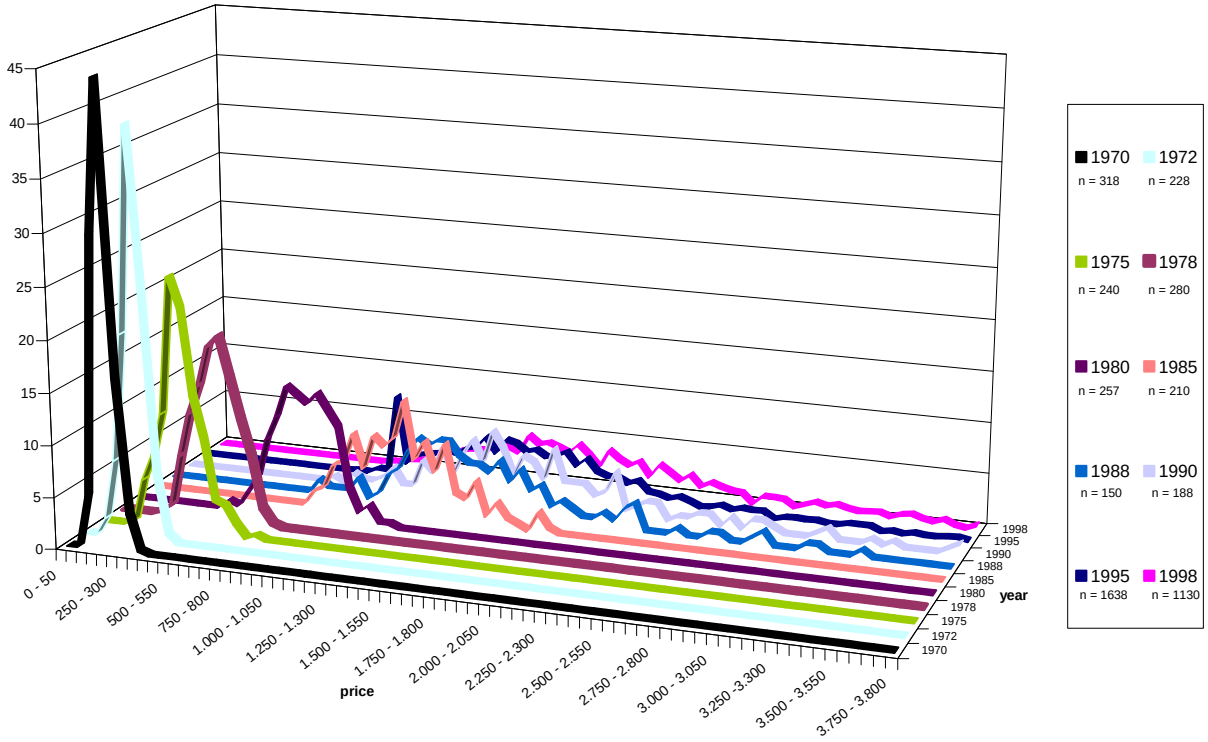


Figure E: The % of hotels with observed characteristics 1970-1998

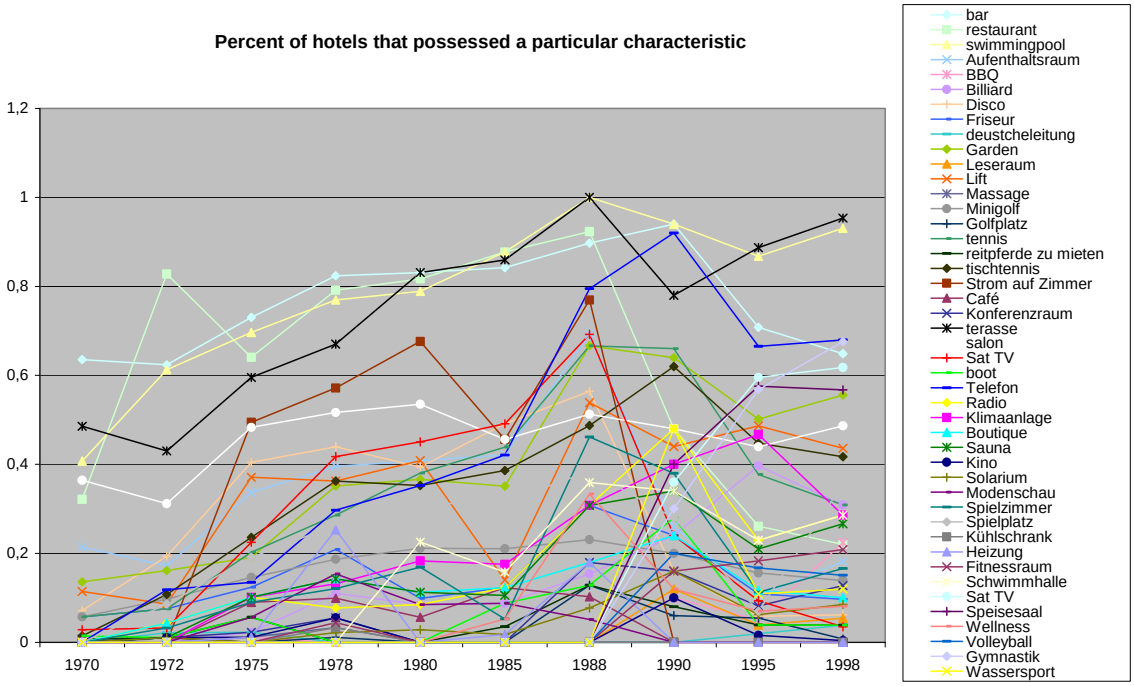


Figure F Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Std. Deviation
stars	555	0	5	1,085
Distance from Beach	524	0	10000	131399,493
size	358	5,00	1800,00	244,45812
LOGPRICE	555	4,462108	7,803420	,848626774
div_people	555	0	3	,580
div_food	555	0	2	,571
div_binary	555	,421598	3,610546	,333496702
party&dancing	555	0	1	,295
swimming	555	0	1	,245
sport	555	0	1	,155
socialinteractions	555	0	1	,179
reading&tv	555	0	2	,230
cultural	555	0	1	,091
dummy_fr	442	0	1,00	,40966
dummy_halb	442	0	1,00	,49624
dummy_voll	442	0	1,00	,47843
divergence	555	0	1,394921	,179345472
Competiton	555	,000611	,162500	,040960579
dummy_98	555	0	1,00	,29166
dummy_95	555	0	1,00	,45984
Valid N (listwise)	275			

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