

**THE FREE BREAKFAST EFFECT:  
AN EXPERIMENTAL APPROACH TO THE ZERO PRICE MODEL IN TOURISM**

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**ABSTRACT**

This article presents the first evidence of the zero price effect in tourism. The multi-component nature of tourism products adds complexity to the price-setting process, but also allows managers to take advantage of the interrelationships among the different components to maximize sales. Taking the zero price model, we adapt and apply it to a two-component tourism product. The experiments conducted show evidence in favor of the free breakfast effect: even though people lean towards their preferred, more expensive alternative, when the cheaper option offers a free breakfast, the demand for the latter increases and for the former it decreases. This result shows that the zero price effect is not only confined to single products but also applies in multi-component contexts. Important managerial implications in the realm of sales promotion policies are drawn.

**Key words:** zero price model; free breakfast effect; product bundling; tourist decision.

## 1. INTRODUCTION

Based on the difficulties in finding an appropriate measure of price, a correct way of modeling it and meaningful estimates of its effects, Crouch (1994; p.13) describes the issue of price when analyzing tourism demand as “particularly vexatious” -although he admits that it is a necessary component and well rooted in Economic theory-. Certainly, the analysis of price is one of the trickiest issues to deal with in tourism, and the hardest decision to make in the marketing mix on account of the perishable nature of the product, the increased price transparency, the volatility of the market, the dependence on high sales volumes, the existence of high fixed costs, region-specific price regulations, psychological aspects of price, let alone the implications that any price modifications may have on tourism demand (Cooper et al., 2008; p.589).

And as if this were not enough, due to the multi-component nature of tourism products, the price-setting decision becomes more complex on account of the several sub-decisions needed to set the individual price of each component. In this regard, the bundling strategy (in any of the existing forms: pure component (unbundling), pure bundling and mixed bundling) has always been a common strategy in tourism, together with the typical non-linearity responses to the price of a component included in a bundle (Abe, 1998; Kim et al., 2009). According to Abe (1998), the analysis of the price factor in the realm of packaged goods and services provides marketers with distinct advantages. Note that identifying non-linear responses to the price of a product included in a package can help managers make efficient decisions. Evidence of non-linearity in price responsiveness is well-established in the literature and, in Abe’s terms, knowing the ‘twists and turns’ resulting from people’s subjective price perceptions provides valuable knowledge to help design and implement efficient promotional programs for packaged goods. This statement is especially relevant today, as the tourist can self-build the combination of complementary travel products on

his/her own (Beldona et al., 2005), from the simplest aggregation of components such as “booking a room plus breakfast in a hotel” to the most complex like “booking a multideestination trip with multiple accommodations and transportation modes”.

In this article, we focus on the simple decision of booking a hotel room with or without breakfast in order to analyze and test the zero price effect in tourism. This is an interesting, recently found effect through which a free product can become so extraordinarily attractive that another much more preferred alternative is foregone by individuals. This effect has very important managerial implications for multi-component tourism products because fixing a zero price for a specific component (e.g. breakfast) included in a product (e.g. hotel room plus breakfast), can abnormally raise the demand for the product even though another hotel is the preferred option. In fact, the pioneers of this effect recommend further research in contexts in which there may be multiple dimensions that can take place separately but are consumed together and suggest that the effect in this case may be more complicated but more relevant (Shampanier et al., 2007). Taking this suggestion, we adapt and apply the zero price model to tourism.

To do so, we rely on experimental economics to analyze this issue of behavioral economics. Thus, the article applies experimental methods to examine this economic question so that outside influencing factors are eliminated. Note that, as recently as a few years ago, Ariely and Norton (2007) suggest that the relationship between experimental economics and psychology is still in its infancy; when it comes to tourism research, it is in its embryonic stage. The link between experimental economics and psychology should be reinforced in tourism research as the shared topics of interest are fundamental for public policy and welfare (Ariely and Norton, 2007) and they are core elements in destination management.

In order to fulfill this objective, the remainder of the paper is arranged as follows: The second section adapts the zero price model to a two-component tourism product, and third

section presents the experiments to test the free breakfast effect along with their results; and the fourth section summarizes the conclusions.

## **2. THE ZERO PRICE MODEL IN A TWO-COMPONENT TOURISM PRODUCT**

Shampanier et al. (2007) show that when people have a choice between two products, one being free, they favor the free product because zero price not only conveys the idea of no-cost but implicitly adds extra value. They explain this result by empirically demonstrating that a higher positive feeling (affect) arises when people face free offers; an affect that in turn is used to make their decisions. In fact, when they eliminate it from the decision-making process, the zero price effect disappears. They suggest that positive feeling towards a free offer comes from the fact that it only implies benefits and not costs; another offer with a positive price, no matter how small it is, always conveys both benefits and costs.

The question is: is this affect retained when a multi-component product has a positive price but one of its components is free? If the answer is yes, the implications for tourism firms, most of which operate with multi-component products, would be extraordinarily relevant when proposing promotions. Note that a free component would lead people to favor a product that is not the preferred option, and this would happen only because the price of the component is zero; in fact, even if this price were negligible, but distinct from zero, say €2, this shift in preferences would not take place.

Mirroring Shampanier et al.'s (2007) procedure, to examine whether individuals positively overreact to products with a free component, we test whether they opt for these products with greater intensity when the component is free than when it has a low price, in a context in which they are forsaking an alternative that they regard as preferable, and whose price has also fallen by the same amount as the free component. This contextual preference condition is necessary in order to dismiss the mere fact that the increase in demand from the low price to the zero price is no more than a consequence of price reduction.

In order to adapt the zero price model to our multi-component context, let us consider an individual visiting a city and observing the promotions of two hotel alternatives<sup>1</sup>: hotel  $M$  with value  $V_M$  and price  $P_M$ , and hotel  $I$  with value  $V_I$  and price  $P_I$ . The individual will choose hotel  $M$  if and only if  $V_M > P_M$  and  $V_M - P_M > V_I - P_I$ . As breakfast in hotels is generally optional, we break down the value and price of each alternative into room ( $r$ ) and breakfast ( $b$ ) value and price:  $V_{r_M}, V_{b_M}, P_{r_M}, P_{b_M}$  for hotel  $M$ , and  $V_{r_I}, V_{b_I}, P_{r_I}, P_{b_I}$  for hotel  $I$ .

Let us assume that the value of the room and breakfast is simply additive in a simple linear fashion<sup>2</sup> and that hotel  $M$  is the preferred alternative for most individuals in such a way that, according to the inequalities stated in the previous paragraph we have the following:

$$V_{r_M} + V_{b_M} > P_{r_M} + P_{b_M}$$

$$V_{r_I} + V_{b_I} > P_{r_I} + P_{b_I}$$

and, assuming that consumers are rational, they will choose hotel  $M$  over hotel  $I$  if:

$$(V_{r_M} + V_{b_M}) - (P_{r_M} + P_{b_M}) > (V_{r_I} + V_{b_I}) - (P_{r_I} + P_{b_I})$$

$$(V_{r_M} + V_{b_M}) - (P_{r_M} + P_{b_M}) > V_{r_I} - P_{r_I}$$

$$V_{r_M} - P_{r_M} > (V_{r_I} + V_{b_I}) - (P_{r_I} + P_{b_I})$$

$$V_{r_M} - P_{r_M} > V_{r_I} - P_{r_I}$$

If there is an equal reduction  $\varepsilon$  in the price of the breakfast in both hotels, one would expect the more expensive alternative to increase its share, i.e. those selecting the expensive hotel  $M$  will continue doing so, and more people, among those who were opting for the cheaper hotel  $I$ , will find hotel  $M$  more affordable. This leads to the following inequality:

$$\text{Inequality 1: } (V_{r_M} + V_{b_M}) - (P_{r_M} + P_{b_M} - \varepsilon) > (V_{r_I} + V_{b_I}) - (P_{r_I} + P_{b_I} - \varepsilon)$$

However, according to the zero price model, when the reduction in the price of breakfast in both alternatives is equal to the lowest price,  $\varepsilon = P_{b_I}$ , the breakfast for *I* becomes free, increasing its intrinsic valuation by  $\alpha$  (and consequently that of alternative *I* too):

$$V_{r_I} + (V_{b_I} + \alpha) > 0$$

Even though the expensive alternative has a lower price (it has been reduced by  $\varepsilon = P_{b_I}$ ), and consequently it also has a greater difference between value and price than before, according to the zero price model, people will forego the more expensive alternative and favor the more economical option. It will happen if the following inequality holds:

$$\text{Inequality 2: } [V_{r_I} + (V_{b_I} + \alpha)] - P_{r_I} > (V_{r_M} + V_{b_M}) - (P_{r_M} + P_{b_M} - P_{b_I})$$

To sum up, *Inequality 1* shows that if there is a reduction in breakfast prices by the same amount for both hotels, the demand for the preferred alternative (the more expensive hotel) will increase, and the demand for the cheaper hotel will go down; that is, there is a switch from the cheaper hotel to the more expensive as more people can afford the preferred hotel. This result is in line with the predictions of the consumer theory. However, if the reduction makes the breakfast of the cheaper hotel free, its demand will go up, while subtracting demand from the more expensive and more preferred hotel (*Inequality 2*). The underlying idea for the latter inequality is that the net benefit individuals perceive is greater for the cheaper than for the more expensive hotel, even though the reduction is exactly the same in both. In fact, with *Inequality 1* being a necessary condition, the free breakfast effect will be corroborated if and only if *Inequality 2* is satisfied.

### **3. TESTING THE FREE BREAKFAST EFFECT**

We carry out two experiments to test the two inequalities that would bring about the free breakfast effect in line with the zero price model. The experiments have two hotels and

three experimental conditions in which the price of the breakfast diminishes by a constant magnitude throughout.

We asked 123 participants (in Alicante, Spain) to suppose they were going to spend Saturday and Sunday in Valencia (a city 180 kilometers away), and that in their search for a hotel room they have found good deals from a four star Meliá hotel and a three star Ibañez hotel. The former is a well known Valencian hotel from a reputable Spanish hotel chain and the latter is a hotel that nobody knows; in fact, there is no hotel with that name in Valencia. The purpose of making up the second hotel is to ensure that the Sol Meliá hotel will be the more expensive, preferred alternative (*Inequality 1*), which gives respondents extra inducement to make choices against the predictions of the free breakfast effect (*Inequality 2*).

### **3.3. Experiment 1**

**Description.** The three conditions in Experiment 1 are as follows (Table 1): i) the first is a cost condition in which individuals choose one of the following four alternatives which are on special offer: “Meliá room (€24) plus breakfast(€6)”, “Meliá room (€24)”, “Ibañez room (€22) plus breakfast (€4)”, “Ibañez room (€22)”. ~~No~~ that in order to make the choice experiment realistic, the participant can choose not to have breakfast at the hotel. Also, observe that these prices are below normal; although it can be a limitation it is nevertheless the way we make sure that individuals make their decisions irrespectively of their level of income. An individual who considers Sol Meliá as the preferred alternative could go for the Ibañez just because the prices of the former could be too high and systematically would opt for the cheapest alternative; ii) the second condition is another cost condition in which the prices of the room in each alternative are the same but the prices for the breakfast are reduced by €2. The purpose of this condition 2 is to test and make sure that the Meliá hotel is really the preferred alternative; and iii) the third condition is the free condition, in which, as before,



the prices for the breakfast are diminished by another €2, making the breakfast at the Ibáñez hotel free.

Again, notice that we make the differences in hotel prices small on purpose, so that people do not forgo their preferred hotel for a few euros, and we can ensure that *Inequality 1* holds. Remember that the important test is to show *Inequality 2*, given that *Inequality 1* applies; hence the starting point is to assure the fulfillment of the latter. Note that the difference in price is small but constant across the three conditions, which leads us to this question: keeping the price differences across conditions constant, do respective reductions in breakfast price cause the same variation in hotel demand?

Insert Table 1

**Results.** As can be seen in Figure 1 below, under Condition 1, the demand for the Meliá hotel (with and without breakfast) is significantly higher than that of the Ibáñez hotel,  $69\% > 31\%$ , ( $t(45)=3.87, p<0.001$ ). This mere descriptive result indicates that the Meliá is generally preferred to the Ibáñez. Note, however, that the result to be analyzed is how these percentages vary when transitioning from Condition 1 to Condition 2, that is, when the price of breakfast diminishes from €6 to €4 in the Meliá and from €4 to €2 in the Ibáñez. We observe that the demand for “Meliá with breakfast” ( $€24+€4$ ) increases significantly from 33% to 73% ( $t(82)=4.06, p<0.001$ ) and the demand for “Ibáñez with breakfast” ( $€22+€2$ ) reduces significantly from 24% to 8% ( $t(82)=-2.20, p=0.027$ ). This result confirms *Inequality 1* in such a way that, even though the Ibáñez alternative has a lower price, the preferred option is clearly the “Meliá hotel with breakfast”. Choosing this alternative implies paying €28 ( $€24+€4$ ), that is, €4 more than the “Ibáñez hotel with breakfast” ( $€22+€2$ ). In the end, they are forsaking the possibility of saving €4 so that they can get their preferred alternative; or, in other words, they are not predisposed to sacrifice their favorite option just for €4.

As for Condition 3, in which the reduction in the price of breakfast is from €4 to €2 in Meliá and from €2 to €0 in Ibáñez, the demand for “Ibáñez with breakfast” increases drastically from 8% to 46% ( $t(78)=4.29, p<0.01$ ), while the demand for “Meliá with breakfast” decreases significantly from 73% to 54% ( $t(78)=-1.84, p=0.065$ ). This result confirms *Inequality 2*, favoring the free breakfast effect.

Insert Figure 1

Note that, in Condition 2, when the Meliá breakfast costs €4 and the Ibáñez €2, people selected the more expensive alternative because that was the preferred one; however, when the Ibáñez breakfast becomes free in Condition 3, they are more reluctant to spend as little as €2 on the Meliá breakfast and they are willing to forego their favorite alternative, just because the hotel with the free component seems to have suddenly “acquired” an extra value. In this case, choosing this alternative implies paying €22 (€22+€0), that is, €4 less than the “Meliá hotel with breakfast” (€24+€2), as if they were now convinced to forsake their preferred alternative in order to save the same €4 that in Condition 2 they were not predisposed to save if that implied sacrificing their preferred hotel.

At this point, remember that we introduced the possibility of not having breakfast at the hotel for the sake of realism and to mirror the alternatives people have when booking a hotel room. Although this is an advantage, at the same time there is a pitfall to avoid in Condition 3 as the *decoy effect* may affect the results. Experiment 2 deals with this possibility.

## **Experiment 2.**

In Condition 3 of Experiment 1, the “Ibáñez with free breakfast” alternative asymmetrically dominates the “Ibáñez with no breakfast”: with the same cost, the former provides an extra component, i.e. breakfast. According to this asymmetric dominance effect

(also known as *the decoy effect*), people would change their preference between two options when a new third asymmetrically dominated option is introduced, in such a way that demand for the dominating alternative rises (Huber et al., 1982). If this effect takes place in Experiment 1, it would invalidate the results for Condition 3. Therefore, a new experiment is developed in which we remove the “no breakfast” option, so that this potential asymmetric dominance effect is completely eliminated.

**Description.** As in Experiment 1, there are three conditions (Table 2): i) a cost condition (Condition A) where individuals select one out of two alternatives: Meliá room (€24) plus breakfast (€6), and Ibáñez room (€22) plus breakfast (€4); ii) another cost condition (Condition B) with Meliá room (€24) plus breakfast (€4), and Ibáñez room (€22) plus breakfast (€2); and iii) the free condition (Condition C), with Meliá room (€24) plus breakfast (€2), and Ibáñez room (€22) plus breakfast (€0).

Insert Table 2

**Results.** As Figure 2 shows, and as expected, the Meliá is the preferred alternative; in fact, the demand in Condition A is so high that the reduction in price in Condition B just slightly, but not significantly, augments its demand from 82% to 88% ( $t(81)=0.73$ ,  $p=0.46$ ). This high preference is in line with *Inequality 1*: even though the Ibáñez alternative has a lower price, the preferred option is the “Meliá hotel with breakfast”. When in Condition C, the breakfast in Ibáñez is made free, the results are in accordance with Experiment 1: the demand for “Ibáñez with breakfast” significantly increases from 12% to 31% and, complementarily, the demand for “Meliá with breakfast” significantly decreases from 88% to 69% ( $t(78)=-2.13$ ,  $p=0.032$ ). This result supports *Inequality 2*, confirming that the free breakfast effect exists, even when the asymmetrically dominated option is absent.

## Insert Figure 2

Actually, this second experiment replicates Shampanier et al.'s (2007) experiments with a slight but important difference: our free condition is not really totally free as it still implies the cost of the room. This explains why our changes from cost conditions to the free condition, even though statistically significant, are not as drastic as theirs. In any case, the relevant result from this second experiment is that the free breakfast effect holds, with or without the presence of potential asymmetrical dominance; note that the demands for "Ibáñez with breakfast" in Condition 3 of Experiment 1 (46%) and Condition C of Experiment 2 (31%) are not significantly different ( $t(83)=1.45$ ,  $p=0.145$ ). The same applies to "Meliá with breakfast".

## 4. CONCLUSIONS

The multi-component nature of tourism products adds complexity to the price-setting process; nevertheless, this characteristic also allows managers to use the interrelationships among the different components to maximize sales. This article has analyzed the zero price model in the hotel product. Taking Shampanier et al.'s (2007) zero price model, we adapt and apply it in a two-component context, and carry out two experiments.

Experiment 1 shows evidence of the zero price effect; specifically, the free breakfast effect. Even though people's preferred alternative is the Meliá, when the cheaper option of the Ibáñez Hotel includes a free breakfast, the demand for the latter increases and for the former it decreases. Especially relevant is the fact that when the breakfast in the cheaper option is only €2 (i.e. a price that is virtually insignificant and very close to zero), people go for the more expensive alternative and are willing to pay the extra cost to stay at the Meliá. No matter how small the price is or that the net benefit for each alternative across conditions is identical, the net benefit for the cheaper option will only be superior to the more expensive option when the former offers a free breakfast.

The alternatives in Experiment 1 are intended to represent the alternatives people have when booking a hotel room by considering the possibility of “not having breakfast at the hotel”. This inclusion, although affording realism to the experiment, potentially introduces an asymmetric dominance effect. To control this effect, we conduct Experiment 2. The result corroborates the free breakfast effect: the demand for “Ibáñez with breakfast” increases and for “Meliá with breakfast” it decreases when the breakfast of the former is free, despite the latter being the preferred alternative; and all of this, without the presence of potential asymmetrical dominance.

The results of this article show that the zero price effect is not only confined to single products (as Shampanier et al. (2007) show) but also applies in multi-component contexts. In line with the affection argument of these authors, the increased value given to the free component included in a tourism product is a consequence of the higher affect that alternatives with only benefits and no costs create. Note, however, that in our alternatives, benefits and costs are always present, as opting for the alternative with free breakfast does imply paying for the room. Nonetheless, a positive feeling is generated towards the component and, in turn, towards the product itself; we may more aptly say that the negative effect of having benefits and costs is lower for a product that has a free component.

These results have important managerial implications, mainly in the realm of product bundling and sales promotion policies. The bundling strategy is a constant strategy in tourism, and the analysis of the effect of each component price on the demand for the product in which they are included helps managers make efficient pricing decisions. This is even more important these days since tourists can self-organize and build their own mix of complementary travel products. Given that many individuals make their hotel reservations through the Internet without seeking advice from travel agents, tourism providers must learn how to attract clients to their offers and beat other potentially more attractive, preferred deals.

In this regard, and according to our results, setting a zero price for a component of the hotel service boosts the demand for the hotel, gaining guests that would select other competitors' offers if the component price were not zero. The possibility of receiving clients that otherwise would have stayed elsewhere is an opportunity for the hotel to let them know how "special" the hotel is. The individual has been attracted by a special offer but then the hotel has the crucial task of turning the client into a loyal client. Also, note that in our experiments, when the breakfast in the cheaper option was free, it was able to take customers from the preferred alternative. What if it were the preferred hotel that offered a free breakfast? One could anticipate a high demand. Of course, this scenario is rather unlikely to happen not only because of image issues (e.g. it would be quite strange to find a four star Meliá hotel offering a free breakfast) but because of the implicit opportunity cost involved; that is, many people would have opted for and stayed at the hotel regardless of the free breakfast, and the hotel would not be receiving the price of breakfast. Nevertheless, as a temporary enticement to convert "other's clients" into "our clients", it could be conceivable. Apart from this conversion strategy, note that a slogan containing the zero-price claim is a head turner. Therefore, the use of this bait in the form of a free component not only attracts a lot of attention but also leads people to feel more interested and consequently, the probability of giving it a try is higher. For intermediaries it can be an effective strategy too: although the price of the hotel breakfast is not zero, the travel agent might pay for it. Note that these additional expenses might be compensated by the increase in the number of clients that would walk in to the travel agent's -if it is a physical store- or log in -if it is an online travel agent-.

To sum up, this price-based strategy can be used to effectively manage: i) products (the zero-priced product attracts people that will try the product and its quality); ii) intermediaries (the zero price can be used to reach specific agreements with travel agents);

and iii) communication campaigns (the claiming of the existence of a free product does not go unnoticed).

Finally, important avenues for further research stand out: i) applications to other tourism industries would shed light onto common (or different) reactions between sectors, when consumers are faced with free components; e.g. no payment for overweight luggage in airlines; ii) in our experimental research, we have dealt with a two-component context so extension to the multi-component case is necessary; iii) as there might be some non-linearity relationships between the components (for example, in this particular case, there might be a synergetic additive value to eating breakfast at the hotel where one stays rather than going out to eat breakfast somewhere else), further research should explore this possibility for both two- and multi-component situations; iv) empirical evidence would be crucial to support this effect. In the tourism realm, with products being intangible, it is not easy to think of a way to analyze this phenomenon in a real market situation. A possibility would be to consider the *gains* in a reference-dependence model as extra products people were getting for free; that is, as *gains* are defined as the difference between the reference (expected) price and the actual price, finding a multi-component product priced lower than expected could be interpreted by consumers as if they were receiving some of the components at a zero cost. Therefore, measuring whether the *gains per se*, irrespective of their amount, have extra value, would mean that people are favoring that product for the mere fact that some components in it are perceived to be free; v) one can think of less generic-for-everybody things like breakfast, and look at more specific aspects for a specialized segment. For example, might hotels attract conferences by offering free use of the conference rooms provided that all the delegates stay in the hotel?

To wrap up this section of future research ideas, it is worthwhile calling for more experiments in behavioral economics applied to tourism. Research in general contexts has

shown that people are not always as rational as economic theory predicts; when it comes to a sector like tourism, where emotions can be a central input of decision making, the likelihood of nonrational economic behavior rises. For example, can a specific type of music playing in the background have an influence on the destination a person selects? It could be interesting to set up an experiment in which a set of alternatives are presented to a group of individuals across three conditions: Condition 1, with music of type 1 in the background (e.g. traditional music from one the destinations in the set); Condition 2, with music of type 2 in the background (e.g. traditional music from another destination in the set); Condition 3, with no music in the background. In this way, the analyst could observe whether the emotions evoked by a certain type of music can vary the effect of particular attributes (such as prices). The results of this experiment would have important managerial implications for the ambience of travel agent's. Equally, a similar experiment could be conducted for colors, so that colors change across conditions.



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## **Endnotes**

<sup>1</sup> For the sake of simplicity and coherence with the experiments conducted in this article, we adapt the zero price model to a two-component case. Nevertheless, without loss of generality, it is readily adaptable to an  $n$ -component case.

<sup>2</sup> Although in this particular case of breakfast in a hotel, this is not an unreasonable assumption, one should acknowledge its simplifying nature: for most people the two components might be somewhat connected.

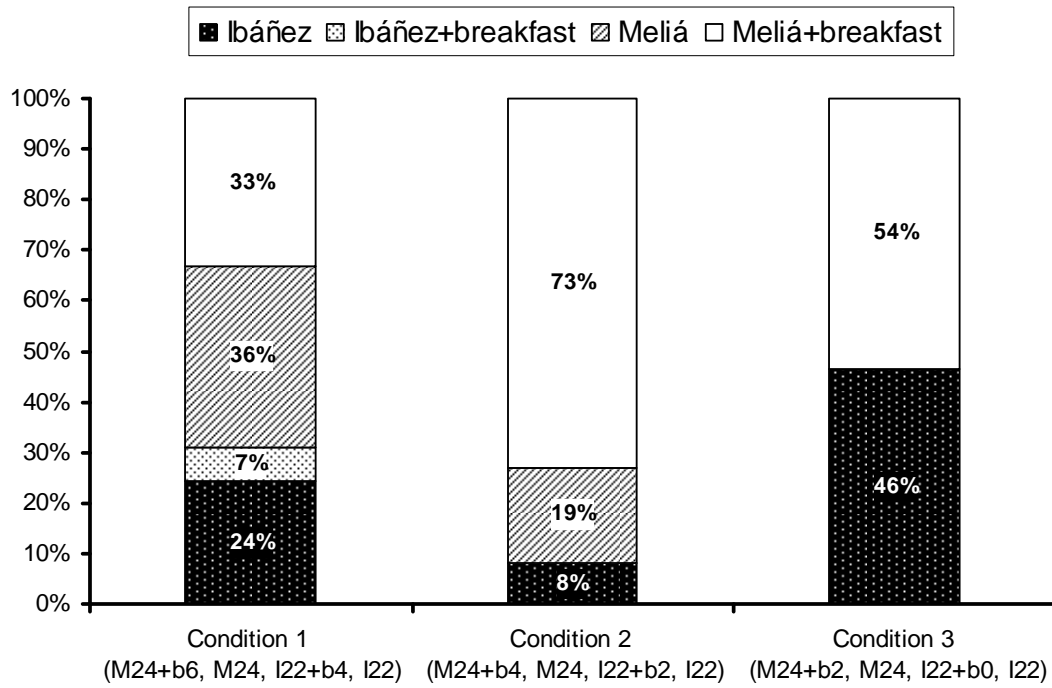
**Table 1. Conditions in Experiment 1**

	Meliá Hotel	Meliá Hotel	Ibáñez Hotel	Ibáñez Hotel
Condition 1	Room €24	Room €24	Room €22	Room €22
	Breakfast €6	No breakfast	Breakfast €4	No breakfast
Condition 2	Room €24	Room €24	Room €22	Room €22
	Breakfast €4	No breakfast	Breakfast €2	No breakfast
Condition 3	Room €24	Room €24	Room €22	Room €22
	Breakfast €2	No breakfast	Free breakfast (€0)	No breakfast

**Table 2. Conditions in Experiment 2**

	Meliá Hotel	Ibáñez Hotel
Condition A	Room €24	Room €22
	Breakfast €6	Breakfast €4
Condition B	Room €24	Room €22
	Breakfast €4	Breakfast €2
Condition C	Room €24	Room €22
	Breakfast €2	Free breakfast (€0)

**Figure 1. The free breakfast effect**



**Figure 2. The free breakfast effect with no asymmetric dominance**

