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ECONOMETRIC ANALYSIS OF ADOPTING DUAL PRICING FOR MUSEUMS: THE CASE OF THE NATIONAL MUSEUM OF IRAN

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Econometric Analysis of Adopting Dual Pricing for Museums: The Case of the National Museum of Iran

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Abstract

Dual pricing refers to the practice of setting prices, whereby foreign visitors are asked to pay higher fees than domestic visitors. The purposes of this article are to estimate the admission fees that foreign and domestic visitors are willing to pay, respectively, for the National Museum of Iran, and also to examine the relationship between the visitors’ willingness-to-pay and their various socio-economic, geographical, any psychological characteristics. It was established that the two segments of visitors differ substantially, both in their characteristics and in their behaviour. The entrance fees that foreign visitors are willing to pay are substantially higher than the current single entrance fee, while domestic visitors’ willingness-to-pay is not significantly different from the current entrance fee. The findings, if applied with caution, could provide museum managers with the rationale for adopting dual pricing and with practical directions for setting such schemes.

**Key words:** Attitude; Contingent valuation method; Dual pricing; Involvement; Museum entrance fees; Willingness-to-pay.

**JEL classification:** C51, D01, Z11.
1 Introduction

Museums are a main heritage tourism attraction in many countries and in some instances, they play a considerable role in determining the image of destinations (Gil & Ritchie, 2009). Museums can raise the awareness of tourists and local populations on their cultural identity, history and the environment and help to protect them for future generations, thereby contributing to the sustainable development of tourism (ICOM, 2007). To achieve these aims, though many factors seem to be involved, it is critical for museums to acquire sufficient funds through internal and external organizational resources, a process that tends to rely on a public-private collaboration system due to their neither entirely public nor entirely private nature (Sanz, Herrero, & Bedate, 2003).

Nonetheless, it has still been believed that the government is the main funding provider for museums. Indeed, the average allocation of government funding has been greater than the total of a museum’s self-generated income (Gilmore & Rentschler, 2002; Kotler, Kotler, & Kotler, 2008). Of notable significance over time is a change in this notion, as the government support for museums is reportedly declining (Jaffry & Apostolakis, 2011; Luksetich & Partridge, 1997). Subsequently, this change highlights the importance of other financial resources and draws attention to innovative ways to cover operating costs. Museums in the United States are relevant examples of demonstrating this change in that they are less likely to depend on direct public grants (Kotler et al., 2008). Namely, government support for museums in the United States accounts for only 13% to 33% of each museum’s total budget (Manjarrez, Rosenstein, Colgan, & Pastore, 2008).

Museums in the developing world have far greater difficulty attaining sufficient funds compared to those in the developed countries. In some developing countries, a majority of museum visitors are foreign tourists, while nationals make up only a small number of visitors (Boyan, 2006). Furthermore, due to recession or lack of interest in the cultural industry, a government tends not to assign the necessary funds to the museum industry. Such a situation has induced museum managers to expand their portfolio of financial resources for long-term survival, and encouraged them to employ their current resources efficiently. In this regard, discriminatory pricing for the different segmentations of visitors has taken on great importance as a way to maximize museum revenue (i.e., revenue management).

Discriminatory pricing refers to introduction of the same products with different prices to separate groups of customers, who are prepared to pay different prices (Vanhove, 2005). Its benefits have also been empirically analyzed in some museum literature (cf. Prieto-Rodriguez & Fernandez-Blanco, 2006). Discriminatory pricing leads to various types of pricing practices, including dynamic pricing (pricing that can change quickly on the Internet), yield pricing (pricing that changes based on predicted demand; usually applied to airfares) and dual pricing (one group of customers is asked to pay higher prices than others).

In particular, a dual-pricing practice has sometimes been considered in the museums of developing countries; i.e. foreign visitors are asked to pay higher entrance fees than domestic visitors (Timothy & Nyaupane, 2009). This notion is based on different price elasticities of demand between the categories of visitors from different locations (Frey & Steiner, 2010), and it is called segment-based pricing (Ng, 2008; Tasci, Gurbuz, & Gartner, 2006). The rationale for imposing dual pricing for heritage attractions like museums in developing countries mainly results from the beliefs that
tourists from developed countries have higher household incomes than residents, tourists do not pay local taxes (Howard, 2009), and that it could allow residents with marginal income easy access to such attractions (Timothy & Nyaupane, 2009).

The purpose of this article is twofold. First, to estimate the admission fees that foreign and domestic visitors are willing to pay, respectively, for the National Museum of Iran. This would provide empirical evidence and primary information as to whether introducing dual admission fees would be feasible. The fundamental hypothesis of our article is that foreign visitors are willing to pay higher entrance fees than domestic visitors to the National Museum of Iran. Setting the admission fee at the appropriate level would be challenging, as some studies have found that the fee could hinder low-income citizens’ participation in recreational or cultural activities (More and Stevens, 2000; Schneider & Budruk, 1999). In this respect, the findings could provide museum managers with the rationale of adopting dual pricing and with practical directions of setting appropriate prices for different market segments of visitors. Thus, the current article could contribute to the research about this emerging pricing strategy in the museum industry.

The second purpose of the article is to understand the relationship between the visitors’ willingness-to-pay (WTP) for museum admission fees and their various socio-economic, geographical, and psychological characteristics. To this end, a relatively solid theoretical framework is based for econometric estimation of the relationships between the WTP and its various determinants. Specifically, we test the hypotheses of positive relationships between the WTP and the socio-economic characteristics of visitors, their attitudes towards museums, involvement in the museum experience, and distance travelled.

We claim that foreign visitors to the National Museum of Iran exhibit different “behaviour” in all these respects in comparison to domestic visitors, and that this different behaviour is a further justification for adopting dual pricing, along with the discrepancy between their income levels. More precisely, even though most tourism managers in Iran regard the higher income of foreign visitors as the only justification for adopting dual pricing, we argue that due to more culturally focused motivation of inbound tourists to Iran they are willing to pay higher prices for the museum entrance fee, compared to domestic visitors. Culturally focused motivation of travelling tend to classify inbound tourists to Iran as a “professional segment” of the market that has on average a finer attitude towards museums and is more involved in the museum experience than domestic visitors. In addition, they traverse a greater distance to arrive to the museum. These characteristics increase the WTP and thus may give further justification for adopting dual pricing for admission to the National Museums of Iran. Additionally, we shall study whether visitors’ attitudes and involvement are dependent on their socio-economic and geographical characteristics.

Methodologically, the contingent valuation method (CVM) with eliminated protest responses is employed as a means of quantifying public preferences and measuring willingness-to-pay for admission to the National Museum of Iran. Contingent valuation surveys were first proposed in theory by Ciriacy-Wantrup (1947) as a method for eliciting market valuation of a non-market good. The first practical application of the technique was done by Davis (1963) on the economic value of recreation in the Maine woods. Numerous applications of the method to various public goods and studies of its methodological properties were conducted worldwide in the 1970’s and 1980’s. Even though the CVM has been initially and most frequently applied in the field of
environmental economics (cf. Kinghorn & Willis, 2008; Snowball, 2008; Venkatachalam, 2004), it is being increasingly used to estimate cultural values (Noonan, 2003; Tuan and Navrud, 2008). Although several studies have recently used the CVM to investigate a visitor’s willingness-to-pay for admission to a museum (cf. Bedate, Herrero & Sanz, 2009; Borda, 2007; Lampi & Orth, 2009; Plaza, 2010; Santagata & Signorello, 2000; Sanz, Herrero, & Bedate, 2003; Tohmo, 2004), we are not aware of comprehensive studies using the CVM to adopt a dual pricing system for a museum, especially for the developing countries.

The outline of the article is as follows. In Chapter 2, the argumentation of entry fees for a museum is given and the variables affecting the willingness-to-pay are derived. In Chapter 3, the case of the National Museum of Iran is presented in brief. In Chapter 4, the contingent valuation method is outlined, with a theoretical framework for econometric estimation of willingness-to-pay for admission to a museum. Additionally, the questionnaire and the data are presented, with some of the issues that arose during the conduct of the study. Chapter 5 presents the empirical results; the descriptive statistics with unconditional willingness-to-pay on one hand and the results of (conditional) econometric estimation of willingness-to-pay on the other. The article concludes in Chapter 6 with the key findings of the analysis and some suggestions regarding the adoption of dual pricing for a museum.

2 Entrance fees to a museum and variables affecting the willingness-to-pay

2.1 Argumentation of entrance fees to a museum

The essence of introducing admission fees to public museums has been controversial and extensively discussed (Anderson, 1998; Lampi & Orth, 2009). On one hand, some researchers, including Peacock (1994), O’Hagan (1995), Bailey and Falconer (1998) are in favour of charging entrance fees, arguing that they could improve the quality and standard of museums and even increase the number of audiences. On the other hand, some researchers, museum directors and politicians (cf. Anderson, 1998; Johnson & Thomas, 1998) propose another line of thought, whereby charges would more likely be a barrier, particularly for those in lower socio-economic classes (Schrijvershop, 2007).

The debate about museum entrance fees has been underway since the first national museum – the British Museum – was established in the U.K. (Anderson, 1998). It encompasses various political, cultural, recreational and educational subjects (Bailey et al., 1997). Since the British Museum was established in 1753 as a result of Hans Sloane’s donation, no one has been charged for an entrance fee to that museum (Frey & Meier, 2006). The rationale of a no-fee policy is that imposing fees would serve as an obstacle to the public attendance and oppose the ideology and mission of a museum in terms of its educational grounds (Dickenson, 2005). Furthermore, in addition to the British Museum, most of the later-established museums in 1980s were sufficiently supported by donor groups and governmental institutions. Consequently, such a situation offered little incentive to generate earned income (Frey & Meier, 2006).

However, under the pressure of decreasing public funds and cost extensions since the late 1980s and into the early 1990s, many national museums and galleries have been encouraged to raise revenue through admission fees, special exhibitions, event fees, renting rooms or shop sales (Dickenson, 2005; Martin, 2007). Accordingly, they have
adopted various pricing practices to generate revenue and promote efficient marketing (Kotler et al., 2008). By considering various circumstances and influencing factors, most museums in many countries have introduced a certain level of entrance fees as one of their internal funding sources (Cowell, 2007; Trupiano, 2005). Most museums have maintained their policies with the exception of a few countries, including the U.K., Ireland, Germany, France, Hungary and Denmark, where the free admission to public museums policy has been set over the past few years (Lampi & Orth, 2009).

2.2 Variables affecting the willingness-to-pay

Estimating individuals’ willingness-to-pay for a commodity has generated considerable attention from many studies, based on demand and utility functions (cf. Noonan, 2002; 2003; Venkatachalam, 2004). In spite of sometimes-conflicting findings, socio-economic characteristics, such as age, gender, household size, education and income, are the most common variables used to estimate the WTP. For instance, Santagata and Signorello (2000) found a significant negative relationship between the age of respondents and the WTP contributing to the continued existence of a museum, while the size of the household and level of education were positively associated with the WTP. Lampi and Orth (2009) also estimated visitors’ WTP for a museum before and after implementing entrance fees, and analyzed the effects of their socio-economic characteristics upon the WTP. They found that the introduction of entrance fees resulted in a change in the structure of visitors towards more female and younger visitors.

Education plays an important role in appreciating heritage assets, being one of the most efficient predictors of participation in cultural activities (Garrod & Fyall, 2000). In other words, the higher the education level, the higher the likelihood of engaging in cultural activities, including visiting museums (Kawashima, 1998; Richards, 2005; Schrijvershop, 2007). Thus, it is not surprising that visitors’ WTP for cultural activities is significantly influenced by their educational attainment.

In developing countries, charging higher prices for foreigners compared to other segments of the population has been perceived by museum managers as fair, fundamentally owing to higher income, on average, of foreign visitors. However, in this article, in a novel line of thought, three variables – attitude, distance and involvement – are also deemed an important justification for adopting a dual pricing strategy. In the following, an attempt has been made to analyse how these variables make a distinction in the behaviour of individuals in terms of their willingness-to-pay for a commodity or service to be valued.

The first variable to consider is the so-called set of attitude characteristics. The findings of previous studies demonstrated that psychological constructs, such as attitudes toward the goods or services in question extend the CVM models’ goodness of fit (Bernath & Roschewitz, 2008); and – moving one step forward – some have also indicated that the psychological variables are better predictors of WTP than socio-economic variables (cf. López-Mosquera & Sánchez, 2011). Such findings have induced more empirical research to gain a better understanding of how diverse psychological variables influence consumers’ WTP, so as to provide guidelines on policy-making and

1 Eagly and Chaiken (1993, p. 1) defined attitude as a “psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour”.

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marketing activities, such as delivering appropriate goods and services with optimal prices based on priorities held by consumers.2

A positive attitude towards the goods to be valued is most likely to result in higher WTP for the users. For instance, Chung et al. (2011) argued that individuals who exhibit a positive attitude towards the purposes of fees in the national forest (e.g. improving facilities, increasing environmental protection, and developing education programs) are more likely to have a relatively higher WTP. In a study of economic valuation of the Gullfoss Waterfall in Iceland, Reynisdottir et al. (2008) also demonstrated that visitors’ attitudes towards environmental protection positively affected their WTP. The theoretical implications given by the environmental psychology literature are applicable in the cultural heritage context, where so far little attention has been paid to this subject (Tufts & Milne, 1999).

Another aspect, related to this variable, is that cultural attitude may play a critical role in deciding whether to visit cultural and heritage sites. This is particularly the case for inbound tourists to Iran, positioned primarily as a cultural destination, thus one of the main expected motivations for travelling is to visit cultural attractions. This tends to suggest that the foreign visitors’ WTP may be substantially influenced by their cultural motivations and attitudes, along with income levels. Given that there are differences in income levels, cultural attitudes and motivation between foreign and domestic visitors, it is suggested that a difference exists in WTP between the two segments of visitors to the National Museum of Iran. The assessment of this gap is expected to provide implications for the feasibility of dual pricing.

Distance is another variable used to examine its potential for justification of dual pricing. Given that a museum admission fee constitutes only a small fraction of the total travel costs, it appears reasonable that inbound tourists, travelling a long distance to arrive at their destination, are less price-sensitive and are prepared to pay higher prices for a cultural attraction, than local visitors (Frateschi, Lazzaro, & Martos, 2009; Schrijvershop, 2007). Additionally, the greater the distance the higher (usually) the travel cost (Bedate et al., 2004; Brons, Pels, Nijkamp, & Rietveld, 2002). Thus, it is reasonable to assume that the distance travelled from the point of origin to the destination is negatively related to visitors’ sensitivity to admission fees. The effect of geographic distance has also been identified in some CVM-based studies that focused on environmental goods, i.e. farther distance led to higher WTP for site entrance fees (Hornsten & Fredman, 2000; Loomis and Santiago, 2011; Reynisdottir, Song, & Agrusa, 2008). Consistent findings in the environmental psychology literature are likely to extend to other contexts, including cultural heritage sites, where so far little is known about this relationship.

One should also keep in mind in analyzing the WTP the involvement of a consumer in the product or service under consideration.3 There are some diverse findings in the literature regarding the dimensions of involvement. Laurent and Kapferer (1985), for example, revealed components of involvement, such as importance, pleasure, perceived probability and consequence of risk, and sign value. McIntyre and Pigram (1992) conceptualized three dimensions of involvement: attraction (perceived importance of an

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2 With respect to entry fees, a large body of CVM research on visitors’ attitudes has been conducted, particularly focusing on environmental goods (cf. Bernath and Roschewitz, 2008; Chung et al., 2011; Lee and Han, 2002; Meyerhoff, 2006).

3 Involvement refers here to a psychological state of motivation, arousal and interest in an activity under consideration (cf. Havitz and Dimanche, 1997; Kyle et al., 2004).
activity and pleasure from the activity), self-expression (identity affirmation, derived by participation in an activity), and centrality (the position the activity occupies in an individual’s overall lifestyle). The former is relatively close to consumer involvement in a product context, while the latter is rather applicable to the leisure activity context. It has also been found that patterns of involvement vary by activities, products and individual characteristics (Havitz & Dimanche, 1997; Kyle Graefe, Manning, & Bacon, 2004). Anyhow, what has been consistently demonstrated over the years is that the level of involvement in an activity is determined by the degree of individual’s interest in the activity and to what extent he or she is willing to engage in the activity.

Although visiting a museum and gallery is regarded as one of the recreational activities, there seems to be few studies that examined the psychological or behavioural involvement in cultural activities. Kirchberg (1998) suggested that individuals who often visit museums are less likely to regard admission fees as an obstacle to attendance, compared to those who make fewer visits. In a valuation study by Tuan and Navrud (2008), foreign visitors were more willing to pay fees for preservation if the main motivation was to visit historical cities and they experienced the site before the visit. Salazar and Marques (2005) also found a positive relationship between the extent of respondents’ interest in consuming cultural goods and their WTP.

Similarly to the attitude characteristics, it is expected that culturally focused motivation of inbound tourists to Iran or at least those foreign visitors that have travelled from afar to visit the National Museum of Iran, establish a “professional segment” of visitors, who are more involved in the museum experience and subsequently posses a higher WTP than domestic visitors.

3 The case of the National Museum of Iran

The National Museum of Iran, in the capital city of Tehran, was open to the public in 1944. In 1996, the museum extended to two separate buildings on the same site for the pre-and post-Islamic periods, displaying an approximate 300,000 museum artefacts in an area more than 20,000 square meters, with some 60 full-time employees. The National Museum of Iran is the country’s largest museum of history and archaeology that exhibits a variety of exquisite artefacts as long ago as the 800,000 BC through two centuries ago mostly discovered in archaeological excavations from different areas of Iran. The architectural style of the pre-Islamic building (two floors) and the post-Islamic building (four floors) are fundamentally inspired by the ancient Persian Sassanid dynasty (distinctive red bricks and a magnificent entry portal; see Figure 1) and a combination of Islamic historical and modern elements, respectively (Mozaffary, 2007). According to visitor statistics, nearly 200,000 visits were made to the museum from 1 December 2010 to 30 November 2011, of which about 21,500 were foreign tourists.

More information about the National Museum of Iran, together with a presentation of its collections, can be obtained from the official website: www.nationalmuseumofiran.ir.
Figure 1: Main entrance to the National Museum of Iran (Sassanid architecture)

Source: Authors' photograph.

The current entry charge to the pre-Islamic section of the National Museum of Iran is RLS 10,000 (equivalent to USD 0.71) per adult. At the time, this pricing structure had been established five years earlier, with no price discrimination between residents and foreign visitors. This has promoted a wide discussion by relevant domestic experts and managers that the current entrance fee is too low to capture the economic value that foreign visitors place on their visits and to contribute appropriate economic input into the museum (cf. Tehrani, 2011). The relatively low level of the entrance fee to the National Museum of Iran can also be criticized as not appropriately reflecting the demand of the inbound tourists market. In other words, the National Museum of Iran would be a “must-see” attraction for international tourists, as it has unbeatable characteristics that no competitors in Iran can provide. Thus, it might be reasonable to suppose that the foreign visitors of the National Museum of Iran are willing to pay more than what has been charged (i.e. USD 0.71), due to the unique cultural heritage values that the museum possesses.

Note that, as the post-Islamic section of the museum has been closed for the past four years, the current study was conducted only at the pre-Islamic section.
4 Methodology and the data

4.1 The contingent valuation method

The study employed the contingent valuation method (CVM), a widely applied technique of economic valuation of non-priced public goods and services, where there is neither accessible nor reliable information on prices (Aadland & Caplan, 2006; Chung, 2008; Throsby, 2003). A hypothetical scenario is given to individuals who are directly asked their maximum WTP for the benefits received (Lee and Han, 2002; Sanz et al., 2003; Veisten, 2007). The scenario informs the respondents of what would be charged or what would be changed in a setting in terms of quality or quantity (Reynisdottir et al., 2008). In fact, the WTP values are contingent upon the special hypothetical market presented to respondents, thus the title (Mitchell & Carson, 1989). Historically, since Davis (1963) first applied the CVM in general, it was first applied in the field of arts in the early 1980s (Throsby, 2003) and in the field of cultural heritage in the 1990s (Salazar & Marques, 2005), respectively.

In CVM-based direct stated preferences there are several ways to elicit WTP information, including dichotomous choice (Verbič and Slabe-Erker, 2009), payment cards and auction bidding (Choi, Ritche, Papandrea, & Bennett, 2010), referendum, iterative bidding game and open-ended formats (Dutta, Banerjee, & Husain, 2007). In this study, an open-ended format is used, whereby a respondent is asked to state his or her maximum willingness-to-pay for a product or service in monetary terms, without any suggested prices. An advantage of this kind of a format in comparison to closed-ended questioning is that the former has no anchoring effects in that the respondents’ WTP is not influenced by a given price, and has therefore been frequently used in the literature (cf. Hornsten & Fredman, 2000; Kyle, Graefe, & Absher, 2002; Lampi & Orth, 2009; Sattout, Talhouk & Caligari, 2007; Solino, Prada & Vazquez, 2010).

However, there exists a sound criticism against open-ended questioning regarding its high number of zero, “protest” zero, missing and extreme values, as there is no implicit clue for respondents to think of their WTP (Lampi & Orth, 2009; Whitehead, 2006). In this study such problems have been tried to be avoided by using face-to-face interviews and a question asking the reason of zero WTP, aimed at distinguishing valid (i.e. zero WTP in accordance with economic behaviour, such as restrictions on income) and protest zero responses (i.e. zero WTP indicating dissatisfaction with some aspects of the presented hypothetical market or, in this case, the quality of a museum, cf. Bedate et al., 2011). Additionally, the survey was conducted after the respondents’ experience of the National Museum of Iran, so as to lead to real valuation.

As to the hypothetical nature of the CVM, it is argued that hypothetically measured WTP may be higher than the real WTP (cf. Borda, 2007; Lusk and Hudson, 2004; Venkatachalam, 2004). In order to reduce this “hypothetical bias” (i.e. the discrepancy between the hypothetical WTP and the real payment), we used the so-called “cheap talk script” prior to the WTP question. This was originally suggested by Cummings and Taylor (1999), where respondents are explicitly reminded of potential biases in a hypothetical scenario (Aadland & Caplan, 2006; Lampi & Orth, 2009). Previous empirical studies show that the cheap talk script is useful in removing the hypothetical bias (Casey, Brown, & Schumann, 2010).

In this article, based on the literature outlined in Chapter 2, the CVM is analyzed using the following function to explain the maximum WTP (dependent variable \( wtp \),
obtained by an open-ended format) of respondents for an entrance fee to the National Museum of Iran:

\[ wtp = f \{D, G, A, I\}, \]

where \( D \) is a vector of socio-economic characteristics, \( G \) measures geographical characteristics, \( A \) measures attitude characteristics, and \( I \) is a vector of involvement characteristics. Among the socio-economic characteristics, we have age, \( a \), gender, \( g \), educational attainment of respondents, \( e \), and their monthly income, \( y \), i.e. \( D = (a, g, e, y) \). The geographical characteristics are represented by the distance from respondent’s place of residence to the site, \( d \), i.e. \( G = (d) \). The attitude characteristics are represented by respondent’s general opinion about museums, \( o \), i.e. \( A = (o) \). At last, among the involvement characteristics, we have the respondent’s knowledge about museums, \( k \), the average number of visits to museums per year, \( v \), and the respondent’s knowledge of the National Museum of Iran before the visit, \( m \), i.e. \( I = (k, v, m) \).

4.2 Questionnaire and the data

The interview questionnaire consisted of four sections. Section 1 was designed to measure the respondents’ level of involvement and their attitudes toward museums, respectively. First, the respondents were inquired about the average number of visits to museums per year, the knowledge about museums in general, and previous knowledge of the National Museum of Iran. The latter two were subjectively evaluated based on a five-point scale (ranging from 1 = “none at all” to 5 = “very high”). Subsequently, in order to gauge respondents’ attitude towards museums, the following six statements were presented and subjectively evaluated based on a five-point Likert scale (ranging from 1 = “strongly disagree” to 5 = “strongly agree”):

1. “Museums play an important role in preserving communities’ heritage.”
2. “Museums facilitate communities’ perception of their history, culture and identity.”
3. “I attempt not to harm museums’ collections during my visit.”
4. “Visiting a museum is one of my main activities during the travel.”
5. “I support stringent regulations against smuggling museums’ collections.”
6. “Visiting a museum is an ideal recreational activity at leisure.”

In addition, motivation of a respondent for visiting Iran (Tehran), as well as the National Museum of Iran was inquired using nominal items.

Section 2 measured the maximum WTP for entrance fee to the National Museum of Iran. As mentioned earlier, we employed a “cheap talk script” prior to the open-ended WTP question to reduce the possibility of a hypothetical bias. The hypothetical scenario and the WTP question were then presented as follows:

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6 The questionnaire was designed separately for foreign visitors in English language and for national visitors in Persian language.
“The scarcity of financial resources is a major challenge for the National Museum of Iran, and cultural tourists and visitors seem viable means to generate revenues through entry fees. The National Museum of Iran relies on this self-generated revenue for fulfilling its main functions in society, including collecting, preserving and exhibiting artefacts, as well as developing educational programs. Thinking about the experience you have had visiting the National Museum of Iran, what is the maximum willingness-to-pay in terms of an entrance fee, before you would decide not to visit this museum?”

If a respondent claimed that the entry fee should be zero, he or she was requested to give a specific reason for this.

Section 3 had a single question, inquiring the city of residence of the respondent. This question was aimed to gather information to calculate the distance between respondent’s place of residence and the National Museum of Iran.

Section 4 included inquiries about the respondent’s socio-economic characteristics, including age, gender (0 = “male”, 1 = “female”), education, and (net) monthly household income. Information on education level was collected based on a five-point scale (1 = “high school diploma or below”, 2 = “associate degree”, 3 = “bachelor’s degree”, 4 = “master’s degree”, and 5 = “doctorate degree”). This was then converted to years of schooling, taking into account (at least to some extent) different education systems. Information on monthly household income was collected in Iranian rials (IRR) for residents and US dollars (USD) for foreigners. Monthly household income of residents was then converted to USD using the appropriate exchange rate.

In order to ensure the validity of measurement, the initial version of the questionnaire was preliminarily examined by researchers with expertise in contingent valuation and museum industry. A pre-test was then conducted in December 2010 using two equal groups in size of domestic and foreign visitors to the National Museum of Iran, totalling 60 visitors, to assess its logical consistency, ease of understanding and applicability of the questions. The pre-test suggested that a few questions needed to be changed in its wording.

The main survey was conducted by face-to-face interviews, which lasted for eight days in Spring 2011, when no temporary exhibition existed (and thus no associated bias arose) during that period at the museum. The sample included interviewees over 18 years of age, who were approached by random sampling at the main entrance of the National Museum of Iran after their museum visit. Contrary to the willingness of almost all domestic visitors for participation, approximately one third of foreign visitors refused the survey due to scarce time of their travelling tours or language barriers. Of a total of 613 interview questionnaires (392 from domestic visitors and 221 from foreign visitors) 35 responses were excluded because of incomplete information. Consequently, 578 questionnaires (371 from domestic visitors and 207 from foreign visitors) were considered for the analysis.

Finally, zero values of WTP from the sample were analyzed. It turned out that domestic and foreign respondents gave 12.9% and 4.8% zero responses to the maximum WTP question, respectively. The reasons for not being willing to pay the fee included lack of attractiveness of exhibitions, inability to pay, lack of quality of museum services, resistance to paying an entrance fee to the National Museum of Iran, and other
reasons. This was then used to distinguish true (valid) zero response from protest zero responses. In the following analysis, “resistance to paying an entrance fee” responses (17 and 1 responses from domestic and foreign visitors, respectively) were regarded as protest zero responses and thus eliminated, as it is argued that such responses may produce bias in CVM estimates (cf. Solino et al., 2010; Verbič and Slabe-Erker, 2009). Consequently, 560 questionnaires (354 from domestic visitors and 206 from foreign visitors) were used in the analysis.

5 Empirical results and the analysis

5.1 Sample characteristics

Descriptive statistics of the sample, which was gathered as described in the previous section, are given in Table 1 for the most important variables. Of the 560 respondents, 63.2% were domestic visitors and 36.8% were foreign visitors. The mean age of domestic and foreign visitors at the National Museum of Iran was 34.6 and 48.4 years, respectively (39.7 years for the whole sample). Some 55.7% of domestic visitors were female, while only 40.2% of foreign visitors were female (exactly 50% for the whole sample). Foreign visitors were more educated than domestic visitors, which can be seen from both the education level and years of schooling. In terms of the education level, there were 32.2% of domestic visitors and only 12.6% of foreign visitors with high school diploma or below on one end, and 6.2% of domestic visitors and as much as 9.2% of foreign visitors with a doctorate degree on the other end. In terms of years of schooling, foreign visitors had on average one year more of educational attainment than domestic visitors (14.5 years for the whole sample).

Foreign visitors reported substantially higher (net) monthly household income (3,243 USD on average) than domestic visitors (404 USD on average), with a mean of 1,448 USD for the whole sample. This is understandable due to differences in the standard of living. The distance from respondent’s place of residence was also, as expected, substantially higher for foreign visitors (4,429 kilometres on average) compared to domestic visitors (266 kilometres on average), with a mean of 1,780 kilometres for the whole sample.

In terms of respondents’ attitudes towards museums, measured through subjective evaluation of the six statements, presented in the previous chapter, foreign visitors gave a substantially higher percentage of favourable responses (“strongly agree”) and a substantially lower percentage of unfavourable responses (“disagree” and “strongly disagree”) than domestic visitors (see Table 2). Based on this, a new variable was created, measuring the number of favourable attitudes towards museums. This attitude variable was defined as the number of statements (values from 0 to 6), to which a respondent answered with “agree” or “strongly agree”, and was significantly higher for

For domestic visitors, the most frequently cited reason for claiming zero entrance fees was “it is wrong to impose an entrance fee to the National Museum of Iran” (4.6%), while for foreign visitors, “the service quality of the museum is not good enough” (2.4%).

The foreign respondents arrived from 27 countries; mostly from Germany (10.6%), France (8.7%), Italy (7.7%), Japan (6.8%), Spain (6.8%), and China (6.3%).
foreign visitors (5.39) compared to domestic visitors (4.57), with a mean of 4.88 favourable attitudes towards museums for the whole sample.\(^9\)

**Table 1: Descriptive statistics of key variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Arithmetic mean</th>
<th>Standard deviation</th>
<th>Lowest value</th>
<th>Highest value</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Domestic visitors ((n = 354))</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respondent’s age</td>
<td>34.60</td>
<td>10.34</td>
<td>20</td>
<td>64</td>
</tr>
<tr>
<td>Respondent’s gender</td>
<td>0.565</td>
<td>0.4975</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Years of schooling</td>
<td>14.14</td>
<td>3.99</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>Monthly household income (in USD)</td>
<td>403.62</td>
<td>165.78</td>
<td>107</td>
<td>857</td>
</tr>
<tr>
<td>Distance from respondent’s place of residence (in 1,000 kilometres)</td>
<td>0.266</td>
<td>0.378</td>
<td>0.05</td>
<td>1.8</td>
</tr>
<tr>
<td>Average number of visits to museums per year</td>
<td>2.457</td>
<td>3.293</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Knowledge about museums in general</td>
<td>1.257</td>
<td>0.638</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Previous knowledge of the National Museum of Iran</td>
<td>1.353</td>
<td>0.700</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Attitude</td>
<td>4.573</td>
<td>1.730</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Involvement</td>
<td>0.246</td>
<td>0.481</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Maximum willingness-to-pay (in USD)</td>
<td>0.70</td>
<td>0.65</td>
<td>0</td>
<td>4.28</td>
</tr>
<tr>
<td>b) Foreign visitors ((n = 206))</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respondent’s age</td>
<td>48.38</td>
<td>10.60</td>
<td>23</td>
<td>74</td>
</tr>
<tr>
<td>Respondent’s gender</td>
<td>0.4029</td>
<td>0.4917</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Years of schooling</td>
<td>15.21</td>
<td>3.54</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>Monthly household income (in USD)</td>
<td>3,242.72</td>
<td>1,645.34</td>
<td>700</td>
<td>7,500</td>
</tr>
<tr>
<td>Distance from respondent’s place of residence (in 1,000 kilometres)</td>
<td>4.429</td>
<td>2.119</td>
<td>0.5</td>
<td>9.6</td>
</tr>
<tr>
<td>Average number of visits to museums per year</td>
<td>5.097</td>
<td>4.137</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Knowledge about museums in general</td>
<td>1.675</td>
<td>1.034</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Previous knowledge of the National Museum of Iran</td>
<td>2.199</td>
<td>0.980</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Attitude</td>
<td>5.393</td>
<td>1.085</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Involvement</td>
<td>0.704</td>
<td>0.688</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Maximum willingness-to-pay (in USD)</td>
<td>6.34</td>
<td>4.38</td>
<td>0</td>
<td>30</td>
</tr>
</tbody>
</table>

*Source: Authors’ calculations.*

\(^9\) Reliability of the attitude components was ensured with Cronbach’s alpha of 0.885 for domestic visitors and 0.833 for foreign visitors, respectively.
Additionally, foreign visitors have more frequently visited museums than domestic visitors (5.10 visits per year compared to 2.46 visits per year), with an average of 3.48 visits per year for the whole sample (Table 1). A similar conclusion can be made with respect to visitors’ knowledge about museums in general (mean of 1.68 for foreign visitors compared to 1.26 for domestic visitors), and interestingly visitors’ previous knowledge about the National Museum of Iran (mean of 2.20 for foreign visitors compared to 1.35 for domestic visitors). These three variables, i.e. the average number of visits to museums, knowledge about museums in general and previous knowledge about the National Museum of Iran, were combined to form a new variable, measuring the involvement of a visitor in the experience of the museum. The involvement variable was defined for every visitor as the sum of three components (values from 0 to 3): being a frequent visitor of museums, having a comprehensive knowledge of museums in general, and having a comprehensive knowledge of the National Museum of Iran. Involvement was significantly higher for foreign visitors (0.70) compared to domestic visitors (0.25), with a mean of 0.41 for the whole sample.

Table 2: Respondents’ attitudes towards museums

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>DV</td>
<td>FV</td>
<td>DV</td>
<td>FV</td>
<td>DV</td>
<td>FV</td>
</tr>
<tr>
<td>1</td>
<td>0.56</td>
<td>3.39</td>
<td>0.00</td>
<td>7.06</td>
<td>1.94</td>
</tr>
<tr>
<td>2</td>
<td>0.85</td>
<td>0.00</td>
<td>3.11</td>
<td>0.00</td>
<td>6.78</td>
</tr>
<tr>
<td>3</td>
<td>0.85</td>
<td>0.00</td>
<td>3.95</td>
<td>0.00</td>
<td>8.19</td>
</tr>
<tr>
<td>4</td>
<td>4.80</td>
<td>0.49</td>
<td>18.36</td>
<td>10.19</td>
<td>37.85</td>
</tr>
<tr>
<td>5</td>
<td>0.85</td>
<td>0.00</td>
<td>4.24</td>
<td>0.00</td>
<td>7.91</td>
</tr>
<tr>
<td>6</td>
<td>2.82</td>
<td>0.00</td>
<td>10.73</td>
<td>0.49</td>
<td>20.34</td>
</tr>
</tbody>
</table>

Note: DV – domestic visitors, FV – foreign visitors.

Source: Authors’ calculations.

The significant distinction between the two segments (subsamples) of visitors can be explained by the fact that cultural tourists account for the largest market share of the country’s inbound tourists, placing high importance on museums, historical sites and cultural attractions in general. Indeed, foreign respondents’ primary motivation to visit Iran (Tehran) was “visiting museums and historical sites” with 72.9% of responses. In addition, the vast majority of foreigners (86.0%) stated that the main motivation for visiting the National Museum of Iran is “cultural,” while only a small number of domestic visitors (39.6%) agreed with that. Domestic visitors had other, equally important motivations, including “social activities” (19.1%), “recreational purposes” (16.7%), and “college research” (12.1%). Culturally focused motivation of destination choice thus tends to classify inbound tourists to Iran as a “professional segment” of the market that has on average a finer attitude towards museums and is more involved in the museum experience than domestic visitors. Since the National Museum of Iran is a

10 Frequent visitor status was defined as 1 for average number of visits per year greater than four (taking into account the sample mean), and 0 otherwise. The two comprehensive knowledge indicators were defined as 1 if a respondent answered with “high” or “very high”, and 0 otherwise.

11 Other, less frequent reasons included “visiting friends or relatives” (9.8%), “visiting religious sites” (5.3%), “visiting natural sites” (4.9%), and “conducting business” (4.3%).
“must-see” attraction for most inbound tourists to Iran\textsuperscript{12}, it could be expected that profiles and characteristics of the foreign visitors to this museum are relatively similar to that of foreign visitors visiting other attraction of the country.

After excluding protest zero responses from the sample, as described in the previous chapter, the maximum willingness-to-pay for entrance fee to the National Museum of Iran was evaluated. It turned out to be substantially higher for foreign visitors (mean of 6.34 USD and median of 5.50 USD) than for domestic visitors (mean of 0.70 USD and median of 0.64 USD), with a mean of 2.77 USD and median of 0.85 USD for the whole sample. The mean WTP of foreign visitors was thus 9.1-fold of the mean WTP of domestic visitors, while the median WTP of foreign visitors was 8.6-fold of the median WTP of domestic visitors. Even though we do not yet control for other determinants of WTP in this section, it is worth noting that the differences in mean and median WTP between the two subsamples were highly statistically significant. The results also showed that for both groups the median WTP was lower than the mean WTP, where 71.6\% of domestic and 55.3\% of foreign respondents reported, respectively, their WTP below the mean WTP.

The mean and median WTP for the segment (subsample) of foreign visitors indicate that the current entry fee to the National Museum of Iran (USD 0.71) is substantially less than what they considered to be their maximum WTP, while on the contrary, the mean and median WTP of domestic visitors are not significantly different from the current entry fee. Furthermore, lower variance of the WTP estimates of domestic respondents compared to foreign visitors could indicate that there was more consensus among the residents on how much they were willing to pay for the fee.

### 5.2 Econometric analysis

Within the framework of contingent valuation, developed in this article, we propose the following empirical model of the maximum willingness-to-pay of visitor $i$, $wtp_i$, for entrance fee to the National Museum of Iran:

$$ wtp_i = \beta_1 + \beta_2 a_i + \beta_3 g_i + \beta_4 e_i + \beta_5 y_i + \beta_6 att_i + \beta_7 inv_i + \beta_8 d_i + \beta_9 nat_i + u_i, \quad (2) $$

where $a_i$ represents the age of respondent $i$ in years, $g_i$ represents gender (0 = “male”, 1 = “female”), $e_i$ stands for years of schooling, $y_i$ is monthly household income in 1,000 USD, $att_i$ is the attitude variable, defined as explained in the previous section, $inv_i$ is the involvement variable, defined as explained in the previous section, $d_i$ represents the distance between respondent’s place of residence and the National Museum of Iran in 1,000 kilometres, and $nat_i$ stands for the nationality of visitor $i$ (0 = “domestic visitor”, 1 = “foreign visitor”). Added is the disturbance term $u_i \sim IID(0, \sigma^2)$, expressing the stochastic nature of our empirical model. Expression (2) was estimated by the least squares estimator, providing for all the assumptions necessary for the method to yield minimum-variance linear unbiased estimates.

The estimation results are presented in Table 3, where the diversity between the two segments (subsamples) of visitors is captured first by “nationality” (specifications 1–2)

---

\textsuperscript{12} Visiting this museum is one of main activities held by almost all Iranian tourism travel agencies offering services to inbound tourists in Tehran.
and then by the “distance” (specifications 3–4). This was done, among other reasons, to illustrate the robustness of results. As can be seen from Table 3, the WTP was positively and statistically significantly related to years of schooling, household income, attitude and involvement. Gender was not a statistically significant determinant of WTP in any of the model specifications, while the relationship between age of a respondent and his WTP demonstrated the so-called “U–shape”, where the effect of age changes sign at a certain number of years. Based on the standardized regression coefficients (“beta coefficients”, not shown), the most important determinants of the maximum WTP were income, nationality and age, followed by attitude and involvement. Let us look at these results in more detail.

Table 3: Estimated parameters of the model of maximum willingness-to-pay

<table>
<thead>
<tr>
<th>Explanatory variable</th>
<th>Model specification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
</tr>
<tr>
<td>Constant term</td>
<td>-0.7767</td>
</tr>
<tr>
<td></td>
<td>(0.5395)</td>
</tr>
<tr>
<td>Age</td>
<td>-0.0266***</td>
</tr>
<tr>
<td></td>
<td>(0.0096)</td>
</tr>
<tr>
<td>Age squared</td>
<td>-0.0014**</td>
</tr>
<tr>
<td></td>
<td>(0.0006)</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.1224</td>
</tr>
<tr>
<td></td>
<td>(0.2022)</td>
</tr>
<tr>
<td>Years of schooling</td>
<td>0.0892***</td>
</tr>
<tr>
<td></td>
<td>(0.0303)</td>
</tr>
<tr>
<td>Household income</td>
<td>0.9899***</td>
</tr>
<tr>
<td></td>
<td>(0.1039)</td>
</tr>
<tr>
<td>Attitude</td>
<td>0.1420*</td>
</tr>
<tr>
<td></td>
<td>(0.0748)</td>
</tr>
<tr>
<td>Involvement</td>
<td>0.6226***</td>
</tr>
<tr>
<td></td>
<td>(0.1862)</td>
</tr>
<tr>
<td>Nationality</td>
<td>2.6793***</td>
</tr>
<tr>
<td></td>
<td>(0.3729)</td>
</tr>
<tr>
<td>Distance</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: Maximum willingness-to-pay (in USD) is the endogenous variable of the model in all four specifications. Standard errors are given in parentheses. Asterisks *, ** and *** denote significance at the 10 percent, 5 percent and 1 percent level, respectively.

Source: Authors’ calculations.
Based on our sample of data, each additional 1,000 USD of household income increased on average, *ceteris paribus*, the maximum WTP of a respondent by some 1.0–1.3 USD. Each additional year of schooling increased on average, *ceteris paribus*, the maximum WTP of a respondent further by some 6.9–8.9¢. Excluding age squared from expression (2), the impact of age on the maximum WTP was ambiguous (a negative coefficient in specification 1 and a positive coefficient in specification 3), but after taking into account the U–shaped relationship between the two variables (specifications 2 and 4), we can observe that each additional year of age increased on average the maximum WTP of a respondent by some 9.1–11.8¢, however at a higher age this effect obtained a slightly negative inclination. Each additional favourable attitude towards museums in general that a respondent had increased on average, *ceteris paribus*, his or her maximum WTP by some 0.14–0.16 USD. Each additional component of involvement (frequent visitor of museums, comprehensive knowledge of museums and/or comprehensive knowledge of the National Museum of Iran) that was characteristic of a respondent further increased on average, *ceteris paribus*, his or her maximum WTP by some 0.62–0.73 USD.

The two variables that were intended to test the level of dissimilarity between the two segments (subsamples) of visitors, i.e. distance and nationality, were also highly statistically significant. As we can observe from Table 3, every additional 1,000 kilometres of distance between respondent’s place of residence and the National Museum of Iran resulted on average, *ceteris paribus*, in an increase in his or her maximum WTP by 0.26 USD (specifications 3–4). Moreover, foreign visitors reported on average, *ceteris paribus*, maximum WTP that was by some 2.62–2.67 USD higher than domestic visitors (specifications 1–2). The maximum willingness-to-pay for entrance fee to the National Museum of Iran is thus statistically significantly higher for foreign visitors compared to domestic visitors; not only unconditionally (as shown in the previous section), but also after controlling for socio-economic, attitude and involvement characteristics of WTP. We find the explanatory power of the model satisfactory for this type of analysis (determination coefficient amounted to some 0.61–0.63).

Additionally, we estimated the logarithmic transformation of expression (2), as the regression coefficients then represent approximations of elasticities:

\[
\ln \text{wtp}_i = \beta_0 + \beta_1 \ln a_i + \beta_2 g_i + \beta_3 \ln e_i + \beta_4 \ln y_i + \beta_5 \ln \text{att}_i + \beta_6 \ln \text{inv}_i + \beta_7 \text{nat}_i + u_i. 
\]  

Expression (3) was also estimated by the least squares estimator, and the subsequent results for both segments (subsamples) of visitors as well as for the pooled model are presented in Table 4. As we can observe from Table 4, gender was again not a statistically significant determinant of WTP. The impact of age by itself on the maximum WTP was “dichotomous” – a negative elasticity for domestic visitors\(^\text{13}\) and a positive elasticity for foreign visitors, explaining (to a certain extent) the ambiguity of the effect from Table 3, even though this time we were not able to test for the “U-shaped” effects\(^\text{14}\). Let us look at the remaining results in more detail.

\(^{13}\) The negative elasticity of maximum WTP with respect to age may be attributed to the fact that the unemployment rate of younger people in Iran (and in the wider region) is much higher than for older people and, on average, their willingness-to-pay on the hypothetical market is expected to be lower.

\(^{14}\) Age squared was eliminated as explanatory variable from the model as it would cause perfect multicollinearity in the log-transformed model with age included.
Based on our sample of data, increasing the years of schooling by 1 percent would increase on average, *ceteris paribus*, the maximum WTP of domestic and foreign visitors by 0.15 and 0.55 percent, respectively. This elasticity is thus much higher for foreign visitors than for domestic visitors and for the whole sample (0.28 percent). Increasing the household income by 1 percent would increase on average, *ceteris paribus*, the maximum WTP of domestic and foreign visitors by 0.31 and 0.26 percent, respectively. Income elasticity is thus comparable for foreign visitors with the one for domestic visitors and for the whole sample (0.31 percent). Increasing the favourable attitude towards museums in general by 1 percent would increase on average, *ceteris paribus*, the maximum WTP of domestic and foreign visitors by 0.13 and 0.38 percent, respectively. This elasticity is thus much higher for foreign visitors than for domestic visitors and for the whole sample (0.14 percent). Increasing the involvement in the experience of visiting the museum by 1 percent would increase on average, *ceteris paribus*, the maximum WTP of foreign visitors by 0.36 percent, while this elasticity was not statistically significant for domestic visitors.

**Table 4: Estimated elasticities of the model of maximum willingness-to-pay**

<table>
<thead>
<tr>
<th>Explanatory variable</th>
<th>Domestic visitors</th>
<th>Foreign visitors</th>
<th>Pooled model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant term</td>
<td>-0.1534</td>
<td>0.4069</td>
<td>-0.0005</td>
</tr>
<tr>
<td></td>
<td>(0.1983)</td>
<td>(0.7159)</td>
<td>(0.2611)</td>
</tr>
<tr>
<td>Logarithms of age</td>
<td>0.1036**</td>
<td>-0.3129**</td>
<td>-0.0522</td>
</tr>
<tr>
<td></td>
<td>(0.0461)</td>
<td>(0.1500)</td>
<td>(0.0593)</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.0359</td>
<td>0.0761</td>
<td>-0.0193</td>
</tr>
<tr>
<td></td>
<td>(0.0266)</td>
<td>(0.0702)</td>
<td>(0.0321)</td>
</tr>
<tr>
<td>Logarithms of years of schooling</td>
<td>0.1536***</td>
<td>0.5498***</td>
<td>0.2790***</td>
</tr>
<tr>
<td></td>
<td>(0.0485)</td>
<td>(0.1459)</td>
<td>(0.0610)</td>
</tr>
<tr>
<td>Logarithms of household income</td>
<td>0.3064***</td>
<td>0.2633***</td>
<td>0.3063***</td>
</tr>
<tr>
<td></td>
<td>(0.0306)</td>
<td>(0.0645)</td>
<td>(0.0337)</td>
</tr>
<tr>
<td>Logarithms of attitude</td>
<td>0.1257***</td>
<td>0.3753***</td>
<td>0.1357***</td>
</tr>
<tr>
<td></td>
<td>(0.0273)</td>
<td>(0.1301)</td>
<td>(0.0380)</td>
</tr>
<tr>
<td>Logarithms of involvement</td>
<td>-0.0618</td>
<td>0.3591***</td>
<td>0.1851***</td>
</tr>
<tr>
<td></td>
<td>(0.0437)</td>
<td>(0.0896)</td>
<td>(0.0474)</td>
</tr>
<tr>
<td>Nationality</td>
<td>-</td>
<td>-</td>
<td>0.6412***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.0751)</td>
</tr>
<tr>
<td>(N)</td>
<td>354</td>
<td>206</td>
<td>560</td>
</tr>
<tr>
<td>(s_e^2)</td>
<td>0.2459</td>
<td>0.4839</td>
<td>0.3741</td>
</tr>
<tr>
<td>(R^2)</td>
<td>0.4153</td>
<td>0.4058</td>
<td>0.7811</td>
</tr>
<tr>
<td>Adjusted (R^2)</td>
<td>0.4052</td>
<td>0.3878</td>
<td>0.7783</td>
</tr>
<tr>
<td>(F)-test</td>
<td>41.07</td>
<td>22.65</td>
<td>281.42</td>
</tr>
<tr>
<td>(p)-value</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

*Notes:* Logarithms of maximum willingness-to-pay is the endogenous variable of the model in all three specifications. Standard errors are given in parentheses. Asterisks *, ** and *** denote significance at the 10 percent, 5 percent and 1 percent level, respectively.

*Source:* Authors’ calculations.

Again, the relationship between the maximum WTP and its socio-economic, attitude and involvement characteristics, measured by the regression coefficient of the dummy variable on nationality, was highly statistically significantly different for foreign visitors, as compared to domestic visitors. This is also evident from the increase
in explanatory power of the model, when transitioning from one of the subsamples to the whole sample (pooled model).

Finally, we were interested in visitors’ psychological characteristics, i.e. attitudes and involvement, in more detail. In particular, we wanted to establish whether these two variables are to a certain extent dependant on the socio-economic, geographical and other determinants from our initial model of the maximum WTP. For this reason, we estimated the following two regressions by the least squares estimator:

\[
att_i = \beta_1 + \beta_2 a_i + \beta_3 a_i^2 + \beta_4 g_i + \beta_5 e_i + \beta_6 y_i + \beta_7 v_i + \beta_8 d_i + u_i, \tag{4}
\]

\[
inv_i = \beta_1 + \beta_2 a_i + \beta_3 a_i^2 + \beta_4 g_i + \beta_5 e_i + \beta_6 y_i + \beta_7 a4_i + \beta_8 d_i + u_i , \tag{5}
\]

where, besides the variables that were already indicated in expression (2), \(v_i\) represents the average number of visits to museums of respondent \(i\) per year, and \(a4_i\) denoted respondents, for whom visiting a museum was a major activities during the travel\(^{15}\).

The estimation results of expressions (4) and (5) are presented in Table 5. As we can see from Table 5, the explanatory power of the three model specifications is relatively low (the value of determination coefficient varies from 0.25 to 0.30), but the regression coefficients have interesting values and are statistically significant, thus the models deserve some attention. Based on the standardized regression coefficients (not shown), the most important determinants of attitude in expression (4) were age and education, while the most important determinants of involvement in expression (5) were distance and income, followed by education. Gender was again not a statistically significant determinant in any of the model specifications.

If we look at these results in more detail, we can observe from Table 5 that based on our sample age exhibited a “U-shaped” impact on visitors’ attitude towards museums in general (specification 2). Namely, each additional year of age decreased on average the number of favourable attitudes towards museums by 0.07; however at a higher age this effect obtained a slightly positive inclination. Each additional year of schooling increased on average, \(\text{ceteris paribus}\), the number of favourable attitudes towards museums by 0.16–0.17 (specifications 1–2). Each additional 1,000 USD of household income increased on average, \(\text{ceteris paribus}\), the number of favourable attitudes towards museums further by 0.70–0.78. An increase in the average number of visits to museums per year by one increased on average, \(\text{ceteris paribus}\), the number of favourable attitudes towards museums by 0.07. Every additional 1,000 kilometres of distance between respondent’s place of residence and the National Museum of Iran resulted on average, \(\text{ceteris paribus}\), in an increase in the number of favourable attitudes towards museums by 0.08. Older, more educated, wealthier and more involved visitors thus had more favourable attitudes towards museums.

On the other hand, based on our sample age did not exhibit a statistically significant effect on involvement (specification 3), neither linearly nor “U-shaped”. Each additional year of schooling increased on average, \(\text{ceteris paribus}\), the (composite) involvement in the experience of visiting the museum by 0.02. Each additional 1,000 USD of household income increased on average, \(\text{ceteris paribus}\), the involvement further by 0.07. Respondents, for whom visiting a museum was a major activities during the travel,\(^{15}\)

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\(^{15}\) This variable was constructed as an indicator variable that took the value 1 if a respondent answered to Statement 4 (see Chapter 4) with “agree” or “strongly agree”, and 0 otherwise.
exhibited involvement in the experience of visiting the museum that was on average, *ceteris paribus*, higher by 0.32 compared to the rest of the visitors. Every additional 1,000 kilometres of distance between respondent’s place of residence and the National Museum of Iran resulted on average, *ceteris paribus*, in an increase in involvement by 0.02. More educated, wealthier and more museum-oriented visitors were thus more involved in the experience of visiting the museum.

**Table 5:** Estimated parameters of the models of attitude and involvement

<table>
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<tr>
<th>Explanatory variable</th>
<th>Attitude</th>
<th>Involvement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Constant term</td>
<td>1.8287***</td>
<td>3.0741***</td>
</tr>
<tr>
<td></td>
<td>(0.2925)</td>
<td>(0.6022)</td>
</tr>
<tr>
<td>Age</td>
<td>0.0025</td>
<td>–0.0670**</td>
</tr>
<tr>
<td></td>
<td>(0.0053)</td>
<td>(0.0299)</td>
</tr>
<tr>
<td>Age squared</td>
<td>–</td>
<td>0.0008**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.0004)</td>
</tr>
<tr>
<td>Gender</td>
<td>0.2251</td>
<td>0.2167</td>
</tr>
<tr>
<td></td>
<td>(0.1142)</td>
<td>(0.1462)</td>
</tr>
<tr>
<td>Years of schooling</td>
<td>0.1621***</td>
<td>0.1684***</td>
</tr>
<tr>
<td></td>
<td>(0.0155)</td>
<td>(0.0156)</td>
</tr>
<tr>
<td>Household income</td>
<td>0.7817**</td>
<td>0.70176**</td>
</tr>
<tr>
<td></td>
<td>(0.2871)</td>
<td>(0.2883)</td>
</tr>
<tr>
<td>Number of visits to</td>
<td>0.0685***</td>
<td>0.0694***</td>
</tr>
<tr>
<td>museums</td>
<td></td>
<td>(0.0160)</td>
</tr>
<tr>
<td>Visiting museums as a</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>major activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance</td>
<td>0.0771**</td>
<td>0.0789**</td>
</tr>
<tr>
<td></td>
<td>(0.0328)</td>
<td>(0.0327)</td>
</tr>
<tr>
<td>N</td>
<td>560</td>
<td>560</td>
</tr>
<tr>
<td>$s_e$</td>
<td>1.3271</td>
<td>1.3217</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.2969</td>
<td>0.3039</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.2893</td>
<td>0.2951</td>
</tr>
<tr>
<td>F–test</td>
<td>38.92</td>
<td>34.43</td>
</tr>
<tr>
<td>$p$–value</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
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</table>

*Notes:* Standard errors are given in parentheses. Asterisks *, ** and *** denote significance at the 10 percent, 5 percent and 1 percent level, respectively.

*Source:* Authors’ calculations.
6 Concluding remarks

Since the early 1990s, the notion of museum entrance fees has drawn attention to many studies, even though scarce attention has been paid in the literature so far to pricing policies, adopted by museums in developing countries. One of the controversial, frequently applied, but rarely researched is dual pricing for entrance fees in order to increase revenue. The purposes of the present article were to estimate the admission fees that foreign and domestic visitors are willing to pay, respectively, for the National Museum of Iran, and also to examine the relationship between the visitors’ willingness-to-pay for museum admission fees and their various socio-economic, geographical, and psychological characteristics. The findings obtained have several policy implications for this museum in particular and for other museums and tourism heritage attractions generally in developing countries.

To begin with, along with the fundamental hypothesis of our article, the average maximum willingness-to-pay for entrance fees turned out to be substantially higher for foreign visitors and substantially higher than the current entrance fee, while on the contrary, the average WTP of domestic visitors is not significantly different from the existing entrance fee; not only unconditionally, but also after controlling for socio-economic, attitude and involvement characteristics. This prompts considering the implementation of a dual pricing strategy, whereby a reasonable increase in the existing admission fees strategy be applied for foreign (and possibly domestic) visitors in order to increase the economic impact of visitors for the museum.

Based on econometric estimation of the maximum willingness-to-pay, the most important determinants of WTP for domestic visitors were income, attitude, and education, while for foreign visitors these were income, education, involvement and attitude. For both groups of visitors, the maximum WTP was positively and statistically significantly related to the above variables. Thus, as the second major policy implication, we could underline the significance of education, involvement, attitude and distance travelled for justification of adopting dual pricing for admission fee to the National Museums of Iran, in addition to higher income levels of foreign visitors – thus far the only legitimate motive for introducing dual pricing among most museum mangers in Iran and other developing countries.

This justification is corroborated when we take into account that foreign visitors on average had higher education level, higher income, more favourable attitudes towards museums and were more involved in museums experience, as well as their substantially higher elasticities of WTP with respect to years of schooling, attitudes and involvement, compared to domestic visitors. These findings give credibility to the belief that foreign visitors are much more likely to be willing to pay a reasonably increased entrance fee than domestic visitors, other things being equal.

However, what also needs to be considered is visitors’ compliance and agreement with price differences, which is essential for a successful discriminatory pricing policy (Mudie and Pirrie, 2006). Setting different prices for different segments of visitors might evoke price unfairness and negative emotional responses, and could even make some visitors resistant to the policy (Howard, 2009). This is somewhat in line with the findings of this article. Even though a significant difference in the WTP between the two segments of visitors was found, the optimal level of disparity needs to be set, to

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16 In practise, dual pricing in developing countries has been one of the challenges that causes much resentment and often deters return visits (e.g. in case of the cultural attractions in Thailand).
avoid violating the notions of equity and dissatisfying the inbound visitors. Furthermore, perceived equity resulting from this disparity needs to be further studied in future research.

The inclusion of two main behavioural and psychological variables in the article, i.e. attitude and involvement, allowed us to have a more in-depth analysis of visitors’ behaviour. In particular, we studied whether visitors’ attitudes and involvement were dependant on their socio-economic and geographical characteristics. The results suggest that older, more educated, wealthier and more involved visitors had more favourable attitudes towards museums, while more educated, wealthier and more museum-oriented visitors were more involved in the experience of the museum. This is consistent with the general evidence that museum visitors on average belong to higher socio-economic classes (Maddison & Foster, 2003). It could be interpreted in the sense that imposing a same entrance fee for foreign and domestic visitors is more favourable for higher-income visitors and to a lesser extent an effective policy for attracting poorer people.

The third main policy implication drawn from the finding is that foreign visitors’ most frequently cited reason for zero WTP was the poor quality of services provided by the museum. Chung et al. (2011) found that visitors’ WTP would become higher if they are more likely to believe that the fees will be used to increase the quality of facilities and services, and to enrich visitor programs. This brings support to the view that developing the service quality will lead to a greater willingness-to-pay for an entrance fee. Management could compensate to some extent the costs of increased quality with the revenue gained through dual entrance fees.

From the museum management perspective, in addition to providing satisfactory services, public relations will be a critical factor of success for adopting a dual pricing practice. Howard (2009) found that a majority of foreign visitors to a developing country felt “serious challenging experiences” when they encountered dual pricing without having prior knowledge. Thus, efforts to deliver justifiable reasons and purposes for the fees should be announced to the visitors through various information channels (e.g. a brochure, notice at the gate or ticket office, and on the website). This type of persuasive communication, in line with the attribution theory, is also expected to mitigate price unfairness, which, in turn, positively affects the WTP (Chung & Petrick, 2012). Conversely, failure to properly explain the rationale for dual pricing to the public could damage the image of the museum or even the government (O’Hagan, 1995).

Finally, it should be emphasized that the findings of this article do not suggest that a museum should commercialize for dealing with financial issues. Rather, a museum is a not-for-profit institution, and it is noted that, “any commercial activities of the museum, and any publicity relating to these, should be in accordance with a clear policy, should be relevant to the basic educational purposes and must not compromise the quality of collections” (Edson, 2005). It is thus recommended that the revenues generated through entrance fees, though little in magnitude, be returned to communities as a means of providing facilities, as well as for acquisition, conservation, and exhibition of collections, and generally to meet the museums missions, all with the purpose of preserving our tangible and intangible heritage.

17 The service quality could be improved, e.g., by operating English guided tours, providing audio-visual devices, presenting useful information related to other tourism attractions, and enhancing facilities for disabled and elderly people.
References


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