

Pay as you Go:
A New Proposal for Museum Pricing

Bruno S. Frey
Lasse Steiner

CESIFO WORKING PAPER NO. 3045
CATEGORY 2: PUBLIC CHOICE
MAY 2010

An electronic version of the paper may be downloaded

- *from the SSRN website:* www.SSRN.com
- *from the RePEc website:* www.RePEc.org
- *from the CESifo website:* www.CESifo-group.org/wp

Pay as you Go: A New Proposal for Museum Pricing

Abstract

Museums have many different goals beyond efficiency such as social equity, financial revenue, attracting donors and gaining international, regional or local prestige. Various pricing schemes are being discussed with the aim of reaching these goals. The classical ones are entry prices and free entry. The museum club solution or exit donations allow for various additional goals. Each scheme has clear advantages and disadvantages. We propose an innovative pricing instrument: Exit prices, which are charged according to the time spent in a museum. This scheme has a number of notable advantages, in particular the better choice available to the visitors, which increases their satisfaction.

JEL-Code: Z11, L30, H40, R32, L21.

Keywords: prices, museums, culture, donations, homo oeconomicus.

Bruno S. Frey
University of Zurich
Institute for Empirical Research in
Economics
Winterthurerstrasse 30
8006 Zurich
Switzerland
bsfrey@iew.uzh.ch

Lasse Steiner
University of Zurich
Institute for Empirical Research in
Economics
Winterthurerstrasse 30
8006 Zurich
Switzerland
lsteiner@iew.uzh.ch

(20 April 2010, LS)

For helpful suggestions we are indebted to Andreas Spillman, Director of the Swiss National Museum. We further thank Reiner Eichenberger, Margit Osterloh, Alfred Kieser, Antoinette Weibel and Reto Cueni for their feedback.

I. Pricing and Goals

The instrument of “price” can be applied in many different ways to museums. The price may be zero (no charge), be imposed or be voluntary (in which case it is a donation). The price is usually to be paid at the point of entry, but we argue that it may also be imposed when exiting. The price may be uniform or differentiated according to the length of the visit, the type of visitor, and the type of exhibition. Museum pricing may be used to reach a variety of different goals:

1. Basic museum responsibilities

In his “Museum Manifesto”, Noble (1970) describes the five basic responsibilities of every museum. In the following decades Noble’s five-part analysis has proven to be useful as an evaluation tool for the systematic assessment of a museum’s performance. These five basic goals are interrelated with each other as well as with the pricing applied by the museums (Merryman 1989):

- *Collection*: The collection of cultural and natural objects dates back to the early stages of human society. Museums collect to extend, consolidate or complete existing collections.
- *Conservation*: To preserve objects from deterioration certain measures such as prevention, conservation, restoration and appropriate treatment need to be taken. Pricing is a major factor to determine the number of visitors, which in turn influences the survival of the objects. Too many visitors deteriorate them.
- *Study*: The scientific treatment involves compiling an inventory and establishing the proof of origin (“provenience”). Without this, the object can lose its value.
- *Exhibition*: The objects are usually presented in permanent or special exhibitions. By exhibiting the museum presents its work to the public and fulfils its educational function.
- *Communication*: There are various forms of communicating the artistic content, such as written captions, personal explanations or electronic tools. The different means are able to address different groups of visitors.¹

2. Economic aspects

Pricing is one of the main determinants influencing the economic outcome of museums. Since most museums receive public support, their economic performance is of high interest for policy makers.

- *Efficiency*: The scarce resources of a museum are to be allocated to produce as much utility as possible. This is the dominant, and in most cases, the only goal considered in standard neo-classical cultural economics.
- *Possibility for differentiation*: As a means of price discrimination, specific groups of (potential) visitors, e.g. locals, can be treated differently than other visitors, e.g. foreign tourists.
- *Financial revenue*: The museum has to raise sufficient revenue to cover its costs. In principle, this should also include all costs of capital, which for museums refer to the location (museums are often in locations of high economic value), the value of the collection, and the value of its buildings. Revenue does not only depend on the price charged but also on the income derived from the museum shop and restaurants, and the renting out of museum facilities. In a more extended way, the donations received from corporate sponsors and private patrons are also part of the revenue.

¹ Noble’s five goals were later condensed to preservation (as combination of collection and conservation), research and communication (which includes exhibition and communication) (Weil 1990).

- *Profit*: It is not usually the purpose of public museums to make profit. However, private museum might do so, especially private galleries selling the objects on display.
- *Donors*: Museums are trying to attract donors who can give money or objects.
- *Museum as advertisement*: In the case of a (fully) sponsored museum, the goal is to attract visitors and gather publicity in order to advertise in favor of the sponsors.
- *Spillover effects*: Firms and other institutions other than the museum profit from the existence of the museum depending on how it charges its visitors.
- *Administrative cost*: Museums may have been inherited from the past and governments keep them only because they already exist. They therefore want to run them at the lowest possible cost.

3. Social or political aspects

One main rationale for the public support of museums is the existence of positive external effects. Politicians or museum managers (Anderson 1998) often argue that free admission should be granted to attract less educated social groups; museums should not end up as 'elitist' institutions.

- *Cultural involvement*: Theoretical and empirical considerations suggest that cultural activities produce more extensive and important positive externalities than elsewhere (Peacock and Rizzo 1994). Pricing can induce groups of people, which rarely or never visit museums to do so more frequently and therefore extend the benefits of the external effects.
- *Social considerations*: People with low income should be given the chance to have access to museums.
- *Education Value*: Museums can foster creativity in general or can be designed to generate ideas for commercial activities (e.g. Victoria & Albert Museum, London). However, many of the educational benefits of having a national historical museum materialize only when the level of participation is high and evenly spread across socioeconomic groups (O'Hagan and Duffy 1995).
- *Number of visitors*: Maximizing the number of visitors in order to increase reputation, gather publicity or attract donors can be achieved through pricing or staging popular exhibitions.
- *Prestige value*: Prestige is generated by the museum for the nation, the region or the local community. Many of the best-known museums in the world such as the Prado, the Uffizi or the Louvre are national icons representing the splendor of their respective cultures and countries.
- *Generate attention*: The museum management's need to gain publicity can be satisfied by special or even shocking exhibitions.

None of these goals can be pursued without affecting other goals. For instance, efficiency pricing with falling average costs leads to a financial loss, thus impacting the revenue goal. Some of these goals cannot be achieved by the market, even if price differentiation is applied. This constitutes one of the rationales for the public support of museums. The goals also differ from one museum to the other, depending on the ownership and funding: public, private, by donations or something in between (Frey and Meier 2006). The analysis and impact of pricing also depend on the degree of congestion of the museum and the existence of close substitute goods.

This paper analyzes museum pricing taking into account the different objectives. In contrast, standard economics focuses on efficiency. The bulk of the literature on museum pricing analyzes the *charging practice*, considering only one or a limited number of museums (Anderson 1998; Bailey and Falconer 1998). Our approach studies the *charging principles* of

museums. Economists can contribute relatively little to the discussion of what the proper objectives of a museum are, so we do not weigh the goals. Further it is impossible to deal with all the varieties of pricing and the different goals in a limited space. We therefore restrict our attention to free entry, which has been extensively discussed in literature and can be supplemented by exit donations (section II). The traditional efficiency approach to museum pricing from the point of view of the other goals is also discussed and extended to the museum clubs (section III). A largely disregarded property of efficient price discrimination is its rejection by most visitors due to fairness considerations (section IV). In the following section we propose a new variant of pricing exit prices, which partly overcomes the disadvantages of other pricing schemes (section V). Conclusions are drawn in section VI.

II. Free Entry Reconsidered

There is extensive literature debating the merits and demerits of granting free entry to museums (O'Hagan 1995; Anderson 1998; Bailey and Falconer 1998). Some countries such as the United Kingdom with its national museums (e.g. the National Gallery or the British Museum in London) follow this policy. If the term "museum" is understood in a broader sense to include World Heritage sights (Frey and Pamini 2009; 2010) this policy is even more common. Free entry is granted into World Heritage cities such as Florence, Bern, Bruges or Venice. The latter could quite easily impose an entry fee but in fact it does not, even though on an average day no less than 39,000 people visit and overcrowd this island and its severely restricted space. Other World Heritage sites like the Machu Picchu have an entry fee but it is so low that it is badly overcrowded and the ruins are quickly deteriorating.²

Generally, free access has gained quite some popularity recently. People have experienced open access in important areas of their life, in particular the Internet³, for instance by downloading songs and films or using open source software (Osterloh et al. 2002). They have also experienced how goods which in the past had to be bought are now offered free of charge. Examples are freely distributed newspapers, or buses in city centers (as, for example, in Perth, Australia).

There are some important advantages of free access to museums. An important one is that it is considered to be "social" as poorer people do not have to pay a price (nor do richer people, but this is, somehow surprisingly, not considered to be unfair). It may also help draw new groups into the cultural experience of museum visits, though this is doubtful (O'Hagan and Duffy 1995; O'Hagan 1995). Empirical evidence suggests that people who visit museums come predominantly from higher social classes (Maddison and Foster 2003; Lampi and Orth 2009). As a consequence, free entry is in favor of the rich and hardly transfers welfare to poorer people. It seems difficult to argue in favor of free entry and subsidizing museums for distributional reasons.

Another advantage is that free entry raises the number of visitors, which may be seen as a sign of increased cultural prestige for the museum. The cost of administration may also be somewhat lower. Finally, an important aspect is that donors prefer non-profit firms, where the possibility that the managers of the firm exploit donors and consumers is limited. The higher the admission charge is, the lesser donors may be willing to give money or objects. With zero admission, they have a higher incentive to make donations (O'Hagan 1998; Frey and Meier 2006).

² http://www.economist.com/world/americas/displaystory.cfm?story_id=15501877

³ The economic situation is different, however, because access to the Internet in most cases is a public good not causing any additional costs – assuming additional users do not decrease the speed for other users.

Free entry is sometimes justified with the efficiency argument that the marginal costs of an additional visitor are zero. In this case, admission charges should be zero to satisfy efficiency. However, there is a general consensus within the cultural economics literature that the costs of museum services are inadequately reported (Bailey and Falconer 1998). There are the usual problems of determining long run and short run marginal costs. Moreover, museums and galleries usually do not measure the opportunity costs of their collections and do not include the value of their collections in their accounts. It is widely agreed that fees are insufficient to cover full costs, for example, visitors may receive a subsidy even when a charge is levied. The assumption of zero marginal cost can be doubted for various reasons: Only in the short run the marginal cost of an additional visitors to institutions operating below full capacity is zero. Long run marginal cost is positive due to the costs of allowing visitors into a museum (security, heating, lighting and physical space). But even in the short run there could be positive marginal cost, e.g. the space that could be used for other purposes such as conservation. In highly visited museums congestions costs might be significant.

Providing free entry has several major disadvantages. Efficiency is not attained if the respective museums are sometimes overcrowded and the quality of a visit diminishes. As a consequence, some museums resort to administrative entry restrictions, which benefit people belonging to an organized group. Da Vinci's Last Supper in Santa Maria delle Grazie in Milan, for instance, offers free entry for certain visitor groups, but only allows visitors who made a reservation considerable time in advance. It is thus not possible for an individual tourist visiting Milan to see this major painting except if he or she has taken the necessary steps ahead of the visit. Another example, where *all* visitors enjoy free access is the Santa Sindone (Holy Shroud), which is displayed this year in the Duomo di San Giovanni in Turino. There is always the danger that entry tickets are reserved and then sold on the black market. In that case, the entry is costly for the visitor but at the same time the museum does not get any revenue. Free entry does not necessarily raise the involvement of people normally far from cultural activities and does not allow any differentiation between local visitors and tourists. Empirical evidence suggests that the entry price level does not affect visits by this group much (Bailey and Falconer 1998). Even if there is no charge the opportunity cost of visiting a museum can be too high, depending on individual preferences. They may also think that "something which has no price has no value". The total revenue of a museum decreases by giving free access. Steiner (1997) estimates the impact of an additional free day on a museum's total revenue. Also including cross price elasticities of shop and restaurant sales, she shows that an additional free day is not profitable for the museum. The number of additional visitors that a museum attracts by free entry is not enough to offset the loss of admission receipts. Finally, the overcrowding caused by free entry contributes to the deterioration of the objects collected.

Museum directors are usually in favor of free access (Anderson 1998). They follow rational considerations to maximize their benefit. Setting up a theoretical principal-agent model for museum administration, Prieto-Rodríguez et al. (2006) define two income sources for a museum: public grants and tickets revenues. The model defines the optimal contract for museum managers considering public grants, ticket prices, budget and managerial effort. Besides theoretically confirming the low price elasticities found in empirical studies they show that museum managers should not have control over the price of tickets in order to induce optimal managerial effort. This is supported by an empirical study by Maddison (2004) who finds that increasing non-grant income produces an equivalent reduction in government grants. A reduction in government grants and a raise in revenue through admissions result in a much higher effort for the museum managers.

Exit donations

Almost all museums, even those with free entry, ask for a voluntary contribution at the end of the visit and half of them impose charges for special or temporary exhibitions (Bailey 1994b). In order to increase revenue it is important to confront the visitors with this option. There are different possibilities for suggesting a donation: Either the museum allows for free donations or suggests a range or level of donation, or it could insist on some payment, but leave the level of payment to the visitor. A main advantage of donations is that they attempt to capture payments according to willingness and ability to pay (O'Hagan 1995).

A voluntary exit donation may be instituted in hopes that visitors, having enjoyed their visit, are willing to make a generous donation to the museum. A classical homo oeconomicus would anyway give nothing. He or she has already profited from the museum and is unwilling to give a present at the end. Extensive empirical research by laboratory experiments and in the field suggests that most people do not behave this way (Frey and Meier 2003; Meier and Stutzer 2007). They are prepared to donate what they consider to be fair. The more satisfied they were with the museum the more they are prepared to spend. It can therefore be predicted that an exit donation will not undermine museum revenue. Visitors have more choice available and this increases their satisfaction, inducing them to spend more in the museum shop and restaurant. The arrangement can be considered social and may effectively increase the involvement of people otherwise not visiting museums (compared to fixed entry prices). The administration is simple but it is important to have a friendly staff. To ask for an exit donation may raise a museum's international, regional and local prestige as it shows a measure of sovereignty.

As the donation is voluntary, it does not act as a rationing device and therefore lead to inefficiently high numbers of visitors, overusing the museum. However, it is more efficient than free entry and produces more financial resources for the museum.

III. Entry Charge

Cultural economics based on neoclassical economics looks at museums as if it were a firm. Following standard welfare analysis, the goal is to allocate the resources as efficiently as possible, i.e. to maximize the net utility produced for society. The (potential) visitors have to be charged a price such that marginal utility equals marginal cost, or such that the demand for visiting the museum equals supply, normally given by a fixed capacity of persons able to visit the museum.

To achieve this goal is not easy because the utility of a visit (or the willingness to pay) depends on the number of visitors. The quality of a visit deteriorates when too many people want to see the objects.⁴ Overcrowding results in queuing, noise and even in an inability to see the objects on display. Empirical evidence suggests that congestion costs can be significant. Using valuation techniques Maddison (2003) estimates the congestion cost posed by the marginal visitors to the British Museum to be as high as £8.05. As the demand for visiting a museum varies, price differentiation is efficient when:

- Demand is low and far from full capacity and the price should be close to zero as additional visitors produce very little additional resource costs. In contrast, when more people than capacity allows want to visit the museum, the price must be raised to ration demand. This guarantees that those individuals with the highest willingness to pay are able to enjoy the museum.

⁴ The relationship between quantity and quality has not to be uniformly negative. Many people do not enjoy to being in an empty museum, so that in that range more visitors increase the utility of the other visitors.

- People with a low price elasticity of demand are to be charged higher prices than those with a high elasticity of demand. The former refrain to a larger extent from visiting a museum when confronted with a higher price. Having two separate entry points into the museum can approximate this differentiation: one with a higher price and a shorter waiting queue, another with a lower price and a longer queue.
- Price can be differentiated according to whether people want to visit a special exhibition (where demand is likely to be higher and therefore price should be higher) and the normal collection, to be priced lower.

Another goal may be to charge lower prices for local residents and to charge foreign visitors with higher prices since they do not contribute to the funding of the museum by paying taxes. This is often done for ski lifts, public swimming pools and also for cultural venues. It is usually compatible with efficiency pricing as tourists have a lower price elasticity of demand and should therefore be charged more. When tourists are in a town with a famous museum (such as Los Angeles and the Getty), visiting the museum is a “must”. It is then efficient to charge tourists a higher price as they visit the museum even if the price is much higher than what locals are prepared to pay. In this case, there is no conflict between the goals of efficiency and cultural involvement of the local population.

Admission charges can be considered reasonable as those who visit a museum are those who derive the most benefit from it, given that a benefit-related tax cannot be implemented. Their contribution through general taxation should be complemented by an admission charge. Visitors derive an extra benefit from going to a museum in addition to e.g. the existence value and should pay for these extra benefits.

The price elasticity for cultural demand normally is estimated to be rather low. Felton (1992) shows that for subscriber attendance of operas ticket prices have a negative influence on demand for opera tickets only if the prices of these tickets reach a very high level. Thus, Felton assumes that ticket prices are not the best explanation for demand, and that the often presumed *ceteris paribus* premise is not realistic. Throsby (1982) finds that quality characteristics have a much higher influence on demand than price. Luksetich and Partridge (1997) also focus on the trade-off between the revenue-enhancing nature of charging or increasing admission fees versus likely decreases in attendance resulting from higher prices. Their major finding is that museum price elasticity is very inelastic (-0.25). A museum facing financial difficulties can therefore generate significant increases in revenue by raising their admission fee. Moreover, while introducing charges reduces the number of visits, it might well be that this is compensated by the duration of the visits.⁵

Two frequent suggestions made in literature are to levy an admission charge only for extra services or to use the revenue created to make the museum more attractive. Where the additional revenues raised by charges are used to improve the standard of service, the number of visitors tends to increase. O’Hagan (1995) finds no negative effect on the introduction of admission charge on attendance, but rather the contrary. By introducing admission charges the Long Room of Trinity College Dublin made several service improvement for visitors. However, there have also been more overseas visitors in Dublin in general with low price elasticity. Furthermore, if there is no close substitute to a museum, consumers have a relatively low price elasticity of demand for attendance.

Quality is an important determinant of cultural demand. People show a willingness to pay a price above the actual admission fee if the quality of exhibition is high (Institut für

⁵ There are also studies that find a stronger impact of charging on attendance. The AEA management consultants calculated that, by introducing an admission charge (depending on the pricing scheme) the British National Museums attendance would drop between one quarter and one third. Museums, which initially charged, but then removed the fees were able to increase the numbers of visitors significantly. E.g. in the Art Gallery of Victoria in Melbourne the number of visitors rose from 600.000 to more than one million (Anderson 1998).

Museumskunde 1996). Admission charges can also be used to promote access, if one assumes net additionally. In this case revenue from charges is an additional income for the museum provided that other funds are not shortened. This may finance increased access in cases where museums no longer have to cut costs by reducing opening hours or where those revenues finance 'outreach' programs. These suggestions are supported by the findings of Kolb (1997). The general assumption that young people do not attend cultural events (in this case performing arts) because ticket prices are too high is contradicted. The major barrier for students is not cost, but the concern that art events are boring.

The great advantage of pricing according to neoclassical principles is that it produces an efficient allocation of the scarce resources of museums – at least up to a point. Efficiency is only local. Due to falling average costs, which result from high fixed costs being distributed to a larger number of visitors, marginal cost and price are below average, resulting in a deficit. If the dead weight loss of financing this deficit is large, the situation may no longer be overall efficient. The deficits produced by museums are generally only a minute part of the overall public budget so that the additional deadweight loss can be assumed to be minor. An additional advantage of the traditional approach to pricing is that the cost includes the deterioration in the quality of the objects due to large numbers of visitors.

The efficiency approach is confronted with various problems. It does not consider distributional aspects. Moreover, it does not consider the goal of attracting new groups to the cultural experience of visiting museums. Neither does it consider the benefits of spillover effects outside the museum or national, regional or local prestige effects. However, since consumers show a low price elasticity for cultural demand, the negative effect of raising the admission price tends to be small. If the revenue created by admission charges is used to improve quality or provide extra services it is even possible to attract a larger audience.

Museum Clubs

A variant of charging entry fees is the club solution. It consists in asking a fixed contribution to become a member of the club giving the right to visit the museum. As a rule, club members enjoy free entry. In this case, the advantages and disadvantages are the same as those of free entry, except that the club contribution raises revenue.⁶

The club solution can have several dimensions and be connected with price discrimination. The contribution may differ according to whether the people are locals, or tourists (who in most cases are not club members), according to income (in which case the social goals are better fulfilled), according to the estimated price elasticity of demand, or according to whether price varies with respect to how far the capacity of the museum is used. The club solution can therefore approximate efficient pricing to a high degree and can at the same time take account for other goals.

The club solution is, however, not conducive to raising the involvement of people who rarely or never visit museums. Indeed, culturally aware people use the membership to a museum club to signal to others their attachment to culture. In contrast, people far from culture will not do so. But museum clubs provide a possibility to involve such people. Museum club membership can be given free of charge to groups of the population traditionally distant from culture. The recipients of the certificate showing they are now members of the museum club – for which others have to pay – may establish a relationship with the museum, and may even fill them with pride. They have an incentive to exploit the possibility to visit "their" museum free of charge. If they opt not to visit the museum, they don't have to pay anything. This

⁶ There are a variety of different clubs at the federal or local level for a network of museums or single museums in Switzerland, among others CH Museumspass, Zürcher Museumspass, Conseil International des Musées, Verband der Museen der Schweiz, Mitglieder Gesellschaft für das Schweizerische Landesmuseum, Mitglieder Association des Amis du Château de Prangins.

makes such a solution attractive though there is, of course, a conflict with the goal of collecting financial revenue.

Membership schemes or annual passes also encourage repeat visits. Once the membership is paid, entrance is free. So if the annual (or life) membership fee is kept reasonably low the fee does not deter access (Bailey and Falconer 1998).

IV. Evaluations of Pricing as Rationing Device

While price differentiations according to elasticities or as a rationing device do contribute to efficiency, they are still surprisingly little used. The most important reason is that visitors reject many forms of pricing, an aspect disregarded by standard neoclassical economics. They do, for instance, not see why a person with low income should not be able to visit a museum, while richer individuals are easily able to pay a (high) entry price. But the rejection of pricing is not only related to income considerations. It has been demonstrated that people in some cases reject the price system as a rationing device and prefer an allocation by tradition or by administrative fiat (Kahneman et al. 1986; Frey and Pommerehne 1993; Frey 2001). There are various reasons why the majority of people reject the price system:

1. *Lack of information*: Non-economists are often not sufficiently aware of the forceful properties of pricing for resource allocation. The basic mechanism of the “invisible hand” is not widely understood and the transfer of modern economic knowledge to the general public has not been undertaken successfully. This lack of economic knowledge is sometimes willingly chosen. For non-economists like lawyers, politicians or museum directors adapting to the economic theory would result in a loss of educational capital acquired in their field of education. To accept that the price system is in most cases best suited to achieve a goal constitutes a loss, which people try to avoid by focusing on their comparative advantage.
2. *Conflict over income distribution*: Interest groups, who expect to lose in the distributional struggle, block the use of price. Even if the price system is known to work efficiently, it is rejected. Distributional concerns could be overcome if costless compensation was possible. However, costless redistribution is not usually possible and therefore political aspects and government intervention prevail (Frey 1999). Modern political economy shows that the reason for government intervention is not market failure, but the struggle over income distribution (Buchanan 1980). As a consequence, issues are discussed in terms of distribution or prospective losses often affecting only a small section of the population. In the case of museums free entry is usually proposed by higher socio-economic classes, which benefit from it the most.
3. *Pricing is considered unfair*: Empirical evidence shows that the use of prices is not welcomed by a large share of the population in circumstances where most economists would recommend its use. In a well-defined excess demand situation, more than three-quarters of the population consider it unfair to allocate the scarce resources via a price increase (Kahneman et al. 1986; Frey and Pommerehne 1993). However, the fairness of pricing must be analyzed in a comparative perspective; no decision-making system is completely fair or unfair. What matters is how prices perform in comparison with their alternatives. With a *traditional* procedure, a fixed rule (e.g. first come, first served) is applied irrespective of excess demand. While this scheme is often applied (also in museums), it does not seem a priori to be particularly fair. A second mechanism is *random* allocation. While one important criterion of “fairness” is met, namely each person is treated equally, it does not take into consideration the “need” of a person. A third procedure is distribution by a selected *group of people*. The most important of such groups is the government, which is bound by democratic rules and

allocates the resources according to administrative principles. The economic theory of bureaucracy points to many different systematic biases inherent in administrative decision making, so the resulting allocation is not expected to be efficient or fair (Breton and Wintrobe 1982). None of these four mechanisms can be a priori expected to be fair when dealing with excess demand. While economists argue that the pricing system is more just, empirical evidence shows that consumers consider tradition and administration to be more fair (Frey 1999).

The subjective evaluation of fairness depends on whether the situation of excess demand is unique and unpredictable or recurrent and to be expected. In the first case supply is given and must be cleared by a rationing device. If the situation occurs often, suppliers are expected to adjust. Prices are considered particularly unfair in situations where they serve to ration demand, compared to when they serve as a decision-making system. This implies that there is less aversion to pricing when it may be expected that it strongly increases supply. In a museum, which is confronted by excess demand and congestion, supply can be raised by extending opening hours.

Museum directorates take this perception into account and refrain from using extensive price variations. These reasons often seem to reflect a gut feeling of the museum community and public administration rather than any deeper reason. However, almost every museum has some type of price differentiation. Often, only a minority of visitors pays the full admission fee. There are discounts for (in diminishing order of frequency) children, elderly, family groups, students, unemployed, disabled, groups of adults, members or “friends” of the museum and local residents (Bailey 1994a). These discounts often do not correspond to efficiency considerations, e.g. senior people have, on average, a lower price elasticity of demand to visit museums and should therefore be charged a higher efficient price.

V. Exit Price

Considering the significant negative aspects of free entry and efficiency pricing, we want to propose a new pricing mechanism for museums: the application of exit prices. Instead of charging visitors when they enter the museum, they are charged when they leave it. The longer time is spent in the museum, the higher is the exit price.

Surprisingly, this pricing mechanism has not been considered in the debate about museum admission fees so far. This “art per minute” is similar to the costs of putting a car into a parking garage and then paying at the exit, according to the length of time the facility has been used. There are also similar pricing schemes for e.g. swimming halls or saunas. Exit prices should be indicated at the point of entry so that the visitors may adjust. For instance, it may indicate that a hour-long visit costs 10 Euros, and one of two hours 15 Euros. Of course the price does not have to be calculated discretely; it can also be calculated continuously, e.g. per minute. Marginal admission rates (the price a visitor has to pay for one minute) can be constant or decrease with time. Decreasing rates would induce a longer visit, since average cost per minute are decreasing. Also price discrimination is possible. One goal could be to increase efficiency by charging for example tourists or elderly people with a lower elasticity of demand a higher rate per minute. One can also consider fairness arguments, such as charging a lower rate for unemployed visitors.

The classical homo oeconomicus of neoclassical theory would optimize the intake of culture per minute to balance the pro rata price of exit. This may be considered a disadvantage. The length of the museum visit becomes even more part of an economic calculus than it already is. In contrast to entry prices the individual only has to calculate the opportunity cost of his or her time as the price does not depend on how long the visit is.

Exit prices have the major advantage that they take into account how satisfied the visitors were with the museum. One critical but usually disregarded characteristic of a museum is that the visit is an experience good. An experience good is a product or service where the product characteristics such as quality is difficult to observe in advance, but these characteristics can only be ascertained upon consumption (Nelson 1970). Experience goods pose difficulties for consumers in accurately making consumption choices. This characteristic can justify charging the visitors of a museum when they leave. Efficiency is raised because visitors pay according to their use of the facility. Compared to an entry price they have an additional margin to adjust according to their preferences, which is due to raise their utility. One of the basic tenets of welfare theory is that individuals gain when their opportunity set is larger (Frey 1999). Those whose utility increases when they choose a bundle of goods in the enlarged set (museum visitors who can adjust the time and money they spend) are better off, while all the others do not lose anything (the ones who do not visit museums).

As a side effect of being more satisfied, visitors may be willing to spend more money at the museum shop and restaurant. Moreover, the price system is considered to be less unfair than an entry price. Those staying longer have profited more and may find it fair to pay more than somebody staying only for a short period. Exit charges lead to greater involvement of people otherwise far from culture, if a certain amount of time at the beginning of the visit is free of charge. When, for example, the first 20 minutes are free, they can leave the museum without paying if they did not enjoy it. With entry prices, the cost must be paid at the very beginning and it may demotivate them (Kirchberg 1998). The scheme is not difficult from the administrative point of view as pricing can easily be done by machines. Furthermore, its introduction may be a good advertisement for the museum due to the media coverage of the innovative pricing scheme. Whether exit prices increase revenue, and whether they help to preserve the objects on display depends on how they are fixed, and cannot be evaluated in general.

A possible extension of the exit price mechanism is a refund at the end of the visit. In this case visitors buy their ticket at the entrance, but if they stay less than a certain amount of time they get their money back according to how much less time they spent in the museum. This variation is analogous to ski resorts, where visitors get a refund if they use their daily pass only for some hours. The positive aspects are basically the same as for exit prices; visitors pay according to their satisfaction. However, since visitors have already paid at the entrance the incentive to rush is mitigated.

VI. Conclusions

Museums have many different goals to fulfill, not simply efficiency as assumed in neo-classical economics. Important additional goals are social equity, the involvement of groups otherwise far from culture, financial revenue, spillover effects on other institutions, conservation of the objects collected, administrative simplicity and international, regional and local prestige of the museum.

Various pricing schemes have been discussed. The classical ones are free entry and efficiency entry prices. Both have significant advantages and disadvantages. Free entry has the potential to attract more visitors, but since museum visitors come mainly from higher socio-economic classes, waiving the fee results in an undesired redistribution from lower to higher income classes. The existence of positive external effects of museum visits supports free entry. However, the benefit for visitors is higher than for non-visitors. Short run marginal cost above zero and a low price elasticity of cultural demand also help levy some kind of admission charge. Standard pricing fulfills efficiency criteria, but it was argued that people are opposed to the use of the price system to ration demand. The price system is considered to be unfair,

because it does not take into account distributional aspects and the actual ‘need’ of consumers. The museum club solution offers some attractive advantages to efficiency pricing and free entry as it offers more flexibility to take various goals into account, in particular involving people otherwise rarely or never visiting museums.

This paper proposes a novel approach, which has not been considered in the museum pricing debate so far: The use of exit prices. They also have some disadvantages. People might be induced to rush through the exhibition, but such behavior can be mitigated by charging a marginally decreasing exit price per unit of time. Exit prices have a number of notable advantages. The most important is the increased choice available to visitors, which raises their satisfaction. Since a museum is an experience good it is difficult for consumers to make accurate consumption choices in advance. Efficiency is raised because the visitors pay depending on their use of the facility. Exit prices may also be considered as more fair compared to efficiency pricing because people can adjust their payment according to their needs. When evaluating the impact of different pricing schemes, it has to be considered that there are also other barriers to access, such as inflexible opening hours, unimaginative presentation and traveling costs. Exit prices are only one example of an innovation in museum prices. It would be interesting to see other alternatives to classical entry pricing, or to free access.

References

- Anderson, R. G. W. (1998). Is Charging Economic? *Journal of Cultural Economics* 22(2): 179-187.
- Bailey, Stephen J. (1994a). Charging for Local Government Services: A Coherent Philosophy. *Public Administration* 72: 365-384.
- Bailey, Stephen J. (1994b). User Charges for Urban Services. *Urban Studies* 31: 745-765.
- Bailey, Stephen J. and Peter Falconer (1998). Charging for Admission to Museums and Galleries: A Framework for Analysing the Impact on Access. *Journal of Cultural Economics* 22(2): 167-177.
- Breton, Albert and Ronald Wintrobe (1982). *The Logic of Bureaucratic Conduct*. Cambridge, New York and Melbourne: Cambridge University Press.
- Buchanan, James M. (1980). Rent Seeking and Profit Seeking. In: James M. Buchanan, Robert M. Tollison and Gordon Tullock (eds). *Toward a Theory of the Rent-Seeking Society*. Texas: Texas A & M University Press.
- Felton, Marianne (1992). On the Assumed Inelasticity of Demand for the Performing Arts. *Journal of Cultural Economics* 16(1): 1-12.
- Frey, Bruno S. (1999). *Economics as a Science of Human Behaviour: Towards a New Social Science Paradigm*. Second edition. Boston; Dordrecht and London: Kluwer Academic.
- Frey, Bruno S. (2001). *Inspiring Economics: Human Motivation in Political Economy*. Cheltenham, UK and Northampton, MA: Edward Elgar.
- Frey, Bruno S. and Paolo Pamini (2010). World Heritage: Where Are We? An Empirical Analysis. *CESifo Working Paper Series*. Munich: IFO.
- Frey, Bruno S. and Stephan Meier (2003). Social Comparisons and Pro-Social Behavior: Testing Conditional Cooperation in a Field Experiment. IEW Working Paper No. 162, University of Zurich.
- Frey, Bruno S. and Stephan Meier (2006). The Economics of Museums. In: Victor A. Ginsburgh and David Throsby (eds). *Handbook of the Economics of Art and Culture*, vol. 1. Amsterdam: Elsevier.

- Frey, Bruno S. and Paolo Pamini (2009). Making World Heritage Truly Global: The Culture Certificate Scheme. *Oxonomics* 4(2): 1-9.
- Frey, Bruno S. and Werner W. Pommerehne (1993). On the Fairness of Pricing. An Empirical Survey among the General Population. *Journal of Economic Behavior and Organization* 20(3): 295-307.
- Institut für Museumskunde und ifo Institut für Wirtschaftsforschung (1996). *Eintrittspreise Von Museen Und Ausgabeverhalten Der Museumsbesucher*. Berlin.
- Kahneman, Daniel, Jack L. Knetsch and Richard Thaler (1986). Fairness as a Constraint on Profit Seeking: Entitlements in the Market. *The American Economic Review* 76(4): 728-741.
- Kirchberg, Volker (1998). Entrance Fees as a Subjective Barrier to Visiting Museums. *Journal of Cultural Economics* 22(1): 1-13.
- Kolb, Bonita M. (1997). Pricing as the Key to Attracting Students to the Performing Arts. *Journal of Cultural Economics* 21(2): 139-146.
- Lampi, Elina and Matilda Orth (2009). Who Visits the Museums? A Comparison between Stated Preferences and Observed Effects of Entrance Fees. *Kyklos* 62(1): 85-102.
- Luketich, William A. and Mark D. Partridge (1997). Demand Functions for Museum Services. *Applied Economics* 29(12): 1553 - 1559.
- Maddison, David (2004). Causality and Museum Subsidies. *Journal of Cultural Economics* 28(2): 89-108.
- Maddison, David and Terry Foster (2003). Valuing Congestion Costs in the British Museum. *Oxford Economic Papers* 55(1): 173-190.
- Meier, Stephan and Alois Stutzer (2007). Is Volunteering Rewarding in Itself? *Economica*, forthcoming.
- Merryman, John Henry (1989). The Public Interest in Cultural Property. *California Law Review* 77(2): 339-364.
- Nelson, Phillip (1970). Information and Consumer Behavior. *Journal of Political Economy* 78(2): 311.
- Noble, Joseph Veach (1970). Museum Manifesto. *Museum News* April: 27-32.
- O'Hagan, John and Christopher Duffy (1995). National Museums: Functions, Costs and Admission Charges. *The European Journal of Cultural Policy* 1(2): 369 - 380.
- O'Hagan, John W. (1995). National Museums: To Charge or Not to Charge? *Journal of Cultural Economics* 19(1): 33-47.
- O'Hagan, John W. (1998). Art Museums: Collections, Deaccessioning and Donations. *Journal of Cultural Economics* 22(2): 197-207.
- Osterloh, Margit, Bernhard Kuster and Sandra Rota (2002). Open Source Software Production- Climbing on the Shoulders of Giants. *IEW Working Paper*. Zurich: University of Zurich.
- Peacock, Alan T. and Ilde Rizzo (1994). *Cultural Economics and Cultural Politics*. Dordrecht: Kluwer Academic Publishers.
- Prieto-Rodríguez, Juan and Víctor Fernández-Blanco (2006). Optimal Pricing and Grant Policies for Museums. *Journal of Cultural Economics* 30(3): 169-181.
- Steiner, Faye (1997). Optimal Pricing of Museum Admission. *Journal of Cultural Economics* 21(4): 307-333.
- Throsby, C. D. (1982). Social and Economic Benefits from Regional Investment in Arts Facilities: Theory and Application. *Journal of Cultural Economics* 6(1): 1-13.
- Weil, Steohen E. (ed.) (1990). *Rethinking the Museum: An Emerging New Paradigm*. Rethinking the Museum and Other Meditations. Washington: Smithsonian Institution Press.

CESifo Working Paper Series

for full list see www.cesifo-group.org/wp

(address: Poschingerstr. 5, 81679 Munich, Germany, office@cesifo.de)

- 2981 Frederick van der Ploeg, Rapacious Resource Depletion, Excessive Investment and Insecure Property Rights, March 2010
- 2982 Wolfram F. Richter and Christoph Braun, Efficient Subsidization of Human Capital Accumulation with Overlapping Generations and Endogenous Growth, March 2010
- 2983 Francesco Cinnirella, Marc Piopiunik and Joachim Winter, Why Does Height Matter for Educational Attainment? Evidence from German Pre-Teen Children, March 2010
- 2984 Bernard Van Praag, Well-being Inequality and Reference Groups – An Agenda for New Research, March 2010
- 2985 Francesca Barion, Raffaele Miniaci, Paolo M. Panteghini and Maria Laura Parisi, Profit Shifting by Debt Financing in Europe, March 2010
- 2986 Alexander Haupt and Magdalena Stadejek, The Choice of Environmental Policy Instruments: Energy Efficiency and Redistribution, March 2010
- 2987 John Komlos and Marek Brabec, The Trend of BMI Values among US Adults, March 2010
- 2988 Emanuele Massetti and Lea Nicita, The Optimal Climate Policy Portfolio when Knowledge Spills across Sectors, March 2010
- 2989 Helmut Rainer and Thomas Siedler, Family Location and Caregiving Patterns from an International Perspective, March 2010
- 2990 Toru Kikuchi and Ngo Van Long, A Simple Model of Service Offshoring with Time Zone Differences, March 2010
- 2991 Assaf Razin, Efraim Sadka and Benjarong Suwankiri, Migration and the Welfare State: Dynamic Political-Economy Theory, March 2010
- 2992 Bård Harstad, Buy Coal! Deposit Markets Prevent Carbon Leakage, March 2010
- 2993 Axel Dreher, Stephan Klasen, James Raymond Vreeland and Eric Werker, The Costs of Favoritism: Is Politically-driven Aid less Effective?, March 2010
- 2994 Sven Neelsen and Thomas Stratmann, Effects of Prenatal and Early Life Malnutrition: Evidence from the Greek Famine, March 2010
- 2995 Claude Hillinger and Bernd Süßmuth, The Quantity Theory of Money: An Assessment of its Real Linchpin Prediction, March 2010

- 2996 Matthew M. Chingos and Martin R. West, Do More Effective Teachers Earn More Outside of the Classroom?, March 2010
- 2997 Laurence Jacquet and Dirk Van de gaer, A Comparison of Optimal Tax Policies when Compensation or Responsibility Matter, March 2010
- 2998 Valentina Bosetti, Carlo Carraro, Romain Duval and Massimo Tavoni, What Should we Expect from Innovation? A Model-Based Assessment of the Environmental and Mitigation Cost Implications of Climate-Related R&D, March 2010
- 2999 Scott Alan Carson, Nineteenth Century Stature and Family Size: Binding Constraint or Productive Labor Force?, March 2010
- 3000 Jukka Pirttilä and Ilpo Suoniemi, Public Provision, Commodity Demand and Hours of Work: An Empirical Analysis, March 2010
- 3001 Bertrand Candelon and Franz C. Palm, Banking and Debt Crises in Europe: The Dangerous Liaisons?, March 2010
- 3002 Joan Costa-i-Font and Marin Gemmill-Toyama, Does Cost Sharing really Reduce Inappropriate Prescriptions?, March 2010
- 3003 Scott Barrett, Climate Treaties and Backstop Technologies, March 2010
- 3004 Hans Jarle Kind, Tore Nilssen and Lars Sørgard, Price Coordination in Two-Sided Markets: Competition in the TV Industry, March 2010
- 3005 Jay Pil Choi and Heiko Gerlach, Global Cartels, Leniency Programs and International Antitrust Cooperation, March 2010
- 3006 Aneta Hryckiewicz and Oskar Kowalewski, Why do Foreign Banks Withdraw from other Countries? A Panel Data Analysis, March 2010
- 3007 Eric A. Hanushek and Ludger Woessmann, Sample Selectivity and the Validity of International Student Achievement Tests in Economic Research, March 2010
- 3008 Dennis Novy, International Trade and Monopolistic Competition without CES: Estimating Translog Gravity, April 2010
- 3009 Yin-Wong Cheung, Guonan Ma and Robert N. McCauley, Renminbising China's Foreign Assets, April 2010
- 3010 Michel Beine and Sara Salomone, Migration and Networks: Does Education Matter more than Gender?, April 2010
- 3011 Friedrich Schneider, Tilman Brück and Daniel Meierriecks, The Economics of Terrorism and Counter-Terrorism: A Survey (Part I), April 2010
- 3012 Friedrich Schneider, Tilman Brück and Daniel Meierriecks, The Economics of Terrorism and Counter-Terrorism: A Survey (Part II), April 2010

- 3013 Frederick van der Ploeg and Steven Poelhekke, The Pungent Smell of “Red Herrings”: Subsoil Assets, Rents, Volatility and the Resource Curse, April 2010
- 3014 Vjollca Sadiraj, Jan Tuinstra and Frans van Winden, Identification of Voters with Interest Groups Improves the Electoral Chances of the Challenger, April 2010
- 3015 Guglielmo Maria Caporale, Davide Ciferri and Alessandro Girardi, Time-Varying Spot and Futures Oil Price Dynamics, April 2010
- 3016 Scott Alan Carson, Racial Differences in Body-Mass Indices for Men Imprisoned in 19th Century US Prisons: A Multinomial Approach, April 2010
- 3017 Alessandro Fedele, Paolo M. Panteghini and Sergio Vergalli, Optimal Investment and Financial Strategies under Tax Rate Uncertainty, April 2010
- 3018 Laurence Jacquet, Take it or Leave it: Take-up, Optimal Transfer Programs, and Monitoring, April 2010
- 3019 Wilhelm Kohler and Jens Wrona, Offshoring Tasks, yet Creating Jobs?, April 2010
- 3020 Paul De Grauwe, Top-Down versus Bottom-Up Macroeconomics, April 2010
- 3021 Karl Ove Aarbu, Demand Patterns for Treatment Insurance in Norway, April 2010
- 3022 Toke S. Aidt and Jayasri Dutta, Fiscal Federalism and Electoral Accountability, April 2010
- 3023 Bahram Pesaran and M. Hashem Pesaran, Conditional Volatility and Correlations of Weekly Returns and the VaR Analysis of 2008 Stock Market Crash, April 2010
- 3024 Stefan Buehler and Dennis L. Gärtner, Making Sense of Non-Binding Retail-Price Recommendations, April 2010
- 3025 Leonid V. Azarnert, Immigration, Fertility, and Human Capital: A Model of Economic Decline of the West, April 2010
- 3026 Christian Bayer and Klaus Wälde, Matching and Saving in Continuous Time: Theory and 3026-A Matching and Saving in Continuous Time: Proofs, April 2010
- 3027 Coen N. Teulings and Nick Zubanov, Is Economic Recovery a Myth? Robust Estimation of Impulse Responses, April 2010
- 3028 Clara Graziano and Annalisa Luporini, Optimal Delegation when the Large Shareholder has Multiple Tasks, April 2010
- 3029 Erik Snowberg and Justin Wolfers, Explaining the Favorite-Longshot Bias: Is it Risk-Love or Misperceptions?, April 2010
- 3030 Doina Radulescu, The Effects of a Bonus Tax on Manager Compensation and Welfare, April 2010

- 3031 Helmut Lütkepohl, Forecasting Nonlinear Aggregates and Aggregates with Time-varying Weights, April 2010
- 3032 Silvia Rocha-Akis and Ronnie Schöb, Welfare Policy in the Presence of Unionised Labour and Internationally Mobile Firms, April 2010
- 3033 Steven Brakman, Robert Inklaar and Charles van Marrewijk, Structural Change in OECD Comparative Advantage, April 2010
- 3034 Dirk Schindler and Guttorm Schjelderup, Multinationals, Minority Ownership and Tax-Efficient Financing Structures, April 2010
- 3035 Christian Lessmann and Gunther Markwardt, Decentralization and Foreign Aid Effectiveness: Do Aid Modality and Federal Design Matter in Poverty Alleviation?, April 2010
- 3036 Eva Deuchert and Conny Wunsch, Evaluating Nationwide Health Interventions when Standard Before-After Doesn't Work: Malawi's ITN Distribution Program, April 2010
- 3037 Eric A. Hanushek and Ludger Woessmann, The Economics of International Differences in Educational Achievement, April 2010
- 3038 Frederick van der Ploeg, Aggressive Oil Extraction and Precautionary Saving: Coping with Volatility, April 2010
- 3039 Ainura Uzagalieva, Evžen Kočenda and Antonio Menezes, Technological Imitation and Innovation in New European Union Markets, April 2010
- 3040 Nicolas Sauter, Jan Walliser and Joachim Winter, Tax Incentives, Bequest Motives, and the Demand for Life Insurance: Evidence from two Natural Experiments in Germany, April 2010
- 3041 Matthias Wrede, Multinational Capital Structure and Tax Competition, April 2010
- 3042 Burkhard Heer and Alfred Maussner, A Note on the Computation of the Equity Premium and the Market Value of Firm Equity, April 2010
- 3043 Kristiina Huttunen, Jukka Pirttilä and Roope Uusitalo, The Employment Effects of Low-Wage Subsidies, May 2010
- 3044 Matthias Kalkuhl and Ottmar Edenhofer, Prices vs. Quantities and the Intertemporal Dynamics of the Climate Rent, May 2010
- 3045 Bruno S. Frey and Lasse Steiner, Pay as you Go: A New Proposal for Museum Pricing, May 2010