Nudging Art Lovers to Donate More

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ABSTRACT

In an era of greater public sector scrutiny and budgetary constraint, this paper applies the 'nudge' concept to arts and cultural organizations in order to identify innovative ways of generating revenue with which to supplement government subsidies. Our empirical study was carried out with the Royal Scottish Academy in Edinburgh, and investigates whether visitors' willingness-to-pay and willingness-to-donate to the New Contemporaries Exhibition differ according to how questions are framed. The effects of information provision regarding the organization's funding status and loss aversion are tested based on a survey design incorporating randomized controlled trials. We find partial effects of loss aversion and secondary effects of the information provided on funding status on visitors' willingness-to-donate. Our study concludes that there is ample scope for implementing behavioral interventions to increase awareness of the need to support arts and cultural organizations.

KEY WORDS   stated preferences; funding status; framing; loss aversion; cultural value

INTRODUCTION

Culture is acknowledged to be no longer merely a 'sector' but a 'connector' linking other key societal and economic dimensions (Sacco, Ferilli, and Tavano, 2012). International awareness of the social impact of participating in arts and cultural activities suggests such engagement is critical to promoting both individuals' self-worth and sustainable communities (Arts Council England, 2007; Potts et al., 2008; Sacco and Segre, 2009). Fujiwara (2013) finds that the value of happiness gained from participating in the arts is around £3,200 annually per capita. Other literature emphasizes the role of cultural organizations (Kirby et al., 2003).

Many arts and cultural organizations worldwide are becoming less sustainable, however, due to scarce public funding (Scott, 2014; Belfiore, 2002). Simultaneously, arts and cultural organizations are pressurized to demonstrate public value, accountability for government funding and identification of novel ways to fill the funding gap (Crossick and Kaszynska, 2014). Following the 2007-2008 financial crisis, and in an era of greater public scrutiny and budgetary constraint (Throsby, 2003), it is critical for arts organizations to demonstrate their 'value' to the economy. The current climate has made generation of revenue from sponsorship and donations more challenging (Crossick and Kaszynska, 2014). Consequently, cultural organizations are required to develop new ways of generating revenue to supplement government subsidies (Jaffry and Apostolakis, 2011).

This study, carried out with the cooperation of the Royal Scottish Academy (RSA), investigates whether visitors' willingness-to-pay (WTP) and willingness-to-donate (WTD) to the RSA's New Contemporaries Exhibition (NCE) differ according to how survey questions are framed. The RSA is an independent, privately funded, non-profit charitable organization, led by eminent Scottish artists and architects, which receives no direct government funding. With a mission to promote and support the visual arts, the RSA also offers all-year program

of charged and free-entry exhibitions, a number of residencies, scholarships and awards for artists and architects.

Since 1976, the RSA has provided a platform for recent Scottish art school graduates to showcase their talents through the RSA NCE. There are limited opportunities for graduating artists to engage with public audiences, one such platform is the RSA NCE (Fillis, Lee, and Fraser, 2015). The RSA NCE 2014 took place from 15th February to 12th March, attracting over 7,000 visitors. This exhibition was ticketed (£4 standard, £2 concession). 'Friends of the RSA' enjoy free admission, along with a guest. Annual subscriptions for 'Friends of the RSA' cost between £20 and £150. Over 300 purchasable artworks were exhibited including installation works, oil paintings, watercolors, drawings, prints, interactive pieces, sculpture, performance and architecture, by 64 emerging artists selected (approximately 1 in 7 students) from each of the five art colleges and five architectural schools in Scotland.

The RSA's annual report for the year ending 30 November 2012 reports total annual income of £489,586, about 50% (£226,835) of which is generated from the RSA's portfolio of listed investments (market value £6.8m). About 25% (£125,289) derives from its rolling program of exhibitions, in the form of sales commission, admission and sponsorship. Awards, donations and legacies (£42,605) account for 8.7% of income. Sales of paintings, drawings and furniture, picture rental and grants accounts for the remaining income. The RSA has recently experienced disappointing investment returns. If current economic circumstances persist, sales and private donations will assume greater importance as elements of recurring income. Due, however, to its location adjoining the publicly funded National Gallery of Scotland, which offers free admission, the RSA's funding status is easily misunderstood.

The 'crowding-out' hypothesis which argues that government funding displaces or discourages private giving suggests that such misunderstanding may cause adverse

consequences in terms of falling donations (Abrams and Schmitz, 1984; Dokko, 2009; Kim and Van Ryzin, 2013). Since the 1850 Public Libraries and Museums Act, which permits free entry to museums and libraries, the UK public have become familiar with free access to cultural sites, taking the resultant benefits 'for granted' (Bailey and Falconer, 1998).

In this paper, we explore the concept of 'nudge' in the context of cultural organizations attempting to generate income in order to become financially more sustainable. 'Nudge' summarizes informally the central idea of the behavioral theory developed by Thaler and Sunstein (2008), which demonstrates how individual behavior may be influenced in predictable ways by simple and economical interventions. In contrast to standard economic theory based on utility maximization, behavioral economic theory assumes that individuals are prone to bias, emotional, myopic, easily confused and distracted; often using 'mental shortcuts' when making, often suboptimal, decisions (Ariely, 2010; Kahneman and Tversky, 2000; Kahneman, 2011). 'Nudges' utilize such personality 'flaws,' in order to enhance decision-making quality (Hausman and Welch, 2010). A well-known example is the 'Save More Tomorrow' initiative of Thaler and Benartzi (2004), a prescriptive savings program for US employees which encourages them to increase their personal saving rates on receipt of a pay rise while reserving to them an ability to 'opt-out'. Interventions such as default options, personalization, salience and framing have been applied in various domains including health and well-being (Johnson and Goldstein, 2003), tax compliance (Bhargava and Manoli, 2013) and charitable giving (Kogut and Ritov, 2005).

We implement the concept of 'nudge' by applying the stated preference techniques, WTP and WTD, of Contingent Valuation Methods (CVM), a well-established valuation measure for non-market goods and services (Portney, 1994). Values revealed by individuals are contingent upon the hypothetical market constructed in, usually, an experiment designed to elicit their preferences in monetary terms for changes in the quantity or quality of non-

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market goods or services (Mourato et al., 2000). Such techniques have been applied to both public goods and environmental amenity valuations (Hanemann, 1994; Carson, Wilks and Imber, 1994; Eftec, 2010). Since the seminal study of Throsby and Withers (1983), economic valuation based on CVM has become popular in arts and culture (see Noonan, 2003; Martin, 1994), e.g. the studies of the Royal Theatre in Copenhagen (Hansen, 1997), the British Museum (Jaffry and Apostolakis, 2011), and the Museum of Central Finland (Tohmo, 2004).

Previous studies, nevertheless, have identified drawbacks in CVM due to biases in individuals' preferences and decision-making (Bedate, Herrero and Sanz, 2009). Both Schulze et al. (1981) and Murphy et al. (2005) find that individuals often suffer from hypothetical bias, being disposed to overestimate their WTP. Bedate, Herrero and Sanz (2009) argue that individuals exhibit free-rider behavior when confronted with conjectural questions and that their expressed preferences are biased so as to achieve their personal satisfaction regardless of the costs which would be incurred in reality. Throsby (2003) stresses informational problems such as stated preferences being heavily dependent on the amount of information provided, or the inability to provide an accurate evaluation due insufficient knowledge. Individuals may be unfamiliar with, or lack experience in, the specific case setting when formulating their preferences (Bedate, Herrero and Sanz, 2009).

Disparities between willingness-to-accept (WTA) when giving up and WTP to obtain a good or utility have been explained by reference-dependent preference theory (Tversky and Kahneman, 1991), the 'endowment effect' (Plott and Zeiler, 2005), the 'loss aversion effect' (Kahneman and Tversky, 1979), and cognitive dissonance of individuals who engage in 'wishful thinking' (Knetsch and Sinden, 1984; Coursey, Hovis and Schulze, 1987). Sugden (2005) argues that a number of anomalies apparent in individuals' stated preferences demonstrate systematic deviations from the predictions of standard economic theory.

Dolan and Metcalfe (2008) and Dolan et al. (2010) claim that the pervasive problem derives from the neoclassical economic paradigm, which assumes that individuals have a coherent and rational set of preferences enabling them to be the 'best' judges of their own welfare. Addressing these drawbacks of CVM by following the assumptions of behavioral economics (Slovic, 1995; Kahneman and Tversky, 2000; Ariely et al., 2003), provides us with opportunities to incorporate behavioral interventions in such a way as to 'nudge' individuals towards better decision-making (Alevy, List, and Adamowicz, 2011).

Our experimental design has two principal features. Firstly, we incorporate the information provision effect regarding the RSA's funding status in our WTP question. Most members of the public are unaware that the RSA is privately funded. Even if visitors are aware of this, providing extra information may trigger greater WTP, engendering contextual priming. We therefore assess the impact of such information on WTP in the form of a hypothetical entry fee to the NCE. Thus our first hypothesis is that individuals who are informed about the RSA's funding status will exhibit greater WTP than those uninformed.

Secondly, we elicit visitors' WTD by introducing both gain and loss-framed scenarios in accordance with the 'loss aversion' effect of Prospect Theory (Kahneman and Tversky, 1979). In the context of the unique position of the NCE in terms of showcasing works produced by recent art college graduates, we test whether the respective possibilities of either gaining one more exhibition or losing the only existing exhibition influence WTD. Based on the proposition of Prospect Theory whereby individuals are more sensitive to losses than to gains, our second hypothesis is that individuals allocated to loss-framed scenarios will donate more than those allocated to both gain-framed and unframed scenarios.

We find both partial effects of loss aversion and secondary effects of information provision on funding status which influence visitors' WTD. Our findings are statistically significant after controlling for both experienced cultural value deriving from the exhibition

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and socio-economic characteristics of visitors (Throsby, 2006; O'Brien, 2010). Our results indicate scope for implementing behavioral interventions to increase support for arts and cultural organizations.

METHODS

Empirical Survey Design

We developed our empirical survey by following Pearce and Ozdemiroglu (2002). The survey was administered to visitors to the RSA NCE 2014. Firstly, we assessed the extent of visitors' interest in the arts. We included a series of questions intended to measure different aspects of value of the exhibition, artworks and curation: these questions were answered before the WTP and WTD questions, as subjective cultural experiences were expected to determine individuals' economic valuations (Bakhshi and Throsby, 2010). We discuss these questions in the next section. Our questions for both WTP and WTD, define the economic 'good' clearly as the RSA NCE, which visitors had experienced immediately prior to survey completion. The amount which visitors paid for admission is identified and whether they were ticketed as adults, concession or enjoyed free entry as 'Friends of the RSA'. Questions regarding participants' socio-demographical backgrounds are included. An initial pilot survey indicated an expected time for completion of about 10 minutes. The majority of the data was collected on-site; an on-line survey was also made available via a private link

In order to investigate how psychological effects influence visitors' economic valuations of the RSA NCE, we employ Randomized Controlled Trials (RCT). To test our first hypothesis which concerns the information provision effect of the RSA's funding status on visitors' WTP, we create two versions of the question eliciting WTP in terms of a hypothetical entry fee to the NCE; 'Uninformed (U)' and 'Informed (I)'.

The 'Uninformed (U)' control group receives the question in the following form, "*How much would you be willing to pay as an entry fee to this exhibition?*"

The 'Informed (I)' treatment group receives the question incorporating additional information as follows, "*The RSA is an independent, privately-funded institution not receiving any core local or central government funding. How much would you be willing to pay as an entry fee to this exhibition*?"

If, in accordance with our first hypothesis, we observe relatively greater WTP of the informed group than that of the uninformed group, this suggests that institutions such as the RSA might usefully highlight funding status information when setting entry prices.

In order to test our second hypothesis, the WTP question is followed by a question eliciting visitors' WTD to the RSA. This question has three different versions, of which two versions incorporate hypothetical scenarios designed in accordance with the 'loss aversion' effect of Prospect Theory (Kahneman and Tversky, 1979).

Firstly, the 'Reference (R)' group is a control group, which represents the *Status Quo*, the current utility position of visitors. For this group, the question is set in the following form: "*The RSA NCE is the only exhibition showcasing the artworks of Scotland's emerging talent. Supposing that the RSA was raising funds for the NCE, how much would you be willing to donate?*"

Secondly, the 'Gain-framed (G)' group is one of two treatment groups and the question is framed as follows: "*RSA NCE is the only exhibition showcasing the artworks of Scotland's emerging talent. Supposing that the RSA is raising funds to provide another platform similar to the NCE for emerging artists within Scotland, how much would you be willing to donate?*"

Visitors allocated to this treatment have the potential to move their utility from the *Status Quo* to the *Domain of Gain* as described in Prospect Theory (Kahneman and Tversky,

1979). The question seeks to elicit individuals' WTD in order to enjoy 'one more' event similar to the NCE.

Thirdly, the 'Loss-framed (L)' group constitutes a second treatment group which introduces the potential for visitors to move their utility from the *Status Quo* to the *Domain of Loss* via the hypothetical scenario of raising funds in order to prevent an outcome whereby there is no longer any platform similar to the RSA NCE available for consumption; in effect this would mean that the RSA NCE itself was 'lost'. The question is therefore asked in the following form: "*RSA NCE is the only exhibition showcasing the artworks of Scotland's emerging talent. Supposing that the RSA was in a position where it had to discontinue the exhibition because of financial constraints, how much would you be willing to donate in order for the RSA to be able to continue with the exhibition?*"

Prospect theory argues that since individuals are known to be loss averse, they experience pain, when they lose a given amount, of a magnitude which is greater than that of the enjoyment experienced when gaining the same amount. We therefore expect the scenario which postulates losing the RSA NCE to give rise to the highest WTD. The three versions allow us to test whether the difference in WTD stems from diminishing marginal utility of consumption; intuitively, there may be considerable benefit accruing from the first NCE, but a second may be less beneficial. Based on the propositions of Prospect Theory, we hypothesize that average WTD is highest for the loss-frame, then for the gain-frame, followed lastly by the control group. If we observe greater WTD of the visitors allocated to the loss-framed group than other groups, the RSA might usefully consider implementing this intervention with a view to increasing private donations.

The question concerning WTD was asked after the WTP question, thus responses to the WTD question could be affected by the conditions experienced when answering the WTP question. Results for WTD may therefore be confounded by respondents' consideration of

WTP. Thus in order to test our hypotheses independently of each other, we create six versions of the survey, 2(WTP; U, I)*3(WTD; R, G, L), which we denote as UR, UG, UL, IR, IG, and IL. In order to conduct the RCT, these six survey versions were randomly distributed to visitors.

Background Characteristics of Survey Participants

A survey was conducted for around 5 hours each day over the last 12 days of the exhibition. A total of 675 surveys was collected; numbers for each of the six versions were as follows: UR (112), UG (102), UL (125), IR (102), IG (122), and IL (112); numbers include surveys with missing values for some questions. We observe that the majority of visitors have an extensive interest in art. Almost 50% attend visual art exhibitions at least once a month. About 49% were charged £4 (standard adult rate) and 46% were charged £2 (concession rate) as an entrance fee. About 5% of respondents entered 'for free' as members of 'Friends of the RSA'.

[Table 1 here]

As presented in Table 1, visitors are evenly balanced in terms of gender. The majority of visitors are of the age group 18 to 34 (52.11%) reflecting an apparently high interest of this younger population. Many visitors have art-related occupations with over 40% art college students, artists, or employees of art and cultural institutions. Over 28% are professionals. The majority of respondents have either an undergraduate (39.81%) or postgraduate degree (21.52%). Almost 27% report gross annual household income of less than £10,000, reflecting a relatively high proportion of students and younger artists. We also observe, however, that about 5% report gross annual household income in excess of £100,000. Most visitors are from Edinburgh (47.07%), or elsewhere in Scotland (32.72%).

[Table 2 here]

Measures of economic value based solely on contingent valuation are unable to capture the essence of the RSA NCE or of similar events (see Diamond and Hausman, 1994; Hutter and Throsby, 2008). We therefore seek to incorporate cultural values within our economic valuation measure. We ask a series of questions to elicit visitors' emotions and impressions in respect of the RSA NCE *ex post* following their actual experience of the exhibition. As shown in Table 2, a variety of outcomes measuring the experiential values of the exhibition (E), the artworks (A), and the curation (C) are elicited in similar fashion to Bakhshi and Throsby (2010). We assess values for the individual artworks (A) and the curation (C) as distinct from that of the exhibition (E) itself.

Based on a 5 point Likert scale, visitors were asked for their level of (dis)agreement with an extensive list of statements. These are adapted from Throsby's (2001) deconstruction of cultural values into aesthetic, spiritual, social, symbolic, educational, and other components, each contributing to different aspects of a cultural experience, object or institution. For example, the statement "*I had an emotional experience*" relates to the aesthetic qualities of the exhibition. If the exhibition has an emotional impact on visitors, we expect them to feel moved, excited, or affected (Guest, 2002).

Exhibitions may generate new ideas and inspire viewers. The statement "*The exhibition stimulated my own sense of creativity and imagination.*" assesses visitors' perceptions of the originality and imaginativeness of the artworks and the themes presented at the RSA NCE (Locher, 2014). *A priori*, we expect that as the RSA NCE features the work of emerging artists, this might generate high levels of expectation of novelty, perhaps stimulating viewers to be proactive and creative. Similarly, the statement, "*I engaged with the artworks intellectually,*" refers to the educational value conveyed by the artworks. Each of these statements can be regarded as indicative of one or more dimensions of cultural value; intrinsic, instrumental and institutional (O'Brien, 2010; Holden, 2004; 2006).

Societal dialogues are known to maximize the impact of experience (Belfiore, 2002; 2004). Visitors were able to discuss the exhibition and find that conversing about the artworks with others is enjoyable. They appeared able to create and experience the power of sharing and building collective knowledge thus supporting arguments that cultural activities enhance social inclusion (Newman and McLean, 2004).

When artworks create value for visitors, they sense an emotional connection, appreciate artwork quality, develop intellectual engagement, and experience inspiration (Throsby, 2001; Guest, 2002). Further value is created as a result of visitors being socially connected (Newman and McLean, 2004). Collectively, the individuality of each artwork contributes to the formation of viewers' experience of the whole exhibition regardless of (un)pleasantness as perceived by individuals. It is possible, however, that especially memorable artworks may determine particular individuals' total self-perceived experiences of the exhibition.

We also included the statement, "*Some artworks in the exhibition disturbed me*" after noting that a considerable number of radical, often aggressively erotic, artworks were exhibited. We sought to measure visitors' aesthetic experience both in terms of attraction or repulsion. Following Butler (2000), we attempted to measure a value for 'being disturbed', sometimes described as 'being shocked for the sake of shock-value'.

One component of the value that the RSA NCE may provide to visitors is the way in which the exhibition is presented or 'packaged'. Curating the exhibition and communicating with visitors in terms of the exhibition's aims does require expertise. Thus we assess whether visitors perceive the exhibition layout was helpful, whether the presentation was satisfying, and whether sufficient information was provided regarding artworks and artists.

Our economic valuations of WTP and WTD may not fully encapsulate all the RSA NCE's multidimensional features. Nevertheless, the more individuals enjoy the exhibition

culturally, the greater WTP or WTD is likely to be (Throsby, 2001; 2003; 2006). In accordance, therefore, with Bakhshi and Throsby (2010), who suggest that cultural value plays an essential role in determining economic value, we test the proposition that economic valuations are influenced by experienced cultural values. In Table 2, we present descriptive statistics for these questions, in terms of mean, median, and standard deviation. Responses are likely to be correlated with each other. To reduce the dimensions of cultural value factors, we undertook a Principal Component Analysis (PCA) based on these fourteen questions and determine four components, defined as 'cultural value', 'curatorial value', 'social value', and the 'value of being disturbed (Butler, 2000)', respectively.

RESULTS

Experimental results for WTP

Our first hypothesis concerns the impact of information regarding the RSA's funding status on WTP. Due to the nature of stated preference techniques and the consequent necessity for the interrogation of respondents to be relatively complex, a considerable number of visitors left the question on WTP unanswered. We obtain a total number of 467 responses to the question; 5.14% (24 responses) of these indicate no positive sum for WTP, this may result from experiencing the exhibition negatively. After winsorization at the 95th percentile to control for outliers, WTP, based on all responses, ranged from £0 to £10 with a mean value of £4.26 and a median value of £5. A considerable number of non-responses to the WTP question may reflect adverse reactions to the question; we are, however, unable to identify the precise reason. Thus the average WTP computed may be overstated.

[Table 3 here]

As presented in Table 3 Panel A, comparison of responses for visitors who are randomly allocated to the 'Uninformed' and 'Informed' versions of the survey respectively,

indicates only a £0.05 difference in mean values although the difference in median values is £1 (Uninformed £4; Informed £5). Differences, however, in terms of both mean and median values are statistically insignificant according to both a two-tailed t-test and a Mann-Whitney test.

[Figure 1 here]

As shown in Figure 1, we consider whether there are any distributional divergences in WTP for the two versions by comparing the histograms of responses; we do not observe any substantial differences. Based on our univariate tests, we do not establish that informing visitors of the RSA's funding status has any effect on WTP for entry to the exhibition. We proceed, however, to test our first hypothesis using a multivariate model which controls for other factors including visitors' self-perceived experiences of the RSA NCE as well as their socio-economic characteristics.

It is noteworthy that respondents' average WTP for entry is very similar to the actual standard admission fee of £4 charged. When we consider WTP in terms of entry fee, it is critical to take account of the behavioral concept of 'anchoring' (Kahneman and Tversky, 1972; Tversky and Kahneman, 1974). The obvious reference point for visitors as regards 'anchoring' and, therefore, in determining WTP, is the amount actually paid for entry.

Thus Panel B of Table 3 compares visitors' stated WTP with the amount actually paid. The differences in WTP between those groups who respectively paid £2, £4 or another amount, as Friends of the RSA, for entry are significant at 1% according to both a two-tailed t-test and a Mann-Whitney test.

[Figure 2 here]

As indicated in Figure 2, respondents' WTP is very similar to the entry price actually paid, and there is no apparent influence on WTP resulting from the RSA funding status information

intervention. As respondents' WTP are anchored by the admission prices paid, we control for price paid in our multivariate model which we apply in further investigating the effect of funding status information.

Multivariate test results on WTP

In order to investigate how information on funding status affects visitors' WTP in terms of a hypothetical entry fee, we develop the following multivariate OLS model in equation (1).

$$(1) \qquad WTP_i = \alpha + d.Informed_i + \beta CVs'_i + \gamma x'_i + \delta y'_i + \varepsilon_i$$

The dependent variable, WTP_i, denotes the amount (in £) of individual *i*'s WTP. A dummy variable, $d.Informed_i$, is assigned to the treatment group who receive information regarding the RSA's funding status. CVs'_i is a vector of experienced values of the exhibition derived from the PCA; this captures 'Cultural Value', 'Curatorial Value', 'Social Value' and the 'Value of Being Disturbed'. x'_i is a vector of other factors which controls for frequency of gallery visits and the varying amounts paid for admission. y'_i is a vector of socio-demographical and financial characteristics including gender, age group, occupation, education, level of income and place of residence. Standard errors are robust to heteroskedasticity.

[Table 4 here]

Table 4 presents the estimation results for equation (1). We reject our first hypothesis, finding no statistically significant differences between the 'uninformed and informed' groups in our regression results. We conclude that the extra information provided, in respect of the RSA's funding status, does not increase visitors' WTP for entry to the NCE.

Table 4 indicates significant relationships in respect of visitors' non-economic valuations. 'Cultural Value' is positively related, at 1%, to visitors' WTP, as are 'Social

Value', at 5%, and 'Curatorial Value', at 5%. The 'Value of Being Disturbed' has a negative significant effect (at 5%) on WTP. We observe that gallery visitors who attend art exhibitions at least once a month are willing to pay significantly less (at 5%) than non-frequent visitors. This result could be due to financial pressures as a result of cumulative expenditure on attending exhibitions. Three other explanations suggest themselves. First, the UK tradition of free access to arts and cultural institutions, and the familiarity of frequent exhibition goers with this, may be influential. Second, frequent gallery visitors are likely to be more experienced consumers, used to enjoying and evaluating high quality exhibitions featuring the work of renowned artists of 'museum' quality. Third, frequent visitors are mostly art college students, artists or employees of cultural institutions and likely, therefore, to have *greater* interest in art, yet possibly with *lower* income. The RSA NCE exhibits artworks which are categorically different; economic (e)valuations of such work by 'informed' consumers may reflect lower levels of satisfaction and perceived quality.

Experimental results for WTD

Our second hypothesis concerns the effect of loss aversion on WTD. As in the case of WTP, we observe a substantial number of missing values for the WTD question. Less than 50% of respondents indicate WTD; of those 323 respondents, 13.31% (43 respondents) indicate zero WTD. The maximum WTD indicated is £500; after winsorization at the 95th percentile, reported WTD ranges from £0 to £100. The mean WTD over all participants is £12.04 although the median amount of £5 indicates values are positively skewed. As for WTP, we acknowledge a considerable number of non-responses and that the average WTD identified may be overstated.

[Table 5 here]

Descriptive statistics for the WTD question are presented in Table 5 together with the results for a two-tailed t-test and a Mann-Whitney test comparing the mean and median values for WTD under different RCT allocations.

Firstly, in Panel A of Table 5, we investigate the loss aversion effect only (Kahneman and Tversky, 1979) by comparing the WTD for visitors allocated to each of the three sub-groups; 'Reference (R)', 'Gain-framed (G)', and 'Loss-framed (L)'.

[Figure 3 here]

As presented in Figure 3, visitors allocated to the (G) version of the question indicate the highest mean WTD of £15.08; those allocated to the (L) version indicate the next highest with a mean of £12.23, while those visitors allocated to the (R) version indicate the lowest mean WTD of £8.74. We observe statistically significant differences, in terms of mean value, only when we compare the responses for version (R), with those for the (G) and (L) versions, respectively. No statistically significant differences are observed between the (G) and (L) versions. The prospect of enjoying 'one more' additional event similar to the NCE results in significantly greater WTD for respondents allocated to the (G) scenario than for those allocated to the (R) scenario. The prospect of losing the RSA NCE as the 'sole' exhibition of its type results in a similar willingness of respondents allocated to the (L) scenario to donate significantly more. In contrast to Prospect Theory (Kahneman and Tversky, 1979), however, which suggests that losses weigh more than twice as much with individuals as do gains of similar magnitude, we find that respondents value hypothetical gains and losses equally; there are no significant differences in terms of mean and median WTD values under each scenario.

In further analyzing responses, we take account of the secondary effect of the funding status information provided in the WTP question. Respondents answer the WTP question before that on WTD. To identify whether or not responses on WTD are affected by this prior exposure, we compare the mean and median WTD values of respondents allocated

respectively to the 'Uninformed (U)' and 'Informed (I)' versions of the WTP question. As presented in Panel B of Table 5, the average WTD value for the (I) group is greater, at £13.18, than that for the (U) group at £10.80, although the difference is statistically insignificant.

To disentangle the two intervention effects, we compare the WTD values of respondents under all six versions of the survey as presented in Panel C of Table 5.

[Figure 4 here]

A pictorial illustration comparing the average WTD values of all six versions, UR, UG, UL, IR, IG, and IL, is presented in Figure 4. We again observe the highest average WTD values for the two gain-framed versions (UG and IG), followed by the two loss-framed versions (UL and IL) with the lowest average values for the two reference versions (UR and IR). The WTD of each 'Informed (I)' group is consistently higher than that for the corresponding 'Uninformed (U)' group, although each difference is statistically insignificant. Although based on a statistically weak inference, this result indicates that when funding status information is provided, potential for enhanced financial support manifests itself in WTD larger amounts to the RSA rather than WTP increased admission prices.

In Panel C of Table 5, we present the two-tailed t-test and Mann-Whitney test results for those four pairs only, out of a possible fifteen, which are significantly different from each other. When we compare the six versions of the survey, the mean value for the uninformed reference control group, UR, is significantly less than those for the UG, UL, IG, and IL groups. This result reflects respondents under the two 'treatment' conditions, 'gain' and 'loss', reporting significantly higher WTD than the control group. The insignificant differences between WTD for the IR version and those for the IG and IL versions, respectively, may reflect the marginal influence of funding status on WTD, although there is no significant difference between WTD for UR and IR. We investigate our second hypothesis

further, however, by testing our multivariate model, controlling for visitors' self-perceived experiences of the RSA NCE as well as for socio-economic characteristics.

Multivariate test results

In testing our second hypothesis further, we develop equation (2) below which investigates the effect of loss aversion only on RSA NCE visitors' WTD.

$$(2) \qquad WTD_\text{i} = \alpha + cd.LA'_i + \beta CVs'_\text{i} + \gamma x'_\text{i} + \delta y'_\text{i} + \varepsilon_i$$

The dependent variable, WTD_i, denotes the amount (in £) of individual *i*'s WTD. A categorical dummy variable, $cd.LA_i$, categorizes the two treatments groups which are either 'Gain-framed (G)' or 'Loss-framed (L)' in order to test the loss version effect, with the omitted 'Reference (R)' control group for comparison. The remaining variables are the same as those for equation (1). Standard errors are robust to heteroskedasticity.

[Table 6 here]

As shown in Table 6, respondents allocated to either (G) or (L) scenarios exhibit greater WTD, about £5, than those allocated to the control (R) group. The coefficient for the (G) scenario is only significant at 10%, while that for the (L) scenario is significant at 5%. The coefficients for the (G) and (L) groups are, however, not significantly different from each other based on Wald test.

The effect of WTD interventions are, however, confounded by respondents' prior exposure to the WTP question. Thus, as discussed earlier, we segregate the effect of loss aversion from that of the funding status information provision effect by comparing all six survey versions.

$$(3) \qquad WTD_\text{i} = \alpha + d.Infomed_i * cd.LA'_i + \beta CVs'_\text{i} + \gamma x'_\text{i} + \delta y'_\text{i} + \varepsilon_i$$

In equation (3), we investigate the disentangled effects of both interventions on individual i's WTD. The interaction of the two effects, $d.Infomed_i * cd.LA'_i$ distinguish the six allocation groups for the RCT; and the control group for both interventions, UR, is the reference category which is omitted for comparison. The remaining variables are the same as for equation (2). Standard errors are robust to heteroskedasticity.

[Table 7 here]

As shown in Table 7, in terms of the multivariate model test results, the coefficients for the (L) groups, both uninformed and informed, UL and IL, are significantly higher than for the reference category, UR, at 5%. The (G) treatment effect is no longer significant as when compared to the control group, UR, the coefficient for UG is only significant at 10%, and that for IG is insignificant. After controlling for other factors in our multivariate analysis which may influence respondents' economic valuations, the scenarios which posit losing the RSA NCE appear to have greater power to elicit donations than those with no gain or loss scenario. There are, however, no significant differences between 'gain' and 'loss-framed' groups in terms of WTD (Wald test results indicate the coefficients for UG and UL, and IG and IL, are equal). Experienced cultural value is still positive and significant in relation to individuals' WTD; those who derived greater cultural value from the exhibition are willing to donate more.

Although there is no significant loss aversion effect, visitors value the prospect of enjoying 'one more' event similar to the NCE as much as the prospect of losing the existing exhibition. It may be that the value of cultural experiences is conceptually different from more general utility changes as explicated in prospect theory. Art consumers appear never to value the prospect of more cultural experiences as a declining variable; as they become frequent consumers, the value created may continue at a given level without diminishing.

CONCLUSIONS

Believing that art has value for both producers and consumers, we determine the economic value of the RSA NCE based on the stated preference technique of CVM (Throsby and Withers, 1983; Throsby, 2003).

Our first hypothesis is that individuals who are informed about the RSA's funding status will exhibit greater WTP for NCE entry than those uninformed. We reject the hypothesis that informing visitors about the RSA's funding status, affects WTP positively. We do identify secondary effects of the information provision regarding funding status which influence visitors' WTD. Thus we argue that there is potential to increase private donations rather than admission price, supporting the 'crowding-out' hypothesis (Abrams and Schmitz, 1984; Dokko, 2009).

Our second hypothesis is that individuals allocated to loss-framed scenarios exhibit greater WTD than those allocated to both gain-framed and unframed scenarios. We observe that individuals allocated to loss-framed scenarios exhibit significantly greater WTD than those in the control group, regardless of whether or not they were informed as to the RSA's funding status. Given insignificant differences between 'gain' and 'loss-framed' groups in terms of WTD, based on both univariate and multivariate tests, however, we can only identify partial loss aversion effects. Our findings, however, indicate that providing information incorporating gain *or* loss scenarios, offers the potential to persuade individuals to increase their donations. The RSA might usefully consider implementing such interventions when communicating with their public with a view to increasing private donations.

Most respondents are experienced art consumers. Thus the way by which they express demand for cultural goods may be systematically different from 'normal' consumers. Throsby (2003) classifies cultural goods as experiential or addictive, arguing that demand is cumulative rather than diminishing over time. Thus visitors may apply distinctive reasoning

which influences their economic valuations. This may explain why the pleasure obtained from one more event similar to the RSA NCE is valued as much by consumers as the disappointment of losing the exhibition. The suggestion that its validity in given situations is dependent upon the nature of the goods or services applied may point to another 'blind spot' within Prospect Theory in addition to those already acknowledged (see e.g. Kahneman, 2011).

Perceived cultural value also appears to influence visitors' monetary valuation of the experience. We attempt to not only test for the effects of behavioral interventions but also, by discussing cultural value, to investigate what factors determine visitors' appreciation of cultural goods and how, together with their socio-economic characteristics, these relate to their economic valuations (Throsby, 2006; O'Brien, 2010). Our findings support Coursey, Hovis and Schulze (1987) who find that loss aversion has implications for welfare economics or valuation of public goods, even though they are not traded, as well as Kahneman and Knetsch (1992) who argue contributions to, or 'purchase of', public goods are strongly related to moral satisfaction. According to Johnson, Peck and Schweidei (2014), nevertheless, current purchasing behavior is a poor predictor of WTD. Influencing exhibition visitors, their current consumers, to become future donors and maintaining close relationships with their public is a challenging remit for the RSA.

Our results indicate scope for implementing behavioral interventions to increase support for cultural organizations. There is potential to 'nudge' art lovers to contribute more to the cultural economy. Given existing government policy which seeks to widen cultural participation, it is crucial to encourage a self-sustainable environment for arts and cultural organizations to supplement problematic public support. Other 'nudge' ideas such as default options for membership, donation games and personalization might also be implemented with a view to the self-sustainability of public organizations. There is a lack of contingent

valuation studies on arts and cultural organizations in the UK (O'Brien, 2010); we make a significant contribution to filling this hiatus and to widening perspectives on public policy, business strategies, and fund raising for non-profit organizations.

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Table 1. Background Characteristics of the Survey Participants

This table presents background characteristics of survey participants. Due to missing values, we indicate numbers of respondents for each characteristic.

Gender	Total	609	Education	Total	618
Male	50.57%	308	Secondary school	12.46%	77
Female	49.43%	301	College diploma	9.06%	56
			University degree	39.81%	246
Age	**Total**	**609**	Postgraduate degree	21.52%	133
Below 18	1.62%	10	Professional qualification	12.94%	80
18-24	27.51%	170	Technical qualification	2.91%	18
25-34	24.60%	152	Other	1.29%	8
35-44	11.97%	74			
45-54	13.92%	86	**Household Income**	**Total**	**538**
55-64	12.30%	76	Less than £10,000	26.77%	144
65-74	7.44%	46	£10,000 to £20,000	16.17%	87
75+	0.65%	4	£21,000 to £30,000	13.94%	75
			£31,000 to £40,000	12.83%	69
Job	**Total**	**619**	£41,000 to £60,000	14.31%	77
Student	14.22%	88	£61,000 to £100,000	10.78%	58
Art college student	18.90%	117	More than £100,000	5.20%	28
Artist	16.80%	104			
Worker for a cultural institution	5.33%	33	**Place of residence**	**Total**	**648**
Skilled manual	6.62%	41	Edinburgh area	47.07%	305
Professional	28.59%	177	Elsewhere in Scotland	32.72%	212
Retired	7.92%	49	Elsewhere in the UK	12.65%	82
Other	1.62%	10	Outside the UK	7.56%	49

Table 2. Principal Component Analysis on Cultural Experience Questions

This table present a series of fourteen questions eliciting visitors' experiential values of the RSA NCE (E), the Artworks (A), and the Curation (C) based on a 5 point Likert scale (1-Not at all to 5-Very much). We present descriptive statistics based on visitors' responses and the results of a Principal Component Analysis (PCA).

	PCA with a Varimax Rotation	Descriptive statistics				PCA Component			
Values	**Questions (1-Not at all to 5-Very much)**	**Mean**	**Median**	**SD**	**N**	**1**	**2**	**3**	**4**
Aesthetic	E1. I had an emotional experience.	2.81	3	1.15	669	**0.75**	0.07	0.01	0.23
Educational	E2. The exhibition stimulated my own sense of creativity and imagination.	3.26	3	1.19	670	**0.73**	0.11	0.23	-0.08
Educational	E3. The exhibition improved my understanding of emerging artists.	3.37	3	1.07	671	**0.59**	0.12	0.35	-0.33
Educational	E4. The exhibition improved my understanding of visual art.	2.99	3	1.21	671	**0.68**	0.13	0.25	-0.15
Social	E5. I can discuss the exhibition with others.	3.58	4	1.09	651	0.26	0.08	**0.83**	0.03
Aesthetic	A1. I felt an emotional connection with the artworks.	2.68	3	1.05	648	**0.81**	0.14	0.09	0.17
Aesthetic	A2. The quality of the artworks was high.	3.58	4	0.99	648	**0.57**	0.39	0.26	0.02
Educational	A3. I engaged with the artworks intellectually.	3.16	3	0.98	644	**0.67**	0.24	0.29	-0.01
Symbolic	A4. The artworks made me think of new ways of seeing things.	3.21	3	1.13	651	**0.75**	0.20	0.15	0.03
Social	A5. Talking about the artworks with other people was enjoyable.	3.52	4	1.10	613	0.26	0.13	**0.83**	0.08
Aesthetic	A6. Some artworks in the exhibition disturbed me.	2.51	2	1.29	647	0.07	0.00	0.09	**0.91**
Curatorial	C1. The layout of the exhibition was helpful.	3.48	4	0.98	619	0.15	**0.82**	0.16	0.00
Curatorial	C2. The presentation of the exhibition was satisfying.	3.79	4	0.94	618	0.20	**0.82**	0.26	0.02
Curatorial	C3. There was sufficient information provided at the exhibition about the	2.59	2	1.19	620	0.15	**0.64**	-0.11	-0.02

Table 3. Experiments Survey Results on WTP

This table presents descriptive statistics on WTP. Panel A) investigates the information provision treatment effect while Panel B) examines the influence of entry fee paid on WTP. We report p values from the univariate significance tests based on a two-tailed t-test and a Mann-Whitney test.

Panel A) WTP as an Entry Fee by version

By WTP Versions	Mean	Median	S.D	N
All	£4.26	£5	£2.13	467
'Uninformed (U)'	£4.24	£4	£2.22	222
'Informed (I)'	£4.29	£5	£2.04	245
Significance test	*p* **values**	*p* **values**		
'Uninformed (U)'-'Informed (I)'	0.709	0.535		

Panel B) WTP as an Entry Fee by admission price

By Entry Fee paid	Mean	Median	S.D	N
£2	£3.82	£4	£1.83	214
£4	£4.84	£5	£2.19	233
Other	£2.45	£2	£2.35	20
Significance test	*p* **values**	*p* **values**		
£2-£4	0.000	0.000		
£2-Other	0.002	0.025		
£4-Other	0.000	0.000		

Table 4. WTP as an Entry Fee

We present OLS regression results on WTP as an Entry Fee. *** denotes statistical significance at 1%, ** denotes statistical significance at 5%, and * denotes statistical significance at 10%.

WTP as an Entry Fee	Coef.	S.E
Version 'Informed'	-0.159	(0.23)
Cultural Value	0.503***	(0.11)
Curatorial Value	0.269**	(0.13)
Social Value	0.298**	(0.13)
Value of Being Disturbed	-0.219**	(0.11)
Frequent gallery visitor (more than once per month)	-0.545**	(0.23)
Price Paid - £4	0.419	(0.30)
Price Paid - Others	-2.402***	(0.73)
Constant	2.543**	(1.00)
Gender	Insignificant	
Age Group	Insignificant	
Occupation	Significant	
Education	Significant	
Income	Insignificant	
Place of residence	Insignificant	
R_Squared	0.244	
N	365	

Table 5. Experiments Survey Results on WTD

This table presents descriptive statistics from visitors' responses on WTD. Panel A) investigates the loss aversion effect, Panel B) examines the influence of the information provision effect and Panel C) reports the combined effects of both. We report p values from the univariate tests based on two-tailed t-test and Mann-Whitney test.

Panel A) WTD by Loss Aversion Effect Treatment

Version	Mean	Median	S.D	N
All	£12.04	£5	£19.24	323
'Reference (R)'	£8.74	£5	£12.70	99
'Gain-framed (G)'	£15.08	£5	£25.24	99
'Loss-framed (L)'	£12.23	£8	£17.73	125
Significance test	***p* values**	***p* values**		
'Reference (R)'-'Gain-framed (G)'	0.027	0.399		
'Reference (R)'-'Loss-framed (L)'	0.085	0.121		
'Gain-framed (G)'-'Loss-framed (L)'	0.350	0.551		

Panel B) WTD by Information Provision Effect Treatment

Version	Mean	Median	S.D	N
'Uninformed (U)'	£10.80	£5	£15.95	154
'Informed (I)'	£13.18	£5	£21.80	169
Significance test	***p* values**	***p* values**		
'Uninformed (U)'-'Informed (I)'	0.261	0.901		

Panel C) WTD by the Six Versions of the Combined Effect

Version	Mean	Median	S.D	N
'UR'	£7.11	£5	£7.11	53
'UG'	£14.39	£5	£23.54	36
'UL'	£11.82	£10	£15.63	65
'IR'	£10.61	£7.5	£16.92	46
'IG'	£15.48	£5	£26.33	63
'IL'	£12.73	£5	£19.87	60
Significance test	***p* values**	***p* values**		
'UR'-'UG'	0.080	0.288		
'UR'-'UL'	0.033	0.075		
'UR'-'IG'	0.018	0.423		
'UR'-'IL'	0.044	0.251		

Table 6. WTD for the Exhibition

We present OLS regression results on WTD but only controlling for the loss aversion effects. *** denotes statistical significance at 1%, ** denotes statistical significance at 5%, and * denotes statistical significance at 10%.

WTD for the Exhibition	Coef.	S.E
Version 'Gain-Framed (G)'	5.026*	(3.02)
Version 'Loss-Framed (L)'	5.556**	(2.51)
Cultural Value	2.464**	(1.18)
Curatorial Value	0.734	(1.20)
Social Value	0.662	(1.52)
Value of Being Disturbed	-1.117	(1.15)
Frequent gallery visitor (more than once per month)	-1.640	(2.48)
Price Paid - £4	3.646	(3.24)
Price Paid - Others	-5.136	(7.04)
Constant	-18.783**	(9.19)
Gender	Insignificant	
Age Group	Insignificant	
Occupation	Significant	
Education	Significant	
Income	Significant	
Place of residence	Insignificant	
R_Squared	0.195	
N	265	

Table 7. WTD for the Exhibition

We present OLS regression results on WTD controlling for both the information provision and the loss aversion treatment effects. *** denotes statistical significance at the 1%-level, ** denotes statistical significance at the 5%-level, and * denotes statistical significance at the 10%-level

WTD for the Exhibition	Coef.	S.E
Version 'Uninformed*Gain-Framed (UG)'	8.880*	(4.67)
Version 'Uninformed*Loss-Framed (UL)'	5.806**	(2.78)
Version 'Informed*Reference (IR)'	1.312	(3.30)
Version 'Informed*Gain-Framed (IG)'	3.423	(4.07)
Version 'Informed*Loss-Framed (IL)'	6.603**	(3.05)
Cultural Value	2.543**	(1.19)
Curatorial Value	0.870	(1.22)
Social Value	0.819	(1.59)
Value of Being Disturbed	-1.183	(1.17)
Frequent gallery visitor (more than once per month)	-1.823	(2.55)
Price Paid - £4	3.935	(3.30)
Price Paid - Others	-5.704	(7.35)
Constant	2.543**	(10.08)
Gender	Not significant	
Age Group	Not significant	
Occupation	Significant	
Education	Significant	
Income	Significant	
Place of residence	Not significant	
R_Squared	0.200	
N	265	

Figure 1. Distributional divergences of 'Uninformed' and 'Informed' groups on WTP

This figure presents the histograms of visitors' responses to the WTP question, comparing the 'uninformed' control group with the 'informed' treatment group in order to identify distributional divergences.
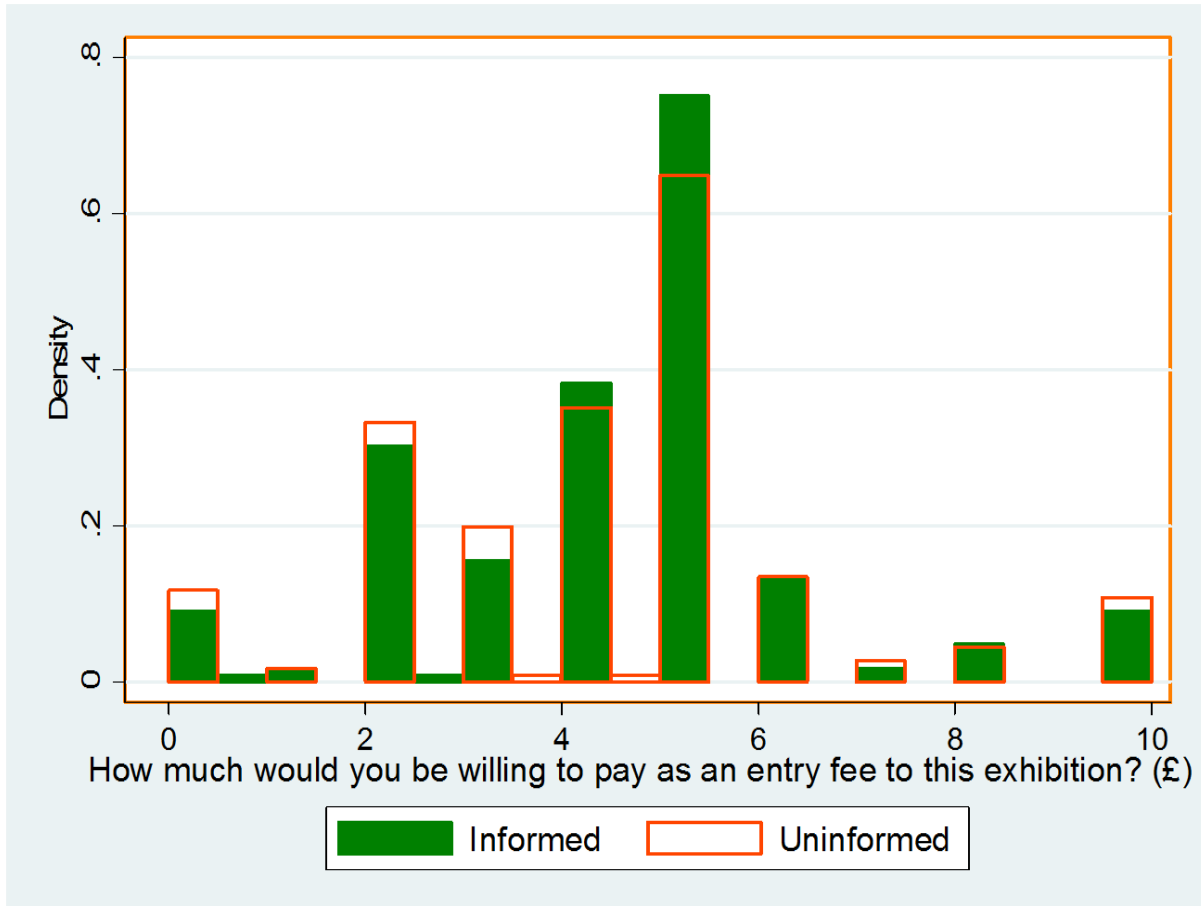
Figure 2. Anchoring effect on WTP

This figure compares visitors' WTP based on the entry price paid, distinguishing responses of the 'uninformed' control group and the 'informed' treatment group.
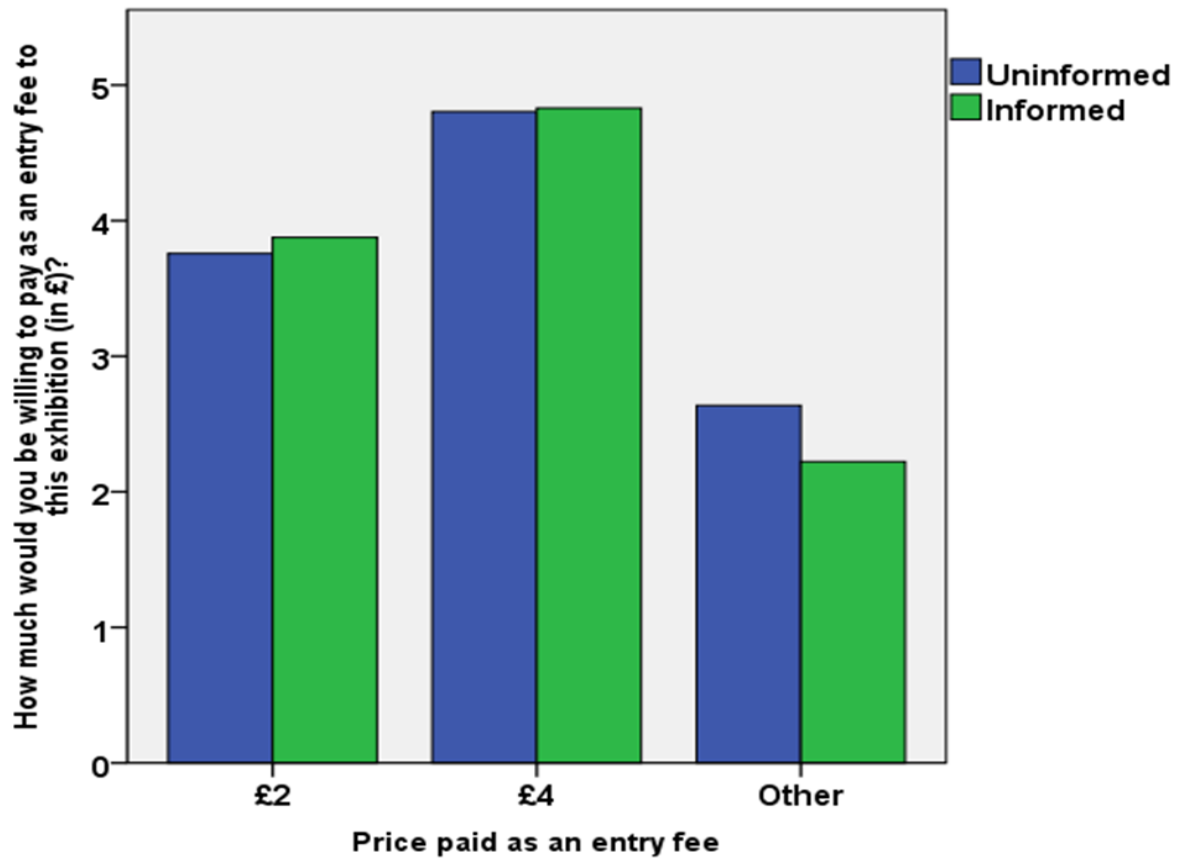
Figure 3. Comparison of WTD based on the Loss-Aversion Effect

This figure compares WTD values for visitors allocated to three sub-groups; 'Reference (R)', 'Gain-framed (G)', and 'Loss-framed (L)'.
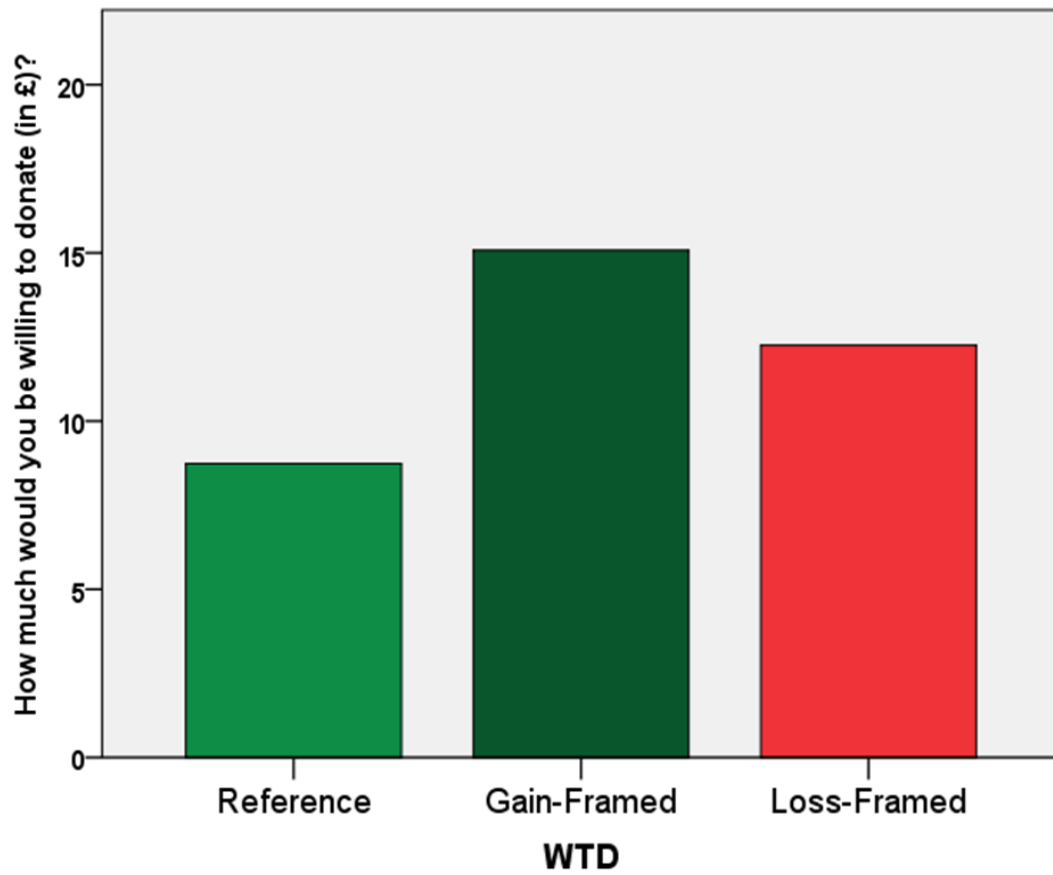
Figure 4. Comparison of WTD based on All Versions

This figure compares average WTD values for all six versions.