Expectations, Satisfaction, and Utility from Experience Goods: A Field Experiment in Theaters*

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Abstract

Understanding what affects satisfaction from consumption is fundamental to studying economic behavior. However, measuring subjective hedonic experiences is not trivial, in particular when studying experience goods in which quality is difficult to observe prior to consumption. We report the results of a field experiment with a theater show in which the audience pays at the end of the show under pay-what-you-want pricing. Using questionnaires, we measure expected enjoyment before the show, as well as the realized enjoyment after. Correlating the amounts paid with the expected and realized enjoyment, we find that individuals with a larger gap between reported expectations and enjoyment pay significantly more. Once we account for the satisfaction gap, the level of expected enjoyment or realized enjoyment has no significant effect in predicting payments.

Keywords: experience goods; pay-what-you-want; expectations.

JEL classification: C72; C91; D81.

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1. Introduction

Understanding what affects satisfaction from consumption is fundamental to studying economic behavior. However, measuring subjective hedonic experiences is not trivial, in particular when studying experience goods in which quality is difficult to observe prior to consumption.[1]

Recent literature suggested that expectations may have an important impact on satisfaction (Koszegi and Rabin, 2006; Schwartz, 2005). Traditional measures of post-consumption utility, using subjective evaluation based on questionnaires, cannot inform us about how expectations and satisfaction interact. Hence, clever experimental designs have been used to show indirect evidence of a reference-dependent component in utility functions, based on how the intrinsic value of an outcome compares to expectations (Kahneman and Tversky, 1979; Medvec, Madey and Gilovich, 1995; Card and Dahl, 2008; Abeler et al., 2012; Bushong and Gagnon-Bartsch, 2016). However, finding direct empirical evidence regarding how expectations and utility interact has proven elusive due to three main reasons. First, people need to actually consume the good or experience, preferably in a naturally occurring environment. Second, the researcher needs individual-level data to measure each participant's expectations prior to consumption, as well as satisfaction post-consumption. Finally, capturing the utility associated with the consumption of an experience good is far from trivial.[2]

We address these difficulties using a unique dataset obtained in a field experiment conducted in theaters in which participants were the regular audience, and hence were actually consuming a good of their choice in a natural environment over time. To address

[1] See Nelson (1970). In some cases, quality is hard to measure even post consumption, as in the case of credence goods (Darbi and Karni, 1973; Dullek et al, 2011 and Balafoutas et al, 2013).

[2] Kahneman, Wakker, and Sarin (1997) distinguish between two types of utility: "decision utility," in which utility is inferred from observed choices and is used to describe ordinal ranking, and "experienced utility," based on pleasure and pain. Our discussion relates to the second type in which measuring the subjective hedonic experience is harder because it is not observed.

the individual-level data concern, all participants took a short survey before and after the show. Finally, we measured consumption utility using a "pay-what-you-want" (PWYW) pricing scheme at the end of the show, in which participants chose how much, including zero, they wished to pay for the show (Gneezy et al., 2010) and we were able to link payment data to questionnaire measures at the individual level.[3]

Importantly, we show that subjective post-consumption evaluations capture only part of the picture. The difference between expectations and post-consumption evaluations is also important. People form expectations regarding the quality of future consumption, and the difference between these expectations and actual experience derives the overall satisfaction of that experience. In contrast with the literature discussed above, it is not simply true that lower expectations result in higher payment. Among individuals stating the same expectations or enjoyment, those with a greater gap between expected and actual enjoyment pay significantly more. Once the satisfaction gap is accounted for, neither the level of expectation nor enjoyment predict payments. These findings are important both for the measuring and understanding of utility from experience goods as well as having important implications with respect to the way experience goods should be marketed and priced. In particular, the importance of expectations sets an interesting trade-off when marketing an experience good between appealing to a larger set of consumers and disappointing them. Similarly, using pay-what-you-want pricing allows to resolve consumers' uncertainty linked to the unknown quality of the experience good while, which may positively affect revenue with respect to traditional pricing.

[3] This approach is similar to what has been studied in the tipping literature, although we use a much richer data set, which allows us to also measure expectations and satisfaction and relate payment to the experience itself, separated from potential confounds such as exceptional service provided. See Lynn (2006) and Azar (2007) for reviews.

2. Setting and Procedure

We ran the study over 19 (out of 40) performances of a fully booked play, "The Effect" by Lucy Prebble, at Sala Beckett in Barcelona (January-March 2015). The 19 performances in the sample are from the later part of the 40, since the earlier shows were used to fine-tune our intervention. The producers of this show, Sixto Paz Produccions,[4] have been using PWYW pricing for all their spectacles since 2011. In their regular operating procedure, the audience pre-book tickets at no cost, knowing that upon exit from the theater, they will be asked to pay whichever amount they see fit, including zero. In our study, we maintained the same PWYW procedures.[5]

On each of the evenings of the experiment, we asked approximately one third of the espectators to complete short questionnaires, one prior to and the other after the show, measuring expectations, enjoyment, and demographic variables.

To allow for randomization, a member of our research team approached individuals based on constant time intervals upon arrival to the theatre. Participants were asked whether they were willing to take part in a study. This question seemed natural to the audience because the topic of the play dealt with medical trials, and our questionnaires, resembling clinical trial consent forms, were a participatory activity enhancing the theatre experience. Sixto Paz Productions regularly integrates questionnaires, games, and small focus groups, both before and after their plays in their shows. Participants were also asked to randomly pick one of two differently colored pills from a bowl, and were told the pill could either be a placebo or one "helping us to study

[4] https://www.facebook.com/SixtoPazProduccions/

[5] PWYW and other similar pricing schemes are increasingly being adopted in theaters. We are aware of companies using such schemes in cities such as Amsterdam, Edinburgh, London, Los Angeles, Madrid and Philadelphia.

whether it made them enjoy the play more." We do not find a statistically significant effect of taking the pill on the distribution of answers to any variable in the questionnaires nor on payments. Figure A1 in the Appendix shows a completed example of both questionnaires (in Catalan) and a translation of the questions into English.

Participants were told the show was being video recorded, and that for legal reasons, we needed their signed consent agreeing to be seated in a theatre area where the camera could capture their image. From the participants we approached, 629 (92%) agreed to take part in all activities. Upon agreement, participants were given the pre-performance questionnaire, which also automatically assigned them a seat. The questionnaire captured basic demographic questions (age, gender, and occupation), theater-attendance habits, who booked the tickets (self or someone else), and how many people were included in the reservation. Most crucially, participants indicated the extent to which they expected to enjoy the play on a 7-point scale.

At the end of the play, participants placed the pre-performance questionnaires, together with their payment, in one of two boxes located on a table where the show's producer was standing. The only difference in payment procedure between the study participants and the other audience members was that participants placed their payment on top of their questionnaire, allowing us to trace their seat numbers.

Once participants exited the stage hall, they received a second questionnaire asking them to rate their enjoyment using a 7-point scale (questionnaires were associated with visitors' seat number). The questionnaire also included 4-point-scale questions on the likelihood of recommending the show to others and on whether expectations were met, a 7-point-scale question on agreement with the message of the play and the

possibility of writing additional comments. After completing this second questionnaire, participants left the theater.

The hypotheses we can test with our data are simple. First, high expectations might lower the overall enjoyment; hence,

Hypothesis 1 (H1): Payments decrease with expected enjoyment.

Second, actual reported enjoyment may affect payment:

Hypothesis 2 (H2): Payments increase with realized enjoyment.

Finally, the gap (realized enjoyment minus expected enjoyment) might predict payment:

Hypothesis 3 (H3): Payments increase with the enjoyment gap.

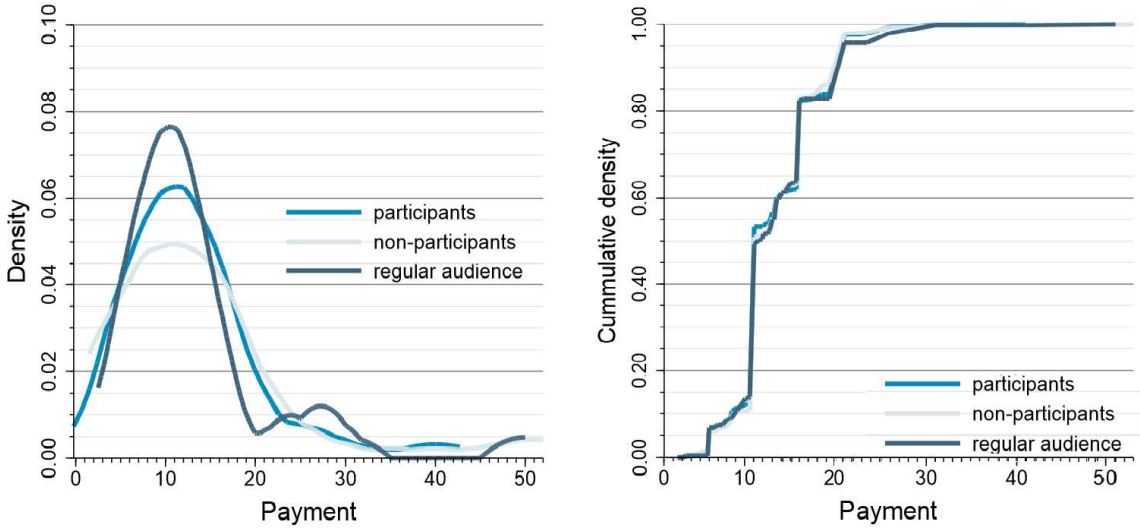
3. Results

Comparing participants, non-participants, and regular audience

Before analyzing the experimental data, we test whether taking part in our study affected payments. We how much participants whose payment we can individually trace back (N=539) with the payments of the remaining audience members during the 19 nights in which we conducted our experiment (N=1,221; labeled “non-participants”) and with the payments of all audience members in the remaining 21 nights (N=1,658; labeled “regular audience”). All 40 nights were charged using PWYW. Figure 1 shows the probability density and cumulative distribution functions of payments of all three groups. As can be seen, the distribution of payments for the three groups is practically identical, implying our intervention did not influence payments. Kolmogorov-Smirnov tests of the hypothesis

that each pair-wise comparison of the two empirical distributions comes from the same population distribution do not reject the null hypothesis in any case.

FIGURE 1. DISTRIBUTION OF PAYMENTS
(PARTICIPANTS, NON-PARTICIPANTS, AND REGULAR AUDIENCE)



Note.- The figure plots the distribution of payments for "participants" (blue), "non-participants" during experiment days (light blue), and "regular audience" members (during non-experiment days; dark blue). The left figure shows kernel density estimates, whereas the right figure depicts the empirical cummulative distribution functions for the three samples. A Kolmogorov-Smirnov test of the hypothesis that the two empirical distributions come from the same population distribution cannot reject the null hypothesis. P-values are 0.6, 0.42, and 0.75 for the comparison of participants and non-participants, participants and regular audience, and non-participants and regular audience, respectively.

We also distributed additional questionnaires to non-participants in the last four nights of the run, producing additional samples of 148 answers to the first questionnaire and 197 answers to the second one. These questionnaires are not linked individually and do not have associated payment information. Figures A2 through A4 (see Appendix) show that neither the expectations, enjoyment, or other reported characteristics differ between participants and respondents to these additional questionnaires (to which we refer as "other audience"), with two exceptions: experiment participants were somewhat older (4.4 years on average, with a standard error of 0.84) and also attended the show in larger groups (0.43 additional group members, with a standard error of 0.14). We control for these variables in all analyses.

TABLE 1. DESCRIPTIVE STATISTICS

	Average	Std. Dev.	Min	Max
Age	37.45	13.03	16	88
Female	0.64	0.48	0	1
Paid in group	0.62	0.49	0	1
Number of accomp. Persons	2.39	1.48	0	5
First time at venue	0.46	0.50	0	1
Times at venue before	2.15	3.11	0	10
First time theatre in a year	0.09	0.28	0	1
Times in theatre last year	8.11	12.68	0	90

Note.- The table lists averages, standard deviations, and extremum values for a set of demographic characteristics and theater-attendance habbits of participants.

Descriptive statistics

Table 1 presents the descriptive statistics of demographic variables and theater-attendance habits. Participants' age ranges from 16 to 88 years old, with an average age of 37 years, and 64% were females. Approximately half the participants (54%) had attended shows at the specific venue, where shows by other companies using traditional pricing systems are also run. Most participants (91%) attended several theater shows during the preceding year (8 shows on average). Of all participants, 62% paid in groups, in which case we assign an equal fraction of payment to each group member. Independently of whether participants paid in groups, the average number of accompanying persons was 2.39.

Table 2 shows descriptive statistics of expectations, enjoyment data, and payments. Payments range from 2.50 to 35 euros, with an average payment of 12.86 euros, which is above the typical price of 10 euros for independent theater plays in Barcelona.[6]

[6] Participants who did not pay any amount are indistinguishable from those who did not return the ex-ante questionnaire and whose payment may be accounted as nonparticipants' payment (which we cannot trace individually). Taking this into account, the proportion of participants for which we do not have payment

TABLE 2.DESCRIPTIVE STATISTICS OF PAYMENT, EXPECTATIONS, AND ENJOYMENT MEASURES

	Average	Std. Dev.	Min	Max
Payment	12.86	4.96	2.50	35.00
Reported enjoyment measures:				
Expected enjoyment	6.20	0.81	3	7
Realized enjoyment	5.92	0.99	2	7
Other reported measures:				
Expectations were met	3.04	0.59	1	4
Likelihood of recommend.	3.55	0.68	0	4
Agreement with message	5.73	1.09	0	7

Note.- The table includes means, standard deviations, and the range of values (min and max) for the different variables used in the analysis. Except for "other reported measures," statistics are computed for the subsample of 433 participants for which information for all these variables is available. The subsamples used to compute each of the three last rows include, respectively, 433, 434, and 419 observations.

Reported measures of both expected and realized enjoyment show that, in general, attendants expected a high-quality show and enjoyed the experience. On a scale from 1 to 7, the average expected enjoyment is 6.20, which is slightly above the average declared realized enjoyment (5.92). Expected enjoyment does not significantly correlate with descriptive variables in Table 1, with the exception of gender and whether participants were visiting the venue for the first time.[7] Participants booking tickets themselves do not show significant higher average expectations than does who do not.

In reply to the 4-point-scale question about whether the show met audience expectations, the average reported level was 3.04. Regarding the likelihood of recommending the show to others, the average answer was 3.55, also on a 4-point scale.

data is relatively low (14.15%) and higher compared with the proportion of non-participants (which may include participants) who did not pay (8.4%).

[7] Female participants have on average significantly higher expected enjoyment, and also realized enjoyment. In turn, gender is not significantly correlated with the difference between realized and expected enjoyment, which we later define as the "gap".

Finally, the degree of agreement with the play's message was 5.73 on a 7-point scale.[8]

The relation between expected and realized enjoyment is tabulated in Table 3. The table shows the frequency of all combinations in the data. Most of the data correspond to high values of expectations and realized enjoyment. Of the 433 participants for which we have both questionnaires and payment data, which is our main sample, 190 (44%) lie on the diagonal, declaring to have enjoyed the show exactly as much as they expected. For the rest of the participants, 89 (21%) surpassed their expectations, whereas 154 (36%) did not meet their expectations. Differences between individual expectations and realized enjoyment are rarely larger than 2 points on our 7-point scale.

TABLE 3. CONTINGENCY TABLE OF EXPECTED AND REALIZED REPORTED ENJOYMENT

		Expected enjoyment								
		2	**3**	**4**	**5**	**6**	**7**	Total	Below expect.	Above expect.
Realized enjoyment	**2**	**0**	0	0	2	0	1	3	3	0
	3	0	**0**	0	2	2	1	5	5	0
	4	0	0	**1**	9	11	7	28	27	0
	5	0	0	0	**27**	27	31	85	58	0
	6	0	1	1	38	**76**	61	177	61	40
	7	0	0	1	12	36	**86**	135	0	49
Total		**0**	1	3	90	152	187	**433**		
Below expect.:		0	0	0	13	40	101		154	
Above expect.:		0	1	2	50	36	0			89

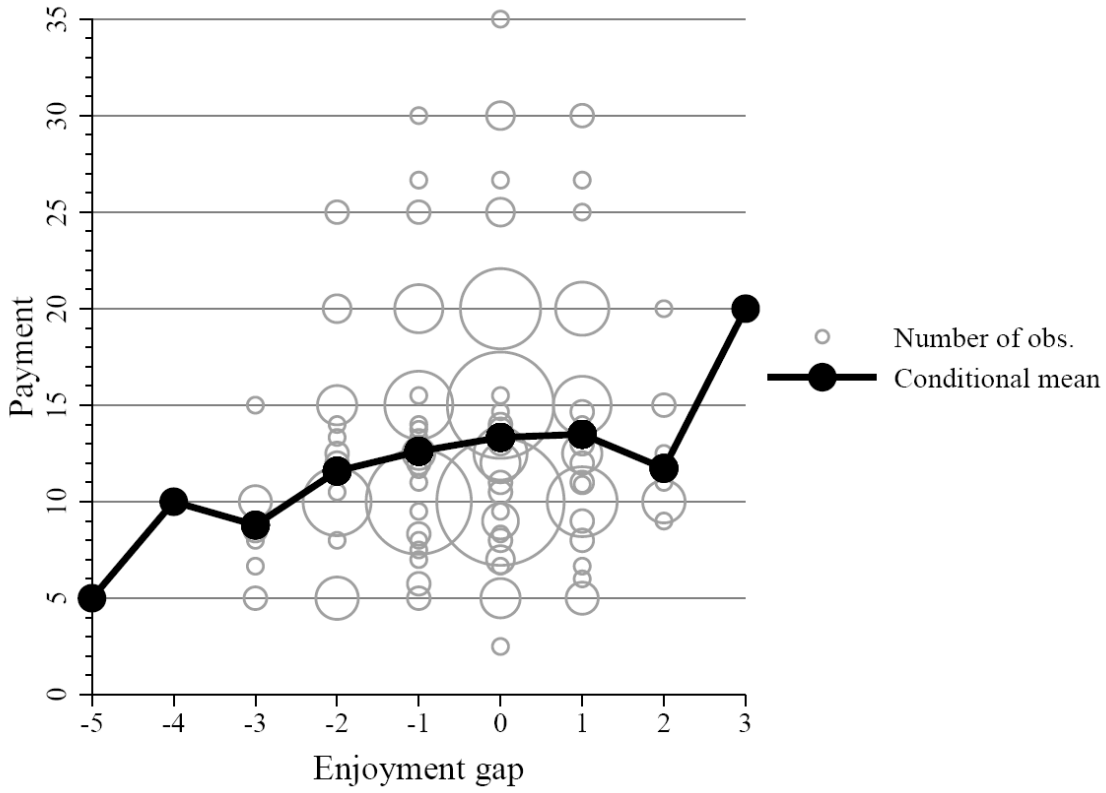
Note.- Each cell indicates the number of observations that reported the corresponding levels of expected and realized enjoyment. The row and column labelled as "below expectations" totals the number of indivduals whose expected enjoyment was lower than the realized one. The opposite is true for "above expectations."

Payments conditional on the enjoyment gap

Figure 2 shows the distribution of payments conditional on the enjoyment gap

[8] Different questionnaire measures might capture similar aspects of individual satisfaction. The highest correlation coefficient among the different measures is between realized enjoyment and likelihood of recommendation (0.69, standard error 0.04).

FIGURE 2. DISTRIBUTION OF PAYMENTS CONDITIONAL ON ENJOYMENT GAP

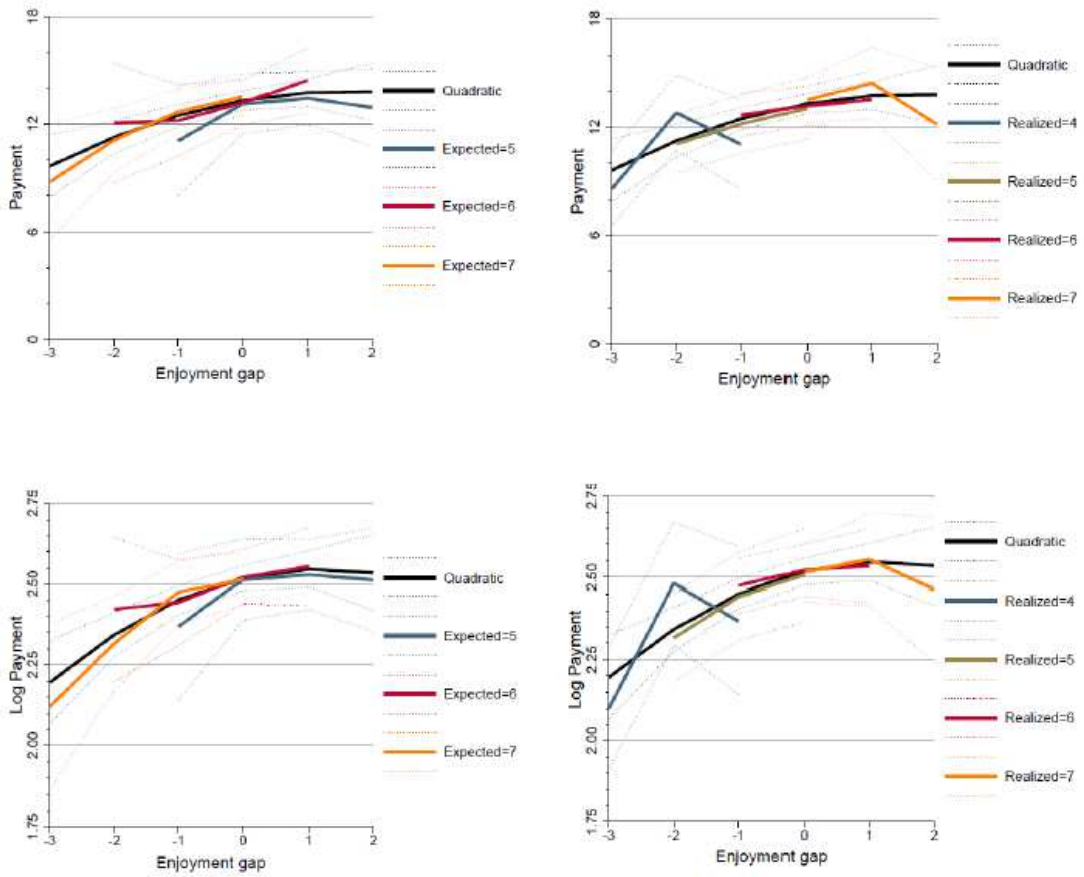


Note.- The figure shows the distribution of payments conditional on the enjoyment gap. The position of a bubble indicates a pair of amount paid and enjoyment gap. The size of the bubble indicates the number of individuals that are in a given pair. The black line plots the average payment conditional on the enjoyment gap.

(realized enjoyment minus expected enjoyment). Importantly, the figure shows the conditional mean of payments has an upward trend. That is, mean payments increase as the enjoyment gap increases.

Figure 3 confirms (based on regression results reported below) that payments increase with the enjoyment gap. The four panels depict the average payment (in levels in the upper panels, in logarithms in the lower panels) as the enjoyment gap increases conditional on the different levels of expected enjoyment (left panels) or realized enjoyment (right panels). The black solid lines depict the fitted values of a quadratic regression of payment (or log payment) on the enjoyment gap, showing again a clear increasing trend. The 95% confidence intervals, shown in dotted lines, confirm the increasing trend. The fact that each of the increasing colored lines basically lie on top of

FIGURE 3. AVERAGE PAYMENT (LEVEL AND LOG) BY ENJOYMENT GAP AND LEVEL



Note.- Colored solid lines in each plot represent the average payment (top plots) or log payment (bottom plots) for each gap level for the subsamples of individuals with the indicated expected or realized enjoyment. Only the averages of cells with more than five observations are reported. Black solid lines depict the fitted values of a regression of payment (or log payment) on a second-order polynomial on the enjoyment gap. Dotted lines indicate 95% confidence intervals.

each other indicates the difference between expected and realized enjoyment is really the important determinant of payment, over and above the reported level of enjoyment. This is the main result of our paper, which we confirm using controls in the regression analysis presented in the next section.

Regression Results

We run a regression of log payment on different measures of enjoyment and the controls summarized in Table 1. Table 4 shows the main results from this regression.

TABLE 4. REGRESSION RESULTS: LOG PAYMENT ON ENJOYMENT LEVELS AND GAPS

	(1)	(2)	(3)	(4)	(5)	(6)
Constant	2.407	1.834	2.125	2.240	1.946	2.116
	(0.177)	(0.139)	(0.188)	(0.075)	(0.214)	(0.106)
Enjoyment gap	---	---	---	0.071	---	0.069
				(0.018)		(0.018)
Expected enjoyment	-0.035	---	-0.059	---	-0.051	---
	(0.025)		(0.025)		(0.027)	
Realized enjoyment	---	0.067	0.078	---	0.079	---
		(0.020)	(0.020)		(0.020)	
Age	0.010	0.010	0.010	0.010	0.010	0.010
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Female	0.012	-0.024	-0.009	-0.002	-0.013	-0.003
	(0.032)	(0.032)	(0.033)	(0.030)	(0.034)	(0.031)
Paid in group	-0.063	-0.075	-0.069	-0.067	-0.053	-0.050
	(0.041)	(0.040)	(0.040)	(0.040)	(0.040)	(0.040)
Num. of accomp. pers. (base=1):						
0	0.069	0.043	0.046	0.049	0.080	0.083
	(0.167)	(0.160)	(0.167)	(0.169)	(0.168)	(0.170)
2	-0.102	-0.087	-0.101	-0.105	-0.091	-0.097
	(0.078)	(0.077)	(0.074)	(0.074)	(0.077)	(0.076)
3	-0.061	-0.049	-0.053	-0.055	-0.027	-0.031
	(0.056)	(0.055)	(0.054)	(0.055)	(0.060)	(0.060)
4	-0.081	-0.085	-0.090	-0.090	-0.086	-0.088
	(0.055)	(0.056)	(0.056)	(0.056)	(0.057)	(0.057)
5 or more	-0.069	-0.057	-0.060	-0.062	-0.067	-0.070
	(0.065)	(0.061)	(0.061)	(0.062)	(0.067)	(0.068)
First time at venue	-0.038	-0.043	-0.056	-0.057	-0.024	-0.026
	(0.040)	(0.040)	(0.039)	(0.039)	(0.041)	(0.040)
First time at theatre this year	-0.057	-0.080	-0.083	-0.081	-0.108	-0.103
	(0.073)	(0.071)	(0.070)	(0.071)	(0.069)	(0.071)
Night fixed effects	No	No	No	No	Yes	Yes
Expected+Realized = zero (p-val)	---	---	0.479	---	0.319	---
Restricted vs unrestricted (p-val)	---	---	---	0.497	---	0.315
Adjusted R-squared	0.125	0.149	0.162	0.162	0.188	0.187
Num. of observations	433	433	433	433	433	433

Note.- The table includes regression coefficients for a set of regressions of log payment on a set of controls, reported enjoyment (expected and/or realized), and/or the enjoyment gap, as indicated. Night fixed effects are included in columns 5 and 6 as indicated. Reported p-values correspond to tests of the null hypothesis that the coefficients of expected and realized enjoyment are equal in absolute value and of opposite sign and to a test comparing the restrictred and unrestricted models. Standard errors clustered by joint-payment groups are reported in parentheses.

Columns (1)–(4) do not include night fixed effects, whereas columns (5) and (6) do. Among the controls, the age coefficient is always positive and significant, indicating older people pay more, which makes sense because age is a good proxy for income.[9] Column (1) shows expected enjoyment by itself is not a significant determinant of payment, whereas column (2) shows realized enjoyment is. When including both regressors in column (3), the fit improves (the adjusted R^2 increases from 0.149 to 0.162) and both coefficients become significant. We cannot reject the null hypothesis that the magnitude of both coefficients is the same. Interestingly, the two coefficients are similar in magnitude and of opposite sign (p-value=0.479), which means that in terms of payment, the effect of lowering expectations by one unit is the same as the effect of increasing realized enjoyment by one unit, and the difference between the two is what matters. This is in line with the results in Figure 3, where the payment curves by expected and realized enjoyment levels lie on top of each other. The result is confirmed in column (4) where the coefficient of the enjoyment gap is signicant and positive, showing a 7% increase in payment (1 euro for the average individual) for each extra unit in the enjoyment gap. We cannot reject the hypothesis that the restricted and unrestricted models are identical (p-value=0.497). Including fixed effects in columns (5) and (6) increases the R^2, and the coefficients are virtually unchanged. This confirms the enjoyment gap is a sufficient statistic of expected and realized enjoyment in the payment function.

As is apparent from Figure 3, the relation between the enjoyment gap and payment is likely non-linear. Table 5 studies the nature of this relationship introducing quadratic and cubic polynomials in the enjoyment gap and the coefficients on the levels in the regressions. Estimated coefficients show evidence in favor of a quadratic

[9] Table A1 in the Appendix, shows average payment and satisfaction measures for selected groups created according to each of the questions in the ex-ante questionnaire. Older audience members pay more, regular theater attendants pay more, and those paying in groups pay less.

TABLE 5. REGRESSION RESULTS: NON-LINEAR RELATION BETWEEN LOG PAYMENT AND ENJOYMENT GAP

	(1)	(2)	(3)	(4)	(5)	(6)
Enjoyment gap	0.059	0.051	0.050	0.046	0.042	0.036
	(0.025)	(0.027)	(0.027)	(0.028)	(0.028)	(0.030)
Enjoyment gap squared	---	---	-0.016	-0.017	-0.011	-0.010
			(0.008)	(0.008)	(0.012)	(0.011)
Enjoyment gap cubed	---	---	---	---	0.002	0.002
					(0.003)	(0.003)
Realized enjoyment	0.020	0.029	0.005	0.013	0.007	0.018
	(0.028)	(0.029)	(0.028)	(0.029)	(0.028)	(0.029)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Night fixed effects	No	Yes	No	Yes	No	Yes
Slope for gap is zero (p-val)	0.022	0.059	0.002	0.007	0.002	0.020
Level coeff. is zero (p-val)	0.479	0.319	0.846	0.656	0.799	0.545
Adjusted R-squared	0.162	0.188	0.166	0.095	0.165	0.190
Num. of observations	433	433	433	433	433	433

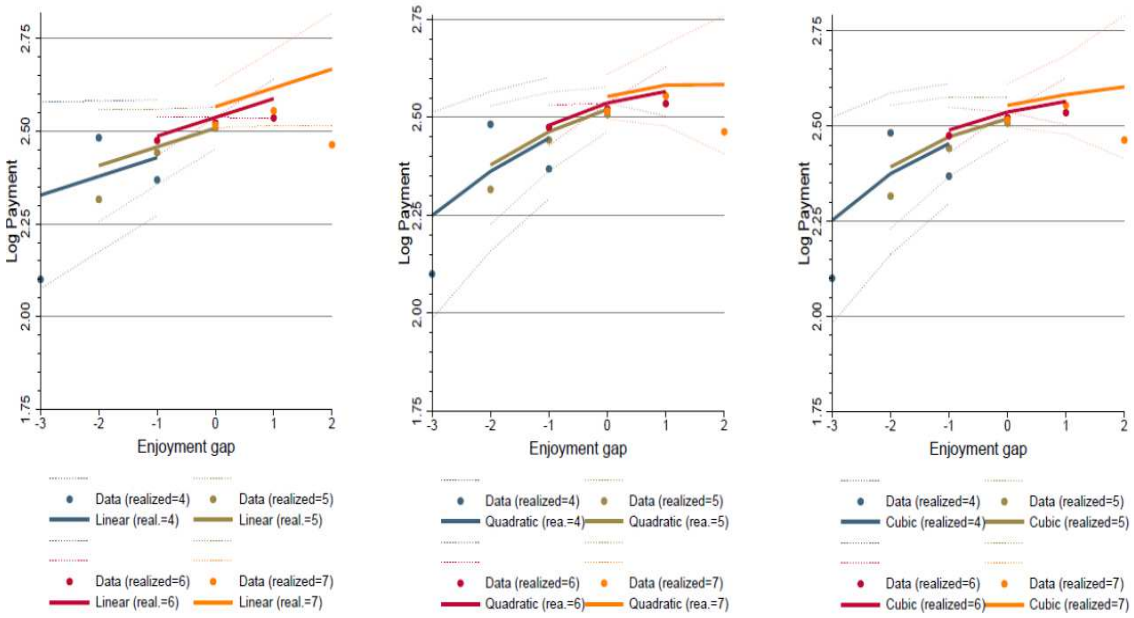
Note.- The table includes gap polynomials and level coefficients from regressions of log payment on these variables, a set of controls, and, whenever indicated, night fixed effects. Included controls coincide with those in Table 4. Reported p-values correspond to tests of joint significance of the gap polynomial coefficients, and of individual significance of the coefficient of realized enjoyment. Standard errors, clustered by joint-payment groups, are reported in parentheses.

relationship but not a cubic one. A test of joint significance of the gap polynomial coefficients rejects that the slope is zero at the 95% level.[10] We cannot reject that the estimated level coefficients of realized enjoyment are zero, confirming that, conditional on expected enjoyment, estimated payment is the same for the same enjoyment gap.

Linking these results back to Figure 3, Figure 4 depicts the fitted values predicted from columns (2) (left), (4) (center), and (6) (right) in Table 5. Circles correspond to the conditional averages plotted in Figure 3. Different colors indicate the conditioning levels of realized enjoyment. The results show the quadratic and cubic specifications deliver almost identical predictions, and that they fit the conditional averages much better than the linear model. More specifically, they show a steeper slope for negative values of the gap, but a rather flat shape for positive values.

[10] At the 90% level for the linear model including night fixed effects.

FIGURE 4. LINEAR, QUADRATIC, AND CUBIC REGRESSIONS FOR THE ENJOYMENT GAP



Note.- Solid lines depict the fitted values predicted from columns 2 (left), 4 (center), and 6 (right) in **¡Error! No se encuentra el origen de la referencia.**. Circles correspond to conditional averages depicted in **¡Error! No se encuentra el origen de la referencia.**. Colors indicate the level of realized enjoyment. Dotted lines indicate 95% confidence intervals for the predictions.

To confirm the different elasticities for the positive and negative sides of the gap, Table 6 shows the results of a regression of log payment on dummy variables for a positive (above expectations) or negative (below expectations) enjoyment gap, without controls (column (1)) and with controls (column (2)) and adding night fixed effects (column (3)). Estimated coefficients indicate having realized enjoyment below expectations negatively and significantly affects payment, whereas being above expectations is not significant. Our results thus confirm the prediction that being dissapointed with respect to expectations is more important for payments than being pleasantly surprised.

Finally, we run alternative regressions of log payment on other satisfaction measures obtained in the ex-post questionnaire. Doing so is important because both whether expectations were met and the likelihood of recommendation can be understood as single variables already capturing the net difference between expectations and actual enjoyment.

TABLE 6. REGRESSIONS FOR ENJOYMENT BELOW, AT PAR, AND ABOVE EXPECTATIONS

	(1)	(2)	(3)
Above expectations	0.000	0.022	0.013
	(0.049)	(0.049)	(0.048)
Below expectations	-0.111	-0.124	-0.125
	(0.044)	(0.039)	(0.039)
Controls	No	Yes	Yes
Night fixed effects	No	No	Yes
Adjusted R-squared	0.015	0.145	0.174
Num. of observations	433	433	433

Note.- The table includes the regression coefficients of dummy variables indicating whether the reported realized enjoyment is above or below the reported expectation (the base category is at par with expectations). When included, controls coincide with those in Table 4. Standard errors, clustered by joint-payment groups, are reported in parentheses.

Results, presented in Table 7, are in line with the previous table. The coefficients for these two variables are positive and statistically significant in the correspondng regressions in Table 7. The estimated values and the R^2 are similar to those obtained for the gap in Table 4.[11] We find the degree of agreement with the message of the show is a noisier indicator of payment, which was expected.

Going back to our hypotheses, we see H1 (payments decrease with expected enjoyment) is rejected, whereas our data support H2 (payments increase with realized enjoyment). Moreover, H3 (payments increase with the enjoyment gap) is confirmed because we have shown that once the satisfaction gap is accounted for, the level of expected enjoyment or ex-post realized enjoyment has no significant effect in predicting payments.

[11] Although the scale of the measures changes from 1 to 7 in the enjoyment gap to 1 to 4 in expectations met and likelihood of recommendation.

TABLE 7. REGRESSION RESULTS FOR ALTERNATIVE MEASURES OF REPORTED ENJOYMENT

	Enjoyment measure	Adj. R^2	Num. obs.
Expectations were met	0.09	0.016	433
	(0.04)		
+ controls	0.12	0.156	433
	(0.04)		
+ night fixed effects	0.12	0.188	433
	(0.03)		
Likelihood of recommendation	0.10	0.031	434
	(0.03)		
+ controls	0.11	0.162	434
	(0.03)		
+ night fixed effects	0.11	0.194	434
	(0.03)		
Agreement with the message	0.04	0.013	419
	(0.02)		
+ controls	0.05	0.140	419
	(0.02)		
+ night fixed effects	0.05	0.172	419
	(0.02)		

Note.- The table includes the regression coefficients of the variables indicated in the first row of the first column of each panel. Specifications labeled with "+ controls" include controls, and those indicated by "+ night fixed effects" include controls and night fixed effects. When included, controls coincide with those in Table 4. Standard errors, clustered by joint-payment groups, are reported in parentheses.

Conclusion

We use PWYW pricing as a proxy for utility of subjective consumption. Presumably, all else equal, the higher the individual's utility from consuming the product, the more she will choose to pay for it. Using PWYW as a proxy for utility allows us to study what influences the experience utility. In particular, we are interested in the interaction between expected enjoyment and realized enjoyment in determining the overall utility of consumption.

Our main finding is that the gap between reported expected enjoyment and realized enjoyment is the main driver of payment. Controlling for that gap, we find that

people with low expectations do not necessarily enjoy the show more, or that people who report enjoying the show more also pay more. Rather, people for whom the realized enjoyment exceeded their expectations are the people who pay more. Our result is robust to controlling for several variables.

Our exercise also offers a few interesting lessons about marketing experience goods. An important trade-off occurs between setting expectations high enough to attract the audience to a product and risking that consumers will be disappointed, which lowers payments in the short run and might deter customers from buying again. Disappointed consumers are problematic because they are likely to affect word of mouth, on which experience goods crucially depend. Similarly, pricing experience goods is particularly difficult because, under traditional pricing mechanisms, fixed prices are paid (or not) before consumers actually know how much they will end up liking the product. This situation can create two types of mistakes—buying a product that later disappoints the consumer, or not buying one that might have been more enjoyable than expected. PWYW pricing avoids this shortcomings, which may be a reason why it is increasingly being used for several experience goods such as software, music albums, restaurant meals and pictures taken at touristic places.

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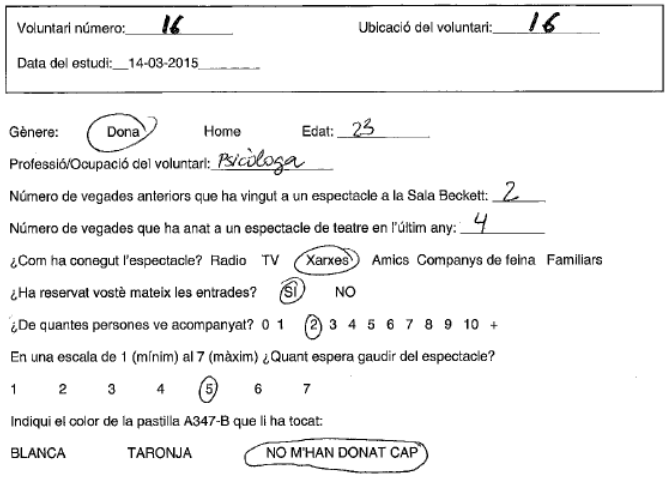
Appendix

FIGURE A1. EXAMPLES OF QUESTIONNAIRES (AND TRANSLATION INTO ENGLISH)



Voluntari número: 16 Ubicació del voluntari: 16

Data del estudi: 14-03-2015

Gènere: (Dona) Home Edat: 23

Professió/Ocupació del voluntari: Psicòloga

Número de vegades anteriors que ha vingut a un espectacle a la Sala Beckett: 2

Número de vegades que ha anat a un espectacle de teatre en l'últim any: 4

¿Com ha conegut l'espectacle? Radio TV (Xarxes) Amics Companys de feina Familiars

¿Ha reservat vostè mateix les entrades? (Sí) NO

¿De quantes persones ve acompanyat? 0 1 (2) 3 4 5 6 7 8 9 10 +

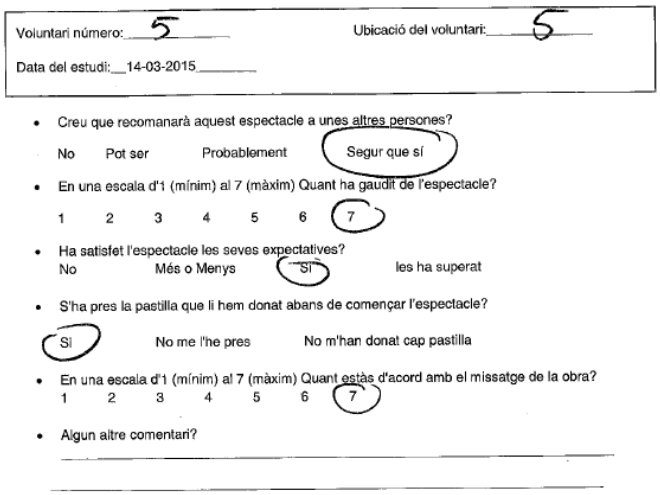
En una escala de 1 (mínim) al 7 (màxim) ¿Quant espera gaudir del espectacle?

1 2 3 4 (5) 6 7

Indiqui el color de la pastilla A347-B que li ha tocat:

BLANCA TARONJA (NO M'HAN DONAT CAP)

- Volunteer number ____ Volunteer Location_____
- Study Date _____
- Gender ____ Age _____
- Occupation _____
- Number of times visited this theater in the past ___
- Number of times going to the theater in the past year ___
- How did you hear about this play? Radio TV online friends colleagues Family members
- Did you make the ticket reservations? Yes No
- Number of people joining you today 0 1 2 3 4 5 6 7 8 9 10 +
- On a scale from 1 (minimum) to 7 (maximum), how much do you expect to enjoy the show?
- Tell us the color of the pill you took: White Orange I did not get any



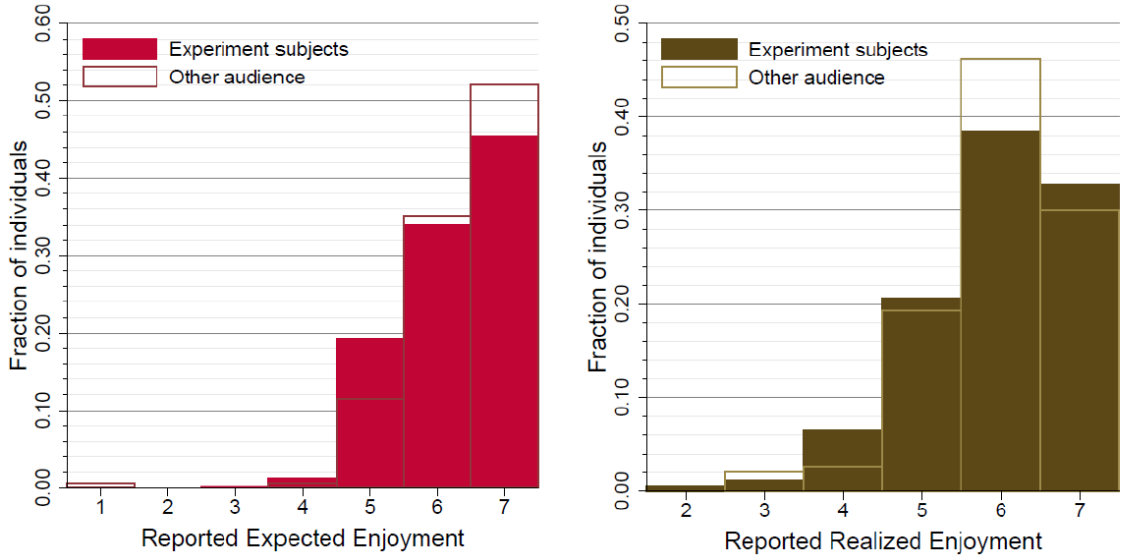
Voluntari número: 5 Ubicació del voluntari: 5

Data del estudi: 14-03-2015

- Creu que recomanarà aquest espectacle a unes altres persones?
  No Pot ser Probablement Segur que sí
- En una escala d'1 (mínim) al 7 (màxim) Quant ha gaudit de l'espectacle?
  1 2 3 4 5 6 7
- Ha satisfet l'espectacle les seves expectatives?
  No Més o Menys Sí les ha superat
- S'ha pres la pastilla que li hem donat abans de començar l'espectacle?
  Sí No me l'he pres No m'han donat cap pastilla
- En una escala d'1 (mínim) al 7 (màxim) Quant estàs d'acord amb el missatge de la obra?
  1 2 3 4 5 6 7
- Algun altre comentari?

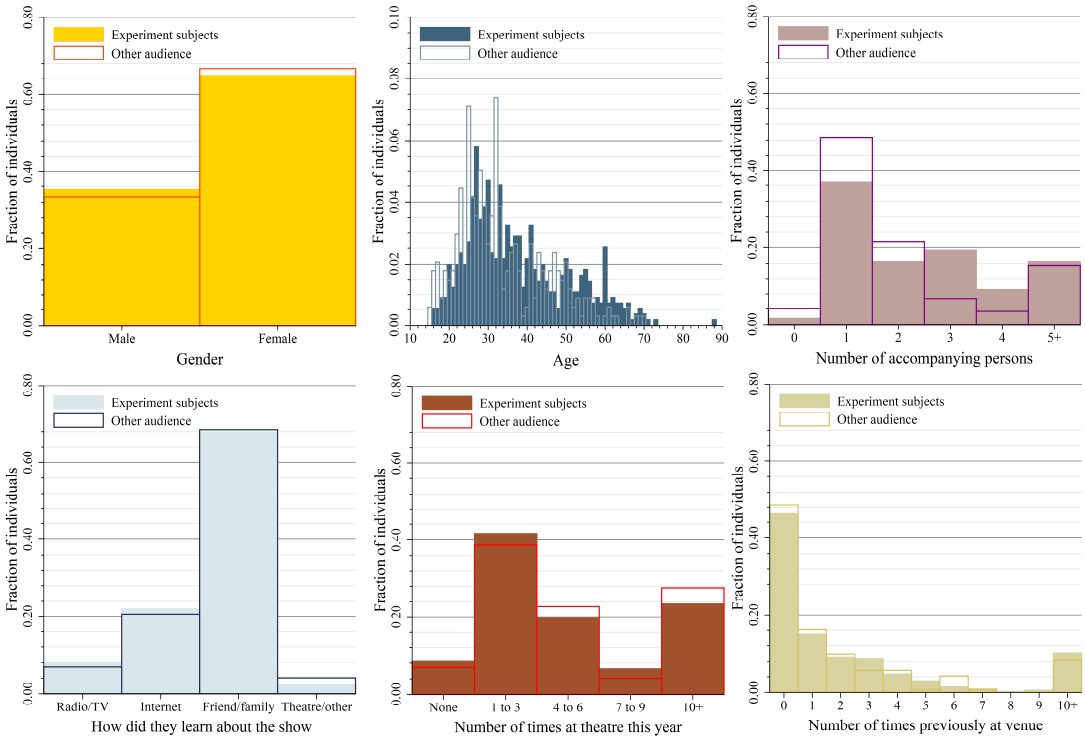
- Volunteer number ____ Volunteer Location_____
- Study Date _____
- Would you recommend this play to others ? No Could be Probably For certain
- On a scale from 1 (minimum) to 7 (maximum), how much did you enjoy the show?
- Did the show meet your expectations? No More less Yes It surpassed them
- Did you take the pill you were given before the show? Yes No None given
- On a scale from 1 (minimum) to 7 (maximum), how much do you agree with the message of the play?
- Any other comments? _____

FIGURE A2. DISTRIBUTION OF REPORTED EXPECTED AND EX-POST ENJOYMENT (PARTICIPANTS VS OTHER AUDIENCE)



Note.- The figure plots reported expected and realized enjoyment histograms for experiment participants (solid) and other audience (lines). Other audience refers to non-participants who were interviewed during the last four nights. Kolmogorov-Smirnov tests of the hypothesis that the two empirical distributions come from the same population distribution cannot reject the null hypothesis (p-values are 0.446 and 0.846, respectively).

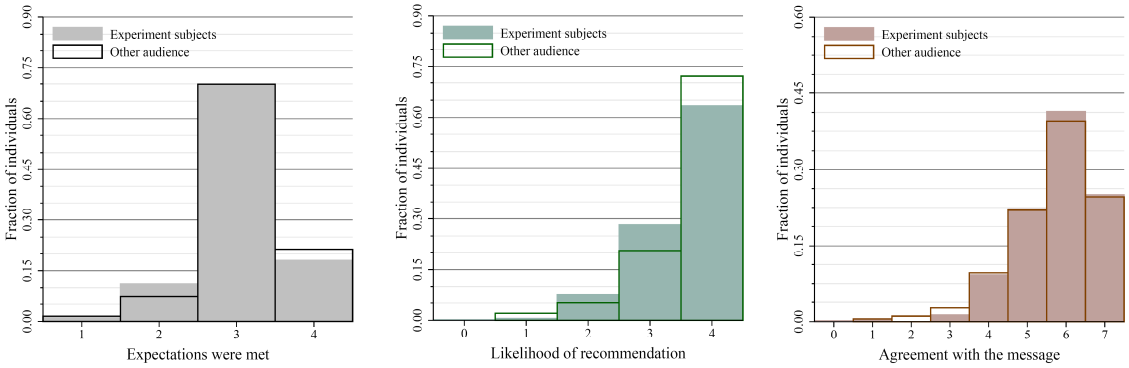
FIGURE A3. DISTRIBUTIONS OF PERSONAL CHARACTERISTICS (EXPERIMENT SUBJECTS VS OTHER AUDIENCE)



Note.- The figure plots the histograms of several observable characteristics (gender, age, number of accompanying persons, channel used to learn about the show, number of times at the theater this year, and number of times previously at venue) for participants (solid) and other audience (lines). Kolmogorov-Smirnov tests of the hypothesis that the two empirical distributions for each characteristic come from the same population distribution cannot reject the null

hypothesis except in the case of age and number of accompanying persons (p-values are 1.000, 0.000, 0.000, 1.000, 0.946, and 0.986, respectively).

FIGURE A4. DISTRIBUTION OF ALTERNATIVE MEASURES OF REPORTED ENJOYMENT (EXPERIMENT SUBJECTS VS OTHER AUDIENCE)



Note.- The figure plots histograms of other reported enjoyment measures (whether expectations were met, likelihood of recommendation, and agreement with the message) for participants (solid) and other audience (lines). Kolmogorov-Smirnov tests of the hypothesis that the two empirical distributions come from the same population distribution cannot reject the null hypothesis (p-values are 0.992, 0.178, and 1.000, respectively).

TABLE A1. AVERAGE PAYMENT AND ENJOYMENT MEASURES FOR SELECTED GROUPS

	Payment	Expected enjoymt.	Realized enjoymt.	Expectat. met	Likelihd. of recom.	Agreemt. message
Age group:						
15-24	10.05	6.33	5.90	3.10	3.45	5.59
	(0.52)	(0.10)	(0.15)	(0.09)	(0.10)	(0.17)
25-34	11.86	6.07	5.94	3.10	3.57	5.78
	(0.31)	(0.07)	(0.08)	(0.05)	(0.05)	(0.09)
35-44	13.00	6.32	5.88	2.93	3.60	5.63
	(0.49)	(0.07)	(0.09)	(0.05)	(0.06)	(0.11)
45-54	15.55	6.32	6.07	3.04	3.60	6.04
	(0.76)	(0.12)	(0.11)	(0.06)	(0.08)	(0.11)
55+	15.17	6.15	5.85	2.98	3.45	5.63
	(0.68)	(0.10)	(0.13)	(0.08)	(0.10)	(0.15)
Gender:						
Male	12.86	6.00	5.72	2.99	3.45	5.61
	(0.38)	(0.07)	(0.09)	(0.05)	(0.06)	(0.09)
Female	12.81	6.32	6.04	3.07	3.60	5.80
	(0.30)	(0.05)	(0.05)	(0.04)	(0.04)	(0.07)
Paid in group:						
Yes	13.32	6.15	5.88	3.05	3.54	5.78
	(0.45)	(0.07)	(0.08)	(0.05)	(0.06)	(0.09)
No	12.52	6.24	5.96	3.03	3.55	5.70
	(0.26)	(0.05)	(0.06)	(0.03)	(0.04)	(0.07)
Num. of accomp. persons:						
0	14.36	6.29	6.14	3.57	3.57	5.71
	(2.75)	(0.29)	(0.40)	(0.20)	(0.30)	(0.42)
1-3	12.92	6.27	5.96	2.99	3.58	5.63
	(0.34)	(0.06)	(0.07)	(0.04)	(0.05)	(0.09)
4-6	12.93	6.07	5.89	3.06	3.57	5.72
	(0.66)	(0.10)	(0.12)	(0.08)	(0.07)	(0.14)
7-9	12.63	6.20	5.88	3.07	3.58	5.70
	(0.59)	(0.08)	(0.10)	(0.05)	(0.07)	(0.11)
10+	11.80	6.23	6.10	3.03	3.46	5.85
	(0.48)	(0.13)	(0.15)	(0.09)	(0.14)	(0.16)
First time at venue:						
Yes	13.27	6.28	5.84	2.97	3.46	5.64
	(0.33)	(0.05)	(0.07)	(0.04)	(0.05)	(0.07)
No	12.32	6.11	6.03	3.11	3.65	5.83
	(0.34)	(0.06)	(0.07)	(0.04)	(0.04)	(0.08)
First time at theater this year:						
Yes	12.90	6.21	5.90	3.02	3.55	5.72
	(0.24)	(0.04)	(0.05)	(0.03)	(0.03)	(0.06)
No	12.09	6.14	6.22	3.24	3.51	5.80
	(0.97)	(0.14)	(0.15)	(0.11)	(0.11)	(0.17)
Satisfaction pill:						
Placebo	12.99	6.18	5.89	3.05	3.56	5.64
	(0.34)	(0.06)	(0.07)	(0.04)	(0.05)	(0.08)
Treatment	12.61	6.20	5.94	3.02	3.54	5.80
	(0.35)	(0.06)	(0.07)	(0.04)	(0.05)	(0.08)
No pill	13.19	6.44	6.12	3.08	3.54	6.00
	(0.92)	(0.14)	(0.16)	(0.09)	(0.10)	(0.18)

Note.- The table presents means and standard errors for the variables indicated in the top row of each column for the individuals with characteristics indicated in the first column.