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Christmas Presents and the Endowment Effect

Thomas K. Bauer
Christoph M. Schmidt

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Thomas K. Bauer
*RWI Essen, Ruhr-Universität Bochum
and IZA*

Christoph M. Schmidt
*RWI Essen, Ruhr-Universität Bochum,
CEPR and IZA*

ABSTRACT

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Using data on the valuation of Christmas gifts received by students in different fields at a German university, we investigate whether the endowment effect differs between students of economics and other respondents and whether it varies with the market price of the object under consideration. Our estimation results suggest that economics students have both, a significant lower WTP and WTA, indicating that existing studies on the efficiency loss of holiday gifts and experimental studies on the endowment effect that rely on data from economics students may be biased. The result further indicates that the endowment effect is independent of the market price of the object.

Corresponding author:

Thomas K. Bauer
RWI
Hohenzollernstr. 1-3
D-45128 Essen
Germany
E-mail: bauer@rwi-essen.de

I. Introduction

Following the seminal contributions by Knetsch and Sinden (1984), Kahneman, Knetsch, and Thaler (1990) and Tversky and Kahneman (1991), numerous experimental studies have shown that individuals demand a substantially higher price to give up an object that they already own, than they would be willing to pay to obtain this object. This phenomenon has first been called *endowment effect* by Thaler (1980). Several issues in this literature have, however, been hotly debated until today. It has been criticised, for example, that many of the existing studies suffer from experimental deficiencies such as hypothetical payments (List and Shogren, 2002) or that many experiments exclusively use economics students as subjects (Haigh and List, 2005). Related to this observation, List (2003), for example, shows that the endowment effect disappears as soon as the subjects gain experience in a particular market. It is also an open question whether the endowment effect differs between risky and riskless choices. For instance, Gchter et al. (2007) find that endowment effects occur in risky as well as riskless choices, and that they are positively correlated, i.e. individuals who display an endowment effect for risky choices also tend to display such effects for riskless choices.

In this paper we employ information obtained from a survey of students at a German university to analyze two issues that are related to the first and second critique. Following the study by Waldfogel (1993), we use data on the valuation of Christmas gifts to analyze the endowment effect. We asked students in different fields of study to report their Willingness to Pay (WTP) and their Willingness to Accept (WTA) for three of the Christmas gifts they obtained in 2007, allowing us to analyze the endowment effect using survey data rather than experimental data. In particular, we study, whether (i) the endowment effect differs between economic and other students and (ii) it varies with the price of the object.

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II. Data

Our empirical analysis employs data obtained from a survey of students of different subjects (Biology and Biotechnology, Chemistry and Biochemistry, Law, Medicine, East Asian Studies, Psychology, Social Sciences, Sports, and Economics) conducted between January and March 2008 in selected lectures at the the Ruhr-University in Bochum, Germany. In these lectures we randomly distributed four different versions of a questionnaire. All questionnaires asked for key socioeconomic characteristics of the students and their parents. Furthermore, we asked the students on their valuations and the corresponding market prices of three gifts they received at Christmas in 2007. The four versions of the questionnaire varied with respect to the particular question regarding the valuation of the gifts and in the order of the questions regarding the valuations and market prices.

Concerning the valuation of the gifts, in two versions of our questionnaire we asked the students for their WTP for the gift using the following question

> *Abstracting from the sentimental value of the gift: If you would not have received the gift, how much would you be willing to pay to obtain it?*

In two other versions of the survey, to obtain a measure of their WTA, we asked the students instead

> *Abstracting the sentimental value of the gift: How much would somebody have to pay you to induce you giving the gift away?*

Since the questionnaires further differ in the order of these questions and questions regarding the gifts' market values, we have four variants of the survey at our disposal. In the following empirical analysis we use only those versions of the questionnaire where the estimated market prices are asked first to avoid that this estimation is contaminated by considerations on personal valuations.

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After eliminating all observations with missing values on the valuation of the gifts, with obviously unreasonable answers or where students obviously did not abstract from the sentimental value of the gift[1], observations on 1,384 gifts from 511 students are available for the empirical analysis. Table 1 provides some descriptive statistics on our sample. Some 65 percent of the students in our sample study economics or business administration, and approximately 44 percent of them are females. On average they are in their fourth semester and are 24 years old..

III.   Descriptive Analysis: WTP and WTA

The average valuation of the Christmas gifts is reported to be about 152 € and the average market price is estimated to be about 142 €. Thus, average figures would imply an efficiency gain of Christmas presents. However, the differences between the valuations of the gifts and their respective market prices obviously depend on whether the students are asked about their WTP or their WTA. Students who were asked about their WTP on average report a valuation that is about 11 percent *below* the respective market price, suggesting that Christmas presents are associated with a deadweight loss. This results is at the lower bound of the deadweight loss reported by Waldfogel (1993) for the US. Asked about their WTA, however, students on average report valuations that are 18 percent *above* the respective market prices, implying an efficiency gain of Christmas presents.

Figure 1 reports Kernel density estimates of the distributions of the WTP and WTA (measured as the difference between the log valuation and the log market price) in our sample. It appears that the WTA-distribution stochastically dominates

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[1]These observations include, for example, a student receiving a well-known castle in the area as a gift or a student receiving a scarf from her boyfriend, who reports its market value at 12.50 € but supposedly values it at 100,000 €.

the WTP-distribution, indicating that students demand a higher price to sell the gifts than they are willing to spend when faced with the decision to buy the gifts. This difference, which we interpret as endowment effect, will be analyzed in more detail in the following section.

IV. Confounding Factors: Estimation Results

Column (1) of Table 2 shows the results of a OLS regression of the model

$$log(V_{ij}) = \beta_0 + \beta_1 log(P_{ij}) + \beta_2 WTA_j + \varepsilon_{ij}, \tag{1}$$

where V_{ij} denotes the valuation of gift i by student j and P_{ij} the market value of the gift as reported by the student. WTA_j is an indicator variable taking the value one if the student is asked about his WTA, and zero otherwise. The standard errors reported in Table 2 have been corrected to take repeated observations of students into account.

The estimated coefficient for $log(P_{ij})$ implies an elasticity of the valuation with respect to the market value of about 0.95. This elasticity is statistically significant smaller than one, indicating an efficiency loss of Christmas gifts of 5 percent of their market value when students are asked about their WTP. The estimated coefficient of the WTA-dummy, which we interpret as endowment effect, indicates that the valuation of the gift is about 55 percent[2] higher when students are asked about their WTA rather than their WTP. To investigate whether the endowment effect varies with the price of the gift, we interact the WTA-dummy with $log(P_{ij})$. The estimated coefficient of this interaction variable turns out not to be statistically significant at conventional levels (see column (2) of Table 2), suggesting that the endowment effect is independent of the price of the gift.

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[2]Calculated as $100 \times (e^{\beta_0} - 1)$.

In Column (3) of Table 2 we add a dummy variable to the specification, indicating whether a student is enrolled for Economics or Business Administration, as well as a variable indicating the number of semesters the student has already studied the particular subject at the time of the survey. The estimation results indicate that economics students display a significantly lower WTP and WTA than students of other subjects. This discrepancy is particularly pronounced for the WTA. These results indicate that studies that concentrate on economics students may underestimate the efficiency loss of Christmas presents as well as the endowment effect. It also corroborates the results of List (2003) that respondents with a better comprehension of the respective markets display smaller endowment effects.

In the last column of Table 2 we added several dummy variables indicating the relationship between the donor and the recipient of the gift. The results (not reported in the table) suggest, in line with the literature (e.g. Waldfogel, 1993) that gifts by grandparents and other relatives enjoy a lower appreciation. This has been interpreted as a reflection of their limited information on the preferences of the recipient. Therefore, the efficiency loss of Christmas presents could be expected to increase with the emotional distance between donor and recipient. However, there is now obvious reason why the endowment effect should also vary with this distance. The estimation results indeed suggest that the WTA is only significantly lower for gifts given by the parents. Corroborating this result, F-tests suggest that the group of dummy variables indicating this relationship is jointly statistically significant for the WTP, but not for the WTA.

V. Conclusion

We use information on the WTP and the WTA for Christmas presents received by students of a German university to test whether the endowment effect (i) varies with

the price of the object, (ii) is different for economic students if compared to students of other subjects. The estimation results indicate that the endowment effect is independent of the price of the object. We further find that economics students display both, a significant lower WTP and a significant lower WTA. This result suggests that studies on the efficiency loss of holiday gifts and experimental studies on the endowment effect using only economics students as subjects may be biased. It may further be interpreted as evidence that respondents with a better comprehension of the respective markets display smaller endowment effects. Finally our results suggest that the efficiency loss of Christmas presents is highest for gifts from grandparents and other relatives, while the discrepancy between WTP and WTA does not vary significantly with the type of giver, indicating that the endowment effect is independent of the emotional distance between the donor and the recipient.

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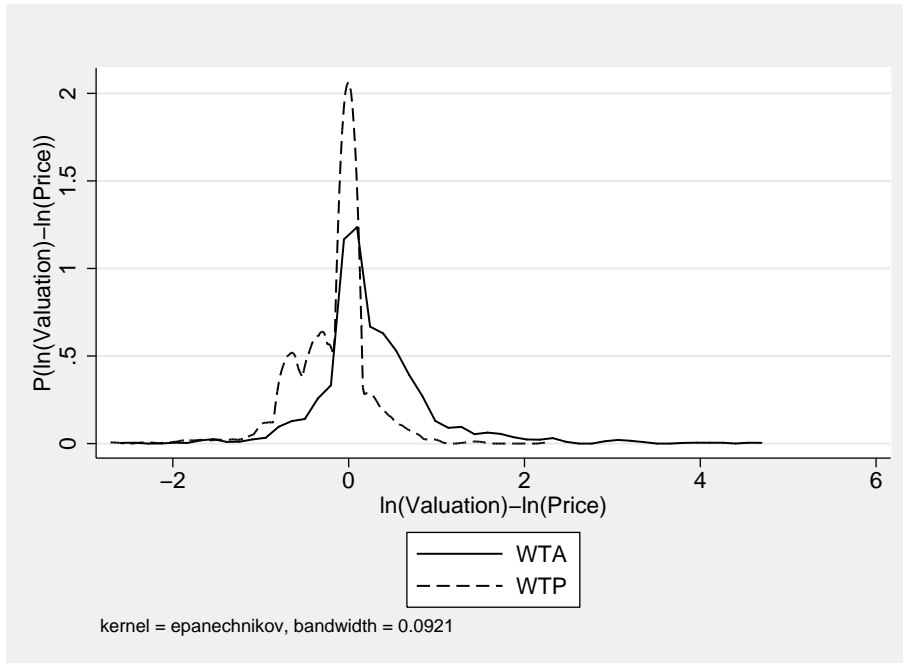
Figure 1: Kernel Density Estimates of WTP and WTA

Table 1: Descriptive Statistics

Variable	Total	WTP	WTA
Value	152.461	93.005	211.574
	(802.02)	(333.16)	(1083.46)
Price	142.217	104.558	179.659
	(798.27)	(336.70)	(1078.64)
Age	23.556	23.640	23.472
	(3.02)	(3.48)	(2.47)
Female	0.443	0.470	0.416
	(0.50)	(0.50)	(0.49)
Economics Student	0.645	0.630	0.660
	(0.48)	(0.49)	(0.48)
Semesters	3.637	3.576	3.697
	(3.09)	(3.13)	(3.05)
Observations	1,384	690	694
Persons	511	251	255

Notes: Standard deviations in parentheses.

Table 2: Estimation Results

	(1)	(2)	(3)	(4)
ln(Price)	$0.946^{\ddagger}$	$0.969^{\ddagger}$	$0.971^{\ddagger}$	$0.961^{\ddagger}$
	(0.016)	(0.015)	(0.015)	(0.016)
Semesters	-	-	0.009	0.008
			(0.006)	(0.006)
Economics Student	-	-	$-0.071^{\dagger}$	$-0.070^{\dagger}$
			(0.041)	(0.040)
WTA	$0.441^{\ddagger}$	$0.598^{\ddagger}$	$0.683^{\ddagger}$	$0.711^{\ddagger}$
	(0.038)	(0.134)	(0.150)	(0.148)
ln(Price) $\times$ WTA	-	-0.042	-0.041	-0.026
		(0.031)	(0.030)	(0.031)
Semesters $\times$ WTA	-	-	0.005	0.006
			(0.012)	(0.013)
Economics Student $\times$ WTA	-	-	$-0.160^{\dagger}$	$-0.165^{\dagger}$
			(0.084)	(0.085)
Constant	0.029	-0.056	-0.050	0.005
	(0.063)	(0.064)	(0.066)	(0.074)
Controls for Type of Giver	No	No	No	Yes
R^2	0.811	0.811	0.815	0.818

Notes: 1,384 Observations. Standard errors (reported in parentheses) have been
corrected to take repeated observations of individuals into account.
The controls for type of giver consist of six dummy variables indicating the donor
 of the gift (parents, sibling, grandparents, other relatives, friends, others).
‡ : $p<0.01$, ††: $p<0.05$, †: $p<0.1$