UNIVERSITY OF WARWICK

THE DEADWEIGHT LOSS OF CHRISTMAS REVISITED

STUDENT NO. 0503716

Final Thesis in EC331 Research in Applied Economics

5652 WORDS
(TEXT ONLY)

23RD OF APRIL, 2008

Abstract

Based on 387 questionnaires among students at the University of Warwick I analyse the yield of Christmas presents. I find that recipients value Christmas presents as *objects* on average at 130% of the estimated cost to the giver, which contradicts Wadfogel's (1993) idea of a Deadweight Loss of Christmas (84%), but is also clearly below Solnick and Hemenway's (1996) estimate of 214%.

My analysis benefits from a dataset that includes three-times as many gift observations than in previous studies and an extended variable set. This allows introducing a 'scale of closeness' of the relationship between gift donor and recipient as a key explanatory variable in understanding gift valuations and the 'relative price of the gift made in exchange' as an alternative. I find that values for gifts made by someone very close are valued 40-50% higher than if a present is made from someone the recipient barely knows. Secondly, I shift the research focus from the material value of the present alone to include the sentimental value of presents to recipients. As would be expected, the sentimental value is positive on average for all subgroups, and in some cases more than overcompensates for ill-informed gift purchases. Finally I analyse what determines whether cash gifts are made, in general confirming Waldfogel's earlier result (1993, 2002) that giver groups who are expected to make low-yielding gifts are more likely to make cash gifts instead.

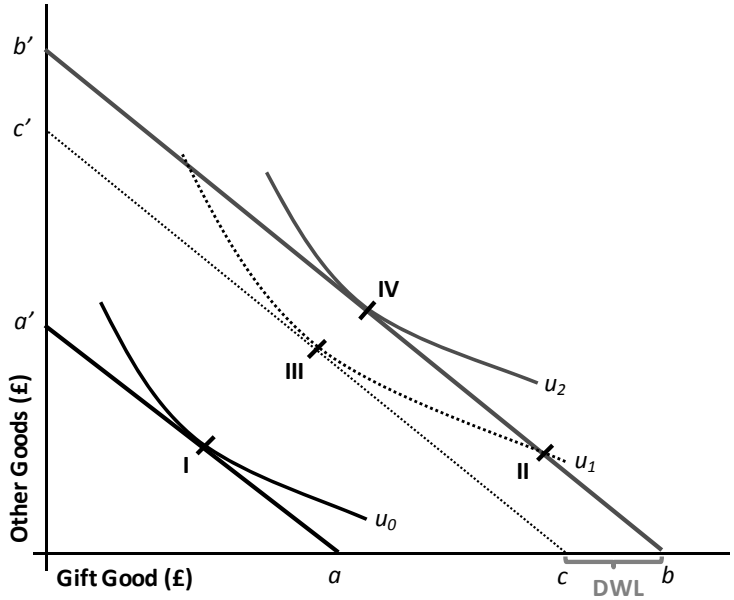
Acknowledgments

I would like to thank Professor Ian Walker for his continuous support and helpful guidance in the course of this project. In addition, I received generous support for my studies here at Warwick from the Foundation of German Industry and am very grateful for the kind permission from Dr Pablo Beker, Professor Shurojit Chatterji, Dr Peter Corvi, Dr Pasquale Della Corte, Dr Dennis Novy, Dr Paulo Santos Monteiro and Dr Jeremy Smith to conduct my survey during their valuable lecture time. A special 'Thank You' goes to my parents for the uncountable material and sentimental presents over the past 22 years. Every single one of them was highly valued.

1. Introduction

Standard consumer choice theory suggests that a perfectly informed individual optimises his utility with the resources available to him. A perfect gift would manage to duplicate this optimization. Yet, it seems unlikely that the giver possesses optimal information on the recipient's preferences to succeed in doing so. More likely, the giver will make an educated guess that leaves the recipient worse off than had he received the cash instead to make his own purchase decision. With Britons giving Christmas presents worth £1.6bn to people they barely know, this could be a source of significant Deadweight Loss[1]. This idea is illustrated by Figure 1.

Figure 1 – Welfare Implications of Gift-Giving



Notes: The initial endowment of individual i constraints him to a consumption on or below his budget line *aa'*, which i optimizes at point I, when his utility is u_0. The individual now receives a gift worth *ab*. His new holdings in goods are represented by point II, where i experiences a utility of u_1. Yet, had i been given cash instead, an amount *ac* would have been sufficient to attain the same level of utility at point III. Similarly, had i been given the exact amount of money that it cost to buy the present, *ab*, he could have allocated it between the gift good and all other goods, according to his own preferences. Optimizing then at point IV by choosing freely would have yielded him the superior utility u_2. Hence, giving a gift good instead of cash destroyed value. The consequent deadweight loss is of magnitude *cb*.

On the contrary, the educated guess might be value-creating for the recipient in excess of what he would have gained from receiving purely cash. The recipient might lack the information of where to buy cheaply or of good quality, or even that the product exists. An alternative here could of course be to give cash and tell the recipient what the giver would have bought as a present. This would allow the giver to signal that he knows and has thought about the recipient's likes and dislikes and prevent

[1] Figure for Christmas 2006. Source: Banking Business Review (2007) using data from CreditExpert.

mispurchases in those cases where he got it wrong[2]. Yet, the recipient might not have the time to go shopping for himself or would not want to spend joint money from a partnership on themselves. In addition, a child's painting for example might carry more emotional 'value' for the recipient than money could buy.

This paper investigates whether in-kind presents destroy or add value and to what extent. Based on a survey among undergraduate students at Warwick University into gift-giving during the winter holiday season, I analyse the social welfare implications of non-monetary gift-giving and thus to what extent in-kind gifts maximise recipients' utilities. In addition, I examine what determines the valuation of Christmas presents. I then proceed to consider what influences the likelihood of receiving cash gifts and in what way a tendency to value gifts below or above their retail price might affect the proportion of gifts received as cash. In this context, I also consider how important the type of and closeness in relationship between the donor and recipient is.

Section 2 discusses the relevant literature and previous studies on this topic. Section 3 defines the precise scope of this investigation and describes the survey and methods employed. Section 4 is a summary of the data collected, which is then analysed in more detail and interpreted in Section 5. Section 6 is evaluates the preceding analysis and suggests possible extensions for future research. Section 7 concludes.

2. Literature Review

The act of giving and, more generally, altruism and reciprocity has been widely studied. A good first introduction to the field is Kolm (2006), discussing a wide variety of issues ranging from the motives of altruistic giving to public in-kind transfers such as food stamps and free schooling. Camerer (1988) provides a good and already more focussed overview on the particular subject of gift-giving, the related economic, psychological, sociological and anthropological approaches and schools and stylized facts. The narrower topic of gift valuations and determinants of cash gifts is discussed by fewer papers.

A. Gift Yields

The approach employed by previous research studying gift valuations, usually aims to elicit from individuals (by means of questionnaires or experiments) what amount of cash would make them indifferent to receiving a certain present. A present's yield y then is the ratio of this equivalence value *V* to the price *P* of the gift (usually an estimate itself).

$$y = \frac{V}{P} \qquad [1]$$

$$\therefore V = y * P$$

$$\therefore \ln(V) = \ln(y) + \ln(P) \qquad [2]$$

[2] Prendergast and Stole (2001) indeed suggest that the "prevalence of non-monetary gifts" despite their potential inefficiencies is partially because gifts are being bought to *prove* that the giver is *certain* what present to get rather than just having done the research correctly.

Empirical studies estimating the yield are not conclusive however. Waldfogel (1993) first analysed the yield of Christmas presents among a group of Economics students at Yale. While he found that gift-giving on Christmas 'destroyed' approximately a tenth to a third of the presents' material value (y<1), Solnick and Hemenway (1996), SH hereafter, studying a more heterogeneous group, found that the welfare gain to recipients (excl. sentimental value) is between 11% and 114% of the estimated gift cost (y>1). Although, SH gave their respondents the chance to comment on (but not state) the sentimental value, the questions in both of these studies were designed to exclude sentimental values from the gift evaluations. While it could be argue that this allows for a more objective and comparable measurement, it seems more likely that respondents will face difficulties separating sentimental and material value of their presents and generally neglects the emotional value created by the act of giving. The estimates are thus likely to understate any welfare gains from gift-giving.

A generally positive yield is also suggested by List and Shogren (1998), who use real Vickrey-style auctions[3] in their experiments to reveal presents' actual value to recipients, in particular to address earlier criticisms that hypothetical values stated by respondents might not match the true values they attach to the present[4]. Although LSs' average yields of 98% to 99% in a survey (with hypothetical estimates and exclusive of sentimental value) would seem to confirm the direction of Waldfogel's findings, the real auction experiment suggests average yields of 121% to 135% overall.

As my own (hypothetical) survey was conducted primarily among economics and business students, Waldfogel's estimate should serve as the most direct comparison. However for generalisations on a wider population, SH results suggest a higher yield, as does LSs' use of a real auction.

In particular Waldfogel's and SHs' methodologies, which are similar to the ones I employ below, were subjected to further testing by Ruffle and Tykocinski (2000). Waldfogel's and SHs' different wording of questions seem to explain to a large extent the variation between their results[5]. With respect to the sample selection, they find no evidence for different valuations between economists and psychologists (their comparison group). However, the different sampling becomes important, when considering that more distant relationships and particularly increases in the age difference between giver and recipient are associated with lower welfare gains (Waldfogel, 1993, 1996, 2002; SH, 1996). While Waldfogel's students in his initial study were all 18 to 22 years old, SHs' respondents had a mean age of 34, and were as such

[3] More precisely, List and Shogren (1998) used a uniform, nth-price, sealed-bid Vickrey auction. Subjects stated the total value for which they were willing to sell their present (this is what later served as the total valuation given to a present). All gifts were then pooled and ranked according to the stated selling price. A random number n is generated by a computer and the experimenters actually purchase the n-1 gifts with the lowest value at the nth lowest price (pp.1351f).

[4] Cf. Neill et al. 1994 whose experimental research suggests that the "hypothetical willingness-to-pay is consistently and significantly higher than willingness-to-pay that reflects real economic commitments" (p.153).

[5] While SH asked for amounts of money that made respondents "equally happy" as receiving the presents, Waldfogel used the less emotional, more technical term "indifferent". Again, this might indicate the difficulty of distracting sentimental value from presents.

more in the middle of the population's age distribution. It would thus be reasonable to assume that the age difference to givers in the latter is smaller on average (and welfare gains presumably larger). It should be noted, however, that while some previous studies have considered the type of relationship in their analysis (e.g. parents vs. grandparents vs. friends, etc.), there has been no attempt made to quantify the closeness of these relationships. It is fair to assume that someone is much closer to their sister than to an uncle, but this might not hold for everyone. Grouping gifts together by relationship type, might not be as appropriate as asking respondents to describe on a scale their closeness to the giver.

B. Why give cash rather than in-kind presents?

The literature on the nature of gifts and its determinants is extensive. The prevalence of non-monetary gifts, despite their potential inefficiencies has been explained, inter alia, through the importance of the act of giving as such (Webley et al. 1983), gifts' signalling functions (Prendergast & Stole, 2001), by the level of status and intimacy between the giver and recipient (Webley & Wilson, 1989; Burgoyne & Routh, 1991), and the stigma of cash gifts (Waldfogel, 2002).

However, to the best of my knowledge, only Waldfogel has so far attempted to relate gift evaluations to the likelihood of receiving cash. In his 1993 study, he examined six subgroups of donors and found that "the tendency to give cash is strongly related [to] the deadweight losses of a giver type's non-cash gifts", i.e. that, for example, for grandparents, who on average gave the presents with the lowest yield, the likelihood of making cash gifts is the largest. This is confirmed both by his comparative analysis of descriptive statistics as well as a probit on whether cash is given. A subsequent study (Waldfogel, 2002) yielded similar results, confirming the inverse relationship between average yield of donor groups and their tendency to give cash. Yet, in both these papers the focus was on the giver. An obvious question is whether recipients, who on average value gifts less than others, for example because of more eccentric tastes, are more likely to receive cash presents. Potential givers might know about these circumstances, might experience particular difficulties in finding appropriate presents and might thus prefer to give cash despite the attached stigma, in order to give something 'useful'. To my knowledge only Waldfogel (2002) has considered this[6].

3. Scope of Investigation and Methodology

This paper expands on previous results by analysing a much larger sample (for the first time from outside the US) and extending the set of variables asked from students. To this end I conducted a survey among undergraduates (mostly economics and business students) at the University of Warwick. I asked for Christmas[7] presents rather than presents for birthdays or similar events, so that respondents would relate to

[6] Waldfogel's (2002) results are presented and briefly discussed in Section 5.C.

[7] The wording of the question also left room to state presents received for other events such as Hanukkah, Diwali or Kwaanza.

presents they received at similar points in time. To minimise the recall bias of respondents, this was done in January 2008, during the first three weeks of term.

The questionnaires were handed out before and in the breaks of lectures and students had between ten and fifteen minutes to respond[8]. The questionnaire was two pages long and collected up to 65 variables per respondent. A copy of the questionnaire is re-printed in the Appendix (pp.26ff).

A. Questionnaire Design

In addition to their religion, age, gender, course, and cultural background, the survey asked students to name three random presents they received and what they estimated it had cost to buy these. Further, students estimated the total cost of their received gifts and stated the total face value of their cash and voucher presents so that the ratio of cash to in-kind gifts can later be calculated. At a later stage they were then asked to state their valuation of the present (see discussion below), details about the giver (age, relationship) and whether some gift had been expected or whether the specific gift had been 'requested'.

B. Closeness of Relationship

In addition to the relationship they have with the giver, respondents stated how "close" they feel to the person on a scale from one ("being very distant") to ten ("being your closest, possibly an intimate, relationship"). In earlier studies groups of givers have been aggregated and relationships to givers that were presumably of 'more distant' character (grandparents, friends) were generally associated with lower yields than relationships of closer nature (parents, partner). Yet this neglects the possibility that in some cases the closest person might be a grandparent or childhood friend rather than the partner or parents. Consequently, I introduced the closeness scale.

As a second indication of closeness, respondents were asked to state the amount of money spent on their return gift made and the total sum of money they spend on presents as well as the number of people they gave presents to. Presumably, relatively more money is spent on presents for more close friends and relatives than for distant acquaintances, although of course some might give presents of hardly any monetary value, such as letters or pictures.

C. Ability to estimate Retail Prices

To test for the respondents' ability to estimate the cost of their presents to the giver, participants were shown two objects and asked to estimate the normal retail price that would have to be paid online or in a shop. Knowing the true retail price, this serves as an indication of the accuracy of the respondents' price estimates and general feel for market prices.

This is interesting for two reasons. Firstly, if students tend to overstate (understate) prices, the data will suggest that the deadweight loss of giving is smaller (larger) for their

[8] Only students in Statistical Techniques B had more time (30 min.). The time constraint is revisited in Section 6.C.

valuation. Secondly, it allows us to investigate whether people, who are very good in estimating the true price of a gift and thus the monetary commitment of the giver, are more likely to get cash presents than people who are unable to realistically estimate the giver's investment.

Respondents were shown two OHP slides with pictures and a brief description of two objects. Object A (Exhibit 3, p.28) was a 3rd generation Apple iPod nano with 8GB flash memory. Object B (Exhibit 4, p.28) was a 'chocolate'-coloured, 66 litre, wheeled duffle-bag by Samsonite. These were chosen as two objects that students were likely to receive for Christmas (mp3-player and suitcase) and that are available internationally so that respondents were generally familiar with them.

Both objects had a recommended retail price of £129 in the UK at the time of the survey. One important shared characteristic is that both producers have fairly restrictive company policies that do not allow retailers to deviate much from this price, making the RRP a fairly accurate 'true' price.

D. Wording of Valuation Question

The central question for the value given to a present was handled differently by different authors. Waldfogel (1993, p.1331) asked his students:

> *"[State the] amount of cash such that you are indifferent between the gift and the cash, not counting the sentimental value of the cash"*.

Solnick and Hemenway (1996, p.1300) used a different version to ellicit their respondents' equivalence variation:

> *"Aside from any sentimental value, if, without the giver ever knowing, you could receive an amount of money instead of the gift, what is the minimum amount of money that would make you equally happy?"*

Both these questions aim at the material value of the objects received. It seems challenging however, to ask respondents to separate the value he or she gives the present itself from the sentimental aspects of receiving a present, such as the "thought that counts".

$$\underset{}{\textit{Sentimental Value}} + \underset{\textit{(a)}}{\textit{Material Value}} = \underset{\textit{(b)}}{\textit{Total Value of Gifts}} \qquad [3]$$

To illicit the material value of the present to the recipient, I asked respondents:

> "*Aside from any sentimental value of the gift, if, without the giver ever knowing, you could substitute the gift for cash, what is the minimum amount of money that would make you indifferent between the cash and the gift?*" (Version ***a***[9]).

[9] In the questionnaire, subjects were first asked version b of the valuation question and then version a. This meant that question number Q11a asked version *b* and Q11b asked version *a* (that is, *a* and *b* were swapped in the actual questionnaire and the Stata software, but the notation throughout the rest of this essay is consistent with the wording above).

This is almost identical with SHs' version, but uses the more technical term "indifferent" (as does Waldfogel) rather than the phrase "equally happy"[10]. This should yield the value attached to the *object* received and enhance a direct comparison with previous studies[11]. For participants to state an amount of money that includes the intrinsic value created by the act of giving and all the attached emotions from receiving a present, I additionally asked for:

> "*What amount of cash from an unknown third party would make you equally happy as receiving these particular gifts from the specific persons that gave them to you?*" (Version ***b***[9]).

The letters *a* and *b* will hereafter indicate on which question variables are based.

4. Data

From the 730 distributed surveys, 397 were returned and 387 were usable responses. The average response rate was 54.4%, although this varied significantly by lectures[12]. In total, information was given for 1037 presents, although 167 of these did not include answers to the valuation question version a (excl. sentimental value) and 144 missed the valuation question b (incl. sentimental value). For 449 presents, or 52.3% of those presents that had an observation on valuation *a* and *b*, the two questions produced identical answers. Surprisingly valuation *b* (total) was lower than valuation *a* (object only) for 122 presents (or 14.2%)[13]. 12 presents had been exchanged[14].

Respondents were on average 19.4 years old and in a narrow age range of 17 to 26. About 60% were male and 84% were enrolled in courses based in the economics department or business school. All had some form of business or economics training.

174 students did not consider themselves religious, 104 were Christian, and 96 had other beliefs. 37% had a British family background, 15% a continental European and 37% an Asian background.

Respondents' estimates ranged from 8% to 271% of the true RRP of the two objects shown, and the standard deviation around the mean was nearly identical (35%). However, while the mp3-player was on average estimated almost precisely, the price of the suitcase was underestimated by most (86%) with a mean estimate of 64.8%.

For the 340 respondents with sufficient information available, the average cash to in-kind ratio of presents was 29.3% (s.e. 29.2%). However 98 respondents had zero cash or voucher gifts. Excluding these individuals, the cash to in-kind ratio is 41.2% (26.7%).

[10] Cf. Ruffle and Tykocinski (2000) for a discussion of the use of 'indifferent' and 'equally happy' in this context.

[11] I therefore refer to this question hereafter as "question as used previously in literature".

[12] For example, early morning lectures or lectures with more senior students would produce low response rates, whereas when the lecturer reinforced the importance of students filling out the full questionnaire, significantly more students returned the questionnaires. Cf. Table 6 (Appendix, p.25) for more details on the response rates.

[13] This would imply a negative sentimental value and is further discussed in section 6.C.

[14] In case a gift had been exchanged, the survey asked respondents to state the new present and circle it. For the following questions the substitute was treated as if it had been the original present.

Gifts made in-kind cost on average £160.75 (1712.1) and as objects were valued at £106.61 (468.3). Notably this is pulled up by five subjects, who received cars. Excluding these five top outliers, reduces the average cost to £71.98 (193.1) and the equivalence variation to £86.59 (255.4)[15]. 32.8% of respondents valued their gifts (excl. sentimental value) at cost, 38.5 % above, and 28.7% below cost.

A summary of yield estimates by subgroups is printed on the next page (Table 2). The implied overall yield estimate of 130% lies clearly above Waldfogel's 83.9%, but significantly below SH's mean yield of 214%. Indeed, the yields of all my subgroups, when based on valuation question *a*, lie above Waldfogel and below SH but show the same patterns[16].

As would be expected, *yield b* is larger than *yield a* for all subgroups. Gift yields are largest for presents made from givers within the respondents' age group, and seem to decrease as the absolute age difference increases.

In addition to an analysis within one yield group (e.g. females seem to value presents more than males), a cross-comparison between *yield a* and *b* seems sensible too. For example, when a present was expected, yield *a* is slightly larger than if it was not expected, which could suggest that the giver had been informed of preferences or that the relationship is sufficiently strong to make presents at common social events. Yet, yield *b* is substantially larger when the present was not expected, indicating that the sentimental share in the value is relatively larger, e.g. the recipient was pleasantly surprised that someone unexpectedly thought of him.

Table 1 – Means and Standard Deviation for Key Variables

Variable	Mean	s.e.
Recipients		
% Male	59.9	
Age (years)	19.4	1.4
Givers:		
Age (years)	40.0	17.4
abs. age difference	21.2	16.9
% giver older	78.2	
Gifts Received:		
Total Cost*	342.2	409.4
Total Cash+Voucher	105.0	167.0
Cost*‡	72.0	193.1
Equivalence variation a*‡	86.6	255.4
Equivalence variation b*‡	91.2	258.7
Yield a‡º	1.33	1.19
Yield b‡º	1.59	1.63
% expected a gift	81.6	
% requested specific gift	27.4	
Gifts Made:		
Total Cost	101.8	101.0
Cost	29.0	49.0
Price Estimation:		
% true RRP ipod	102.9	35.2
% true RRP bag	64.8	35.4

Notes: * excl. top 5 outliers, who received cars
‡ incl. in-kind gifts only
º excl. top outliers, where yield>15

The relative closeness between giver and recipient seems also related to yield. The generally positive relationship between yield and closeness is depicted by Figure 2 on the next page[17].

[15] For scatter plots comparing gift costs to valuation, see the appendix, Figure 3, p.29.

[16] For example, yields of presents from a friend or 'significant other' strongly exceed those from parents or siblings.

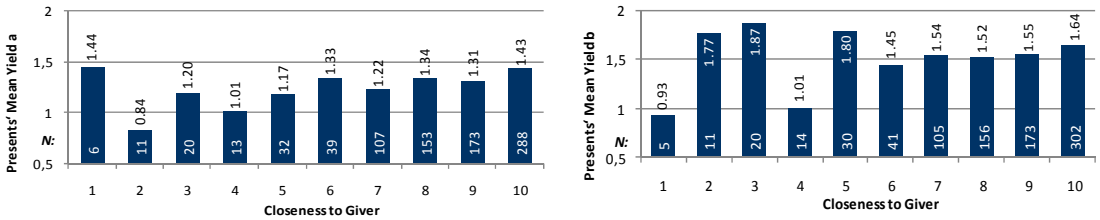
[17] Table 9, p.30, in the appendix, summarises the distribution of 'closeness' by the type of relationship between giver and recipient (friend, cousin, etc.). Figure 4, p. 29 in the appendix illustrates how gifts are on average more expensive for closer relationships between the giver and recipient.

Table 2 – Descriptive Statistics of Yield by Subgroups

		Yield a				Yield b		
Sub-Category	N	Percentiles (25th, 75th)	Mean	SD	N	Percentiles (25th, 75th)	Mean	SD
Total Sample:	863	0.83; 1.33	1.30	1.20	883	1.00;1.60	1.56	1.62
Recipient Characteristic:								
Male	534	0.80; 1.33	1.22	0.99	544	1.00;1.50	1.39	1.30
Female	328	0.87;1.50	1.43	1.46	338	1.00;2.00	1.83	2.02
Giver Characteristic:								
Parent	406	0.67; 1.33	1.29	1.11	417	1.00;1.50	1.40	1.30
Sibling	99	0.74; 1.33	1.18	0.87	101	0.94;1.67	1.44	1.23
Spouse/significant other	45	1.00;1.67	1.44	0.84	50	1.00;2.50	1.91	1.66
Grandparent	29	1.00;1.20	1.08	0.58	32	1.00;1.83	1.49	1.17
Friend	156	0.76; 1.50	1.48	1.68	152	0.94;2.00	2.07	2.47
Aunt/Uncle	65	0.67;1.25	1.20	1.20	63	0.75;1.43	1.49	1.80
Other	50	0.50;1.25	1.10	1.01	55	0.67;1.50	1.24	1.07
Age < 17	32	0.67;1.38	1.06	0.68	34	0.75;1.43	1.18	0.90
Age 17-29	281	0.80;1.5	1.42	1.43	287	1.00;2.00	1.88	2.08
Age 30-50	342	1.00;1.33	1.31	1.18	350	1.00;1.50	1.47	1.49
Age > 50	171	0.80;1.25	1.19	0.85	174	1.00;1.50	1.29	0.96
Gift Characteristic:								
Cost < £25	423	0.83;1.67	1.47	1.42	430	1.00;2.00	1.89	1.99
Cost £25-£100	241	0.86;1.25	1.18	0.95	253	0.83;1.40	1.28	1.24
Cost > £100	120	0.76; 1.19	1.06	0.80	121	0.86;1.36	1.21	0.90
Expected a Gift	720	0.88;1.33	1.31	1.21	731	1.00;1.50	1.53	1.57
Did not expect a	139	0.75;1.50	1.26	1.11	147	0.77;2.00	1.72	1.90
Requested specific	262	1.00;1.25	1.22	0.99	207	1.00;1.43	1.36	1.28
Did not req. gift	545	0.80; 1.50	1.35	1.31	554	1.00;1.88	1.67	1.76

Notes: Yield estimates for in-kind gifts only, excluding outliers with yield>15.
Yield is the ratio of the equivalence variation (or valuation) to the estimated purchase price of the gift.
Yield *a* is based on the valuation question version *a* (without sentimental value, as used in previous literature).
Yield *b* is based on the valuation question version *b* (new wording, cf. p.9).

Figure 2
Presents' yield by 'closeness' of relationship



Notes: Yield estimates left based on wording *a* of valuation question (excl. sentimental value), right based on wording *b*; bottom white numbers are sample sizes; excl. top-5 (left) and top-9 (right) yield outliers (for yield>15≈10·σ)***Error! Reference source not found.***

5. Results and Interpretation

This section analyses the data more thoroughly. Section A regresses *valuation a* against a variety of factors and compares the results to previous studies. Section B compares valuations *a* and *b* in detail and Section C considers what factors influence if

and how much cash is given[18]. Notably, the sample sizes of the regressions vary, but as the variation is relatively small compared to the average of approx. 800 observations (±7%), and thus unlikely to be of large impact, the implications are not further discussed.

A. OLS Results & Comparison to Previous Literature

By definition, the two drivers of gift yields are price and valuation (equation 1, p.4). The relationship of a gift's cost to how it is valued is interesting. Regression (i.a) in Table below, which follows the specification of equation 2 (p.4), suggests it to be roughly linear[19], i.e. that for every 1% increase in a gift's price, its material valuation increases by 0.92%. This is statistically significantly different from Waldfogel's 1993 estimate of 1.03 and SH's coefficient of 0.86[20] and fairly stable for varying regression specifications.

As observed previously, when comparing yield estimates by subgroups (see Table 2, p.11), valuations of presents seem to be driven by the relationship between giver and recipient (ii.a). Again my results lie between those of Waldfogel and SHs', and follow an alike pattern (gifts from spouses and parents are more valued than those from grandparents and friends).

The higher valuations for SH could be rooted in the questions wording, where I used 'indifferent' instead of 'equally happy' which was previously shown to decrease yields (Ruffle and Tykocinski, 2000), as well as sample selection. SH interviewed a more heterogenous sample, whereas I focussed on students only in a narrow, young range, where one is possibly likely to receive more presents that are 'useful' rather than of emotional importance (such as self-made gifts from (grand)children). If respondents in the Warwick and SH sample did not, or were not able to fully distract the sentimental value, this would cause higher yields for SH. In addition, SH interviewed people in person which could raise peoples' hesitation to exclude sentimental value because of social norms, especially as they were not given the chance to quantify the sentimental value elsewhere in the survey.

---

[18] 'Cash' hereafter refers to the sum of cash and voucher gifts.

[19] Cf. to Figure 3, p.29 in the appendix for scatter plots of the cost estimates against valuation, which too suggests a linear relationship.

[20] To test whether the coefficient on log(Price) on the Warwick (DK) sample in equation (i) is significantly different from Waldfogel's (WF) estimate, I subjected the coefficients to Welch's test (independent two-sample unpooled t-test with unequal variances). This yields the t-statistic

$$t=\frac{\beta_{WF}-\beta_{DK}}{\sqrt{\frac{se_{WF}^2}{n_{WF}}+\frac{se_{DK}^2}{n_{DK}}}}=\frac{1.034-0.923}{\sqrt{\frac{0.027^2}{272}+\frac{0.018^2}{850}}}=63.44.$$

An approximation of the degrees of freedom by the Welch-Satterthwaite equation is in this two-sample case

$$\upsilon=\frac{\left(\frac{se_{WF}^2}{n_{WF}}+\frac{se_{DK}^2}{n_{DK}}\right)^2}{\frac{se_{WF}^4}{n_{WF}^2\cdot\upsilon_{WF}}+\frac{se_{DK}^4}{n_{DK}^2\cdot\upsilon_{DK}}}=\frac{\left(\frac{0.027^2}{272}+\frac{0.018^2}{850}\right)^2}{\frac{0.027^4}{272^2\cdot270}+\frac{0.018^4}{850^2\cdot848}}=350.$$

The p-value is thus even for a one-sided test zero (0.00000), and the estimates seem to be indeed significantly different from each other.

Submitting Solnick and Hemenway's estimate to a Welch test comparing it to the Warwick sample yields a t statistic of -12.16. For approximately 128 degrees of freedom, the p-value is again zero, and thus SH's results is also significantly different from the one for the Warwick sample.

Table 3 – OLS Regressions:
New Results vs. Waldfogel (1993) and Solnick & Hemenway (1996)

Dependent Variable is Log(Valuation a[a])

Ind. var.	(i.a)	WF93[n]	SH96	(ii.a[1])	WF93[n2]	SH96	(iii.a[1])	WF93[n2]	SH96	(iv.a)	(v.a[1])	(vi.a[1])
Constant	.324*** (.066)	-.372*** (.108)	.82*** (.24)							-.038 (.113)		
Log(Price)	.923*** (.018)	1.034*** (.027)	.86*** (.06)	.907*** (.020)	.991*** (.028)	.80*** (.06)	.905*** (.020)	1.005*** (.029)	.79*** (.07)	.906*** (.019)	.896*** (.020)	.893*** (.021)
Closeness										.0505*** (.0128)	.0452*** (.0152)	
rPgmie												.236*** (.008)
Parent				.435*** (.082)	-.205 (.127)	1.03*** (.29)	.216 (.155)	-.021 (.162)	.76* (.41)		-.199 (.209)	.285** (.159)
Sibling				.279*** (.091)	-.193* (.114)	.64** (.27)	.278*** (.093)	-.241** (.116)	.66** ()		-.087 (.154)	.296*** (.096)
Spouse/s.o.				.663*** (.125)	-.112 (.196)	1.39*** (.30)	.668*** (.127)	-.110 (.196)	1.43*** (.31)		.278 (.183)	.646*** (.127)
G.parent				.148 (.145)	-.365** (-.155)		-.212 (.232)	-.306 (.266)			-.581** (.263)	-.125 (.235)
Friend				.326*** (.078)	-.223* (-.120)	.96*** (.25)	.323*** (.080)	-.200* (.120)	.98*** (.26)		-.005 (.134)	.353*** (.082)
Age diff.							-.0086 (.0081)	-.0157** (.0077)	.006 (.013)		.0104 (.0081)	.0049 (.0083)
Age diff. sq.							-.00003 (.00014)	.00025* (.00014)	.00014 (.00035)		-.00004 (.00014)	.00000 (.00014)
N	850[‡]	272	136	840[‡]	272	136	815[‡]	272	136	848[‡]	812[‡]	742[‡]
Adj. R^2 (%)	74.6	84.0[†]	58.2	96.3	84.8	96.1	96.2	85.1[†]	96.0	75.3	96.2	96.3

Notes: Standard errors in parenthesis. WF93 are results from Waldfogel (1993), SH96 are those from Solnick and Hemenway (1996), who both include some very high yield outliers. Own estimates include in-kind gifts only.

[a] Valuation based on question excl. sentimental value as used previously in literature ("Aside from any sentimental value of the gift, if, without the giver ever knowing, you could substitute the gift for cash, what is the minimum amount of money that would make you indifferent between the cash and the gift?").

† non-adjusted R sq

‡ incl. multiple gift observations per person

[n] Waldfogel (1993) only reports t-statistics. Consequently, standard errors were recalculated.

* statistically significant at 10% level

** statistically significant at 5% level

*** statistically significant at 1% level

[1] incl. additional dummies for gifts made by aunt/uncle, cousin or other relative or acquaintant.

[2] incl. additional dummy for cash/voucher and aunt/uncle presents.

My coefficients on the giver dummies are closer to Woldfogel's estimates, but are notably higher. This could stem from the even more technical wording of Waldfogel's valuation question and that his entire sample is drawn from an intermediate microeconomic class, who might well have been influenced by their knowledge of the underlying theory[21]. Further, having respondents first state their overall valuation of a present, without excluding sentimental value, might have biased their responses

[21] In comparison, less than one third of the Warwick sample had above introductory microeconomics training at the time of completing the questionnaire.

upwards. Moreover, Waldfogel's estimates include observations on cash. As cash tends to be valued below face value, this would tend to decrease the average valuations for groups that make many cash gifts (in his case especially grandparents and aunts and uncles) and thus lower the coefficient estimates, even though he slightly compensates for this by including a dummy variable for cash presents.

An alternative to using dummy variables for different giver categories is the use of the closeness scale[22] in explaining valuation. Regression (iv.a) suggests that this is a significant variable, and that someone very close to the recipient (closeness=10) will on average make a present that is valued 50.5% higher than a present given by someone who barely knows the giver (closeness=1).

As would be expected, on average respondents felt closes to their spouse (9.39), followed by their parents (9.00) and siblings (8.56). Relationships to grandparents (7.74) were more distant, as were those to friends (7.54) and aunts/uncles (6.25)[23]. As this roughly corresponds with the direction in which the coefficient on the giver categories decline in (ii.a) and (iii.a)[24], this poses the problem, that closeness is likely to pick up the effects of the giver dummies when they are regressed together (multicollinearity). Indeed, standard errors increase strongly in specification (v.a), and the coefficients on the giver-dummies change substantially (although they are still unbiased) as it becomes more difficult to separate the effects of the independent variables.

Specification (vi.a) tries to circumvent this problem, by using the 'relative Price of the gift made in exchange' (*rPgmie*) instead of closeness. This is the ratio of the cost of the present made in return over the average amount spend by the respondent on gifts for someone else. The coefficient on *rPgmie* suggests that a present from someone, whose return gift the respondent spent twice as much on than on his average gift, the valuation is 23.6% higher than for presents from someone where the return gift bought was of average cost to the giver. The dummies on the giver groups in (vi.a) are of similar magnitude as in (ii.a) and (iii.a) and significant again.

B. Valuation a vs. Valuation b (more OLS)

For comparative reasons, the above analysis concentrated on question version *a*, as it was used in previous studies, and included the age difference as an independent variable. The next part will focus on the difference between valuations *a* and *b* and their determinants. Further, I use the *absolute* age difference below, as the tentative analysis in section 4 (cf. Table 2, p.11) suggested that it is less important for determining yields whether givers are younger or older rather than by how much. This increased age-coefficient's significance notably, especially in the b-specifications[25].

[22] Cf. Figure 5 in the appendix, p.30, for more analysis on the relation of *closeness* to *log(value)*.

[23] Table 9 on p.30 in the appendix gives an overview of closeness by relationship type.

[24] The only clear exception is that valuations for presents from siblings (who are fairly high on the closeness scale) are relatively lower than for other subgroups.

[25] Substituting *age difference* with *absolute age difference* also only marginally altered coefficients (with exception of the parent-dummy) as can be seen from comparing regressions (iii.a) with (vii.a), (v.a) with (viii.a), and (vi.a) with (ix.a).

Table 4 – More OLS Sensitivities:
Specification a against b

Dependent Variable is Log(Valuation[b])

Ind. var.	(i.a)	(i.b)	(iv.a)	(iv.b)	(vii.a[1])	(vii.b[1])	(viii.a[1])	(viii.b[1])	(ix.a[1])	(ix.b[1])	(x.a[1])	(x.b[1])
Constant	.324*** (.066)	.728*** (.019)	-.038 (.113)	-.416*** (.119)								
Log(Price)	.923*** (.018)	.846*** (.728)	.906*** (.019)	.836*** (.020)	.908*** (.020)	.870*** (.021)	.900*** (.020)	.863*** (.021)	.896*** (.021)	.865*** (.022)	.891*** (.021)	.861*** (.022)
Closeness			.0505*** (.0128)	.0412*** (.0134)			.0434*** (.0151)	.0350** (.0156)			.0265* (.0163)	.0166*** (.0167)
rPgmie									.0237*** (.0075)	.0089 (.0079)	.0245*** (.0076)	.0100 (.0079)
Parent					.415** (.178)	.937*** (.182)	.022 (.226)	.621*** (.233)	.490*** (.181)	.966*** (.186)	.309 (.240)	.916*** (.246)
Sibling					.292*** (.097)	.633*** (.100)	-.061 (.157)	.348** (.162)	.320*** (.099)	.649*** (.103)	.157 (.172)	.608** (.177)
Spouse/s.o.					.665*** (.127)	.919*** (.125)	.290 (.183)	.612*** (.186)	.645*** (.127)	.921*** (.129)	.453** (.194)	.849*** (.199)
Grandparent					-.160 (.236)	.662*** (.227)	-.516* (.267)	.377 (.262)	-.068 (.238)	.689*** (.230)	-.238 (.274)	.618* (.270)
Friend					.329*** (.081)	.741*** (.083)	-.024 (.134)	.492*** (.139)	-.362*** (.082)	.733*** (.086)	-.207 (.147)	.677** (.152)
Abs. age diff.					-.0050 (.0097)	-.0199** (.0100)	-.0036 (.0097)	-.0190* (.0100)	-.0090 (.0099)	-.0215** (.0101)	-.0090 (.0099)	-.0222* (.0101)
Abs. age diff. sq.					.00018 (.00016)	.00032* (.00016)	.00017 (.00016)	.00032* (.00016)	.0002 (.0002)	.00034** (.00017)	.00024 (.00016)	.00037* (.00017)
Male											-.075 (.055)	-.140 (.056)
N	850‡	875‡	848‡	868‡	815‡	835‡	815‡	832‡	742‡	742‡	738‡	755‡
Adj. R^2 (%)	74.6	68.9	75.3	69.4	96.2	96.2	96.2	96.2	96.3	96.3	96.3	96.2

Notes: Standard errors in parenthesis. All estimates include in-kind gifts only.

[b] Valuation based either on question excl. sentimental value or as in previous literature [**a**: "Aside from any sentimental value of the gift, if, without the giver ever knowing, you could substitute the gift for cash, what is the minimum amount of money that would make you indifferent between the cash and the gift?"], or on alternative wording [**b**: "What amount of cash from an unknown third party would make you equally happy as receiving these particular gift(s) from the specific person(s) that gave them to you?"]

† non-adjusted R sq

‡ incl. multiple gift observations per person

* statistically significant at 10% level

** statistically significant at 5% level

*** statistically significant at 1% level

[1] incl. additional dummies for gifts made by aunt/uncle, cousin or other relative or acquaintance

Most obvious is that for all specifications the coefficient on *log(Price)* is fairly stable between 0.84 and 0.92 and slightly lower for the b-specifications. Further, the impact of *closeness* (and *rPgmie*) on *log(Value)* is larger for *a* than *b*. On the other side, all coefficients on the giver-dummies are higher when explaining differences in *log(value-b)* rather than *log(value-a)*. They also seem to be relatively closer together. For example when sentimental value is excluded in (viii.a), a present coming from a boy- or girlfriend increases the valuation by 65%, whereas presents from ordinary friends increase valuation only by 36%. When sentimental value is included (viii.b), the respective

valuation 'premiums' are 92% and 73%. One interpretation could be that a girlfriend with more knowledge of the recipient than a friend makes better informed purchase decisions, so that the material valuation is significantly larger. This 29%-'premium' over ordinary friends' gifts, however is unaltered when the total valuation is considered, which could imply that the sentimental values attached are relatively similar. The smaller coefficients on *closeness*/*rPgmie* in the b-regressions would underpin this theory. This is a surprising result, which however is not applicable to all subgroups.

This line of argumentation also emphasises the importance of emotional value for presents by grandparents. While the coefficients on *grandparent* in the a-regressions are almost all negative, which suggests that the gifts are not necessarily objects of great desire, the b-coefficients (accounting for sentimental value) are much higher.

C. Cash Probit & Determinants of Cash Proportion of Total Gifts

So far I have concentrated on what determines how gifts are valued. The second key question is what determines whether a gift is made in-kind or as cash. From the many explanations that have been offered on this topic, Waldfogel's (2002) seems to be the most relevant for this paper. He concludes that "cash giving is more likely from givers who tend to give unwanted gifts". He further analyses the relative stigma of cash and estimates that 57.5% of the face value plus a fixed component of $3.70 is to be deducted from any cash gift to obtain the average valuation. Giving cash as a present is hence only sensible, if an in-kind gift would be so poorly chosen that the recipient values it at $3.70 or more below 42.5% of the purchase price.

Table 5 – Cash Probit

	WF93	(xi[3])	(xii[3])	MFX (%)
Closeness			-.06878*** (.0316)	-1.0 (0.4)
Parent	-1.112** (.471)	-2.788*** (.313)	-2.088*** (.443)	-30.5 (7.3)
Sibling	-1.570*** (.279)	-1.866*** (.230)	-1.275*** (.353)	-9.0 (1.4)
G.Parent	-0.286 (.753)	-1.223*** (.365)	-.591 (.464)	-5.6 (2.8)
Friend	-1.502*** (.360)	-1.640*** (.149)	-1.147*** (.269)	-10.3 (1.8)
Aunt/Uncle	-.851* (.498)	-1.510*** (.316)	-1.006** (.387)	-7.9 (1.6)
Cousin		-2.100*** (.555)	-1.647*** (.602)	-7.7 (1.0)
Age diff.	-.018 (.024)	.0496*** (.0169)	.0466*** (.0170)	0.6 (0.2)
Age diff. sq.	.00038 (.00039)	-.00048* (.00026)	-.00047* (.00026)	-0.006 (0.004)
N	272	966	963	

Notes: Dependent variable is whether cash is given as present (=1 for cash presents). Standard errors in parenthesis. MFX evaluated for (xii) at y=pr(cash)=7.35%. WF93 are results from Waldfogel (1993). No observations for cash gifts from spouse/s.o., so no dummy for this category.

* statistically significant at 10% level, ** statistically sig. at 5% *** statistically sig. at 1%

[3] incl. additional dummy for other relative or acquaintance.

I run a simple probit on whether cash is given or not[26]. The results from Table 5 seem to reinforce Waldfogel's findings. Those giver groups that are creating the lowest yield on average (Table 2, p.11) or relative valuation (Table &4), in particular grandparents, cousins, aunts and uncles, are also the most likely to give cash. As would be expected, the further the relationship or the bigger the age difference, the less likely cash is used as a gift.

Furthermore, it would be interesting to know to what extend a recipient indirectly influences his or her own cash proportion in total gifts. For example, a giver might feel that a certain recipient never shows much interest in in-kind gifts, i.e. values it insufficiently, or seems not to understand how expensive a gift was, which also reduces the yield. Consequently, a donor might choose to give this individual cash instead.

The OLS regressions in equations 4 and 5 below, where *%cash* is the share of cash in the total cost of gifts received, seem to generally confirm this. These coefficients however, especially for *yieldb*, are statistically insignificant (p>0.1). Equation 4 would otherwise suggest that if an average individual values presents at twice their price, they will receive 10% less cash[27].

$$ln\left(\frac{\%cash}{1-\%cash}\right) = \underset{(0.147)}{-0.597} - \underset{(0.074)}{0.101}\, yielda\_avg \qquad [4]$$

$$ln\left(\frac{\%cash}{1-\%cash}\right) = \underset{(0.129)}{-0.725} + \underset{(0.037)}{0.004}\, yieldb\_avg \qquad [5]$$

Standard errors are given in parentheses, sample sizes were 159 and 164 respectively, R-squared was 1.2% and 0.0%, and *yielda/b_avg* is the recipient's average yield on the observed presents. A direct comparison to Waldfogel is not possible, but he finds a much stronger relationship between yield and the (log odds ratio of) cash proportion, using a weighted least squares logistic regression across 46 subgroups with over 500 observations. For equation 6, his R-squared is 26.9%.

$$ln\left(\frac{\%cash}{1-\%cash}\right) = \underset{(1.12)}{0.607} - \underset{(1.18)}{3.409}\, average\_yield \qquad [6]$$

A similar analysis on the impact of the ability to estimate prices correctly, yields slightly more significant results, yet the central p-values remain above 10%. The variables *est_deviation_avg* and *est_deviation_abs_avg* denote the mean deviation (in %) of a respondent's estimates from the true RRP of the two objects (mp3-player and suitcase) and the mean of the absolute deviation respectively[28]. The sample sizes of the

[26] Cf. Table 8 on p.29 in the appendix for a list of in-kind and cash gifts by giver category and a comparison of what percentage of gifts was in form of cash or vouchers. Also note that the estimate for cousin is based on only one cash-gift for the group.

In total, information was given for 112 cash or voucher gifts, of which 19 (or 17%) were from parents, 28 (25%) from grandparents, 4 (4%) from siblings, 14 (13%) from friends, none from spouses/s.o., 32 (28.6%) from aunts or uncles, only 1 (1%) from a cousin, 8 (7%) from other relatives and 6 (5%) from other acquaintances.

[27] I used the log of the odds ratio, as the log(%cash) would take only values between -5 and zero.

[28] For illustrative purposes assume an individual estimates the mp3-player to cost £154.80 and the suitcase to cost £77.40, while the true RRP for both is £129. His mp3-player estimate thus deviates by (positive) +20% and the suitcase

OLS regressions in equation 7 and 8 were 179 and the R-squared were 0.8% and 1.2%.

$$\ln\left(\frac{\%cash}{1-\%cash}\right) = \underset{(0.125)}{-0.838} \; \underset{(0.409)}{-0.505}\, est\_deviation\_avg \qquad [7]$$

$$\ln\left(\frac{\%cash}{1-\%cash}\right) = \underset{(0.248)}{-1.077} \; \underset{(0.662)}{-0.962}\, est\_deviation\_abs\_avg \qquad [8]$$

If these were true coefficients, they would imply that too low (high) price estimates, decrease (increase) the cash proportion in gifts (equation 7), and that worse estimates in general increase the cash proportion (equation 8). This seems, at least from a qualitative standpoint, sensible.

6. Evaluation

A number of factors relating to the applied methodology, sample selection and questionnaire design should be considered when interpreting the above results.

A. Sample Selection

Equations 4 and 6 suggest that those individuals with a general tendency for lower gift valuations are receiving relatively more cash. If true this would pose a self selection problem, especially for earlier studies. If randomly selected, relatively more in-kind gifts would be drawn from a group that tends to value them higher. I tried to circumvent this issue by explicitly asking for three in-kind gifts and one cash gift per respondent. While removing the random component through an appropriate question design should have reduced the self-selection problem, it might also be contributing to the low significance of equations 4 and 5, and might have altered the cash probit.

Secondly, Carter and Irons (1991) find that "economists are different" and are more likely to behave rationally in the neo-classical sense. Given that almost my entire sample is composed of business and economics students, this is important. Ruffle and Tykocinski (2000) for example suggest that economists tend to underestimate prices, which, if applicable to the Warwick sample, would imply that the yields calculated above are consistently overestimated and true welfare gains are higher. In addition, focussing on a relatively young and small age range of students makes generalisations on a wider population difficult[29].

Thirdly, my own yield estimates and OLS regressions explaining valuation exclude cash gifts. Unfortunately, the questionnaire only asked students to value *"any one cash or voucher gift"*, but not to specify its face value (a misspecification that became only apparent after the data had been collected). Yet, as cash gifts tend to be valued below their face value (yield<1; see for example Waldfogel, 2002), this is another source of

estimate by (negative) -40% from the RRP. His mean deviation on average, *est_deviation_avg*, is thus (20%-40%)/2=-10%. The average of his deviation in absolute terms, *est_deviation_abs_avg*, however is (20%+40%)/2=+30%.

[29] This is because, university students presumably possess above average intelligence and are likely to be less affluent than many other parts of the population. The picture is further distorted by the high proportion of international students involved in the survey. Not necessarily because of the implied cultural diversity, but more because studying in the UK is an expensive undertaking, so that the Warwick sample is presumably from an above average-income family.

overestimation. While the yields for in-kind gifts are of course unaffected by this, they can't be used as estimates for the overall average yield as was done previously.

B. Methodology

There are two more reasons, why my estimates should be understood as an upper limit. The first is described by Knetsch and Senden (1984), who show that the "compensation measure of value seems to exceed significantly the willingness to pay measure". This suggests that if I had asked respondents for the amount they were willing to pay for an item had they to rebuy it, the valuation would probably been have smaller[30]. The true valuation lies between these measures of which I present the bigger one.

The second reason is discussed by Kahnemann (1990), who demonstrates that the "subjective value of an item can increase substantially after an individual has been given the item". As all subjects in the survey had already received their presents, it is difficult to say what *material* value a received item objectively has for them. The problem here is that there is no perfect solution to how to make individuals accurately separate sentimental from material value[31].

An interesting undertaking was to test students' ability to estimate prices correctly. The large number of students underestimating the suitcase price would again suggest an upward bias in the yield estimates. However, respondents that underestimated the price of the iPod and Samsonite, have a mean yield of 1.33 (s.e. 1.39) which is surprisingly lower than 1.75 (3.29) for those who overestimated. While the standard errors are fairly large, this could imply that the objects might not have been representative enough of the average Christmas gift (after all the cultural background of respondents was very diverse), or that students stated valuations relatively to the price they had already estimated. If the latter was indeed the case, i.e. if students stated their answers relative to the estimated price rather than stating their true valuation in absolute terms (for example, because they felt that they should value something relatively more than a present's cost), it would undermine the results of this and earlier studies[32].

Further problems arose because students had not received or stated any cash gifts, which meant that the odds ratio in equations 4, 5, 7 and 8 had a lot of observations of zero, which if the natural logarithm is taken corresponds to negative infinity, and could thus not be included in the regression. Regarding the 'closeness' variable, it was difficult to test reliably for non-linearities as only a low number of gifts were given by someone

[30] Waldfogel (1993) for example conducted two surveys, one asking for a compensating measure (y=0.661) and the other one asking for a equivalence variation (y=0.871), that confirmed this finding.

[31] LS used an experimental setting rather than just a hypothetical survey to target this problem, but their method to separate the two values seems not fully convincing. Unfortunately, the limited funds available to me, did not allow me to conduct any real auctions for this paper myself.

[32] The questionnaire was deliberately designed to first ask for three presents and their costs in the first section of the questionnaire, then for other variables in section 2, before asking the valuation questions in section 3. This was meant to create a 'gap' between the answers to the cost and valuation questions. However, respondents might have still reconsidered their cost estimate when valuing the object. Cf. pp.26ff of the appendix for a full copy of the questionnaire.

with a distant relationship to the recipient[33]. Finally, observations could be clustered in the statistical software package in future analysis to reduce standard errors.

C. Survey Design

Apart from some minor rewordings to questions 6, 9 and 10, I feel that the major improvement in a further survey could be in the time given to respondents. In a number of cases, answers seemed rushed and inconsistent with each other[34]. I piloted the questionnaire, but presumably underestimated the impact of a different environment in a lecture on the time needed to fill out the survey. An improvement to this would be to individually interview people to ensure questions are understood correctly, although this is very resource intensive.

One consequences of this might have been the limited power of the logarithmic OLS regressions (equations 4, 5, 7 and 8). Some people stated that their cash gifts were worth more than their total presents in aggregate. While I excluded such contradicting answers from the regression, it would suggest that people might have misunderstood the question, which could cause the high standard errors.

Another consequence limited the possibilities for analyzing sentimental value (*value b* minus *value a*). Only for a relatively small number of observations both valuations had been stated and even less observations had a non-zero difference between them. In addition, a significant minority of presents (14.2%) were associated with a negative sentimental value. While this seems possible for some rare cases, such a large proportion might rather suggest that the question was not read thoroughly or that respondents were unable to clearly separate sentimental from material value.

D. Suggestions for Future Research

A variety of extensions to my research contribution seem plausible. Foremost, however, the field could benefit from a more thorough analysis of the drivers of sentimental value. While my data suggests that a deadweight loss from giving in-kind presents does not exist, the main 'value creation' seems to stem from the intrinsic, emotional value of the act of giving. The key challenge is to find a way of how these emotional values can be accurately observed.

Other research could focus on reciprocity issues[35]. More narrow questions to tackle could be how the average yield from a certain donor's presents relates to the gifts made in return. More straightforward investigations could consider if the value of the present

[33] Cf. Figure 5 in the appendix, p.30, for more analysis on the relation of *closeness* to *log(value)*.

[34] Three examples for inconsistencies are: (a) the amount of cash received (Q3b) or the sum of the cost of individual presents (Q3c) exceed the total cost of presents (Q3a); (b) The sum of the valuations of individual presents were less than the valuation for all presents in aggregate (Q11a/b); (c) The sum of individually listed presents that were made by the respondent (Q11h) was more than the total spend on Christmas presents (Q4b).

[35] My data, unfortunately, did not include variables that would have been appropriate for analysing reciprocities. Firstly, donors might have given several presents, but only one was stated. Even if all had been stated, the descriptions did not allow identifying givers uniquely (the description "aunt" might have been used for different persons). Secondly, while each gift was matched with the value of gifts made in exchange, this would be misleading information in the context of

received correlates with the value of the present made in exchange or whether expecting a gift increases the chances of a return present being made. Interesting would also be whether individuals with lower yields tend to give more cash gifts themselves[36].

Finally, it could be interesting to reconsider the determinants of cash gifts, as these seem to exhibit the lowest yields. Rather than running simple probit regressions, I had aimed to work with tobit regressions (or even a Heckman-2-step model) estimating whether cash is given, and if so how much is given. In particular this would have catered for the many observations with zero cash gifts that now contributed to a non-random sample selection (logarithmic OLSs in section 5.C). Unfortunately, due to the aforementioned misspecification in the questionnaire (respondents did not state the face value of their cash gifts), such models were not feasible.

7. Conclusion

This paper presents evidence, challenging Waldfogel's (1993, 1996) conclusion of a "Deadweight Loss of Christmas" from gift-giving. While not as sizeable as the 114% estimated by Solnick and Hemenway (1996), the data suggests a 30% welfare gain from giving in-kind, based on material valuation alone. For the UK, with a market volume of £24bn for Christmas presents, this implies a *Welfare Gain of Christmas* of £7.2bn[37]. However, this should be understood as an upper estimate, in particular as subtracting sentimental from material values seems to challenge respondents.

I generally managed to confirm the key drivers of gift valuations that were identified by Waldfogel, in particular the strong linear relationship of price to valuation, and introduced measurements for the social closeness between giver and recipient (rather than just using the type of relationship).

The type and closeness of relationship is also decisive in determining how likely cash is given, confirming (Western) social norms. In general, giver groups who are expected to make low-yielding gifts are more likely to make cash gifts instead. Further, there is some (weak) evidence that recipients, who generally tend to value presents lower or are less able to estimate the cost of a gift accurately, receive relatively more cash gifts.

Finally, I have shown that the sentimental component of a gift valuation is positive, as would be expected, highlighting the intrinsic positive value of gift-giving. The key challenge here is to reliably separate emotional from material gift valuations, and much remains to be done on this end, posing interesting problems for future research.

On a closing and personal note, I would like to refer to Waldfogel (1996, p.1306), who comments on his own results with the following:

---

reciprocities. After all, respondents might have received several presents from the same person, but only have listed one. Comparing this singular present then to the total value of all gifts made in exchange would not yield relevant results.

[36] This would have to be done using a wider sample, as students are presumably less likely to make cash gifts than other age groups.

[37] Figure based on £397 average Christmas gift expenditure per capita in the UK in 2006 (Banking Business Review, 2007, using data from CreditExpert), and a population estimate of 60,587,300 for the UK in mid-2006 (Office for National Statistics, 2007).

> *"Because of the thought that goes into choosing and giving gifts, recipients may value the receipt of gifts highly, even if they dislike the gift objects themselves … [However] as long as the sentimental value conveyed to the recipient by the gift would also have been conveyed by an equally costly gift that has greater material value to the recipient, the gift with lower material value engenders deadweight loss"*

This means that the act of giving, through the emotions conveyed, creates sentimental value. The only mistake a giver can make is to not choose an object that perfectly optimizes the recipient's utility. On average, however, givers seem to make value-creating choices, where the giver picks something that costs less than the recipient values it at. This leads me to believe, that gift giving is a risk well worth taking.

References

Banking Business Review. (2007, November 6). *Christmas spending in the UK to remain high in 2007*. Retrieved April 23, 2008, from Banking-Business-Review.com: http://www.banking-business-review.com/article_news.asp?guid=8CBA3F3C-3934-45B7-8F2A-7CC4E796D7BF

Burgoyne, C. B., & Routh, D. A. (1991). Constraints on the use of money as a gift at Christmas: The role of status and intimacy. *Journal of Economic Psychology , 12*, 47-69.

Camerer, C. (1988). Gifts as Economic Signals and Social Symbols. *American Journal of Sociology , 94* (Supplement: Organizations and Institutions: Sociological and Economic Approaches to the Analysis of Social Structure), S180-S214.

Carter, J. R., & Irons, M. D. (1991). Are Economists Different, and If So, Why? *Journal of Economic Perspectives , 5* (2), 171-177.

Knetsch, J. L., & Sinden, J. A. (1984). Willingness to pay and compensation demanded: Experimental evidence of an unexpected disparity in measures of value. *Quarterly Journal of Economics , 99* (3), 507-521.

Kolm, S.-C. (2006). Introduction to the Economics of Giving, Altruism and Reciprocity. In S.-C. Kolm, & J. M. Ythier (Eds.), *Handbook of the Economics of Giving Altruism and Reciprocity: Foundations* (Vol. 1, pp. 1-122). Oxford: North-Holland.

List, J. A., & Shogren, J. F. (1998). The Deadweight Loss of Christmas: Comment. *American Economic Review , 88* (5), 1350-1355.

Neill, H. R., Cummings, R. G., Ganderton, P., Harrison, G. W., & McGuckin, T. (1994). Hypothetical Surveys and Real Economic Commitments. *Land Economics , 70* (2), 145-154.

Office for National Statistics. (2007, August 22). *Population Estimates*. Retrieved April 24, 2008, from National Statistics Online: http://www.statistics.gov.uk/cci/nugget.asp?ID=6

Pieters, R., & Robben, H. (1999). Consumer Evaluation of Money as a Gift: A Two-Utility Model and an Empirical Test. *Kyklos , 52* (2), 173-200.

Prendergast, C., & Stole, L. (2001). The non-monetary nature of gifts. *European Economic Review , 45*, 1793-1810.

Ruffle, B. J., & Tykocinski, O. (2000). The Deadweight Loss of Christmas: Comment. *American Economic Review , 90* (1), 320-324.

Schokkaert, E. (2006). The Empirical Analysis of Transfer Motives. In S.-C. Kolm, & J. M. Ythier (Eds.), *Handbook of the Economics of Giving, Altruism and Reciprocity: Foundations* (Vol. 1, pp. 127-181). Oxford: North-Holland.

Solnick, S. J., & Hemenway, D. (1996). The Deadweight Loss of Christmas: Comment. *American Economic Review , 86* (5), 1299-1305.

Waldfogel, J. (2002). Gifts, Cash, and Stigma. *Economic Inquiry , 40* (3), 415-427.

Waldfogel, J. (1993). The Deadweight Loss of Christmas. *American Economic Review , 83* (5), 1328-1336.

Waldfogel, J. (1996). The Deadweight Loss of Christmas: Reply. *American Economic Review , 86* (5), 1306-1308.

Webley, P., & Wilson, R. (1989). Social Relationships and the unacceptability of money as a gift. *Journal of Social Psychology , 129* (1), 85-91.

Webley, P., Lea, S. E., & Portalska, R. (1983). The unacceptability of Money as a gift. *Journal of Economic Psychology , 4*, 223-238.

Appendix

Table 6 – Response rates by lecture

Lecture	Fin Mgmt	Econ 2	IE	Stats B	Stats A	IFM	ME 1	Total
Q'aires handed-out	154	40	77	283	21	79	76	730
Q'aires returned	40	21	34	201	20	30	51	397
Response Rate	26.0%	52.5%	44.2%	71.0%	95.2%	38.0%	67.1%	54.4%

Table 7 – Description of Variables

Variable	**Description**
Log(Value) a	Natural logarithm of the Value attached to a present; response to "Aside from any sentimental value of the gift, if, without the giver ever knowing, you could substitute the gift for cash, what is the minimum amount of money that would make you indifferent between the cash and the gift?".
Log(Value) b	Natural logarithm of the Value attached to a present; response to "What amount of cash from an unknown third party would make you equally happy as receiving these particular gift(s) from the specific person(s) that gave them to you?".
Log(Price)	Natural logarithm of estimate of price of present
Closeness	Indicator of closeness of relationship between giver and recipient; response to "How close do you consider yourself to this person on a scale from 1 to 10? (1 being very distant and 10 being your closest, possibly an intimate, relationship)"
close1/2/3/…/10	Dummy equals 1 if variable closeness equals 1, 2, …, 10.
rPgmie	Relative Price of Gift Made In Exchange equals price of gift made in exchange divided by average Price of gifts given by respondent.
Parent	Present made by parent(s) of respondent.
Friend	Present made by friend(s) of respondent.
Cousin	Present made by cousin of respondent.
G.Parent	Present made by grandparent(s) of respondent.
Sibling	Present made by sibling(s) of respondent.
Aunt/Uncle	Present made by aunt or/and uncle of respondent.
Spouse/s.o.	Present made by spouse, boyfriend, girlfriend or 'significant other' of respondent.
Other rel./acq.	Present made by any other relative or acquaintance of respondent.
Male	Respondent/recipient is male.
Requested	Present was explicitly wished for/requested from giver by respondent.
(Abs.) Age diff.	(Absolute) Age difference between giver and recipient.
(Abs.) Age diff. sq.	(Absolute) Age difference squared.
yielda/b_avg	Average of gift yields of stated gifts (based on 1, 2 or 3 gifts). Yield of present A, B, C, is "*Value a"* divided by "*Price"*.
%cash	Value of cash and voucher gifts received divided by total value of gifts received.
Est_deviation_avg	Average deviation (in%) of respondents estimates of price of two objects (iPod and Samsonite suitcase) from true retail price (varies from -0.86 to +1.13).
Est_d~n_abs_avg	Average of the absolute deviation (in %) of two price estimates from true retail price (varies from +0.03 to +1.13).
N	Sample Size
Adj. R^2	Adjust R-squared.

Exhibit 1 – Questionnaire, p. 1

University of Warwick – Department of Economics – EC331 RAE – January 2008 – Daniel Kuhagen

The following questionnaire asks you about yourself and the presents you received during the holiday season. It is part of a Finalist Research Project in Economics and should take about five minutes.

This survey is entirely anonymous and it is vital for its success that you are completely honest in the answers. Please fill out one question after the other, leaving no blanks, and do not return to correct previous questions.

SECTION A

Q1. Please consider the two objects projected on the board. What would you estimate their normal retail price (RRP in £) to be, i.e. what you would usually pay online or in a shop?

Object A (mp3 player): _____ Object B (suitcase): _____

Q2. Please state three presents you received during the recent holiday season (no cash or vouchers). If you exchanged a gift, please name the new one, and circle your answer.

A. _____ B. _____ C. _____

Q3.a. If you yourself were to buy *all* the presents you received during the recent holiday season, how much would it cost you (include cash gifts)? Please take a minute before answering to carefully think about all your presents.

Total value in £: _____

b. How much of this total was given to you in cash or vouchers (e.g. a £10 book voucher)?

Total value in £ (cash only): _____ (vouchers only): _____

c. How much would it cost you to buy the objects you named above (in Q2):

A. _____ B. _____ C. _____

Q4.a. How many people did you give presents? _____

b. How much in total did you spend on presents for others and how much of this was for presents you gave in the form of cash and vouchers? *Total* value in £: _____, of which cash was _____ and vouchers _____.

[Once you finished this section, please do not return to or make any changes to it]

SECTION B

Q5.a. How old are you? _____ **b.** What is your gender (tick appropriate): □male □female

Q6.a. What course are you doing at Warwick? _____ **b.** What year are you in?_____

c. Have you ever studied Economics? (Please tick highest achievement)

□ No (or only below A-Level or equivalent)

□ Yes, for my A-Levels (or equivalent)

□ Yes, at university, but Economics courses contribute 30 CATS or less to my degree

□ Yes, at university, and Economics courses contribute more than 30 CATS to my degree

Q7. If you consider yourself religious, which of the following best describes your faith?

□ I would like not to answer □ I do not consider myself religious

□ Christian □ Jewish □ Muslim □ Buddhist □ Hindu □ Sikh

□ I have other beliefs. Please specify _____

Q8. What is your home country (please only name one)? _____

Q9. Which of the following best describes your family background?

□ British □ European □ African □ Middle-Eastern □ Hispanic □ Sub-Continental

□ Asian □ North American □ Other, please specify _____

Page 1 of 2 ***[Please turn over]***

Exhibit 2 – Questionnaire, p. 2

University of Warwick – Department of Economics – EC331 RAE – January 2008 – Daniel Kuhagen

SECTION B (CONT'D)

Q10. Did you celebrate any religious or traditional festival during the winter holidays? (Multiple answers possible)

□ Yes, I celebrate Christmas
□ Yes, I celebrated a religious or traditional festival that is not Christmas
□ Yes, I go to church
□ Yes, I give presents
□ Yes, I receive presents
□ No, I don't celebrate in any form

[Once you finished this section, please do not return to it or make any changes to it]

SECTION C

Q11. Please fill out the table below. Presents A, B and C refer to your answers to Q2. Feel free to look back to recall your answers, but please do not amend them. The column "*Total*" below refers to your presents in aggregate (i.e. not just A, B and C, but *all the presents you received during the recent holiday season*).

	Total*	***Present A***	***Present B***	***Present C***	***Any one cash/voucher present received***
a. What amount of cash from an unknown third party would make equally happy as receiving these particular gift(s) from the specific person(s) that gave them to you? *(in £)*					
b. *Aside from any sentimental value of the gift*, if, without the giver ever knowing, you could substitute the gift for cash, what is the minimum amount of money that would make you indifferent between the cash and the gift? *(in £)*					
c. Who did you receive the present from? *(e.g. friend, aunt, distant acquaintance, parent, sibling, cousin, etc.)*	*n.a.*				
d. How old is this person?					
e. How close do you consider yourself to this person on a scale from 1 to 10? *(1 being very distant and 10 being your closest, possibly an intimate, relationship)*	*n.a.*				
f. Did you expect a gift from this person?	*n.a.*	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
g Did you request a specific gift from this person?	*n.a.*	□ Yes, this one □ Yes, another □ No	□ Yes, this one □ Yes, another □ No	□ Yes, this one □ Yes, another □ No	□ Yes, this one □ Yes, another □ No
h. How much money did you spend on this person's gift(s)? *(in £, zero if no present made)*	*n.a.*				
i. Was the present you made this person mostly in *Cash*, in *Vouchers*, *purchased* or *self-made* goods?	*n.a.*	□ Cash □ Voucher □ Self-Made □ Purchased	□ Cash □ Voucher □ Self-Made □ Purchased	□ Cash □ Voucher □ Self-Made □ Purchased	□ Cash □ Voucher □ Self-Made □ Purchased

** Total is the sum of all the presents you received, i.e. not just A, B and C.*

[When you finished this section, please hand the questionnaire back. Thank you very much for your help!]

Page 2 of 2 ***[End of questionnaire]***

Please note: Q11a is the re-worded version of the valuation question and corresponding to the variable '*Valuation b*'. The variable '*Valuation a*' is based on the answers to Q11b, and the wording is as it was used previously in the literature. (That is *a* and *b* have been swapped in the questionnaire and Stata compared to the notation in the rest of this paper.)

Exhibit 3 – Questionnaire, slide with iPod nano (object A)

Object A

Apple mp3-player

iPod nano

8GB flash drive

3rd generation
(most recent)

Exhibit 4 – Questionnaire, slide with Samsonite suitcase (object B)

Object B

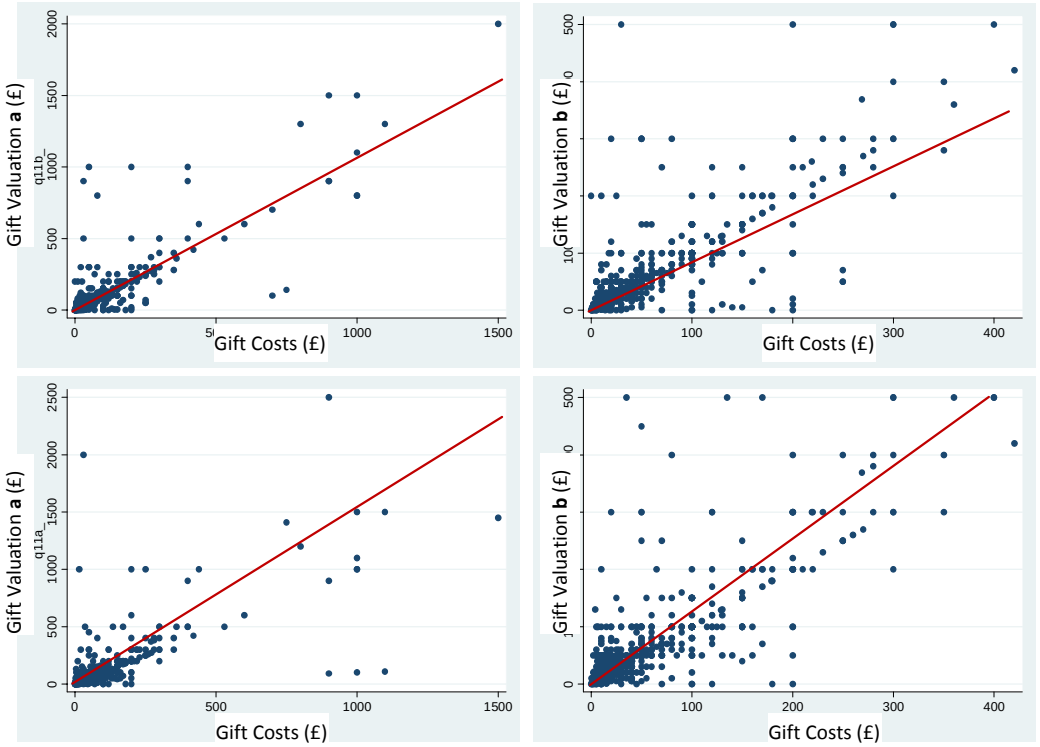
Samsonite Suitcase

Chocolate x'ion wheeled duffle

Made of Nylon and Polyester

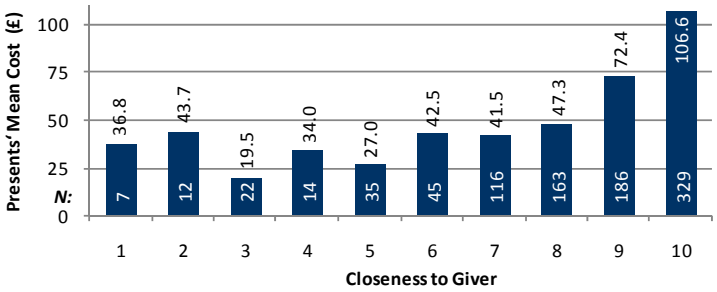
65x33x33cm
Capacity: 66 litres
Weight: 3.4kg

Figure 3 – Gift Costs against Valuation



Notes: Left diagrams show gift costs against gift valuation, based on question wording a (excluding sentimental value).
Right diagrams are based on question wording b.
Bottom diagrams are enlargements of the top ones.
Top left diagram excludes 6 outliers; top right diagram excludes 5 outliers. Bottom diagrams exclude more.

Figure 4 – Presents' costs by 'closeness' of relationship



Notes: *Cost of in-kind gifts only;* excl. top-5 cost outliers, who received cars.
White numbers are sample sizes.

Table 8 – Number of Cash and In-Kind Gifts

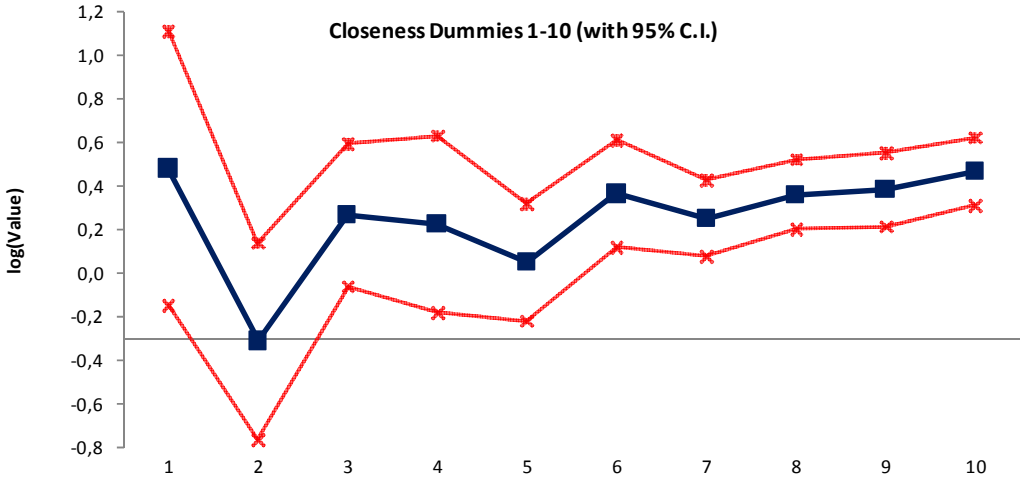
Relationship	In-kind Presents	Cash/Voucher Gift	Total Presents	% Cash Presents
Parent(s)	440	19	459	4.1
Sibling(s)	104	4	108	3.7
Spouse/s.o.	56	0	56	0
Grandparent(s)	35	28	63	44.4
Friend	187	14	201	7.0
Aunt/Uncle	69	32	101	31.7
Other	64	15	79	19.0

Table 9 – Closeness vs. Relationship Type

		Count by Closeness Category										Summary	
Relationship	N	1	2	3	4	5	6	7	8	9	10	Mean	s.d.
Parent(s)	439*	2	2	4	2	-	6	30	65	121	206	9.00*	1.41
Sibling(s)	104	-	-	2	1	1	3	13	25	24	35	8.56	1.50
Spouse/s.o.	56*	1	-	-	-	-	1	2	3	8	39	9.39*	1.45
Grandparent(s)	35	-	1	-	-	4	2	6	11	3	8	7.74	1.87
Friend	187	-	1	5	4	16	18	39	49	26	29	7.54	1.77
Aunt/Uncle	68	1	3	6	3	9	12	15	10	4	5	6.25	2.17
Cousin	18	-	1	-	2	-	3	4	3	4	1	7.00	2.09
Other Acquaintant	24	1	2	5	3	3	-	3	2	3	2	5.46	2.80
Other Relative	20*	1	1	-	-	2	-	3	4	1	7	7.68*	2.65
N	951*	6	11	22	15	35	45	115	172	194	332	8.29*	1.93

*Notes: For four gifts closeness was stated as non-integers (i.e. 8.5, 8.1, 9.5). These were not included in the count by closeness category, but in the total count and in the calculation of the means. A * indicates when this impacts a number that might otherwise expected to be different.*

Figure 5 – The impact of 'closeness' on log(value)



	1	2	3	4	5	6	7	8	9	10
Coefficient	0,483	-0,310	0,268	0,228	0,054	0,367	0,254	0,363	0,385	0,468
Std. Error	0,321	0,230	0,166	0,206	0,137	0,125	0,090	0,082	0,086	0,080
P-Value	13,3%	17,8%	10,7%	26,9%	69,5%	0,3%	0,5%	0,0%	0,0%	0,0%
N	7	12	22	15	36	45	120	172	196	337
CI95% low	-0,148	-0,761	-0,058	-0,177	-0,216	0,121	0,077	0,202	0,216	0,311
CI95% up	1,114	0,141	0,593	0,632	0,323	0,612	0,430	0,523	0,553	0,626

Notes: Dependent Variable is log(Value a), as used in previous literature (question version a). Independent Variables include closeness dummies, log(Price), no constant. Adj. R^2 =96.3%, N=837. Coefficient on log(Price) is 0.909 with a standard error of 0.019.

An F-test for the joint significance of the closeness dummies (all but one equal to zero), yields an F-Statistic of $F_{9,837}$=5.11, which corresponds to a p-value of 0.000 and suggests closeness as a significant determinant of log(value a), as dummies jointly significant.

Another F-test for coefficient constancy across all closeness dummies (close1=close2=…=close10), yielded an F-statistic of $F_{9,826}$=2.66, which corresponds to a p-value of 0.001. If the regressions in table 3, 4 and 5 were to be rerun, it might thus be sensible to include 10 closeness dummies instead of a single variable.