

Department of Economics, University of Warwick  
Monash Business School, Monash University

as part of  
Monash Warwick Alliance

**Exchange Asymmetry and Charitable Objects**

Anthony Luxford

**Warwick-Monash Economics Student Papers**

September 2022

No: 2022-34

ISSN 2754-3129 (Online)

The Warwick Monash Economics Student Papers (WM-ESP) gather the best Undergraduate and Masters dissertations by Economics students from the University of Warwick and Monash University. This bi-annual paper series showcases research undertaken by our students on a varied range of topics. Papers range in length from 5,000 to 8,000 words depending on whether the student is an undergraduate or postgraduate, and the university they attend. The papers included in the series are carefully selected based on their quality and originality. WM-ESP aims to disseminate research in Economics as well as acknowledge the students for their exemplary work, contributing to the research environment in both departments.

*“We are very happy to introduce the Warwick Monash Economics Student Papers (WM-ESP). The Department of Economics of the University of Warwick and the Economics Department at Monash University are very proud of their long history of collaboration with international partner universities, and the Monash Warwick Alliance reflects the belief in both Universities that the future will rely on strong links between peer Universities, reflected in faculty, student, and research linkages. This paper series reflects the first step in allowing our Undergraduate, Honours, and Masters students to learn from and interact with peers within the Alliance.”*

Ben Lockwood (Head of the Department of Economics, University of Warwick) and Michael Ward  
(Head of the Department of Economics, Monash University)

**Recommended citation:** Luxford, A. (2022). Exchange Asymmetry and Charitable Objects. *Warwick Monash Economics Student Papers* 2022/34

#### **WM-ESP Editorial Board<sup>1</sup>**

Sascha O. Becker (Monash University & University of Warwick)

Mark Crosby (Monash University)

James Fenske (University of Warwick)

Atisha Ghosh (University of Warwick)

Cecilia T. Lanata-Briones (University of Warwick)

Thomas Martin (University of Warwick)

Vinod Mishra (Monash University)

Choon Wang (Monash University)

Natalia Zinovyeva (University of Warwick)

---

<sup>1</sup> Warwick Economics would like to thank Lory Barile, Gianna Boero, and Caroline Elliott for their contributions towards the selection process.

# Exchange Asymmetry and Charitable Objects

Anthony Luxford\*

## Abstract

This paper presents results from an online experiment to show whether exchange asymmetry exists with charitable objects; a novelty good not yet used in past experiments. The rationale of this novelty was to excavate the notion of ownership of the goods by reason that charitable objects cannot be *kept*. These experimental results show exchange asymmetry exists in this novel context, implicating that ownership of the object was not necessary for exchange asymmetry to occur. This supports literature which posits that experimental protocols underpin observed exchange asymmetries in laboratory experiments. This research, therefore, further demarcates a distinguishing line between (1) the increased valuation of an object due to idiosyncratic associations through its ownership over time and (2) an immediately instantiated sense of ownership proclaimed to be the same effect manifesting in laboratory experiments.

**JEL classifications:** C91, D81, D82

**Keywords:** Exchange asymmetry, Charitable objects, Endowment effect

---

\* Contact information: [anthony.luxford@outlook.com](mailto:anthony.luxford@outlook.com)

Acknowledgements: 1. Anmol Ratan – Honours Supervisor - for providing the intellectual property of this experiment and providing me with major guidance through the course of my honours research. 2. Ben Grodeck – PhD candidate – for the early discussions about the experiment and crucial suggestion to migrate the experiment online. 3. Sabrina Krzywdzinski – Marketing Professional – for taking on the critical role of virtual host for the experiment. 4. Tatiana Oyagawa-Quinn – MonLEE – for essential assistance in the administration of experiment and payments to participants. 5. Nina Xue – MonLEE – help with experiment construction. 6. Dr. Nick Feltovich – Professor – for ethics and general guidance about the experiment. 7. Dr. Liang Choon Wang – Honours Coordinator – for general guidance throughout my honours year. 8. Dr. Vinod Mishra – Honours Research Coordinator – for general guidance about honours presentation.

Appendix link – [click here](#)

# 1. Introduction

Since Knetsch (1989) and Kahneman et al. (1990), exchange asymmetry has been observed in laboratory and field experiments. In Knetsch's (1989) classic experiment, whereby students were endowed with mugs or candy bars and asked to give up their endowment for the other good, he showed that c.90% decided to keep their endowment. This result was contrary to the expectation of neoclassical theory, which posits that an individual's decisions are independent of any such reference point of endowment.

Prefacing these experiments, Thaler (1980) coined the term *endowment effect*<sup>1</sup> to describe the phenomenon of individuals valuing objects they own more highly than those objects which they don't. This phenomenon has been the most accepted explanation for such exchange asymmetry observed in laboratory experiments. Kahneman et al. (1990:1329) make this clear by stating that the undertrading of objects (i.e., exchange asymmetry) in their experiments is "...produced by the effect of ownership on value". It can be deduced that for this to be the case, there *must* be an immediately instantiated effect of ownership on valuations.

Subsequent research has shown, however, that exchange asymmetry can attenuate significantly through alternative protocols and differences in experience levels. Examples are List (2003, 2004), who shows market experience could attenuate the exchange asymmetries; Shogren et al. (1994), testing Hanemann's (1991) proposition that goods with perfect substitutes are more likely to exhibit exchange symmetry, showed that repeated exposure to the market achieved such symmetry; and Plott and Zeiler (2007) showed that changes to experimental design in laboratory conditions could eliminate exchange asymmetry. These findings raise doubts as to the robustness and immutability of the conjectured effect of immediately instantiated ownership on valuations. Alternative explanations have therefore arisen to describe why exchange asymmetry may exist in laboratory experiments. Two such explanations include: Value elicitation via interpreting the endowment as a gift (Plott and Zeiler 2007), and individuals potentially avoiding the shame of making a wrong exchange decision, which increases the likelihood of them keeping the endowed good (List 2003).

---

<sup>1</sup> The endowment effect is a hypothesised application of prospect theory. Prospect theory posits individuals value losses more so than equivalent gains from a given reference point. For the endowment effect, the point of endowment is the reference point, and as such, deviations from this point are perceived as a loss. See Thaler (1980); Kahneman et al. (1990; 1991); Kahneman and Tversky (1979).

There are, however, confounds which can exist as part of these experiments. In particular, List (2003) posited that unobserved trading intentions could potentially explain the attenuated asymmetry between experienced dealers with respect to non-dealers, not necessarily because of their difference in experience. This is to say that experienced dealers may be more likely to stockpile the goods with the intention to trade them away, thus not allowing a sense of ownership to develop. Kahneman et al. (1990:1328) prefaced this by stating: “There are some cases in which no endowment effect would be expected, such as when goods are purchased for resale rather than for utilisation”. Another way to frame this is that for the effects of ownership to manifest, a necessary but not sufficient condition is that the goods used in experiments must be able to be *kept*.

Having briefly ventured through some select literature on exchange asymmetry and its various findings, it is perhaps still clear to many that the objects a person owns, particularly those with idiosyncratic associations, are likely valued more highly by that person compared to a counterpart willing to pay for that good. To this end, however, it can be argued that due to the idiosyncratic associations developed by the owner, this object is now categorically not the same object. Following this argument would mean, therefore, that a counterpart willing to pay for that good is not actually valuing the same object due to the absence of idiosyncratic associations. This is to say that these goods become something else to the owner over time, not that ownership itself increases the appraised value by the owner<sup>2</sup>. Although beyond the scope of this paper, an investigation into *what* a good is to a particular person may be worthwhile. Even money itself, the most fungible *good* of all, can certainly be valued differently because of its sentimental associations between the endower and endowed (e.g., money as a birthday present from a close relative).

It is appropriate here to highlight a demarcation between two things: (1) the increased valuation of an object due to idiosyncratic associations through its ownership over time<sup>3</sup> and (2) an immediately instantiated sense of ownership proclaimed to be the same effect manifesting in laboratory experiments. A nexus between (1) and (2), however, has implicitly been assumed in the behavioural economics literature. It is part of this paper’s contribution to show that (1) and (2) are not manifestations of the same thing, a distinction first articulated

---

<sup>2</sup> See Exchange asymmetry implications: Theoretical digression section in the appendix for more on this matter.

<sup>3</sup> An example of (1) is provided in Thaler (1980) where he describes Mr. R purchasing a case of wine from a merchant for \$5. A few years later, Mr. R refuses to sell the wine back to the merchant who offers \$100, even though Mr. R has never spent more than \$35 on wine.

by Plott and Zeiler (2007). Accordingly, I posit here that the assumed nexus may be a figment of the human intellect, which is the proclivity to favour narrative over empiricism.

The brilliance of Plott and Zeiler's (2007) paper was to shine a light on the *behaviour* of the experiment itself, rather than the behaviour of the participants. Their central contention was that if exchange asymmetry can be manipulated through alternative experimental protocols, the causal interpretation of ownership on valuations that lay bare in the literature may be mistaken. It is through their refreshing lens that this paper's nuance owes its insights.

### *1.1 The idea of charitable objects as endowment*

Given the varied results in the extant literature, the nature of this market anomaly is not agreed upon nor well understood. New evidence and corresponding ideas are therefore welcomed. This experiment's novel contribution is its use of charitable objects, to show whether exchange asymmetry exists with this novel good which has not yet been used in past experiments.

At first glance, given the most popular theoretical explanations of exchange asymmetry, it may seem obvious that no such exchange asymmetry should be present. This would assume to be the case due to the categorical difference in objects used, as the phenomenon of ownership cannot be assigned to such an abstracted good as a charitable object. Specifically, the capacity to *keep* a charitable object is removed, thus excavating a necessary condition for ownership to occur. This is the critical feature of this experiment.

This experiment was motivated to be a "boundary experiment" as described by Smith (1989:152) via means of a novel good, which hopes to contribute to a "Better theory that narrows the distance between theory and observation...". Furthermore, Levitt and List (2007:170) discuss the process of "netting out" behavioural outcomes from laboratory experiments, which may ordinarily be confounded by the nature of the lab.

It is interesting to note that behavioural economists provide evidence about the human inclination to favour narratives over empiricism, yet seem in this instance, to be driven themselves by the narrative of ownership, without proper attempts to falsify their experimental findings. This exchange asymmetry experiment, via the use of charitable objects, is an exercise in falsification.

## 2. The Experiment

### 2.1 Structure and administration of experiment

An online laboratory experiment was conducted in which participants' preferences were studied over two alternatives of charitable causes. The experiment was constructed using Qualtrics software and distributed via the Sona system used by Monash University.

The experiment was administered as four time slots in the Sona system, one for each variant of the experiment (see *Section 3.2.1*). Each time slot was a 6-hour window. Prior to the experiment, prospective participants who had an account with Sona received a general email inviting them to allocate themselves into one of the four time slots for the experiment, which was generically titled *Decision making in choice environments*. Participants were informed the experiment would take 10 to 15 minutes to complete within the six-hour window and would be paid \$5 for successful completion of the experiment. Those who signed up were sent an email further outlining the experiment 1 hour prior to their respective window.

#### 2.1.1 Selection of Charitable objects

The charities chosen were *Camp Quality* (CQ) and *Guide Dogs Victoria* (GD), who ranked 8<sup>th</sup> and 3<sup>rd</sup>, respectively, on RepTrak's list of most reputable Australian charities (F&P Magazine 2020). The aim in selection of the two charities was for them to be sufficiently different as to create variation in preferences, but sufficiently similar as to not create too strong a preference for either charity. The potential for general preference of one charity over another meant that exchange asymmetry could still be measured, as this initial difference in value would assume to be held constant. Any deviation from the assumed difference (similar to differences-in-differences) would be measuring exchange asymmetry if significant. The equivalence of the goods is simply a special case where their initial difference in value is zero. It should be noted, however, that this experiment is not concerned with measuring the general preferences of either charity. Its primary concern was solely to test whether exchange asymmetry is present when charitable objects are used.

Funding capacity of \$5 was assigned to each charity, resulting in the charitable objects used in this experiment as either a \$5 donation to CQ or a \$5 donation to GD. These amounts are consistent with recent experimental papers involving charitable giving that used Prolific and similar platform MTurk (Exley and Petrie 2018; Exley 2018) and what was estimated as a '*Great!*' contribution from the Prolific pricing estimator for a 15-minute study.

Moreover, this amount was equivalent to the participants' show-up fee as to facilitate a sense of care for their decisions.

### *2.1.2 Idiosyncratic features of experiment*

An important element of this experiment was that it was online, which introduced some idiosyncratic features when compared to typical exchange asymmetry experiments. One such feature was the inclusion of a virtual host as to aid the personal element and to aid replication of the in-person lab experience. This virtual host was created via means of video, for which each participant received precisely the same video containing the same instructions. This ensured the creation of experimental conditions, as experimental protocols were effectively identical apart from the intended variations.

Furthermore, goods such as mugs and candy bars used in past experiments typically require no explanation as to their function or utility. For charitable objects, however, information is required to understand the function and utility of donations. This was achieved in the experiment via means of videos explaining the two charities. These videos were constructed specifically for this experiment, with information about the charities obtained from their 2020 annual reports<sup>4</sup>. The virtual host was a presenter for the videos' information and provided direction upon conclusion of the participants' viewings.

Importantly, as participants completed the experiment individually, this avoided the confound of informational cascade effects<sup>5</sup> which can potentially arise in group settings. Moreover, as anonymity was a feature of the experiment, the phenomena of acting in a certain way to please the experimenters as in a typical lab experiment was less likely to occur (i.e., potentially increased revelation of true preferences) (Levitt & List 2007).

Lastly, all pages were timed and had forcing and validation requirements to ensure participants watched the videos and completed every section satisfactorily. A back button was also enabled for participants to revert to previous pages if necessary to review information and/or instructions.

---

<sup>4</sup> Links to these videos, including the virtual host's introduction, can be found in the appendix. Information contained within the charity videos is from Guide Dogs Victoria (2020) and Camp Quality (2020).

<sup>5</sup> Informational cascades occur when individuals ignore their own private information in favour of signals sent by their predecessors in an experimental setting. This implies herd behaviour, which is defined as individuals making the same decision. For more information, see Celen and Kariv (2004) and Smith and Sorensen (2000).



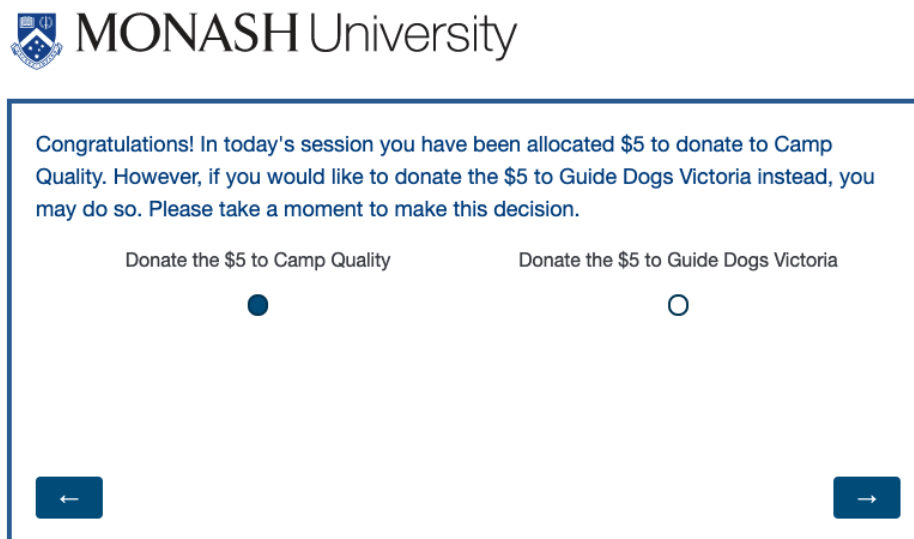
## 2.2 Experiment Instructions

Below is a briefing of the instructions, with the full outline of instructions provided in Appendix 2, including links to videos shown in the experiment.

**Introduction page:** Participants were first presented with generic consent and explanatory statements, and a video explaining the experiment.

**Video and questions page:** Participants were shown the videos containing information on both CQ and GD. Depending on the session, the order of the videos changed (i.e., for group 1, CQ was shown first). Participants were then asked to answer 10 randomised questions (i.e., 5 questions for each charity) to aid understanding of the charities' purpose, financial information and services provided.

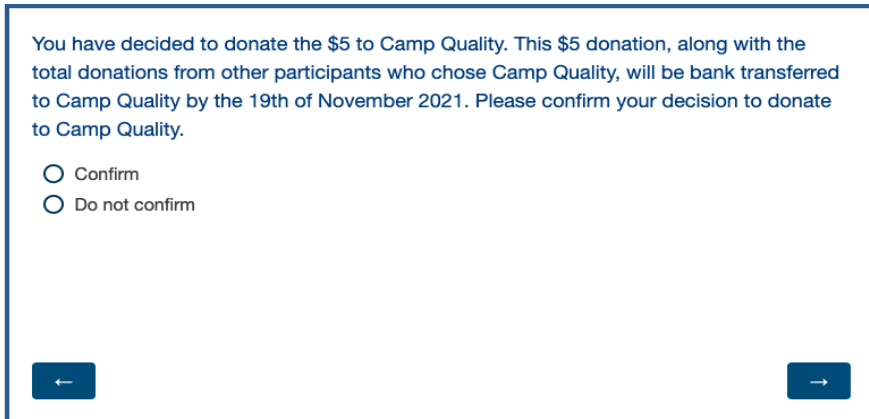
**Operative page:** Participants were shown the operative question of the experiment:



*Image 1: Donation decision*

Importantly, the answer button for the allocated charity was pre-filled. This was to replicate the possession of the endowed good as done in previous exchange asymmetry experiments (Knetsch 1989; Kahneman et al. 1990). Depending on the session, either GD or CQ was used as the endowed good. Accordingly, if participants decided to donate their \$5 donation to the unendowed charity, they would need to select that charity.

**Confirmation page:** Participants were shown the following question to confirm their donation decision:



*Image 2: Donation confirmation*

This confirmation was shown predominantly to emphasise the realness of the donation, as to cultivate a sense of care about their decision.

**Demographics questionnaire page:** This page contained questions about the participants' age, location, ethnicity, gender etc. It also contained a question regarding altruism, namely:

- ⇒ Think about the last time you gave to charity before today. What was more important to you?
- The total amount given by everybody
  - The amount that you personally gave
  - Some other aspect of giving, please state: \_\_\_\_\_

This question is from Carpenter (2018), who categorised participants choosing the first response as “pure altruists” and those choosing the second as “high warm glow altruists”, as defined by Andreoni's (1990) work.

**Experiment robustness page:** Participants were asked to assess the experiment in terms of its clarity, accessibility, and whether they thought the decision they made regarding the \$5 donation was an informed decision.

**Unique identifier page:** Participants were provided with a randomised 6-digit number for payment and identification, which they were asked to copy before proceeding. To preserve anonymity via the separation of participants' answers and their personal information, participants were redirected to a separate online survey for their personal information.

**Personal details form:** Participants inputted their personal information and were thanked for their participation.

The details of the experimental protocols followed as close as possible to the most confounded versions of exchange asymmetry experiments outlined in Plott and Zeiler (2007). This was to provide the most opportunity to isolate the effects of changing the good to charitable objects (i.e., to isolate the conjectured effect of ownership on valuation). Clearly, as this was an online experiment, some features denoted in Plott and Zeiler's (2007) most confounded version were not possible (e.g., holding the good).

### 3. Hypothesis and Results

#### 3.1 Hypothesis

This paper's main concern is of testing whether exchange asymmetry is present with charitable objects. This is to say the experiment was testing whether participants' decisions regarding the \$5 donation were independent of endowment. The hypothesis test can be expressed as:

$$H_0: P(\text{Charity } x | \text{Charity } x) = P(\text{Charity } x | \text{Charity } y)$$

$$H_A: P(\text{Charity } x | \text{Charity } x) > P(\text{Charity } x | \text{Charity } y)$$

where Charity x and y can be the \$5 donation to either CQ or to GD.

#### 3.2 Results

##### 3.2.1 Treatments, participation, and balance

Participants selected themselves into one of four sessions, after having received an email with four 6-hour time slots available to choose. There was a cap of 55 participants per session. The treatment structure was such that Sessions 1 & 4 were endowed with CQ and Sessions 2 & 3 were endowed with GD. Furthermore, video sequencing was such that CQ was shown first to Sessions 1 & 3, and GD first in Sessions 2 & 4.

Table 1 presents participation details. Overall, there were 195 participants who successfully completed the experiment, of which 98 (50.26%) and 97 (49.74%) of these participants were endowed with GD and CQ, respectively. Furthermore, there were 15 'no-shows', which were those participants who registered for a session but did not commence. There was inconsequential true attrition, however, with only 6 of the 201 participants who commenced having dropped out at some point. This meant a robust 97% completion rate.

Table 1: Participation details

	Date / Time Slot	Endowment	First Video	<i>No. of Participants</i>		
				Registered on Sona	Commenced	Successfully Completed
Session 1	15 September / 09:00 - 15:00	CQ	CQ	55	52	51
Session 2	15 September / 15:00 - 21:00	GD	GD	53	52	49
Session 3	16 September / 09:00 - 15:00	GD	CQ	54	51	49
Session 4	16 September / 15:00 - 21:00	CQ	GD	54	46	46
<i>Totals</i>				<i>216</i>	<i>201</i>	<i>195</i>

*Notes:* 1. Endowment is the charity participants were endowed with. 2. First Video indicates the ordering of the charity videos. 3. Registered on Sona indicates the number of participants who allocated themselves to the respective session (capped at 55 per session). 4. Commenced is the number of participants who commenced the experiment. 5. Successfully Completed is the number of participants who successfully completed the experiment.

Overall, balance in demographic variables was achieved with the minor exception of *Finance Satisfaction*. However, the result estimates of *Section 3* show that this variable does not impact participants' final allocation decision. Table 2 shows the balance of the experiment with respect to the two endowments.

Table 2: Balance of Demographic Variables

VARIABLES	CQ Endowment	GD Endowment	Difference
Age	24.31	24.20	0.11 (0.74)
Male	0.45	0.41	0.04 (0.073)
Aus Location	0.78	0.86	-0.08 (0.055)
Warm Glow	0.47	0.52	-0.05 (0.072)
SEA	0.56	0.50	0.06 (0.072)
Education	0.69	0.60	0.09 (0.069)
Low Income	0.53	0.52	0.01 (0.072)
Finance Satisfaction	0.88	0.77	0.11** (0.055)

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

*Notes:* 1. Age is the participants' age in years. 2. Male denotes categorical variable: 1 if male, 0 otherwise. 3. Aus Location denotes categorical variable: 1 if located in Australia, 0 otherwise. 4. Warm Glow denotes categorical variable: 1 if warm glow altruist as defined in Section 2.2, 0 otherwise. 5. SEA denotes categorical variable: 1 if participant's ethnicity was Southeast Asian, 0 otherwise. 6. Education denotes categorical variable: 1 if participant obtained bachelor's degree or above, 0 otherwise. 7. Low Income denotes categorical variable: 1 if income < \$40,000, 0 otherwise. 8. Finance Satisfaction denotes categorical variable: 1 if satisfied, somewhat satisfied or very satisfied with financial situation of household, 0 if not satisfied. Although political orientation information was obtained, it was not accounted for in estimates as 111 of the 195 participants preferred not to say what their orientation was.

### 3.2.2 Final decisions regarding charitable objects

Overall, there was a general preference for CQ, as 115 (59%) participants decided to donate the \$5 donation to CQ, and 80 (41%) participants decided to donate GD. However, endowment of either charity created significant variation in participants' final allocation. Table 3 shows these results.

Table 3: Final Allocations and Endowments

Final Allocation			
Endowment	Guide Dogs Victoria	Camp Quality	Total
Guide Dogs Victoria	50 (51%)	48 (49%)	98
Camp Quality	30 (31%)	67 (69%)	97
Total	80 (41%)	115 (59%)	195

Notes: Percentages in parentheses are with respect to row totals.

Interestingly, these results are consonant with results obtained in Plott and Zeiler (2007, pp. 1458), specifically the ‘Transaction Costs’ column of their *Table 1*. These comparable results are shown in Table 4. For context, Plott and Zeiler set out to show how exchange asymmetry could be eliminated through a gradual series of tests, each of which had various experimental protocols applied. Their experiments were conducted in the lab, for which mugs and pens were the goods used. The ‘Transaction Costs’ test showed the second-most level of exchange asymmetry. However, apart for the experiment being online and thus all participants completing the experiment individually, there was one notable difference between Plott and Zeiler’s (2007) protocols and the above results. It was *not* the case that the “Experimenter purposefully and repeatedly emphasized ownership”.

Table 4: Results Comparison with Plott and Zeiler (2007)  
‘Transaction Costs’ test

VARIABLES	Plott and Zeiler (2007)	Charitable Objects Experiment
Endowed good immediately in front of subject at time of choice	NO	NO
Experimenter chose and gave OR randomly assigned which good to endow	EXPERIMENTER CHOSE AND GAVE	EXPERIMENTER CHOSE AND GAVE
Experimenter purposefully and repeatedly emphasized ownership	YES	NO
Choices made by public show of hands OR use of private forms	FORMS	FORMS
(Percent mug owners/CQ who chose mugs/CQ, percent pen owners/GD who chose mugs/CQ)	(72% , 50%) diff = 22%	(69% , 49%) diff = 20%
Result*	$p = 0.01$	$p = 0.00$

\*Plott and Zeiler’s (2007) results are from two-sample tests of equality of proportions (null hypothesis: proportions are equal; alternative hypothesis: percent mug owners who chose mugs > percent of pen owners who chose mugs), with  $n = 101$ . Charitable Objects Experiment results are from two-sample tests of equality of proportions and Two-sample Wilcoxon rank-sum (Mann-Whitney) test (both with null hypothesis: proportions are equal; alternative hypothesis: percent mug owners who chose mugs > percent of pen owners who chose mugs), with  $n = 195$ .

These similarities and one key difference highlight that ownership, or at least the perception of ownership produced by its emphasis, was not necessary in producing comparable results.

### 3.2.3 Analysis of results

To analyse the determinants of participants’ final allocation decision with respect to the \$5 donation, a probit regression of the form  $Final Allocation = g(\alpha + \beta'X)$  was estimated, where  $Final Allocation$  equals 1 if participants chose to donate the \$5 to CQ, 0 if they chose to donate to GD;  $X$  includes variables which could potentially affect the final allocation decision: endowment of CQ<sup>6</sup>, order of videos, time spent in total and on each page, and all demographic variables from *Section 3.2.1*. From the estimates shown in Table 5, endowment

<sup>6</sup> It should be noted that if  $Final Allocation$  and  $Endowment$  were both had GD equal to 1 instead of CQ, the estimated coefficients would all be the same except that their signs would be reversed. The constant term would also change to represent the general preference towards CQ.

of the charitable objects significantly affected participants' final allocation at the 1% level of significance. This is to say that if endowed with either charity, participants found it significantly more difficult to donate the \$5 to the other charity.

Was there anything else that could explain participants' final allocation decision? Apart from *Decision Time*, no other variable showed any significant effect in explaining the participants' final allocation of the \$5 donation. *Decision Time*, which measured the time taken in seconds for participants to make their final allocation decision, had a highly significant yet small negative effect. This is to say that the more time participants spent deciding on which charity to allocate the \$5 donation, the more likely they would donate to GD. It is unclear why this may be, but given the effect was very small relative to *Endowment*, this is not perceived to be of concern.

**Table 5: Probit Regression of Final Allocation**

VARIABLES	Final Allocation
Endowment	0.585 (0.197)***
First Video	0.040 (0.195)
Duration Time	0.000 (0.001)
Intro Time	-0.000 (0.001)
Video Time	0.000 (0.001)
Decision Time	-0.018 (0.006)***
Age	-0.020 (0.019)
Male	0.205 (0.193)
Warm Glow	0.175 (0.189)
SEA	-0.124 (0.206)
Education	0.002 (0.239)
Low Income	-0.012 (0.208)
Finance Satisfaction	-0.261 (0.269)
Aus Location	-0.008 (0.255)
Constant	0.643 (0.614)
Observations	195

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

*Notes:* 1. Endowment denotes categorical variable: 1 if endowed with CQ, 0 if endowed with GD. 2. First Video denotes categorical variable: 1 if CQ video shown first, 0 if GD video shown first. 3. Duration Time was the total time taken in seconds for participants to complete the experiment. 4. Intro Time was the total time taken in seconds for participants to complete the introduction page. 5. Video Time was the total time taken for participants to complete the videos and questions page. 6. Decision Time was the total time taken for participants to complete the operative page of the experiment. 7. All demographic variables are as described in Table 2.



Furthermore, were there any specific characteristics or experimental features that could explain participants' lessened proclivity to exchange? To analyse this, a probit regression of the form  $Exchange = g(\alpha + \beta' X)$  was estimated, where *Exchange* equals 1 if the participants chose to donate the \$5 to the unendowed charity, 0 if they donated the \$5 to the endowed charity; *X* includes variables which could potentially affect the exchange decision: time spent in total and on each page, and all demographic variables from *Section 3.2.1*. Table 6 presents these estimates, which show some minor timing effects on the proclivity to exchange. *Duration Time*, which measured the time taken in seconds for participants to complete the experiment, showed a small negative effect at the 10% level of significance. This meant that the more time participants took in completing the experiment, the slightly more likely they would be to donate the \$5 to the endowed charity. *Video Time*, which measured the time taken in seconds for participants to complete video and questions section, showed a small positive effect at the 10% level of significance. As these effects are so small, are opposite in their direction, and only significant at the 10%, they are easily dismissed as potentially spurious.

Table 6: Probit Regression of Proclivity to Exchange

VARIABLES	Exchange
Duration Time	-0.002 (0.001)*
Intro Time	0.002 (0.002)
Video Time	0.003 (0.001)*
Decision Time	0.006 (0.006)
Age	-0.024 (0.019)
Male	-0.160 (0.188)
Warm Glow	0.070 (0.188)
SEA	-0.282 (0.204)
Education	0.355 (0.242)
Low Income	0.275 (0.209)
Finance Satisfaction	0.004 (0.245)
Aus Location	0.074 (0.261)
Constant	0.245 (0.614)
Observations	195

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Notes: 1. All variables are as described in Table 5.

Furthermore, was there any indication that participants sped through the experiment, which would imply a lack of care for their responses? This did not seem to be the case. Of utmost concern was the operative decision, as the pre-filling of the answer button satisfied the forcing requirement of answering the question. Fortunately, as seen in Table 6, there was no effect of *Decision Time* on the proclivity to exchange. Table 7 provides a further breakdown of the timing of participants' completion of the experiment and its various pages. On average, it took participants about 12 minutes to successfully complete the experiment. This average, as was the case with other timed pages, was positively skewed due to longer times taken, resulting in large standard deviations. Importantly, *Video Time*, which measured the time participants spent on the video and question page, had a mean of 5 minutes 43 seconds which was well above the total time of the charity videos of 3 minutes and 13 seconds. This is evidence that participants took the time to watch the videos and understand what the charities were about. Participants could simultaneously answer questions about the charities and watch the videos, which was aided by them having control of the video progress bar.

Table 7: Timing

	Mean	Std. Dev.	Min	Max
Duration Time	11.82	10.96	2.15	137.87
Intro Time	2.35	5.86	0.27	70.50
Video Time	5.71	3.97	0.64	35.01
Decision Time	0.41	0.31	0.02	2.13

*Notes:* All the above time variables are as described in Table 5. Times were recorded as seconds and converted to minutes. There were other pages such as questionnaire pages, but important to note that Intro, Video and Decision times were for the pages seen before the operative page.

Furthermore, Table 8 presents data on experiment robustness, which showed satisfactory robustness in the completion of the experiment. Most participants thought the experiment instructions were clear and easy to follow, thought they made an informed decision regarding the \$5 donation, and had no connection issues. Only 5% of participants thought they would change their mind about their \$5 donation decision one week from when they made their decision.

Table 8: Experiment Robustness

Questions	Participant Responses				
	Strongly Disagree	Disagree	Indifferent	Agree	Strongly Agree
Clear Instructions	0%	1%	3%	34%	63%
Informed Decision	1%	4%	10%	59%	26%
Response Integrity	Likely	Unsure	Unlikely		
	5%	16%	79%		
Connection Issues	Yes	No			
	4%	96%			
Reason for Choice <sup>†</sup>	Endowment	Other			
	9%	91%			

Notes: 1. Clear Instructions asked participants if the experiment instructions were clear and easy to follow. 2. Informed Decision asked participants if their \$5 donation decision was an informed decision. 3. Response Integrity asked participants how likely it would be for them to change their decision one week from today. 4. Connection Issues asked participants if they had any issues with connection or accessing the videos. 5. Reason for Choice asked participants the reason for making their \$5 donation decision, with the answer of ‘Endowment’ indicating participants made their decision because they were endowed with that charity. <sup>†</sup>Response percentages for Reason for Choice are with respect to the 117 participants who donated the \$5 to their endowed charity.

## 4. Concluding Remarks

The primary question remains, what is driving exchange asymmetries observed in laboratory experiments? Is it an immediately instantiated sense of ownership which elevates participants’ valuation of the endowed object? This is effectively the most common causal interpretation, which leads to all sorts of auxiliary questions such as: when does this ownership instantiate itself in the individual’s mind? Is this the same sense of ownership associated with a good that the individual owns in their private life? What effect does time have on ownership?

The charitable objects used in this experiment, however, casts this common causal interpretation under serious scrutiny. The \$5 donation, for all intents and purposes, cannot be consumed. It also cannot be used for other self-interested means such as trading it for another object of equivalent value or money. This removal of the capacity to *keep* the object excavates the effects of ownership. Accordingly, the assumed nexus between (1) the increased valuation of an object due to idiosyncratic associations through its ownership over time and (2) an immediately instantiated sense of ownership manifesting in laboratory

experiments may not be necessary - not even possible - if ownership is not causing exchange asymmetries.

Possibly, this could be the status quo bias manifesting. However, one would need to accurately demarcate *why* this experiment could be explained by status quo bias, but not other exchange asymmetry experiments. This is to say that although the goods in this experiment are abstracted and thus cannot be owned, the status quo bias could still be invoked as an explanation for common exchange asymmetry experiments. The invocation of the endowment effect (i.e., ownership) in explaining exchange asymmetry is qualitative, a narrative of sorts, not quantitative or objective. Empirically, these results show that exchange asymmetry may transcend the need for the endowment effect as an explanation.

The most likely answer, however, seems to come from the work of Plott and Zeiler (2007), who contend that experimental protocols may be underpinning the observed exchange asymmetry. A further question is *why* do such experimental protocols produce confounding effects? One answer may be that individuals (economic agents) are information seekers. This holds true at the level of the macroeconomy (prices) as described by Hayek, who theorised about the effects of intervention in the economy affecting decision making by its participants. It would be appropriate by inverted extension to posit that this seeking of information must also be occurring at the level of the individual, whereby for lab experiments, intervention by the experimenter is absorbed as information by the participants. It may simply be the case that lab experiments create enough information for neoclassical theory to be invoked and thus participants are significantly more likely to *keep* their endowed good.

## References

- Andreoni J (1990) 'Impure altruism and donations to public goods', *The Economic Journal*, 100(4):464-477, doi:10.2307/2234133.
- Camp Quality (2020) [Camp Quality Annual Report](#), Camp Quality, accessed 30 July 2021.
- Carpenter J (2018) 'The shape of warm glow: Field experimental evidence from a fundraiser', *Journal of Economic Behavior & Organization*, 191(1):555-574, doi:10.1016/j.jebo.2021.09.020.
- Celen B and Kariv S 'Distinguishing informational cascades from herd behaviour in the laboratory', *American Economic Review*, 94(3):484-498, doi:10.1257/0002828041464461.
- Davis DD and Holt CA (1993) *Experimental Economics*, 1st edn, Princeton University Press, New Jersey.
- Exley CL (2018) 'Incentives for Prosocial Behavior: The Role of Reputations', *Management Science*, 64(5):2460-2471, doi:10.1287/mnsc.2016.2685.
- Exley CL and Petrie R (2018) 'The impact of a surprise donation ask', *Journal of Public Economics*, 158(1):152-167, doi:10.1016/j.jpubeco.2017.12.015.
- FP Magazine (2020) [Australia's most reputable charity revealed](#), FP Magazine, accessed 30 July 2021.
- Guide Dogs Victoria (2020) [Guide Dogs Victoria Annual Report](#), Guide Dogs Victoria, accessed 30 July 2021.
- Hanemann MW (1991) 'Willingness to Pay and Willingness to Accept: How much can they differ?', *American Economic Review*, 81(3):635-647. <http://www.jstor.org/stable/2006525>.
- Hovenkamp H (1991) 'Legal Policy and The Endowment Effect', *The Journal of Legal Studies*, 20(2):225-247. <http://www.jstor.org/stable/724439>.
- Kahneman D, Knetsch JL and Thaler, RH (1990) 'Experimental tests of the endowment effect and Coase theorem', *Journal of Political Economy*, 98(6):1325-1348. <https://www.jstor.org/stable/2937761>.
- \_\_\_\_\_ (1991) 'The endowment effect, loss aversion and status quo bias', *Journal of Economic Perspectives*, 5(1):193-206, doi:10.1257/jep.5.1.193.
- Kahneman D and Tversky A (1979) 'Prospect theory: An analysis of decision under risk', *Econometrica*, 47(2):263-292, doi:10.2307/1914185.
- Knetsch JL (1989) 'The Endowment effect and evidence of nonreversible indifference curves', *The American Economic Review*, 79(5):1277-1284. <https://www.jstor.org/stable/1831454>.

- List JA (2003) 'Does market experience eliminate market anomalies?', *The Quarterly Journal of Economics*, 118(1):41-71, doi:10.1162/00335530360535144.
- \_\_\_\_\_ (2004) 'Neoclassical Theory versus Prospect Theory: Evidence from the Marketplace', *Econometrica*, 72(2):615-625. <https://www.jstor.org/stable/3598914>.
- Plott CR and Zeiler K (2005) 'The Willingness to Pay-Willingness to Accept gap, the "Endowment Effect", Subject Misconceptions, and Experimental Procedures for Eliciting Valuations', *The American Economic Review*, 95(3):530-545, doi:10.1257/0002828054201387.
- \_\_\_\_\_ (2007) 'Exchange Asymmetries Incorrectly Interpreted as Evidence of Endowment Effect Theory and Prospect Theory?', *The American Economic Review*, 97(4):1449-1465, doi:10.1257/aer.97.4.1449.
- Ratan, A (2014) 'Anticipated Regret or Endowment Effect? A Reconsideration of Exchange Asymmetry in Laboratory Experiments', *The B.E Journal of Economic Analysis and Policy*, 14(1):277-298, doi:10.1515/bejeap-2013-0018.
- Shogren, JF, Shin, SY, Hayes, DJ and Kliebenstein, JB (1994) 'Resolving differences in willingness to pay and willingness to accept', *Journal of Economic Literature*, 84(1):255-270. <https://www.jstor.org/stable/2117981>.
- Smith L and Sorensen S (2000) 'Pathological outcomes of observational learning', *Econometrica*, 68(2):371-398, doi:10.1111/1468-0262.00113.
- Thaler R (1980) 'Toward a positive theory of consumer choice', *Journal of Economic Behaviour and Organization*, 1(1):39-60, doi:10.1016/0167-2681(80)90051-7.