Blue Porches: Finding the Limits of External Validity of the Endowment Effect

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Abstract

We test whether the endowment effect holds in an experiment conducted with children during Halloween trick-or-treating. We do not find evidence of the endowment effect in this context and experimental protocol.

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Introduction

We conducted a field experiment during Halloween trick-or-treating which required first establishing the endowment effect. The endowment effect posits that willingness to sell is often empirically higher than willingness to buy, even in a world of no transaction costs and no learning from prior ownership or usage of an item. Mugs, used in Kahneman, Knetsch and Thaler (1990), are the canonical good for this example, given limited if non-existent potential for learning.

We aimed to test whether the endowment effect would be stronger when individuals were ambiguity averse, as well as when the product is less well known. To test for such comparative statics, we first needed to establish the endowment effect. We failed to generate the endowment effect for any subset of our sample frame or any experimental arm.

Here we describe the settings and experiment, in order to establish insufficiency conditions for the endowment effect. We conclude that the endowment effect is not generated in the following context: during Halloween trick-or-treating, with children, in New Haven, with Snickers candy bars passed out and held between one and 15 seconds, in a non-blind experiment conducted by undergraduate and graduate students, on a blue porch in which prior unrelated trick-or-treating experiments have been conducted in exactly three prior years.

As a counterpoint, anecdotal evidence in this community in New Haven suggests a strong sense of personal ownership (which is likely a driving factor necessary to generate an endowment effect) can be generated in three hours on a blue porch. In a prior year, a bicycle was stolen from the same blue porch. Three hours after the bicycle was stolen, an individual was observed two blocks away riding the stolen bicycle. When the legal owner of the bicycle grabbed the bicycle seat, thus stopping the rider from passing him on the sidewalk, the individual riding the bicycle instinctively declared, “hey, that’s my bike.” Although this is not evidence of a higher willingness to sell than a willingness to buy, all else equal, it is evidence that the sentiment of ownership was established after a mere three hours. Further research would benefit from varying candy bars to bicycles, and

fifteen seconds to three hours, to understand some of the necessary contextual factors needed to generate the endowment effect.

Experimental Description

In 2009, trick-or-treaters in the New Haven suburb of East Rock were randomly assigned to one of four treatment groups. As they were on the stairs at the front of the porch, research assistants handed Group 1 trick-or-treaters a Snickers, Group 2 a Milky Way, Group 3 a Three Musketeers bar and Group 4 a Sky bar. They had to wait between one and 15 seconds to then proceed to a table at the side of the porch where two more research assistants sat behind a table, one to record the decision by the trick-or-treater and one to present the trick-or-treater with a choice. The wait period was designed with the hope of generating a sentiment of ownership. Flow was controlled such that each trick-or-treater was alone at the table with the research assistants, thus minimizing interaction with other trick-or-treaters during their decision. At the table on the side of the porch, the research assistant then offered the trick-or-treater the opportunity to swap their recently acquired bar for a specific, different candy bar: a Snickers could be swapped for a Milky Way or vice versa and a Three Musketeers could be swapped for a Sky bar, or vice versa. The Coase Theorem predicts that the average percent of people that swap should be 50% (Coase 1960). If 80% of people prefer Milky Ways to Snickers, then we should observe 80% trade their Milky Way for a Snickers, and 20% trade their Snickers for a Milky Way, thus averaging 50%. The endowment effect is present, given zero transaction costs, if the percent of children that swap two candies is less than 50%. In the final step, after they have swapped, or not, for their preferred candy bar, they are given one last decision: a choice between two bags, each containing the same quantity of candy, but one in a clear bag (thus known) and one in a paper bag (thus unknown). We label the children who choose the clear bag as “more ambiguity averse” (although we realize this is crude and that other factors, such as trust, may also influence this decision).

Results

Table 1 presents the results. For the full data, nor for any sub-sample, we are unable to reject 50% for the average swapping rate. Panel A shows an average swapping rate of 51%, with a 95% binomial exact confidence interval of 46%-56%. Panel B shows the results for two well-known candies, Milky Way and Snickers. 45% (se=5%) traded their Snickers for a Milky Way and 62% (se=4%) traded their Milky Way for a Snickers. Thus the average swapping rate is 55% (95% binomial exact confidence interval = 48% to 61%). Thus no evidence of the endowment effect. Panel C shows the results for one well known (Three Musketeers) and one less well-known candy (Sky Bars). 34% traded their Three Musketeers for a Sky Bar and 58% traded their Sky Bar for a Three Musketeers. Thus the average swapping rate is 47% (95% binomial exact confidence interval = 40% to 54%). Although the point estimate is below 50%, we are not able to reject that the average swapping rate is 50%.

Table 1 also shows the results broken down by our measure of each trick-or-treater's ambiguity aversion. Again, results are similar, as we find few noticeable differences for those with more versus less ambiguity averse.

Discussion

We do not call into question the validity of the endowment effect. But, as with any such phenomenon, there are bounds to its applicability. We found one.

References

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Table 1: Percent that Choose to Swap Candy, by Candy Type and Ambiguity Aversion of Trick-or-Treater
Percent (Standard Errors)

	Full	More Ambiguity Averse	Less Ambiguity Averse
Panel A: Full Sample			
Average Swapped	51%	52%	51%
Standard error	(2%)	(4%)	(3%)
95% binomial exact confidence interval	46%-56%	45%-59%	44%-57%
Number of observations	452	199	247
Panel B: Two Well Known Candies			
Milky Way: Swapped for Snickers	62%	67%	57%
Snickers: Swapped for Milky Way	45%	41%	51%
Average Swapped	55%	54%	55%
Standard error	(3%)	(4%)	(5%)
95% binomial exact confidence interval	48%-61%	45%-63%	46%-65%
Number of observations	244	131	110
Panel C: One Well Known Candy and One Not Well Known Candy			
Three Musketeers: Swapped for Skyway	34%	35%	35%
Skyway: Swapped for Three Musketeers	58%	60%	55%
Average Swapped	47%	46%	48%
Standard error	(4%)	(5%)	(5%)
95% binomial exact confidence interval	40%-54%	36%-55%	37%-59%
Number of observations	201	112	86

Notes: Due to logistical challenges, such as children exiting too quickly from the porch, we do not have a measure of ambiguity aversion for six trick-or-treaters (three in Panel B and three in Panel C).