Vertical Integration and Consumer Choice: Evidence from a Field Experiment*

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Abstract

Many firms, from retailers to investment management companies, offer their own products alongside products sold by competitors. This form of vertical integration has been the target of regulation in digital markets based on concerns of harm to consumers. We study the effects of this practice on consumer choice in the context of Amazon.com. We run a field experiment using a custom browser extension that allows us to generate random variation in the set of products observable to consumers. When Amazon brands are not available, consumers substitute toward products that are comparable along most observable dimensions, including price, average rating, and shipping speed. One exception is that the substitute products have many fewer reviews—often considered a proxy for quality—compared to Amazon brands. We collect supplemental evidence from surveys which shows that consumers view Amazon branded products similarly to other products. On the supply side, we do not find evidence that Amazon discriminates in favor of its own products in search results. In addition, the absence of Amazon brands does not noticeably change consumer search behavior. The results are consistent with consumer preferences that prioritize low prices, high ratings, and fast delivery over other product characteristics, such as brand or seller reputation.

Keywords: self-preferencing, e-commerce, digital platforms, antitrust, vertical integration
JEL Classification: L13, L15, L81, D12, D83

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1 Introduction

The size and scope of digital platforms, such as Amazon and Google, has resulted in scrutiny by policymakers. In Europe, regulators have recently passed the Digital Markets Act[1] and the Digital Services Act[2] to constrain and monitor the behavior of large platforms. In the US, the Department of Justice (DOJ) has initiated legal proceedings against Google[3] and the Federal Trade Commission (FTC) against Amazon,[4] accusing the platforms of abuse of their respective dominant positions.

One regulatory issue is the practice by major technology platforms of vertically integrating and featuring their own products alongside those of other third-parties. This practice is common among the large firms designated "gatekeepers" by the Digital Markets Act. For example, Google owns Google Maps and Google Shopping, which directly compete with third-party maps and e-commerce alternatives. Similarly, Amazon sells private-label products—including brands such as Amazon Basics, Solimo, and Mama Bear—directly to buyers, often as alternatives to products sold by independent sellers. This practice has raised concerns of reduced competition and harm to consumers.

We study the effects of Amazon private label products on consumer decisions and satisfaction. We also address whether these outcomes are influenced by self-preferencing practices. To answer these questions, we develop a browser extension that can manipulate and track browsing behavior and recruit participants to install it. We use the extension to introduce random variation in the set of products observable to consumers and measure the (short-run) effects on consumer behavior.

We find that when Amazon brands are not available, consumers substitute to broadly similar products, except that those substitutes have fewer reviews. The substitution occurs without changes to the search behavior. When asked to rate the chosen products, consumers value them similarly, regardless of whether they had access to private labels.

These substitution patterns are consistent with stated consumer preferences. Indeed, consumers say they care about prices, delivery, and quality (as proxied by online ratings) much more than brand or seller reputation. If anything, Amazon private labels are valued \$1.65 less on average relative to similar non-Amazon products valued at \$25, with substantial heterogeneity around this mean. Small changes in delivery or ratings characteristics greatly alter willingness to pay, with faster shipping and higher ratings changing the preference for Amazon brands relative to other alternatives. We find no evidence that Amazon unfairly advantages its own

[1] digital-markets-act.ec.europa.eu.

[2] https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/digital-services-act_en.

[3] https://www.justice.gov/opa/pr/justice-department-sues-google-monopolizing-digital-advertising-technologies

[4] https://www.ftc.gov/news-events/news/press-releases/2023/09/ftc-sues-amazon-illegally-maintaining-monopoly-power.

products in search results.

For this research, we developed a browser extension called Webmunk, recruited US residents to install it, and compensated them for their participation.[5] The extension randomly allocates study participants into three groups: a control group, whose behavior on Amazon.com is tracked for the period of the study; a *"Hide Amazon"* group, for whom the extension removes Amazon branded products from search results and other pages on Amazon.com; and a *"Hide Random"* group, for whom the extension removes a random set of products.

Upon enrollment, we ask participants to partake in a set of incentivized shopping tasks. In these tasks, participants are asked to shop for products from pre-defined categories to add to an Amazon wishlist especially created for our study. We pre-selected 23 product categories (e.g., allergy medications, paper towels, socks, batteries) from a set of six meta-categories—health, paper products, household items, apparel, electronics, and personal care. The first five meta-categories are characterized by a high share of Amazon branded options. The sixth, personal care, does not have Amazon brands, and we selected it as a placebo.

The randomization allows us to compare the characteristics of the chosen products across the three treatment groups.[6] In the absence of Amazon brands, consumers select products that look fairly similar when it comes to pricing and delivery. Prices and shipping times in the *Amazon Hide* group are indistinguishable from those in the control group. The average star rating is also similar, although the number of accumulated reviews of the chosen product is much lower when Amazon brands are hidden compared to when Amazon brands are available. The *Random Hide* group allows us to confirm that these differences are not simply due to a decrease in product variety, but directly linked to the characteristics of Amazon branded products.

The second set of results concern whether Amazon unduly prioritizes its own products at the expense of other sellers' products and consumers' utility, which may affect the substitution patterns highlighted above. To test for self-preferencing, we use an outcome based test (Becker (2010), Canay, Mogstad and Mountjoy (2023)) applied to rankings in a manner similar to Aguiar, Waldfogel and Waldfogel (2021) and Reimers and Waldfogel (2023), but using the experimental variation induced by our treatments. The intuition is the following: a platform is biased in favor of a product if the product attains smaller success among consumers conditional on the search ranking chosen by the platform. Success is proxied by the probability that the product is added to the wishlist. Conditional on the same realized rank, if an Amazon brand is less likely to be picked than a non-Amazon brand, we take that as evidence of self-preferencing. Importantly, our experiment induces random variation in the realized ranking of items, which allows us to observe counterfactual outcomes for searches in which Amazon products would have otherwise been shown.

[5]Webmunk is open-sourced and available for use by other researchers. Please see Farronato, Fradkin and Karr (2024) or visit `www.webmunk.org` for details.

[6]We pre-registered the reduced form analysis plan under AEARCTR-0011370. `https://doi.org/10.1257/rct.11370-1.0`.

We find no evidence of self-preferencing according to this definition. On the surface, this result may seem at odds with the fact that Amazon branded products are indeed ranked higher than observably similar substitutes, a fact that we showed in Farronato, Fradkin and MacKay (2023) and confirm here (see also Waldfogel (2024)). Yet, taken together, the results imply that there are many unobserved variables (which Amazon has access to but we do not) that predict why Amazon brands are prioritized in search results, above and beyond the fact that they are cheaper, faster to deliver, and with a higher number of reviews. These variables seem to be related to consumer intrinsic preferences rather than Amazon profit objectives, as evidenced by the fact that, conditional on the same position in search results, Amazon branded products are not less likely to be selected by consumers compared to non-Amazon brands (if anything, we find some evidence that they are more likely to be selected).

We are also interested in measuring the effects of Amazon private labels on welfare and competition. In particular, we'd like to evaluate how much consumers value Amazon private labels and how prices would adjust without their presence. As part of this investigation, we are in the process of estimating a demand and supply model that uses our experimental variation for identification. More details are described in Section 7.

Related literature. Recent regulatory scrutiny over the market power of digital platforms has given rise to a new literature on vertical integration and biased intermediation(Hagiu, Teh and Wright, 2022; De Corniere and Taylor, 2019; Teng, 2022), specifically on Amazon (Lee and Musolff, 2022; Gutierrez, 2022; Lam, 2022; Chen and Tsai, 2021; Raval, 2022; Reimers and Waldfogel, 2023; Waldfogel, 2024). Relative to the above papers, our work has several key advantages. First, our data reflect real consumer searches, for which results, including delivery times and targeted ads, can be personalized. Second, our field experiment allows us to draw causal links between ranking and consumer choices, and between the availability of Amazon brands and substitution patterns. Third, we link the shopping behavior on Amazon to surveys, order histories, and visits to non-Amazon retailers, shedding light on the generalizability of our results based on incentivized shopping tasks (Morozov and Tuchman, 2024) for more organic search and shopping behavior (Ursu, 2018; Santos, Hortaçsu and Wildenbeest, 2012; Dinerstein et al., 2018).

Our approach to collecting data and studying consumer behavior contributes to a recent and growing research that uses software to track consumers and run online experiments. Allcott, Gentzkow and Song (2022) study the addiction properties of social media use. Aridor (2022) observes users' substitution patterns when he experimentally shuts off access to Instagram or Youtube. Levy (2021) differentially exposes study participants to news outlets on social media to study its effects on political polarization. Beknazar-Yuzbashev et al. (2022) study the effects of removing toxic content on social media consumption, highlighting the trade-off between consumption and content toxicity.

Our paper relates to a large literature on private labels. Private labels are standard prac-

tice of many offline retailers, accounting for almost 20% of products sold (Dubé, 2022). In comparison, we find that Amazon brands are only 2.5% of products sold in the Amazon order histories of our study participants, who are particularly active Amazon shoppers. Overall, the existing literature on private labels has found positive benefits of their introduction, by offering consumers cheaper alternatives of similar quality (Newmark, 1988), without negatively affecting competition (Adelman, 1949). Research has shown that there are a variety of reasons why retailers may offer private labels (Dhar and Hoch, 1997), from imitating national brands at lower prices (Scott Morton and Zettelmeyer, 2004), especially the most successful brands (ter Braak and Deleersnyder, 2018; Zhu and Liu, 2018), to ensuring quality (Hoch and Banerji, 1993) and offering a variety of premium and value options (Ter Braak, Dekimpe and Geyskens, 2013). Relatedly, Ailawadi, Pauwels and Steenkamp (2008) find that private labels increase store loyalty.

Previous work has also demonstrated how traditional retailers often preferentially treat their private labels (Kumar et al., 2007), by physically placing them prominently (Kotler and Keller, 2016), sometimes side by side with national brands, using similar packaging, discounts, free samples, and comparative messaging (Bronnenberg et al., 2015; Bronnenberg, Dubé and Sanders, 2020; Bronnenberg, Dubé and Joo, 2022). Despite the prevalence of these practices, regulators have taken a different approach towards Amazon and its private labels given the dominant position that Amazon has in the e-commerce market (Dubé, 2022).

The rest of the paper is structured as follows. Section 2 describes our study design and recruitment process. Section 3 presents summary statistics about our study population. The main results on the substitution between Amazon brands and non Amazon brands are described in Section 4. Section 5 discusses our analysis of survey responses about consumer perceptions of Amazon brands. Section 6 presents results about self-preferencing. Section 7 introduces our ongoing work in estimating a model of supply and demand. Finally, Section 8 concludes.

2 Study Design

Our study uses a custom browser extension called Webmunk. Webmunk is an extension similar to an ad blocker and can be installed on the Chrome browser of any computer. The extension has three crucial functionalities. First, it prompts users to perform specific tasks. Second, it tracks users' browsing behaviors on pre-determined websites. Third, it allows us to manipulate users' browsing experience to estimate the effect of various interventions. We discuss each of the three functionalities briefly.[7]

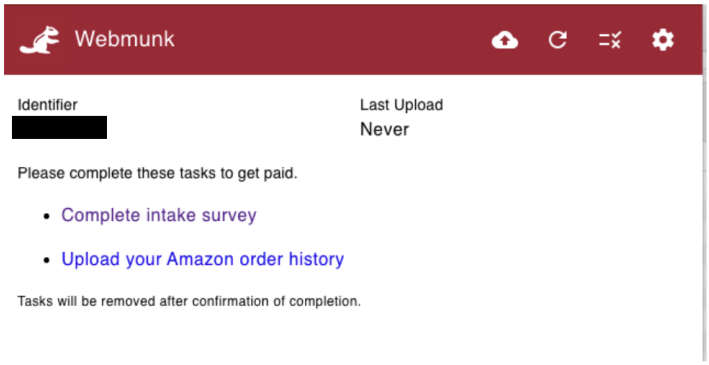
Users must complete a series of tasks that are part of the study. These tasks are shown in an extension pop-up window. Figure 1 shows that the pop-up window asks participants to fill a survey and share with us their past Amazon order history. Users click on each task in order

[7]For additional technical details, see Farronato, Fradkin and Karr (2024).

to start or continue it. After completion, the task disappears from the pop-up window.

As users browse the Internet, Webmunk tracks a selection of the URLs they visit. In particular, when browsing Amazon.com, the extension tracks search, product, cart, checkout, and wishlist pages, removing all personally identifiable information (such as credit card information or shipping addresses) before even storing the data. For pages within Amazon.com, the extension collects information on the products appearing on the pages, and a subset of the clicks the user performs. This data collection effort allows us to, for example, identify that a user searched for a *coffee mug* on Amazon.com, saw a list of search results, each with specific characteristics and position on the page, visited the product pages of a few of those products, and eventually added to cart and purchased one of them. Webmunk also tracks visits to other major e-commerce sites, such as Walmart.com and Target.com, but does not record any information except for the page URL.[8] This allows us to identify the extent to which users shop across many competing e-commerce sites.

Figure 1: Webmunk Tasks



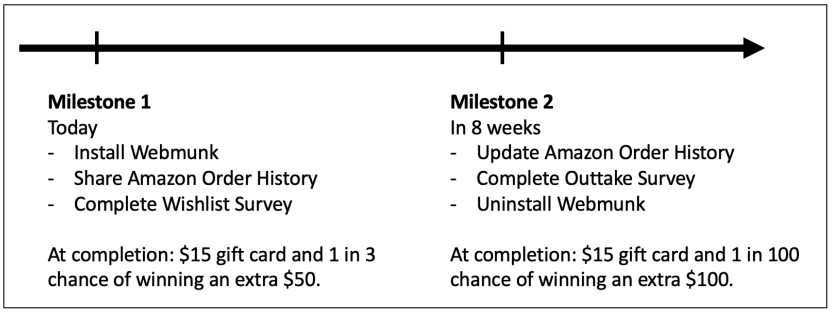
Finally, when users install the extension, Webmunk randomizes them into one of three treatment groups. In the control group, the extension does not modify anything of the user's browsing experience. In the *"Hide Amazon"* condition, the extension identifies and removes products associated with an Amazon brand. To do this, the extension checks the HTML for pre-determined strings related to Amazon Brands (e.g., 'Amazon Basics' and 'Goodthreads').[9]. The extension also checks if an item was flagged by Amazon as an Amazon brand.[10] When the extension identifies a product as an Amazon brand, it hides the HTML block corresponding

[8] A full list of domains tracked is available in Appendix C.

[9] We search for the following Amazon brands: 'Amazon Basic Care', 'Amazon Basics', 'Amazon Collection', 'Amazon Commercial', 'Amazon Elements', 'Amazon Essentials', '206 Collective', 'Amazing Baby', 'Buttoned Down', 'Cable Stitch', 'Core 10', 'Daily Ritual', 'Goodthreads', 'Isle Bay', 'Lark & Ro', 'Moon and Back by Hanna Andersson', 'Mountain Falls', 'P2N Peak Performance', 'Pinzon', 'Presto!', 'Simple Joys by Carter's', 'Solimo', and 'Spotted Zebra'.

[10] Amazon started including the Amazon brand badge to search results carrying an Amazon brand. Whenever an Amazon brand is advertised, Amazon shows the Featured from our brands flag below the product image rather than the Sponsored flag. The browser extension identifies both phrases 'Amazon Brand' and 'Featured from Our Brands' as denoting Amazon brands.

Figure 2: Study Timeline



to that product, and the rest of the webpage is automatically adjusted not to show any blank spaces. In the *"Hide Random"* treatment, the extension counts the Amazon-branded products appearing on the page, and randomly selects an equal number of products to be removed.

Appendix Figure A.1 displays the same search results page under the three different treatments. Panel *a* shows the search results for the control group when searching for *batteries*. Panel *b* shows that the four products identified as Amazon brands—the 5^{th}, 6^{th}, 7^{th}, and 9^{th} products in Figure A.1a—are removed from the search results and automatically replaced with the products that immediately follow them in search results. Panel *c* shows how four products (corresponding to the four Amazon-branded results) are removed at random: the 2^{nd}, 4^{th}, 8^{th}, and 9^{th} products in Figure A.1a. Note that when products appear in sequence—for example, in search results or in carousels of product recommendations contained at the bottom of product pages—the removal of each product is seamless.

Products can also appear in non-search surfaces on Amazon. We take a few strategies in these cases, since we are unable to precisely remove Amazon items in certain cases without negatively affecting the rendering of the page. In both the *Hide Amazon* and *Hide Random* treatments, we completely remove product comparison tables and recommendations of frequently bought together products that appear on the product page (Figure A.2), because a mix of private labels and non-private labels often appear together. In other cases, such as when Amazon brands are featured on the landing page (Amazon.com), or are listed in wishlists or past orders, we do not remove them from either treatment. As a result, even though we remove most Amazon branded products, there is still a small chance that a user sees and purchases an Amazon brand even in the treatment. We later show that the *Hide Amazon* treatment is effective at reducing the availability and purchase rates of Amazon brands.

Recruitment and Study Timeline. We recruited American adults through Facebook advertisements between mid-June and beginning of October 2023.[11] Users filled out an initial Qualtrics survey, which determined eligibility for the study and collected explicit user consent to participate. The survey is available in Appendix B. Three eligibility criteria are worth high-

[11] The study was approved under Harvard IRB21-1677.

lighting. First, participants must shop online primarily on a computer, given that Webmunk cannot be installed on a mobile phone or tablet. In our case, 52% of the users satisfy this condition. Second, participants must use Chrome for their regular browsing, because Webmunk only works on Chrome. This is not a big constraint, since 76% of the respondents who shop on a computer use Chrome. Third, users needed to be frequent Amazon shoppers (shop at least 2 to 3 times a month on Amazon).

Upon eligibility and consent to participate in the study, participants install Webmunk through the Chrome Web Store and register with their email address. The email address serves two purposes. First, we use it to check that the user gave their explicit consent to participate in the study, by matching the email address to answers to the initial survey via the Qualtrics API. Only users who are eligible, consented, and gave matching emails in the initial survey and on the browser extension are enrolled into the study. Second, we use the email address to send participants gift cards as compensation for participating in the study.[12]

Figure 2 presents the experiment timeline from the participants' perspective. Upon installing Webmunk, participants are asked to fill out an intake survey, engage in six incentivized shopping tasks (denoted *incentivized shopping tasks* and described in more detail below), and share their past Amazon order history from January 2022 to the day of enrollment.[13] At completion of these tasks, which we denote as *Milestone 1*, participants receive a $15 gift card and a one in three chance of winning an extra $50 (this additional compensation is designed to make the shopping tasks incentive compatible, and is described below). Users are then asked to keep the extension installed for eight weeks. At the end of the period, we request an update to their Amazon order history, a final survey designed to quantify their satisfaction for products purchased on Amazon, and their preferences towards Amazon brands. The outtake survey is also available in Appendix B. When they complete these final tasks (*Milestone 2*), users receive an additional $15 gift card and a 1/100 chance to win an extra $100.

Incentivized shopping tasks. Upon enrollment, users are asked to fill out an initial survey, available in Appendix B. In this survey, we ask for basic demographic characteristics and shopping behavior. In addition, we ask participants to engage in a set of incentivized shopping tasks. These shopping tasks are designed to allow us to easily compare choices and behavior across all participants holding constant the product categories. This gives us substantially more statistical power than just looking at organic browsing behavior, which exhibits massive heterogeneity, as we confirmed in pilot studies.

The shopping tasks worked as follows. First, we asked participants to select preferred categories from pre-defined lists. They were then instructed to search on Amazon for products

[12]Webmunk employs industry-standard encryption protocols so that personally identifiable information about users and their actions is not stored in plain-text or observable in transit over the Internet. Additionally, to obfuscate identities further, the mapping between the email address and the user's anonymous identifier is stored separately from the user data collected by Webmunk, which are associated to the anonymous identifier.

[13]The order history is automatically crawled by Webmunk after participants click on "Upload your Amazon order history" on Webmunk's pop-up window (see fig. 1).

Table 1: Product Meta-Categories and Categories in the Incentivized Shopping Tasks

Meta-Category	Category
Health:	Pain reliever, acid reducer, allergy medication, moisturizer
Paper products:	Paper towels, envelopes, notepads, toilet paper
Household items:	Trash bags, hand soap, umbrella, laundry detergent
Apparel:	Socks, t-shirt, shorts
Electronics:	Extension cord, monitor cable, batteries, charger
Personal care:	Nail clippers, deodorant, toothpaste, comb/brush

within those categories to add to an Amazon wishlist especially created for our study. Informed by pilot studies, we selected categories (Figure A.3) within health, paper products, household items, apparel, and electronics that contain a sizable share of Amazon brands. The categories within personal care were instead included as a placebo, because there were no Amazon-branded products in those categories. One concern with shopping tasks is that they are artificial and participants may have no need for the items they are purchasing. For this reason, we picked categories of products that are likely needed in a household. The most popular categories ended up being moisturizer in health; toilet paper in paper products; laundry detergent in household items; t-shirt in apparel; charger in electronics; and deodorant in personal care.

In order to make the product choices incentive compatible, we randomly select one out of every three study participants who successfully completed the incentivized shopping tasks. For them, we randomly picked one product in their wishlist, we purchased it and shipped it to the address listed in the wishlist (not visible to us). The difference between $50 and the price we paid for the product was sent to the study participant in the form of an additional gift card. In practice, the average price of the products added to the wishlist is around $21. Using data from the participants' prior order histories on Amazon, we confirm that this price is similar to the price of their average past order (at $23 from Table 4).

3 Descriptive Statistics and Balance Checks

This section presents descriptive statistics about our study population and covariate balance tests across the treatment groups. We start with Table 2, which presents the number of participants across the various steps of the experiment. 14,885 users started the eligibility survey. Of those, 27.7% were eventually eligible to participate in our study, but only 19.4% formally consented to participate. Attrition remained high in the following steps, with 13.9% of the users who installed the extension, 8.4% who completed milestone 1 (although we have more participants who completed at least one of the two tasks required for milestone 1), and 6.1% who finished the entire study. In our pre-registration plan, based on pilot studies, we aimed to

Table 2: Number of Participants across the Experiment Funnel

	N	Percent	Percent Female	Average Age
Started Eligibility Survey	14,885	100%		
Initial Consent	13,495	90.7%	80.8%	46
Eligible For Study	4,125	27.7%		
IRB consent	2,885	19.4%		
Successful Webmunk Install	2,063	13.9%		
Successful Milestone 1	1,255	8.4%	81.9%	44.6
Successful Incentivized Tasks	1,541	10.4%		
Successful Amazon Order History	1,433	9.6%		
Successful Milestone 2	912	6.1%	81.1%	44.4

Notes: This table displays the number of participants across the various steps of the experiment. To be eligible for the study, individuals needed to be US residents, shop online primarily on a computer that is not shared with other household members, use Chrome for their regular browsing, shop at least 2-3 times a month on Amazon, and not work at Amazon. Milestone 1 involves completing the incentivized shopping tasks and uploading the Amazon order history (each of the two tasks separately are displayed as indented rows). Milestone 2 denotes the completion of the final survey and the uploading of the Amazon order history at the end of the study.

recruit 1,000 - 1,200 people who would complete milestone 1.[14] We compare age and gender along the experiment funnel, which are the two demographic characteristics we ask at the very beginning. The average person who filled out the eligibility portion of the survey is 46 years old and 80.8% self-identify as female. The population who completed the study is slightly younger (44.4 years old) and equally slanted towards women (81.1%). The large proportion of women is clearly not representative of the US population and likely related to the fact that the Facebook ads advertised an online study of shopping behavior. However, women are more likely to handle household-related spending, which is what we are interested in studying here. According to Numerator, 75% of Amazon shoppers are female.[15]

For participants who completed the incentivized shopping tasks (a component of Milestone 1), we have more demographic characteristics. Participants reside across the US, with the largest states being California (9.1% of participants), Massachusetts (7.4%), New York (6.6%), Texas (6.1%), Pennsylvania (6%), and Florida (5.7%). Their income ranges from less than $25,000 (13% of them) to over $200,000 (9%). The vast majority of the participants are white (74%), followed by Black and Asian participants (both at 10%). A large share, 33%, have a graduate degree, and another 24% have a bachelor degree. 27% live alone, whereas 19% live in a household of at least four people. 30% of the participants have children. Perhaps the most surprising fact is the share of online spending. Based on self-reported metrics, 57% of the respondents spend at least 50% of their monthly spending online.

Our demographic characteristics allow us to compare our study population with the broader US population. Appendix Figure A.4 compares the study population to the US population across

[14] AEARCTR-0011370. `https://doi.org/10.1257/rct.11370-1.0`.

[15] `https://www.homepagenews.com/retail-articles/numerator-average-amazon-shopper-spent-2662-on-site-in-2023/`, accessed June 2024.

Table 3: Covariate Balance—Demographics

	White (1)	Income Code (2)	Household Size (3)	Spend Share Code (4)	Prime Member (5)	Ad Blocker (6)
Constant	0.752***	3.717***	2.382***	2.804***	0.819***	0.224***
	(0.017)	(0.074)	(0.050)	(0.035)	(0.016)	(0.017)
Hide Amazon	-0.024	0.103	-0.012	-0.042	-0.005	0.014
	(0.025)	(0.105)	(0.070)	(0.049)	(0.022)	(0.024)
Hide Random	-0.014	-0.028	0.112	-0.011	0.023	0.023
	(0.025)	(0.105)	(0.072)	(0.050)	(0.022)	(0.025)
R^2	0.001	0.001	0.002	0.000	0.001	0.000
Observations	1,805	1,805	1,805	1,805	1,805	1,805

Notes: This table presents regressions where the outcome variable is regressed on treatment assignment. An observation is a participant who answered these questions in the intake survey. Restricting attention to participants who successfully completed the incentivized shopping tasks or milestone 1 does not change the results. ***$p < 0.01$; **$p < 0.05$.

four demographic characteristics: geographic location across states (top left), household size (top right), income (bottom left), and race (bottom right). The plots show a remarkably similar distribution between our study participants and the US population, with some minor exceptions. For geopgrahies, the North-East is overrepresented among the top states (Massachusetts, New York, Pennsylvania), whereas California, Texas, and Florida are underrepresented. For income, the tails (less than $25,000 and over $200,000) are slightly underrepresented in our study. For race, the white and Asian populations are overrepresented, whereas the Black and Hispanic populations are underrepresented.

Balance Checks. We perform three sets of checks to verify that: 1) demographics are balanced across the treatment groups; 2) there is no differential attrition across the treatment groups; and 3) since we rely on the extension collecting user data, there is no differential tracking across treatment groups.

We confirm that participants across the treatment groups have similar demographics and shopping behavior by running linear regressions of user characteristics on treatment dummies. The constant term refers to the control group, so the coefficient estimates on *Hide Amazon* and *Hide Random* are tests for differences in average outcomes between each of the treatment groups and the control. Table 3 presents the results for consumer demographics, based on participants' survey answers. The table confirms that on all demographic dimensions—race, income, household size, online spending, whether they are Prime members, and whether they have an ad blocker installed—users are statistically indistinguishable across experimental conditions. Note that the share of participants with a Prime membership is high, at 81.9% in the control group, whereas the share of participants who have an ad blocker is only 22.4%.[16]

Similarly, users are comparable across treatment conditions in their shopping behavior on Amazon. Table 4 uses data collected by the browser extension about users' Amazon orders

[16]Table A.1 performs analogous tests for the participants who completed Milestone 1.

Table 4: Covariate Balance—Shopping Behavior on Amazon

	N. Orders (1)	Items per Order (2)	Spending (3)	Avg Item Price (4)	Share 1P Items (5)	Share Amazon Branded Items (6)
Constant	159.456***	1.411***	4,960.817***	23.331***	0.416***	0.025***
	(7.628)	(0.013)	(238.536)	(0.394)	(0.008)	(0.002)
Hide Amazon	4.658	0.052**	26.039	-0.403	-0.003	-0.004
	(10.293)	(0.023)	(314.597)	(0.531)	(0.011)	(0.002)
Hide Random	15.622	0.028	202.029	0.221	-0.012	0.000
	(10.990)	(0.022)	(329.055)	(0.786)	(0.011)	(0.003)
R^2	0.002	0.003	0.000	0.001	0.001	0.002
Observations	1,461	1,461	1,461	1,458	1,461	1,461

Notes: This table presents regressions where the outcome variable is regressed on treatment assignment. ***$p < 0.01$; **$p < 0.05$.

from the beginning of 2022 until enrollment in the study. Users have a comparable number of past orders (around 160), spending (around $5,000), average item price ($23), share of sales by Amazon (42%), and share of Amazon branded items (2.5%). One notable exception is in column (2), where users in the *Hide Amazon* condition purchase a slightly larger number of items for each order compared to the control group, although the difference is less than 4%.[17] Note that the average share of items sold by Amazon roughly matches publicly available figures on the share of first-party sales on Amazon.[18]

Since users' browsing experience on Amazon is manipulated in the treatment groups, one may worry that such manipulation may worsen users' browsing experience enough to lead to differential attrition across experimental conditions. To test for this, we run linear probability models of study completion (i.e., completing Milestone 2) on treatment dummies. Of all 2,063 participants who installed the extension, 44% successfully completed the study, and this rate was not impacted by the assigned treatment condition (column (1) of Table 5). Results remain similar if we focus on the 1,255 participants who completed Milestone 1 (column (2)).

Before concluding this section, we need to check whether users in the treatment groups were less likely to be tracked by Webmunk. Note that users had the possibility to uninstall the extension or turn it off temporarily. Such actions would limit our ability to manipulate and track users' browsing behavior for the duration of the interruption. For every item included in a user's wishlist, we verify whether that item's product page was tracked on Webmunk. Table 6 displays results of linear probability models. On average, just over 75% of items were tracked through Webmunk, and this share was not significantly lower in either of the treatment conditions. The point estimates are small and statistically indistinguishable from zero.[19]

[17] Table A.2 performs analogous tests for the participants who completed Milestone 1.

[18] `https://www.statista.com/statistics/1309709/amazon-e-commerce-retail-sales-business-models/`.

[19] Table A.3 performs a similar test for whether products in the wishlist are found in search results tracked by Webmunk.

Table 5: Study Completion Rate

	Milestone 2 (1)	Conditional Milestone 2 (2)
Constant	0.435***	0.729***
	(0.019)	(0.022)
Hide Amazon	0.011	-0.031
	(0.027)	(0.031)
Hide Random	0.010	0.001
	(0.027)	(0.031)
R^2	0.000	0.001
Observations	2,063	1,255

Notes: This table regresses whether an individual finished the study on the treatment assignment. In column (2), the regression is only for the set of individuals who Milestone 1. ***$p < 0.01$; **$p < 0.05$.

Table 6: Webmunk Tracking Rate of Product Pages

	Tracked Through Webmunk (1)	Tracked — M1 (2)
Constant	0.757***	0.781***
	(0.018)	(0.019)
Hide Amazon	-0.006	-0.010
	(0.025)	(0.027)
Hide Random	-0.001	0.000
	(0.025)	(0.028)
R^2	0.000	0.000
Observations	9,883	7,723

Notes: This table regresses whether a product in the wishlist was tracked through Webmunk on treatment assignment. Column (2) limits to only those who completed milestone 1. ***$p < 0.01$; **$p < 0.05$.

4 Treatment Effects on Purchase and Search in the Incentivized Shopping Tasks

In this section, we study the causal effects of removing Amazon brands on the shopping behavior and choices of participants. We focus on the incentivized shopping tasks, for which we have comparable data across conditions and categories.

We first consider the choices individuals make. Individuals for whom Amazon brands are exogenously not available must substitute to other products. Of key interest is which types of products they substitute towards. If consumers substitute towards very different products (in terms of prices and characteristics), then Amazon brands are likely offering products that are distinctly positioned and potentially of high value to consumers. Alternatively, if consumers substitute towards very similar products, then Amazon branded products are likely increasing competition but are not offering fundamentally different products. Lastly, to the extent that Amazon self-preferences, the offering of these products could be harmful to consumers.

We study these effects in a regression framework. We pre-registered specifications of the following type:

$$y_{ic} = \beta Hide_Amazon_i + \gamma_c + \epsilon_{ic}, \tag{1}$$

where y_{ic} denotes characteristics of the product chosen by participant i in category c. These characteristics are tracked through Webmunk, hence are missing for some products. As Table 6 shows, there is no differential tracking across treatment groups. The fixed effects γ_c are included to control for category differences (where the categories are defined as in Table 1). $Hide_Amazon_i$ is a dummy equal to 1 if the user is in the *Hide Amazon* treatment group. We compare the choices of users in the *Hide Amazon* treatment group with the control and *Hide Random* group separately. We cluster standard errors at the participant level.

Before turning to the results, Table 7 presents summary statistics, separately for meta-categories where Amazon brands are present and for personal care, where Amazon branded products do not yet exist. The first row shows that our treatment is effective at reducing the availability of Amazon brands. In the control and *Hide Random* groups, between 9 and 10% of products selected carry an Amazon brand. In the *Hide Amazon* group, that share drops to 2%.[20] In the left-hand side of the table, we highlight two differences between the *Hide Amazon* group and the other experimental conditions. First, when Amazon brands are not available, users select products that have accumulated a much lower number of reviews (18,956 compared to over 25,000 in columns (2) and (3)). Second, users choose products that are 4-5 percentage-point less likely to be shipped fast, where fast delivery is defined as delivery by the following day. On the right-hand side of the table, these differences disappear, which is expected given

[20]Note that people could find Amazon branded products, for example, in their prior orders. Once they land on a product page for an Amazon brand, our extension does not forbid users in the treatment group from selecting the item and adding it to the wishlist (or purchasing it).

Table 7: Summary Statistics

	Meta-Categories with Amazon Brands			Personal Care categories without Amazon Brands		
	Control	Hide Random	Hide Amazon	Control	Hide Random	Hide Amazon
	(1)	(2)	(3)	(4)	(5)	(6)
Amazon Brand	0.09	0.1	0.02	0	0	0
Price ($)	21.15	20.45	20.56	16.81	16.23	16.02
Average Star Rating	4.5	4.48	4.51	4.45	4.45	4.49
Nr. Reviews	26,759	25,957	18,956	12,911	13,850	13,929
Prime Eligible	0.75	0.77	0.75	0.78	0.8	0.78
Free Delivery	0.93	0.92	0.93	0.95	0.97	0.95
Fast Delivery	0.51	0.52	0.47	0.56	0.58	0.53
Sold by Amazon	0.52	0.52	0.5	0.37	0.47	0.47

Notes: This table presents summary statistics for the incentivized shopping tasks. The first row shows the share of products selected by users that are Amazon brands. The other rows show the average price, average star rating, number of reviews, share of products that are Prime eligible, share of products that have free delivery, share of products that have fast delivery, and share of products that are sold by Amazon.

that our extension has no brands to hide in personal care categories.[21]

Table 8 presents the treatment effect results. Panel *a* compares the *Hide Amazon* treatment group with the control group. Column (1) confirms that the treatment was effective at reducing the availability of Amazon brands in the treatment group. Yet, many characteristics of the selected products by treated and control users are indistinguishable from one another: prices, average star rating, Prime eligibility, and free delivery are all comparable. On the other hand, the number of reviews is significantly lower (the estimate in column 4 implies a 31% reduction) if the product is selected excluding Amazon brands. Additionally, the substitution could favor third-party sellers, as evidenced by the 2.6 percentage point decrease in the share of products that are directly sold by Amazon (column (8), although the coefficient is not statistically significant).

Because our extension removes sections of the product pages—such as product comparisons and frequently bought together recommendations—that may affect consumer choice beyond the simple absence of Amazon brands, Panel *b* of Table 8 compares the *Hide Amazon* treatment with the *Hide Random* treatment, both of which experience the same type of page modifications. Results are similar to those in Panel *a* with two notable exceptions. First, the substitute product when Amazon brands are not available is almost 5 percentage points less likely to be delivered within the following day. Second, the reduction in the share of products sold by Amazon is of similar magnitude to Panel *a* (again, not statistically different from zero).

Overall, the results suggest that, when Amazon brands are not available, consumers tend to find fairly similar alternatives. Although we have limited statistical power, if anything the absence of Amazon brands leads consumers to choose slightly worse products on two dimensions: online reputation and delivery speed. Appendix Table A.5 confirms that many of these

[21] We note one peculiar difference between the control group and the two treatment groups. The share of selected products that are sold by Amazon is 10 percentage points lower than in either of the treatment groups. We do not know why this may be, but we are exploring this pattern.

Table 8: Treatment Effect Regressions

	Amazon Brand (1)	Price (2)	Stars (3)	Reviews (4)	Prime Eligible (5)	Free Delivery (6)	Fast Delivery (7)	Sold by Amazon (8)
Panel a: *Hide Amazon* vs. Control								
Hide Amazon	-0.079***	-0.719	0.016	-8,304***	-0.005	-0.002	-0.036	-0.026.
	(0.008)	(0.452)	(0.021)	(1,768)	(0.026)	(0.009)	(0.022)	(0.015)
R^2	0.082	0.105	0.057	0.101	0.023	0.071	0.081	0.295
Observations	4,200	3,954	4,200	4,200	4,200	4,200	4,200	3,887
Category FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Panel b: *Hide Amazon* vs. *Hide Random*								
Hide Amazon	-0.083***	0.066	0.025	-7,369***	-0.019	0.002	-0.047*	-0.024
	(0.008)	(0.463)	(0.021)	(1,747)	(0.025)	(0.009)	(0.023)	(0.015)
R^2	0.081	0.109	0.060	0.097	0.030	0.082	0.074	0.292
Observations	4,125	3,886	4,125	4,125	4,125	4,125	4,125	3,840
Category FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: The pre-registered primary outcomes of interest are the following: whether the chosen product carries an Amazon brand (column (1)) price (column (2)), number of reviews (column (4)), whether the chosen product is sold by Amazon (column (8)). The other outcomes are secondary outcomes. ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$, .$p < 0.10$.

differences disappear in the personal care meta-category, where we would not expect our treatment to have any effect. Additionally, Appendix Table A.6 combines the observations from the personal care meta-category and all other meta-categories to estimate difference-in-differences coefficients, where the first difference is given by users being randomized in multiple treatments, and the second difference comes from comparing categories with and without Amazon brands.

The substitution towards products with fewer reviews is the largest and most robust effect of removing Amazon brands, and is confirmed across many specifications. Its interpretation is non-trivial, however. To the extent that the number of reviews signals popularity and underlying quality, the fact that the substitute product has fewer reviews means that it is worse. However, Amazon does control which products users see when searching on the platform, thereby potentially biasing purchases—and thus number of reviews—towards its own products.

Effects on Search. Even if users find close substitutes to Amazon brands, the absence of these Amazon brands may still result in changes in search behavior. For example, if users need to search for longer or click on more products to find a suitable substitute, this could be a sign that the absence of Amazon brands is harmful to the user experience. One of the advantages of our setup is that we can observe all the search behavior.

To measure the effect of the treatment on search behavior, we consider several outcomes. First, we look at the number of searches users perform for each category of shopping task. We expect that if consumers are not able to find what they are looking for with an initial search,

Table 9: Effects on Search

	# Search Pages (1)	# ASINs visited (2)	# Product Page Visits (3)
Hide Amazon	-0.090	-0.065	-0.139
	(0.106)	(0.098)	(0.173)
R^2	0.084	0.134	0.084
Observations	4,947	4,947	4,947
Category fixed effects	Yes	Yes	Yes

Notes: This table presents regressions of search outcomes on treatment status (Hide Amazon or Not). The number of search pages refers to the number of distinct search pages visit, number of ASINs visited is the unique number of products visited, and number of product pages is the number of product pages visited, including duplicates. $p * ** < 0.001$; $**p < 0.01$; $*p < .05$.

then they may refine the search in a variety of ways. Of particular interest is searches with different keywords.[22] Second, we look at the number of unique products users visit. This is a measure of the consideration set. Third, we look at the total number of product pages users visit (including duplicate visits to a specific product page). This is a measure of overall search effort and deliberation.

In order to map search terms and product pages to our categories in the incentivized shopping tasks, we need to map browsing behavior on Amazon to activity related to the incentivized tasks. We first restrict attention to logs between the start and end times of the survey with the instructions on the incentivized shopping tasks (those times are available on Qualtrics). Then, we use ChatGPT 4.0 to classify search terms (for searches) and product titles (for product pages) to the 24 categories from Table 1 (or to an "Other" category). With this mapping, for every category in the incentivized tasks we can compute the number of search terms, the number of product pages visited, and the number of unique ASINs (Amazon product identifiers) visited. With linear regressions as in Equation (1), we test whether these outcomes are different between *Amazon Hide* and the control group.

Table 9 displays the results. We find no statistically significant differences in the number of searches, unique products visited, or total product pages visited across the treatment groups. The absence of Amazon brands does not lead to meaningful changes in search behavior. When Amazon products are not available, people search similarly, indicating that they find suitable substitutes without much additional effort.

5 Survey Evidence on Consumer Preferences

Although we find no differences in search behavior across treatment groups, it is possible that users are less satisfied with the products they choose when Amazon brands are not available. To study this, in the final survey, we asked a variety of questions about user satisfaction with the

[22]Users rarely use search filters, such as price or brand filters that are commonly available on Amazon.

Table 10: Effects of Treatment on Participant Satisfaction

	Price (1)	Product Quality (2)	Overall Rating (3)
Constant	4.039***	4.416***	4.364***
	(0.095)	(0.078)	(0.074)
Hide Amazon	-0.002	0.152	0.093
	(0.132)	(0.109)	(0.103)
R^2	0.000	0.012	0.005
Observations	158	158	158

Notes: This regression presents treatment effect regression about participants' satisfaction with price, product quality, and overall (on a scale from 1 to 5). $p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$

products they purchased on Amazon (including, when applicable, the product we purchased from their wishlist), their preferences towards Amazon brands, and their general shopping behavior.

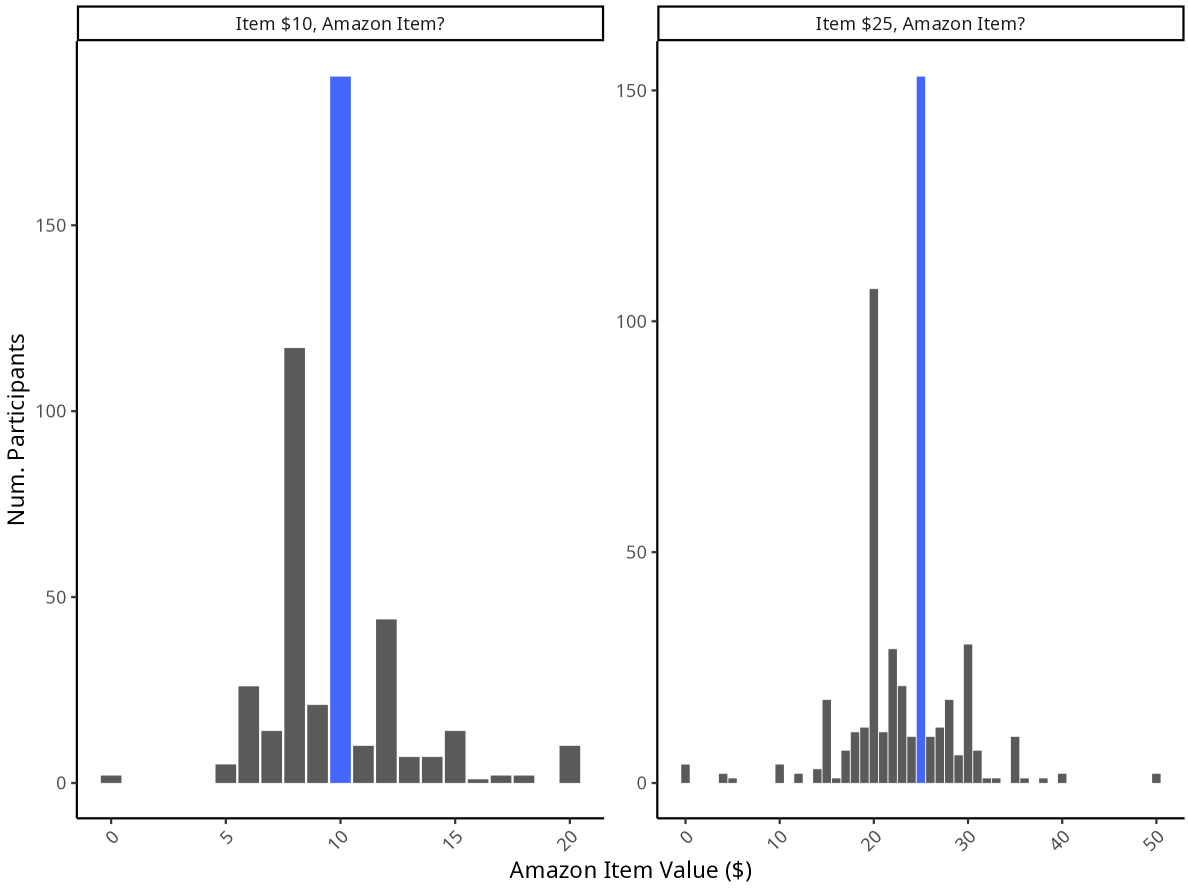
First, for those who received an item from the incentivized shopping tasks, we asked how they would rate the product, overall and separately for price and quality. Table 10 displays the results of regressions where satisfaction (on a scale from 1 to 5) is regressed on treatment assignment. Note that the number of observations is substantially lower since a) only a third of the participants received an item from their wishlist, and b) there was substantial attrition between milestone 1 and milestone 2 (see Table 2). We find no differences in user satisfaction, overall nor for price or quality separately. Even if the statistical power of this analysis is limited due to small sample size, the point estimates are fairly small, so we can reject large differences across treatment and control groups.

Next, we consider a set of survey questions in which we asked users about their preferences for 'Amazon-branded' products such as Amazon Basics, Presto!, and Solimo. One set of questions asked how much participants would be willing to pay for an Amazon product with the same characteristics (such as delivery and ratings) as a product they wanted that cost $25 (for 25% of the respondents) or $10 (for another 25%). The other half of participants receive the symmetric question wording, where they asked their willingness to pay for a non-Amazon item when an Amazon product is the one they want.

Figure 3 displays the distributions of these responses. The left panel plots willingness to pay for the Amazon product when the reference item costs $10. The right panel is analogous for a $25 reference item. A large share of respondents value an Amazon branded product exactly the same as another product. Yet, there is large heterogeneity above and below the reference value. On average, participants are willing to pay less for an Amazon brand than a comparable alternative. When the alternative costs $10, participants value Amazon items -$0.20 less. When the alternative costs $25, participants value Amazon brands -$1.75 less. We obtain similar results for the alternative question wording, in which people are asked their willingness to pay for a non-Amazon item when an Amazon product is the one they want (Appendix Figure A.5).

These preferences are affected by slight changes in ratings and delivery characteristics.

Figure 3: Willingness to Pay for Amazon Branded Products



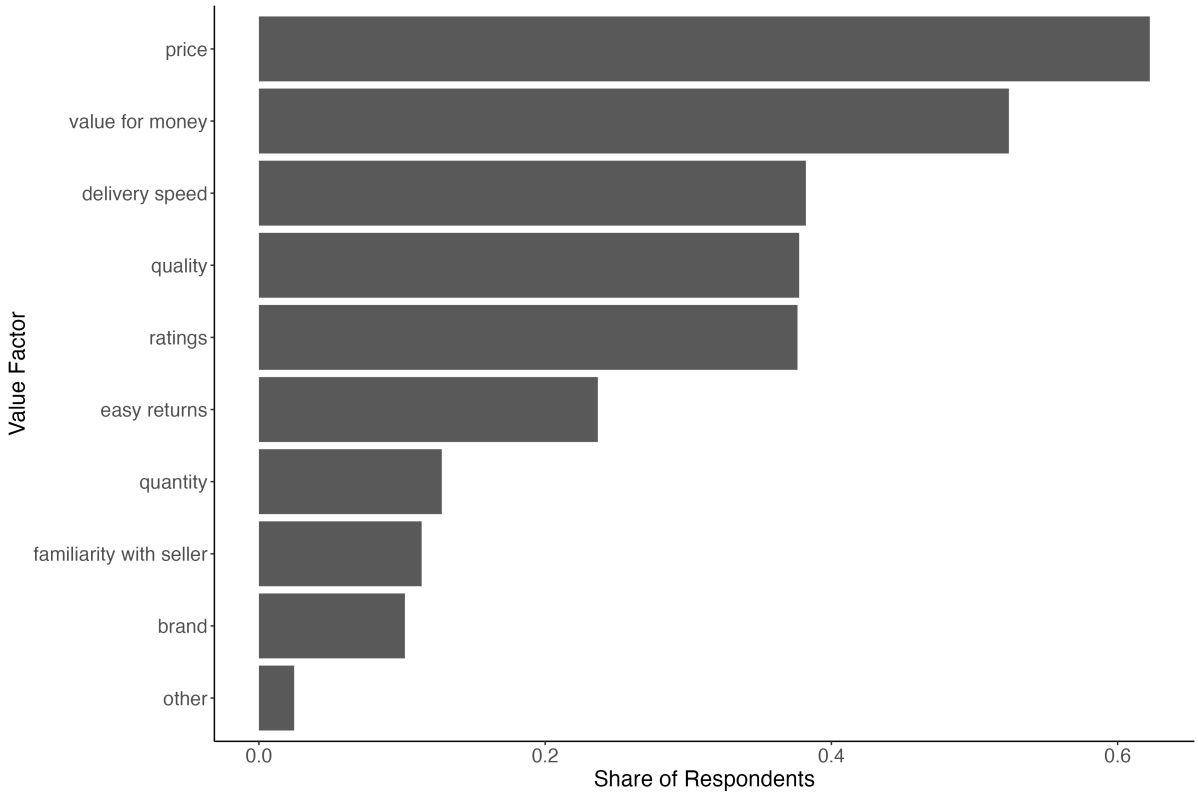
Notes: This plot presents the distribution of participants' responses to hypothetical questions in which they are asked their willingness to pay for an Amazon branded product, if a similar non-Amazon branded product they want costs either $10 (left) or $25 (right).

To test this, we asked participants how they may trade off Amazon brand with ratings and delivery speed. We first consider the trade off between Amazon brand and ratings. We asked the willigness to pay for an Amazon brand if it had 0.5 lower star rating than the alternative product (4 versus 4.5 stars). We find that consumers are highly sensitive to the rating difference. In particular, for a $10 reference item, their value for the Amazon branded product drops from $9.80 when star ratings are the same (Figure 3) to $8.25 when ratings are 0.5 stars lower. For a $25 reference product, the difference decreases from -$1.75 to -$5.49.

We find that participants also care about delivery speed, but less so than ratings. We asked how much they would be willing to pay for an Amazon product with a faster delivery speed (1 day vs 3 days for the alternative product). Participants were willing to pay $0.59 more for the Amazon product in the $10 condition, and -$0.49 less in the $25 condition.

To finish, we asked individuals to list the three most important factors when shopping online. Figure 4 displays the distribution of responses. Price and value for money were the most important, with more than 50% of respondents listing them as a top factor. Delivery speed, quality, and ratings were chosen by almost 40% of respondents, which corroborates the results on willingness to pay between Amazon and non-Amazon brands described above. Easy returns was also important for more than 20% of respondents. Lastly, quantity, familiarity with seller, and brand were the least important product features.

Figure 4: Share of Respondents Valuing Each Factor



The survey results provide additional evidence that Amazon branded products are not much worse than alternative products on average, but that there is large heterogeneity around that mean. A sizable group of people is willing to pay more for Amazon brands than similar alternatives. We also find that relative preferences for Amazon brands vs. other products can be easily reversed by changes in delivery speed and ratings, which is consistent with our findings on substitution patterns described in Section 4.

Table 11: Comparing Amazon Brands vs. Other Products in Search Results

Variable	Other Products	Amazon Brand
Share Sponsored	0.21	0.191*
Share Prime	0.727	0.75*
Share Fast Delivery	0.472	0.569*
Share Free Delivery	0.853	0.907*
Num. Ratings	10,807	68,979*
Average Stars	4.614	4.642*
Average Price ($)	22.12	16.74*
Average Rank	36.91	27.89*
Num. Products	181,256	14,189

*Notes: This plot compares the characters of Amazon branded vs non-Amazon branded products that show up in search results during the incentivized shopping tasks. *p< .05*

6 Tests of Self-Preferencing

When participants do not have access to Amazon brands, they choose other products with fairly similar characteristics. Our analysis so far suggests that this substitution happens without meaningful changes to search behavior. Here, we test whether in the control group, consumers choose Amazon brands at least in part because Amazon prioritizes its own products in search results.

On average, Amazon brands are better than the typical product appearing in the same search results. Table 11 shows the comparison for products appearing in searches related to the wishlist survey. Amazon brands (second column) are more likely to be Prime eligible, have faster and free delivery, display a substantially higher number of ratings (although the average star rating is quantitatively very similar), cost less, and, at least in part for these reasons, are ranked higher than other products. In Farronato, Fradkin and MacKay (2023), we showed that even controlling for these observables, Amazon brands are ranked higher than observably similar products. We confirm this is the case here as well. However, this should not be taken as evidence that Amazon unduly prioritizes its own products in search results. Amazon has access to additional information related to consumer preferences (such as conversion rates or returns), which can in principle fully explain the position of Amazon brands in search results. Without access to internal data, this approach is futile in testing for self-preferencing.

To test for self-preferencing, we need to have a clear definition of what it means for Amazon to give priority to its own brands. The Digital Markets Act (DMA) defines *self-preferencing* in Article 6(5). According to the article, the prohibition on self-preferencing means: *"The gatekeeper shall not treat more favorably, in ranking and related indexing and crawling, services and products offered by the gatekeeper itself than similar services or products of a third party. The gatekeeper shall apply transparent, fair and non-discriminatory conditions to such ranking."*[23]

The definition requires Amazon not to discriminate between own and third-party products

[23] `https://www.bruegel.org/sites/default/files/2022-12/PC%2022%202022_3.pdf`.

when presenting them to consumers. So, it seems logical to apply a test for discrimination based on relevant outcomes. Becker (2010) offers such a test, later expanded by Aguiar, Waldfogel and Waldfogel (2021) and Reimers and Waldfogel (2023). According to this test, a platform is biased *in favor* of a product if the product attains smaller success conditional on its ranking in search results. We use the product addition to the wishlist as a proxy for success. Intuitively, the regulator requires products to be fairly treated by the platform based on consumer preferences, so success needs to be related to demand. Fair treatment concerns all decisions that the platform makes about product positioning on Amazon's pages. Since a large share of products are discovered through search results (Farronato, Fradkin and MacKay (2023)), an obvious place to explore fair treatment is in the ranking of relevant search results.

We test for self-preferencing by estimating the following linear probability model:

$$added_to_wishlist_{ij} = \alpha * amazon_brand_{ij} + \gamma_{ra(ij)} + \gamma_{rd(ij)} + \mu_{s(ij)} + \epsilon_{ij}, \tag{2}$$

where an observation is a search result j in search spell i. The outcome variable is equal to 1 if the product j was eventually added to the wishlist.[24] We have controls for the assigned rank ($\gamma_{ra(ij)}$, the rank organically set by Amazon), the displayed rank ($\gamma_{rd(ij)}$, when Webmunk removes products the rank of the remaining products is adjusted accordingly), and the search spell ($\mu_{s(ij)}$, identified by the search term, searcher, and time of search combination). If Amazon preferenced its own brands, we would expect to estimate a negative α coefficient, implying that, conditional on the same rank position, customers are less likely to pick Amazon brands compared to other products. Such a result would identify a disconnect between Amazon's product ranking and consumer choices: the ranking would favor Amazon brands above and beyond what would be explained by consumer preferences (presumably because of short-term or long-term profit objectives).

The estimates of Equation (2) are presented in Table 12. Column (1) imposes a linear relationship between the probability that users add a product to the wishlist and its assigned and displayed ranks. Column (2) controls for the two ranks more flexibly, by including fixed effects for each of them separately. The coefficients of interest are those on "Amazon Brand." Both of them are positive and statistically significantly different from zero. The size of the coefficients is also very large. When we compare it with the baseline probability of adding any of the products in the search results to the wishlist (which is 1.7%) the coefficient in column (2) implies a 59% increase in the selection probability. This is a large effect, and one that is in direct contradiction with self-preferencing.

[24] The selection does not need to be directly from the search results. For example, a user may select the product from the product recommendations suggested on a different product page. Because search on Amazon typically starts on the search box, we look at the beginning and the end of the funnel for now.

Table 12: Test of Self-Preferencing

	Added to Wishlist	
	(1)	(2)
Amazon Brand	0.017***	0.010***
	(0.003)	(0.002)
Displayed Rank	0.003***	
	(0.001)	
Assigned Rank	-0.003***	
	(0.001)	
R^2	0.008	0.028
Observations	260,793	260,793
Search Spell FE	Yes	Yes
Displayed Rank FE		Yes
Assigned Rank FE		Yes

Notes: This table displays regressions of whether a product was added to a wishlist during incentivized shopping tasks, as a function of its ranking in search results. ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$.

7 Model (Preliminary)

We are interested in developing a model of demand and supply that will allow us to credibly estimate the welfare effects of private labels. In our model, consumers have heterogeneous preferences and choose among differentiated goods. The role of the platform is to surface products for consumers to consider when choosing what to purchase. The platform surfaces products in a way that maximizes a weighted combination of its short-term profits, consumer surplus, and supplier surplus (Castillo (2023); Donnelly, Kanodia and Morozov (2024); Gutierrez (2022). Suppliers understand the platform's ranking policies and make optimal pricing decisions. This allows us to compute an equilibrium with and without private label products.

Demand. We assume that consumers make a discrete choice over the products they observe while searching for a product in a category. These products could be observed either on the search results page or on the product page. Consumer i's consideration set J_i includes all ASINs appearing on search results page, product pages , and the chosen product. We abstract away from the details of the search process since we estimated precise null treatment effects on measures of search behavior (i.e., clicks on product pages, number of searches).

We now describe the demand model. We observe a set of characteristics for each product in the consideration set. These include price, Amazon brand, major brand, average star rating, number of reviews, prime eligibility, delivery speed, sponsored status, and various badges. Because we observe so many products in search, and only have a limited sample size, many products seen in search are never observed to be purchased, standard techniques for estimating product-level unobserved heterogeneity do not work. Instead, we rely on the list of the product characteristics above, together with the assigned rank, in order to control for much of what

buyers consider when choosing on Amazon. To account for the fact that products ranked higher are more likely to be selected compared to products ranked lower, we include realized rank in the utility, but use the rank-independent utility when computing welfare (similar to Reimers and Waldfogel (2023)).

In our experimental data, all participants had to make a choice, rather than choose an outside option, so we will need to calibrate the value of the outside option from the observational data. Note that our experimental design ensures that the value of the outside option is balanced across treatment and control groups.

For a given search, consumer i's utility for product j is given by:

$$u_{ij} = \mathbf{x}_j\alpha + \beta_i p_j + \zeta_i A_j + \gamma_i r_j + \epsilon_{ij}$$

where $\mathbf{x}_j$ is the vector of product characteristics described above, p_j is price, A_j is an indicator for whether or not the product is an Amazon brand, and r_j is the actual rank observed by the consumer when selecting options. Note that for these last three covariates, we allow preferences to vary across individuals by observed demographic characteristics: income, Prime membership, and prior Amazon purchase behavior. ϵ_{ij} is distributed Type I extreme value, and independent on product characteristics, rank, and price. For welfare, we ignore the contribution of $\gamma_i r_j$ to u_{ij} (this is what Reimers and Waldfogel (2023) define as rank-independent utility).

Platform We assume that the platform chooses a product-specific ranking index, I_j^r, which is a linear function of product characteristics, revenue to the platform, and an unobserved to the econometrician latent quality term. The platform chooses this ranking to maximize a weighted sum of consumer, supplier, and platform surplus. This index yields product rank on search pages. After removing products from our intervention, we obtain the observed rank, r_j, for a particular search.

Supply We assume that suppliers set prices while taking into account the fact that prices will affect both the ranking of the product and its likelihood of being chosen as a function of the ranking (as in Dinerstein et al. (2018)).

Estimation We will estimate the model using maximum likelihood. The likelihood function reflects the probability of the observed selections for each consumer, conditional on the structural parameters. We have repeated observations (6) for each consumer.

Counterfactuals We will use counterfactuals to assess the value of Amazon branded products to consumers. The first counterfactual is to remove Amazon brands from all participants to calculate the welfare effects of the presence of the products, holding fixed other variables. We will then estimate counterfactual prices, holding fixed search ranks, to quantify the price effects

of the presence of Amazon brands. Finally, we can estimate counterfactual prices and ranks to also account for the endogenous ranks that are jointly determined with prices. In this way, we will quantify the value of Amazon brands to consumers, in terms of the direct effect of their presence and the equilibrium effects on prices and search rankings.

8 Conclusions

In this paper, we explore the effects of removing Amazon brands from the choice set of Amazon consumers using a field experiment. We find that users have ample choices in categories where Amazon brands exist. As a result, removing Amazon branded products leads users to select fairly similar substitutes. The only notable exception is that in the absence of Amazon brands, the alternative selection has a lower number of accumulated reviews (and under certain specifications, slower shipping).

Survey evidence from our experiment supports this interpretation. Consumers typically care most about price, quality, and delivery speed. Their stated preference for Amazon branded products is typically similar to their preference for non-Amazon branded products.

Lastly, we investigate whether Amazon advantages its own brands in the search results. We fail to find evidence of self-preferencing. As a result, for those who do purchase Amazon branded products, this is unlikely to be driven by any biased behavior by Amazon, at least when it comes to search rankings. Lack of self-preferencing implies that removing Amazon branded products is unlikely to result in customers purchasing better items.

This paper has a number of limitations. First, we are only able to evaluate the short-term effects of the removal of Amazon brands. This means we miss the effect that vertical integration has on third-party sellers' incentives to change prices, advertise, innovate, or enter in or exit from a market. Of particular importance is that Amazon brands likely place downward pressure on competitors' prices through a competitive effect.

Second, the effects highlighted here are likely a function of the categories where Amazon decides to enter with its own private labels. Those categories tend to be established products (such as toilet paper or batteries), where there are already a lot of options and the benefits from entry do not come so much from product innovation, but rather economies of scale and fast delivery—the kind of advantage Amazon has, which benefits consumers in terms of low prices and fast shipping. For other categories, such as designer handbags or specialty cameras, innovation may be more important than reducing costs or delivery times.

Third, our test for self-preferencing focuses just on the decision to add to the wishlist, a proxy for purchase decisions. Any differences among products in customer satisfaction that materialize after purchase, which may be proxied by return rates or customer complaints, are not captured by our test but may be taken into account in Amazon's ranking decisions.

References

Adelman, M. A. 1949. "The A & P Case: A Study in Applied Economic Theory." *The Quarterly Journal of Economics*, 63(2): 238–257.

Aguiar, Luis, Joel Waldfogel, and Sarah Waldfogel. 2021. "Playlisting favorites: Measuring platform bias in the music industry." *International Journal of Industrial Organization*, 78: 102765.

Ailawadi, Kusum L, Koen Pauwels, and Jan-Benedict EM Steenkamp. 2008. "Private-label use and store loyalty." *Journal of marketing*, 72(6): 19–30.

Allcott, Hunt, Matthew Gentzkow, and Lena Song. 2022. "Digital addiction." *American Economic Review*, 112(7): 2424–2463.

Aridor, Guy. 2022. "Market definition in the attention economy: An experimental approach."

Becker, Gary S. 2010. *The economics of discrimination.* University of Chicago press.

Beknazar-Yuzbashev, George, Rafael Jiménez-Durán, Jesse McCrosky, and Mateusz Stalinski. 2022. "Toxic Content and User Engagement on Social Media: Evidence from a Field Experiment." *Working Paper*.

Bronnenberg, Bart J, Jean-Pierre Dubé, and Robert E Sanders. 2020. "Consumer misinformation and the brand premium: A private label blind taste test." *Marketing Science*, 39(2): 382–406.

Bronnenberg, Bart J, Jean-Pierre Dubé, Matthew Gentzkow, and Jesse M Shapiro. 2015. "Do pharmacists buy Bayer? Informed shoppers and the brand premium." *The Quarterly Journal of Economics*, 130(4): 1669–1726.

Bronnenberg, B, JP Dubé, and J Joo. 2022. "Millennials and the Take-Off of Craft Brands: Preference Formation in the US Beer Industry. forthcoming Marketing Science."

Canay, Ivan A, Magne Mogstad, and Jack Mountjoy. 2023. "On the use of outcome tests for detecting bias in decision making." *Review of Economic Studies*, rdad082.

Castillo, Juan Camilo. 2023. "Who benefits from surge pricing?" *Available at SSRN 3245533*.

Chen, Nan, and Hsin-Tien Tsai. 2021. "Steering via algorithmic recommendations." *Available at SSRN 3500407*.

De Corniere, Alexandre, and Greg Taylor. 2019. "A model of biased intermediation." *The RAND Journal of Economics*, 50(4): 854–882.

Dhar, Sanjay K, and Stephen J Hoch. 1997. "Why store brand penetration varies by retailer." *Marketing science*, 16(3): 208–227.

Dinerstein, Michael, Liran Einav, Jonathan Levin, and Neel Sundaresan. 2018. "Consumer price search and platform design in internet commerce." *American Economic Review*, 108(7): 1820–1859.

Donnelly, Robert, Ayush Kanodia, and Ilya Morozov. 2024. "Welfare effects of personalized rankings." *Marketing Science*, 43(1): 92–113.

Dubé, Jean-Pierre. 2022. "Amazon Private Brands: Self-Preferencing vs Traditional Retailing." Working paper.

Farronato, Chiara, Andrey Fradkin, and Alexander MacKay. 2023. "Self-Preferencing at Amazon: Evidence from Search Rankings." *AEA Papers and Proceedings*, 113: 239–43.

Farronato, Chiara, Andrey Fradkin, and Chris Karr. 2024. "Webmunk: A New Tool for Studying Online Behavior and Digital Platforms." *Working Paper*.

Gutierrez, German. 2022. "The Welfare Consequences of Regulating Amazon." Working paper.

Hagiu, Andrei, Tat-How Teh, and Julian Wright. 2022. "Should platforms be allowed to sell on their own marketplaces?" *The RAND Journal of Economics*, 53(2): 297–327.

Hoch, Stephen J, and Shumeet Banerji. 1993. "When do private labels succeed?" *MIT Sloan Management Review*, 34(4): 57.

Kotler, Philip, and Kevin Lane Keller. 2016. *Marketing Management.* Pearson Education.

Kumar, Nirmalya, et al. 2007. *Private label strategy: How to meet the store brand challenge.* Harvard Business Review Press.

Lam, H Tai. 2022. "Platform Search Design and Market Power." Working paper.

Lee, Kwok Hao, and Leon Musolff. 2022. "Entry into Two-Sided Markets Shaped by Platform-Guided Search." Working paper.

Levy, Ro'ee. 2021. "Social media, news consumption, and polarization: Evidence from a field experiment." *American economic review*, 111(3): 831–870.

Morozov, Ilya, and Anna Tuchman. 2024. "Where does advertising content lead you? We created a bookstore to find out." *Marketing Science*.

Newmark, Craig M. 1988. "Is Antitrust Enforcement Effective?" *Journal of Political economy*, 96(6): 1315–1328.

Raval, Devesh. 2022. "Steering in One Click: Platform Self-Preferencing in the Amazon Buy Box." *mimeo.*

Reimers, Imke, and Joel Waldfogel. 2023. "A Framework for Detection, Measurement, and Welfare Analysis of Platform Bias." *NBER Working Paper No. 31766.*

Santos, Babur De los, Ali Hortaçsu, and Matthijs R Wildenbeest. 2012. "Testing models of consumer search using data on web browsing and purchasing behavior." *American economic review*, 102(6): 2955–2980.

Scott Morton, Fiona, and Florian Zettelmeyer. 2004. "The strategic positioning of store brands in retailer–manufacturer negotiations." *Review of industrial organization*, 24: 161–194.

Teng, Xuan. 2022. "Self-preferencing, Quality Provision, and Welfare in Mobile Application Markets."

ter Braak, Anne, and Barbara Deleersnyder. 2018. "Innovation cloning: The introduction and performance of private label innovation copycats." *Journal of Retailing*, 94(3): 312–327.

Ter Braak, Anne, Marnik G Dekimpe, and Inge Geyskens. 2013. "Retailer private-label margins: The role of supplier and quality-tier differentiation." *Journal of Marketing*, 77(4): 86–103.

Ursu, Raluca M. 2018. "The power of rankings: Quantifying the effect of rankings on online consumer search and purchase decisions." *Marketing Science*, 37(4): 530–552.

Waldfogel, Joel. 2024. "Amazon Self-preferencing in the Shadow of the Digital Markets Act." National Bureau of Economic Research.

Zhu, Feng, and Qihong Liu. 2018. "Competing with complementors: An empirical look at Amazon. com." *Strategic management journal*, 39(10): 2618–2642.

A Additional Figures and Tables

Table A.1: Covariate Balance—Demographics

	White (1)	Income Code (2)	Household Size (3)	Spend Share Code (4)	Prime Member (5)	Ad Blocker (6)
Constant	0.762***	3.805***	2.449***	2.781***	0.862***	0.238***
	(0.021)	(0.090)	(0.061)	(0.041)	(0.017)	(0.021)
Hide Amazon	-0.014	0.099	-0.043	-0.008	0.003	-0.002
	(0.029)	(0.126)	(0.084)	(0.058)	(0.023)	(0.029)
Hide Random	-0.002	-0.161	0.086	0.042	0.027	0.023
	(0.030)	(0.128)	(0.088)	(0.059)	(0.023)	(0.030)
R^2	0.000	0.003	0.002	0.001	0.001	0.001
Observations	1,255	1,255	1,255	1,255	1,255	1,255

Notes: This table presents estimates of linear regressions as a function a treatment condition dummies. It restricts attention to the participants who completed Milestone 1. Otherwise, the table is identical to Table 3.

Table A.2: Covariate Balance—Shopping Behavior on Amazon

	N. Orders (1)	Items per Order (2)	Spending (3)	Avg Item Price (4)	Share 1P Items (5)	Share Amazon Branded Items (6)
Constant	165.862***	1.416***	5,165.802***	23.328***	0.416***	0.026***
	(8.489)	(0.015)	(265.241)	(0.421)	(0.008)	(0.002)
Hide Amazon	2.553	0.053**	-84.619	-0.232	-0.012	-0.004**
	(11.165)	(0.024)	(338.591)	(0.552)	(0.011)	(0.002)
Hide Random	20.595	0.039	296.109	-0.536	-0.011	-0.001
	(12.270)	(0.025)	(365.799)	(0.773)	(0.011)	(0.002)
R^2	0.003	0.004	0.001	0.000	0.001	0.004
Observations	1,255	1,255	1,255	1,254	1,255	1,255

Notes: This table presents estimates of linear regressions as a function a treatment condition dummies. It restricts attention to the participants who completed Milestone 1. Otherwise, the table is identical to Table 4.

Table A.3: Webmunk Tracking Rate Based on Search Data

	Tracked Through Webmunk (1)	Tracked — M1 (2)
Constant	0.605***	0.617***
	(0.015)	(0.017)
Hide Amazon	0.018	0.016
	(0.021)	(0.023)
Hide Random	0.013	0.007
	(0.022)	(0.024)
R^2	0.000	0.000
Observations	11,288	8,884

Notes: This table presents estimates of linear probability models as a function a treatment condition dummies. The outcome is equal to 1 if the selected product is tracked in search results through Webmunk. Otherwise, the table is identical to Table 6.

Table A.4: Summary Statistics Based on Search Data

	Meta-Categories with Amazon Brands			Meta-Categories without Amazon Brands		
	Control (1)	Hide Random (2)	Hide Amazon (3)	Control (4)	Hide Random (5)	Hide Amazon (6)
Amazon Brand	0.09	0.09	0.01	0	0	0
Price ($)	20.5	19.8	19.91	16.02	15.52	15.6
Average Star Rating	4.63	4.63	4.63	4.53	4.54	4.55
Nr. Reviews	29,578	30,065	21,670	13,119	13,666	13,679
Prime Eligible	0.75	0.75	0.73	0.7	0.74	0.72
Free Delivery	0.85	0.86	0.85	0.84	0.85	0.86
Fast Delivery	0.16	0.15	0.13	0.14	0.15	0.11
Sponsored	0.31	0.29	0.29	0.3	0.26	0.32
Best Seller	0.08	0.09	0.06	0.03	0.05	0.06

Notes: This table is the same as Table 7 except that the wishlist products have been matched to products in search data.

Table A.5: Treatment Effect Regressions – Personal Care Category

	Price	Stars	Reviews	Prime Eligible	Free Delivery	Fast Delivery	Sold by Amazon
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel a: *Hide Amazon* vs. Control							
Hide Amazon	-0.618	0.032	1,041	0.005	-0.002	-0.035	0.099**
	(0.678)	(0.034)	(1,315)	(0.029)	(0.014)	(0.034)	(0.031)
R^2	0.038	0.022	0.012	0.002	0.008	0.021	0.203
Observations	813	858	858	858	858	858	799
Category FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Panel b: *Hide Amazon* vs. *Hide Random*							
Hide Amazon	-0.150	0.033	12	-0.015	-0.015	-0.050	0.004
	(0.671)	(0.036)	(1,316)	(0.028)	(0.013)	(0.034)	(0.032)
R^2	0.041	0.024	0.025	0.010	0.016	0.029	0.199
Observations	798	843	843	843	843	843	793
Category FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

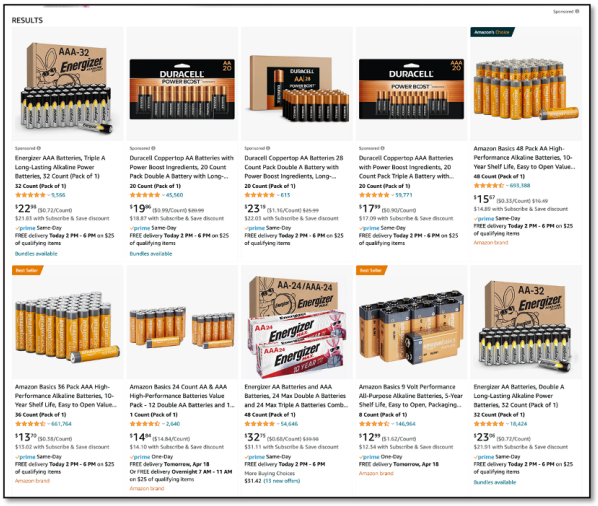
Notes: $p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$, $.p < 0.10$.

Table A.6: Treatment Effect Regressions – Difference-in-Differences

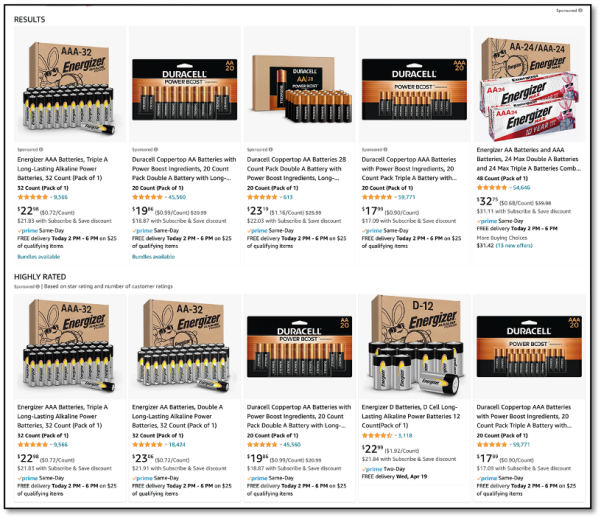
	Amazon Brand	Price	Stars	Reviews	Prime Eligible	Free Delivery	Fast Delivery	Sold by Amazon
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel a: *Hide Amazon* vs. Control								
Hide Amazon	-0.078***	-0.191	-0.017	-9,639***	-0.007	0.000	-0.001	-0.117***
	(0.008)	(0.662)	(0.038)	(2,181)	(0.014)	(0.014)	(0.030)	(0.033)
R^2	0.281	0.466	0.243	0.267	0.797	0.332	0.485	0.448
Observations	5,058	4,767	5,058	5,058	5,058	5,058	5,058	4,686
User FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Category FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Panel b: *Hide Amazon* vs. *Hide Random*								
Hide Amazon	-0.080***	0.024	0.006	-7,228***	-0.004	0.018	0.006	-0.024
	(0.008)	(0.647)	(0.038)	(2,112)	(0.013)	(0.014)	(0.030)	(0.033)
R^2	0.287	0.478	0.266	0.267	0.794	0.350	0.488	0.439
Observations	4,968	4,684	4,968	4,968	4,968	4,968	4,968	4,633
User FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Category FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

Notes: $p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$, $.p < 0.10$.

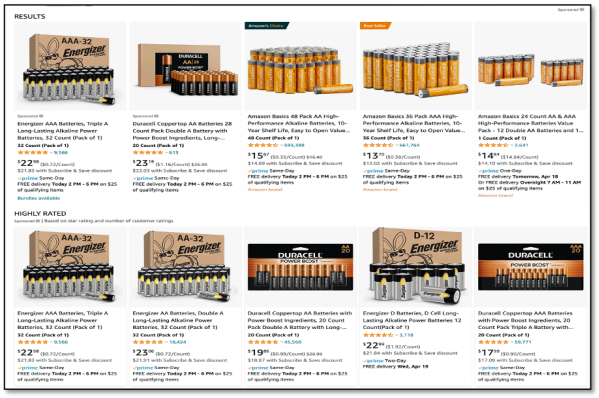
Figure A.1: Treatment Groups



(a) Control Group



(b) Amazon Hide Treatment



(c) Random Hide Treatment

Figure A.2: Special Product Positioning

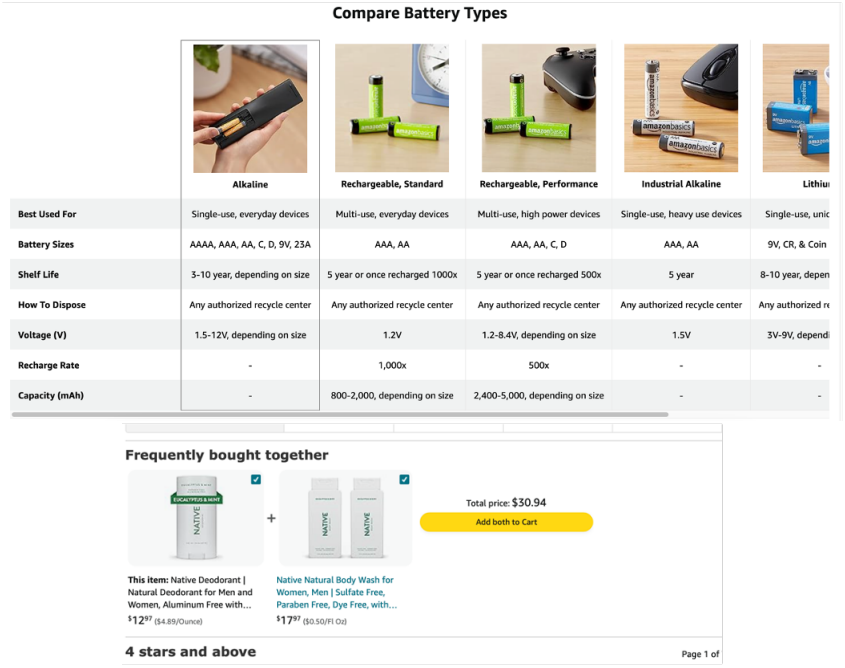


Figure A.3: Product Categories Selection

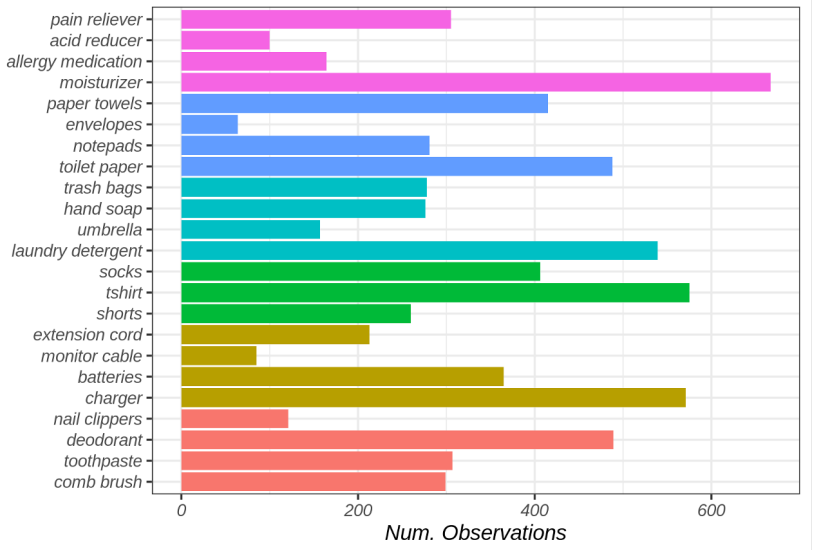


Figure A.4: Demographics Distribution of the US and the Study Population

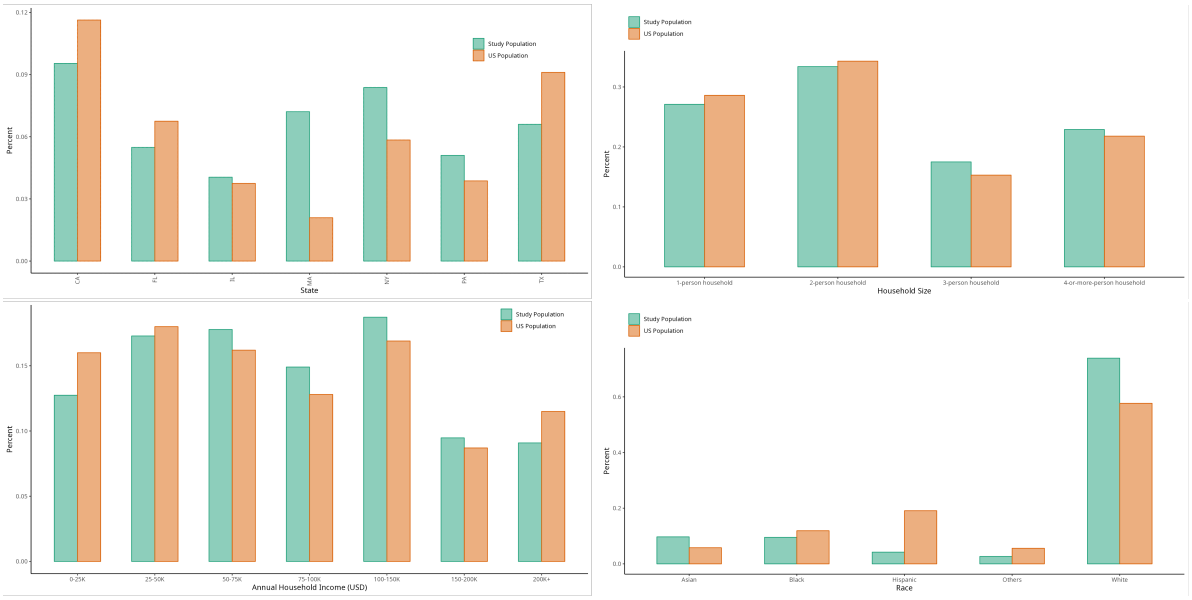
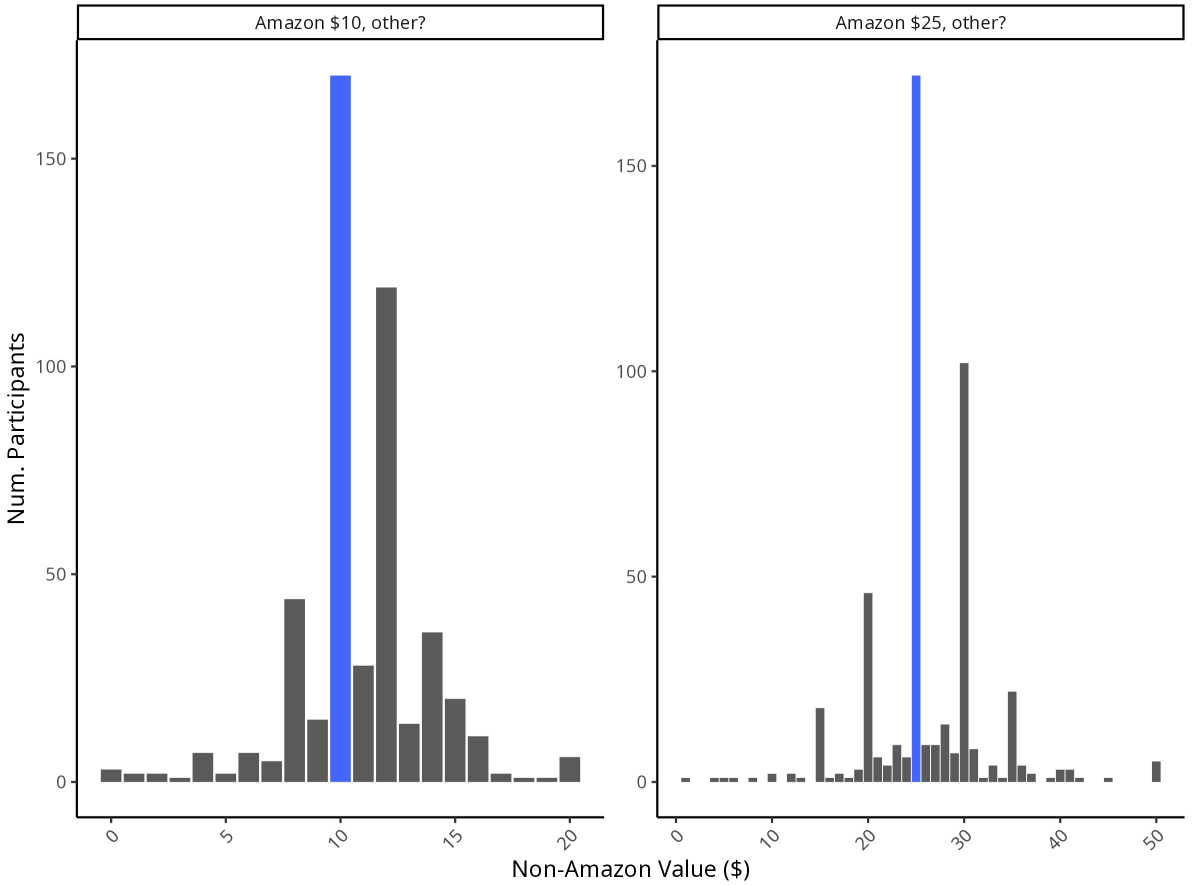


Figure A.5: Willingness to Pay for Non-Amazon Branded Products



	Amazon Brand	Price	Reviews	Stars	Prime Eligible	Free Delivery	Fast Delivery	Sold by Amazon	Major Brand
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Hide Amazon	-0.061***	-0.821*	-7,361.375***	0.033*	-0.008	0.025*	-0.014	0.023	-0.018
	(0.005)	(0.386)	(1,418.908)	(0.014)	(0.021)	(0.012)	(0.019)	(0.012)	(0.017)
R^2	0.085	0.121	0.109	0.072	0.100	0.136	0.072	0.220	0.026
Observations	6,209	6,118	6,139	6,202	5,666	6,209	5,666	6,209	4,223
Mean of Y	0.075	20.367	25465.811	4.528	0.613	0.753	0.404	0.333	0.412
Category fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

	Amazon Brand	Price	Reviews	Stars	Prime Eligible	Free Delivery	Fast Delivery	Sold by Amazon	Major Brand
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Hide Amazon	-0.066***	-0.231	-5,928.514***	0.028*	-0.023	0.014	-0.018	0.034**	-0.004
	(0.006)	(0.386)	(1,334.591)	(0.014)	(0.021)	(0.012)	(0.019)	(0.012)	(0.017)
R^2	0.086	0.124	0.098	0.076	0.102	0.130	0.076	0.205	0.024
Observations	6,070	5,994	6,005	6,066	5,548	6,070	5,548	6,070	4,175
Mean of Y	0.079	19.943	24236.344	4.531	0.627	0.764	0.405	0.329	0.398
Category fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

	Amazon Brand	Price	Reviews	Stars	Prime Eligible	Free Delivery	Fast Delivery	Sold by Amazon	Major Brand
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Hide Random	0.005	-0.606	-1,400.664	0.005	0.016	0.012	0.004	-0.012	-0.015
	(0.007)	(0.399)	(1,661.167)	(0.016)	(0.021)	(0.012)	(0.019)	(0.012)	(0.017)
R^2	0.109	0.118	0.153	0.075	0.102	0.127	0.074	0.196	0.022
Observations	5,953	5,864	5,868	5,948	5,470	5,953	5,470	5,953	4,070
Mean of Y	0.075	20.367	25465.811	4.528	0.613	0.753	0.404	0.333	0.412
Category fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

B Survey Tools

This appendix presents the Qualtrics surveys used in the study:

- Eligibility: the eligibility survey contains the set of questions determining whether a study participant is eligible to take part in the study; the consent form; and initial instructions to install the web browser extension and enroll in the study.
- Intake: the intake survey contains a set of questions about the participant's demographics and shopping behavior. It also contains instructions on how to create a wishlist on Amazon, and instructs participants to search for products on Amazon and add them to the newly created wishlist.
- Outtake: the outtake survey contains a set of questions about the participants' shopping behavior during the eight weeks of our study, as well as questions related to consumer perception of Amazon brands.

Eligibility

0:00 / 0:32

Professor Farronato's Webpage

Would you like to help us understand online shopping behavior? We are a team of Harvard and Boston University researchers who study e-commerce and its value to consumers like you. We want to understand consumer shopping and how it is affected by the choices that e-commerce platforms make.

By fully completing this study, you will earn at least $30 and up to $180 if you also win lotteries throughout the study. We will ask you to complete two surveys: one now, which will take about 40 minutes to complete, and one in 8 weeks, which will take about 10 minutes. For the 8-week study period, we will also ask you to install a browser extension and to share information about your online shopping.

Click below if you want to know more and discover if you qualify!

We have a few quick questions before we start.

We would like to collect your answers to some questions about yourself and your shopping habits for the purposes of our research study. The information collected will be linked to research data only if you later decide to participate in the full study, otherwise these answers will remain anonymous and will not be linked to you in any way. It is your choice to participate.

Do we have your permission to collect your answers?

Yes

No

Do you live in the United States?

Yes

No

What is your age? Please type a number.

What gender do you identify with?

Male

Female

Non-binary / Third-gender

Prefer not to say

What is 12 minus 4? Please type a number.

What is the language you primarily speak? Select all that apply:

Spanish

English

Other [Which?]

How frequently do you shop on Amazon?

Never
Less than once a month
Once a month
Two to three times a month
More than three times a month

When shopping on Amazon, which device do you primarily use?

Laptop computer
Ipad or another tablet
Desktop computer
Phone
Other

When shopping on Amazon, which web browser do you primarily use?

Internet Explorer
Firefox
Chrome
Safari
Microsoft Edge
Other

Do other members of your household also use your primary device to shop online?

Yes
No

Do you currently work at one of these companies?

Facebook

Microsoft

Amazon

Apple

Google

None of these companies

Did you participate in a prior study with us in the past?

Yes

No

Not Eligible – Thanks

Thank you for your answers! Unfortunately, you do not qualify to participate in our study. Have a great day!

Consent

Congrats! You are qualified to participate.

Participants like you are crucial to the study. Together, we can understand and improve digital shopping!

If you complete the study, we'll pay you using gift cards that you can redeem at many retailers and buying products that you select.

Click "Next" to proceed.

Thanks!

Consent Form IRB21-1677

Study Overview

We're glad you want to know more about our study. The following is a summary with key information to help you decide whether you want to participate.

Why am I being invited to take part in a research study?
We invite you to take part in this research study because you are a frequent online shopper based in the United States.

Who is inviting you to take part in a research study?
We are a team of Harvard and Boston University professors who study the digital economy:

- Chiara Farronato, Associate Professor (Faculty Page)
- Andrey Fradkin, Assistant Professor (Faculty Page)
- Alexander J. MacKay, Assistant Professor (Faculty Page)

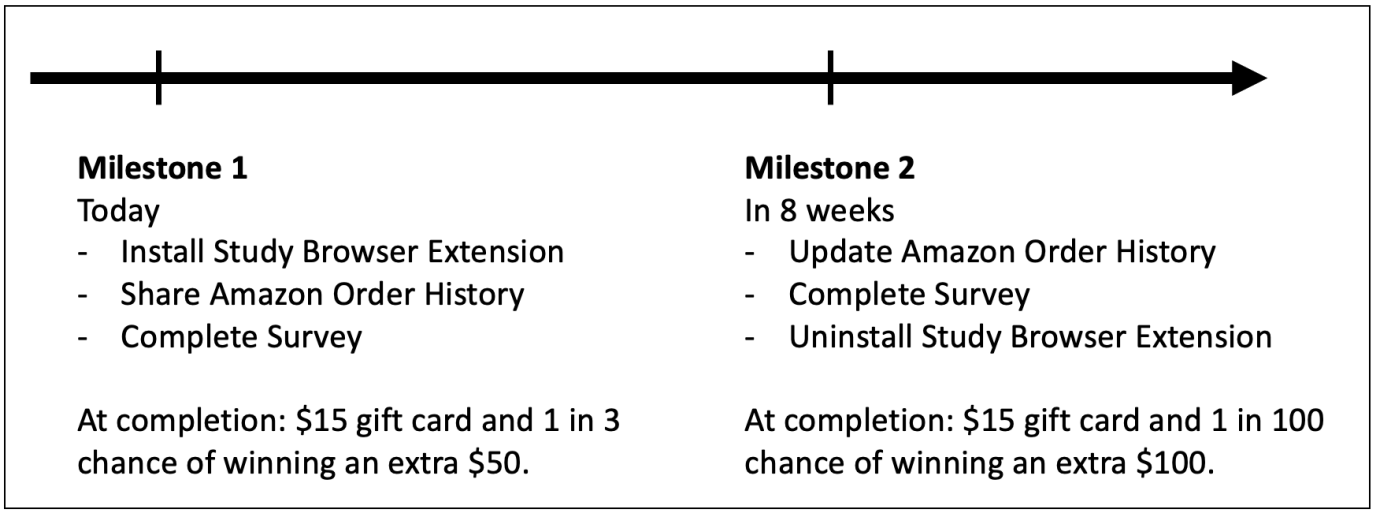
What should I know about a research study?
Research studies are conducted to better understand the choices we make. Whether or not you take part is completely up to you. Your decision will not be held against you. You can ask all the questions you want before you decide. You can even agree to take part and later change your mind.

Why is this research being done?
We want to understand consumer shopping behavior online and how it is affected by the choices that e-commerce platforms make. Not only this will allow us to understand how people like you and us shop online, but it will also help us understand whether and how we should limit the control that e-commerce platforms have over how they choose which products to show us.

How long will the research last and what will I need to do?
The study will last 8 weeks, but we will only ask you for at most 1 hour of your time. Everything we ask you to do can be done from the comfort of your home. If you choose to participate, we'll ask you to:

- Install the study browser extension, which is an application we developed for this study. We will have instructions for you on how to install the extension.
- Complete two surveys. We'll send you the first survey today (it will take about 40 minutes to complete) and the next survey in eight weeks (it will take about 10 minutes to complete). The first survey will ask you to create a wishlist on Amazon to which you can add products that you would like to purchase. Again, we will provide you with instructions on how to create an Amazon wishlist and share it with us.

Here is the timeline at a glance:



The study browser extension will record and may tweak your browsing experience on Amazon.com. The extension will also track whether you visit other e-commerce websites without tracking what you do on those websites. The extension will not record any of your activity outside of e-commerce websites. We'll ask you to keep this extension installed for eight weeks.

Will I be compensated for participating in this research?

Yes. We will pay you at least $30 for completing the two milestones presented in the timeline above. Payments will come in the form of gift cards sent to your email address. Some people will earn more because:

- At completion of milestone 1, in addition to the $15 payment, you will have a 1 in 3 chance to win an additional $50 in value divided in two parts:
  - We will buy a product from your wishlist for you;
  - We will send you the difference between $50 and the price of the purchased item as a gift card. For example, if you selected a product that costs $31.50 (tax + shipping included), we will purchase that product for you and send you a gift card for an additional $18.50.
- At completion of milestone 2, in addition to the second $15 payment, you will have a 1 in 100 chance to win an additional $100.

We will pay you with electronic gift cards that you can use at over 60 retailers, including Amazon, Starbucks, Target, and Walmart.

Is there any way being in this study could be bad for me?

There are some risks you might experience from being in this study. The study browser extension may tweak the information displayed to you while using certain e-commerce websites. This may change the products you purchase or how long you spend searching for products. If the products you purchase are worse, more expensive, or if you search more, then this may be bad for you. We do not know whether our tweaks to your shopping experience are good or bad for you. We will not compensate you for these differences.

Since we may collect personal information, there is a risk of breach of confidentiality. We have worked hard to minimize this risk. For example, we have ensured that we are not storing the name, mailing address, or payment information that you use on Amazon. We will encrypt any data before storing it. Before accessing the data for analysis, we will also permanently delete all personal information except for your email address, which will be stored separately from all other data.

Will being in this study help me in any way?
We cannot promise any benefits to you or others from your taking part in this research. It is possible, however, that our tweaks to your online browsing lead to a better (or worse) online shopping experience.

Detailed Information

Withdrawing from the Study.
You can leave the research at any time; your decision will not be held against you. We may use the data you have shared with us prior to withdrawing as part of the study. We will provide simple instructions for how you can withdraw. Researchers can remove you from the research study without your approval. Possible reasons for removal include not complying with instructions to install the study browser extension or intentionally avoiding data tracking through the extension.

Privacy.
Data security and privacy are important to us. We will ask for your email address to send you payments and other communications. During the course of the study we may collect other personal information. The personal information that we know we are collecting will be deleted immediately, except for your email address. Other personal information that we inadvertently collect will be stored but removed after we finish collecting data.

We cannot promise complete secrecy, although efforts will be made to limit the use and disclosure of your personal information. Data will be encrypted and stored on secure servers and cannot be accessed by anyone outside the research team. At no time will study information be available over any public or private network in an unencrypted state.

In the future, when we publish our research, we will post anonymized data from this study in a data repository so that other researchers can reproduce our results. By then, no information that can identify you personally will be available, to us or others. We will not sell data from the study or share data for any commercial or marketing purposes.

Who can I talk to?

If you have questions, concerns, or complaints, or think the research has hurt you, do not hesitate to reach the research team at webmunk_study@hbs.edu.

This research has been reviewed and approved by the Harvard University Area Institutional Review Board (“IRB”). You may talk to them at (617) 496-2847 or cuhs@harvard.edu if your questions, concerns, or complaints are not being answered by the research team; you cannot reach the research team; you want to talk to someone besides the research team; you have questions about your rights as a research subject; you want to get information or provide input about this research.

Please indicate below whether you agree to participate in the study. Agreeing to participate means you are willing to install the study browser extension, provide your email address, and complete the surveys.

I agree to participate.

I do not agree to participate.

Not Consent – Thanks

Thank you for letting us know you do not want to participate. Have a great day!

Willingness

Thank you for your interest in participating in our study!

For this particular study, it is especially important to gather high-quality data. Will you do your best to carefully answer each question on our surveys?

Yes

No

Not Willing – Thanks

Thank you for your willingness to participate in this study. Since we need to be able to gather high-quality data, you do not qualify to participate. Have a good day!

Subject Info

Thank you for your willingness to carefully answer our questions!

What is your preferred email address? (We will use this email to send you payments.)

To confirm, please enter your email again:

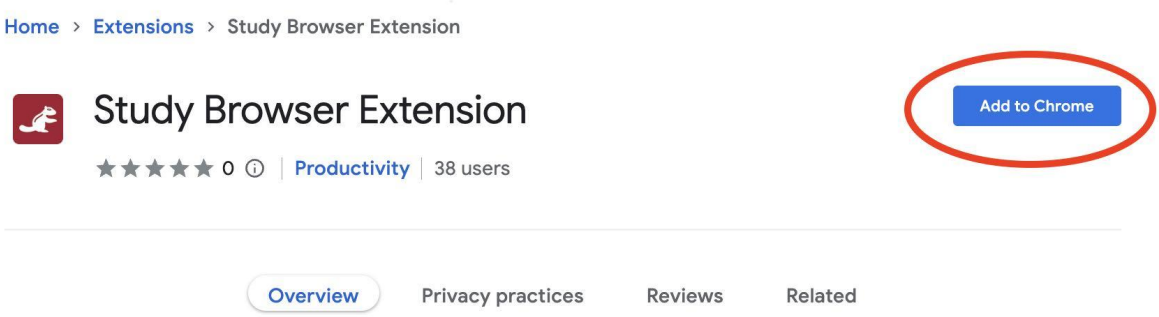
We'll ask you to install the study browser extension next.

App Installation

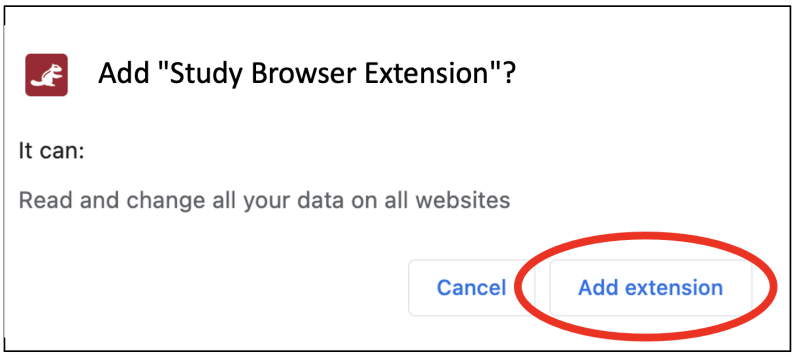
Study Browser Extension Installation Instructions.

To install the study browser extension, please **use Chrome** on the computer (or computers) that you use for online shopping:

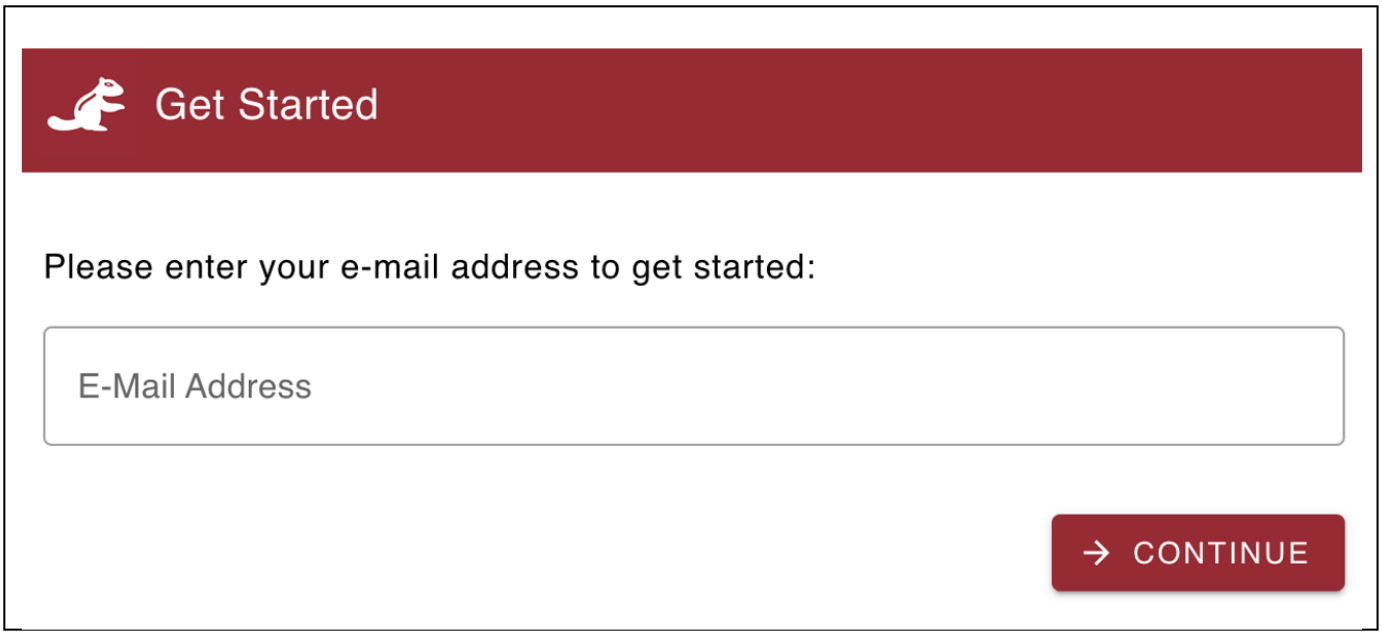
- Click here. This will open a new window from where you can install the browser extension.
- Click “Add to Chrome.”



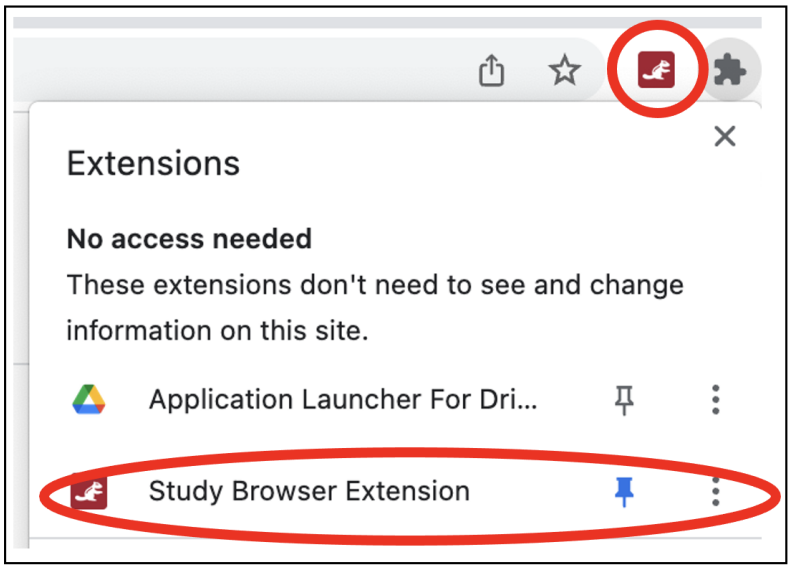
- When prompted, click “Add Extension.”



- You will be asked to add your email address. Please use the email address that you shared with us earlier.



- You should now see the browser extension icon on the top right corner of your browser. If you don't see it, it may be hidden under the puzzle icon, which is visible in the upper right corner of the screenshot below.



- You are all set.

If you have trouble installing the study browser extension, please email us at webmunk_study@hbs.edu and we will help you with additional instructions.

Were you able to successfully install the extension?

Yes

No, but I have emailed you

What difficulties have you encountered installing the extension?

Thank you! Please check the browser extension pop-up window for the next steps. A link to the initial survey will appear shortly.

If you have any questions in the meantime, or if the initial survey does not appear in the browser extension window within the next 15 minutes, please email us at webmunk_study@hbs.edu.

Please click the "Finish" button below to complete this part of the study.

We really appreciate you for participating in this research!

Powered by Qualtrics

Intake Survey Intro

Welcome back to our study!

Please read the instructions below carefully before proceeding to the next screen. **To receive compensation, you must complete the task from the computer where you have installed the study browser extension.**

This task will take you about 40 minutes to complete. If you do not have 40 minutes right now or you're not at your computer, please come back later.

We will first ask you some basic questions about yourself and your online shopping behavior. Then, we will ask you to create an Amazon wishlist. You will search for products on Amazon and add them to your wishlist.

When you add products to your wishlist, make sure each of them costs $50 or less (tax+shipping included).

After completing milestone 1, you will receive $15. You will also have a 1 in 3 chance to receive additional compensation worth $50 that is made of two parts:

- We will pick one of the items you added to your wishlist, buy it, and ship it to the address you entered;
- We will also send you a gift card for the difference between $50 and the price of the product you selected.

For example, if you selected a product that costs $31.50 (tax+shipping included), we will buy that product for you and send you $18.50 as a gift card.

Therefore, **it is best for you to be truthful in selecting which products you like the most.**

Intake Survey

What is your race/ethnicity?

Hispanic or Latinx
White
Asian or Pacific Islander
American Indian or Alaska Native
Black or African American
Other

In what zip code do you currently live?

What was your total household income in 2022? Please include only employment income (wages, salary, bonuses, tips, and any income from your own businesses).

$0 to $24,999
$25,000 to $49,999
$50,000 to $74,999
$75,000 to $99,999
$100,000 to $149,999
$150,000 to $200,000
$200,000 and up

How many people live in your household?

Only myself
2 people
3 people
4 people
5 or more people

How many children under the age of 18 live in your household?

None
1 child
2 children
3 children or more

What is the highest level of school you have completed?

Some high school
High school degree
Some college
Associate's degree in college
Bachelor's degree in college (BA, AB, BS, ...)
Some graduate studies
Graduate degree (MA, MS, MBA, MD, JD, PhD, ...)

What portion of your shopping expenditures ($) do you do online?

0% - 25%
25% - 50%
50% - 75%
75% - 100%

At which retailers did you shop **in-store** over the past year? (Select all that apply)

Costco	Kohl's	Dollar Tree
Best Buy	Whole Foods	Macy's
CVS	Apple	Walgreens
Target	Kroger	Dollar General
Walmart	Sam's Club	Other (specify below):

At which retailers did you shop **online** over the past year? (Select all that apply)

- Target.com
- Wayfair.com
- Ebay.com
- Walmart.com
- Walgreens.com
- Shein.com
- Apple.com
- Bestbuy.com
- Kohls.com
- Amazon.com
- Macys.com
- Samsclub.com
- Costco.com
- Etsy.com
- Other (specify below):

Which of the following product categories have you shopped for **online** over the past year?

- Pet Supplies
- Sports and Outdoor
- Furniture
- Electronics
- Appliances
- Household Items
- Groceries
- Jewelry and Watches
- Personal Care
- Books
- Paper Products
- Toys
- Home, Garden, and Tools
- Shoes
- Health
- Beauty
- Apparel (Clothing)
- Other (specify below):

Are you the primary shopper for your household?

- Yes
- No

Are you an Amazon Prime member?

- Yes
- No

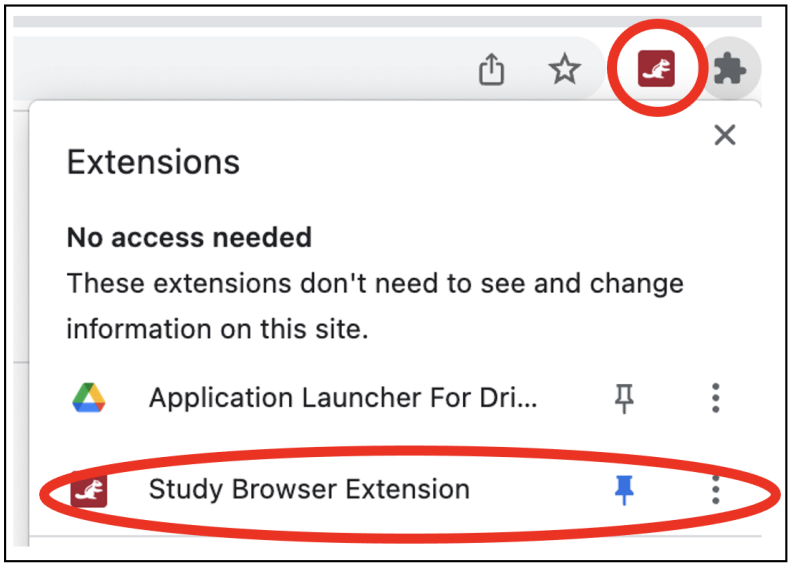
Do you use an ad blocker such as AdBlock or uOrigin?

- Yes. If so, which?

No

Install Question

Do you have the study browser extension installed on your Chrome browser? To check that, you should see the study browser extension icon on the top right corner of your browser. If you don't see the extension icon, it may be hidden under the puzzle icon, which is visible in the upper right corner of the screenshot below.



Yes, I have the study browser extension installed on my web browser.

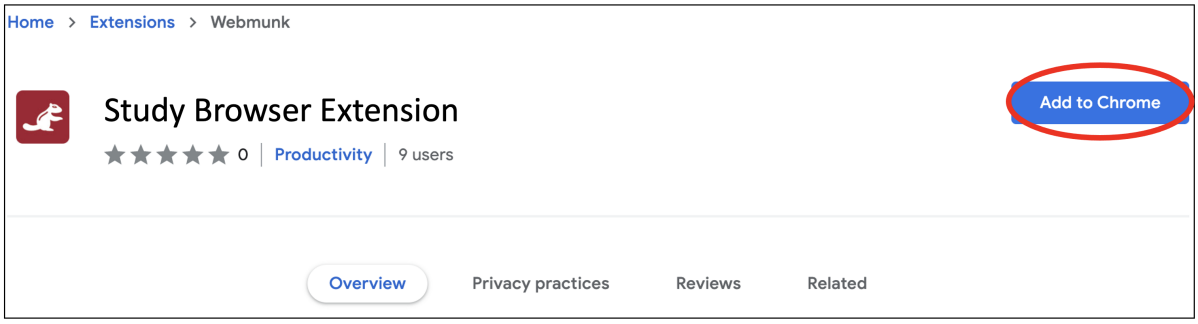
No, I do not have study browser extension installed on my web browser.

App Installation

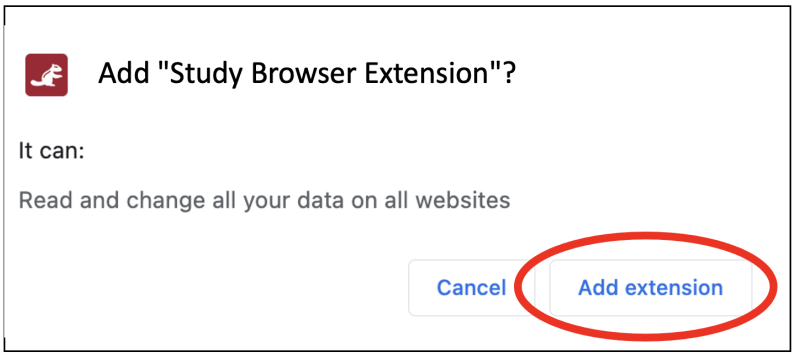
Study Browser Extension Installation Instructions.

To install the study browser extension, please **use Chrome** on the computer (or computers) that you use for online shopping:

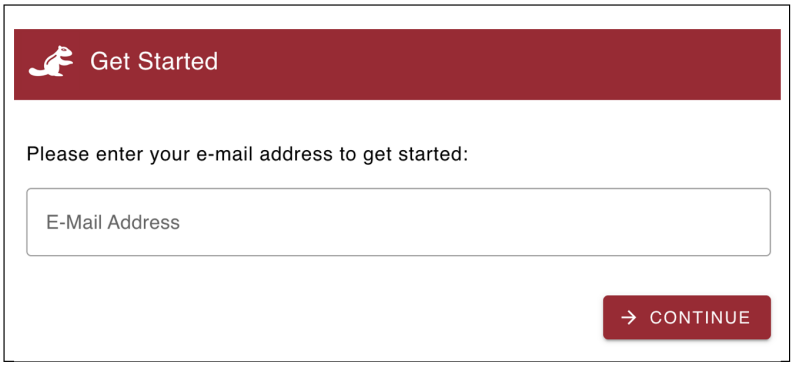
- Click here.
- Click "Add to Chrome."



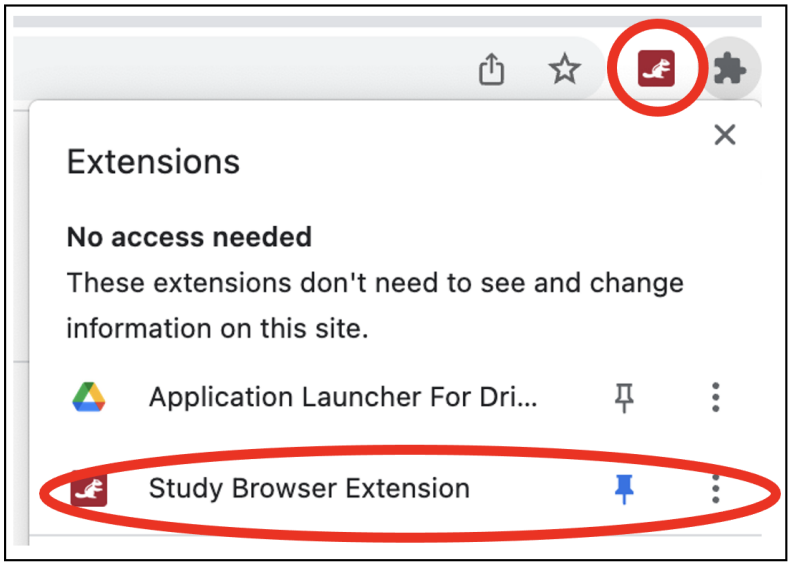
- When prompted, click “Add Extension.”



- You will be prompted to add your email address. Please use the email address that you shared with us earlier.



- You should now see the the study browser extension icon on the top right corner of your browser. If you don’t see it, it may be hidden under the puzzle icon, which is visible in the upper right corner of the screenshot below.



- You are all set.

If you have trouble installing the study browser extension, please email us at webmunk_study@hbs.edu and we will help you with additional instructions.

Were you able to successfully install the study browser extension?

Yes

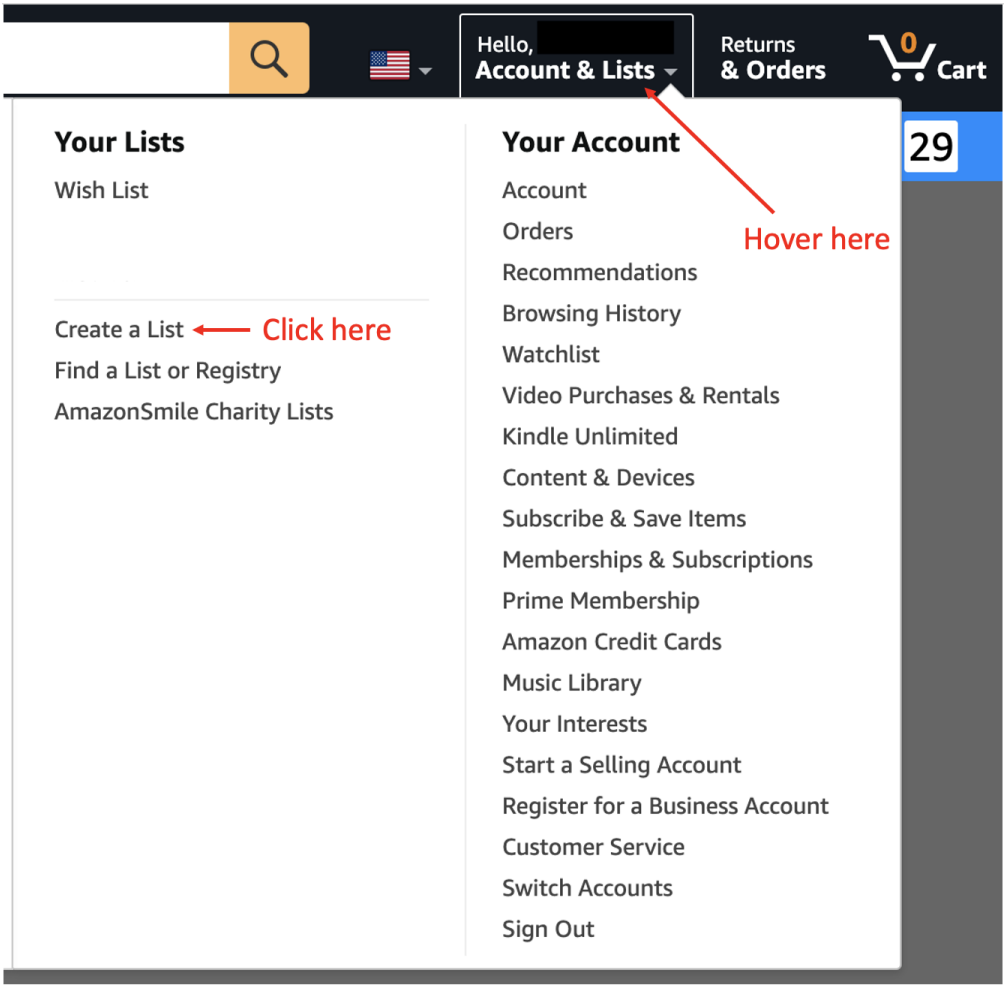
No, but I have emailed you

What difficulties have you encountered installing the extension?

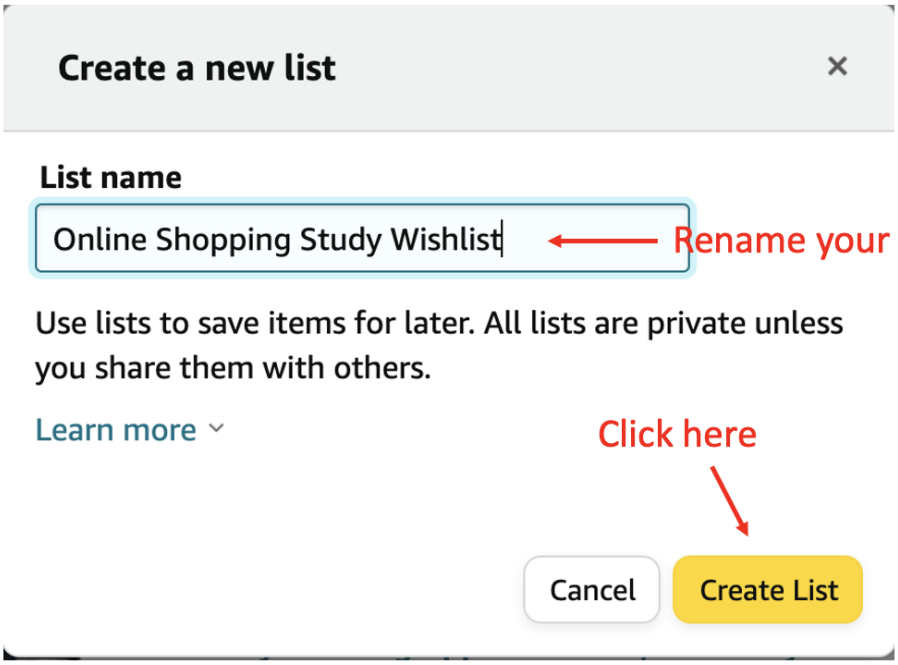
Introduction to the Wishlist Task

Below, we describe how to create an Amazon Wishlist and share it with the study researchers. Please follow these steps in order:

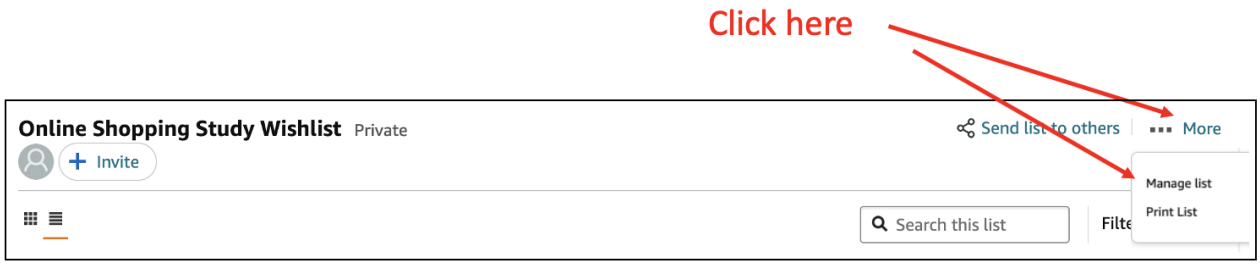
1. Go to amazon.com and log into your Amazon account.
2. On the top right side, hover on the tab titled "Account & Lists" and select "Create a List."



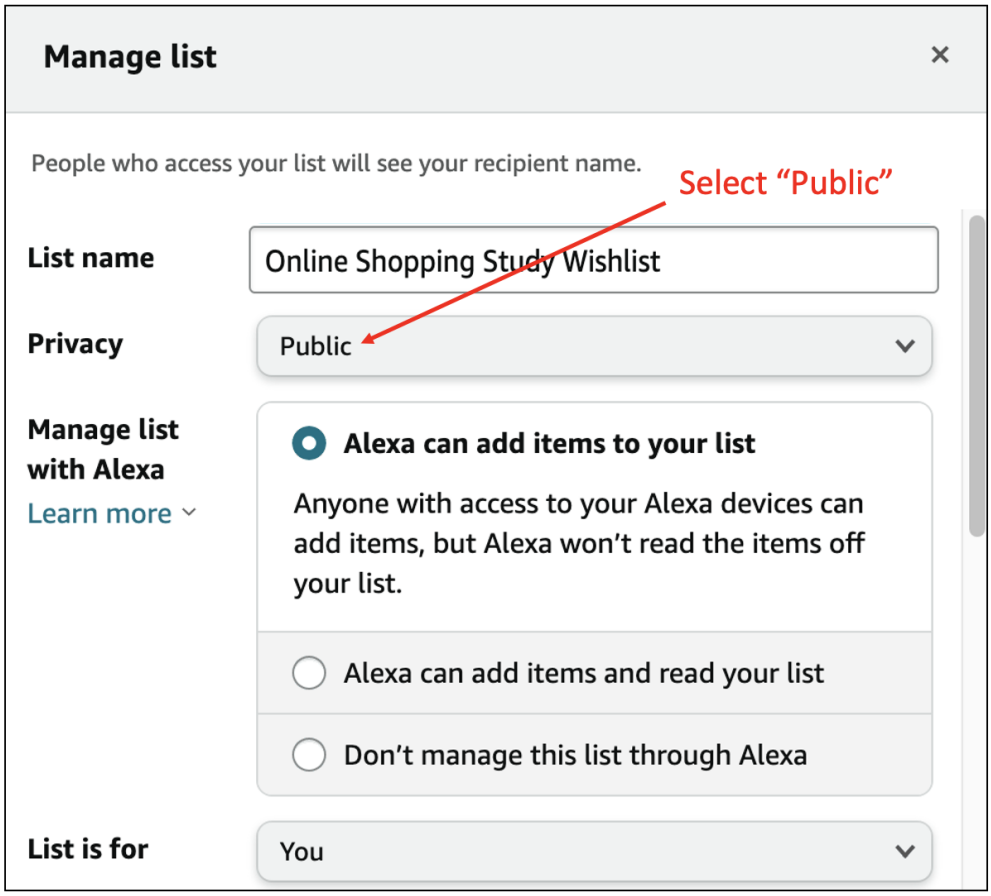
3. A new tab will pop up asking you to enter your list name. Please name it "Online Shopping Study Wishlist". The list will now appear empty.



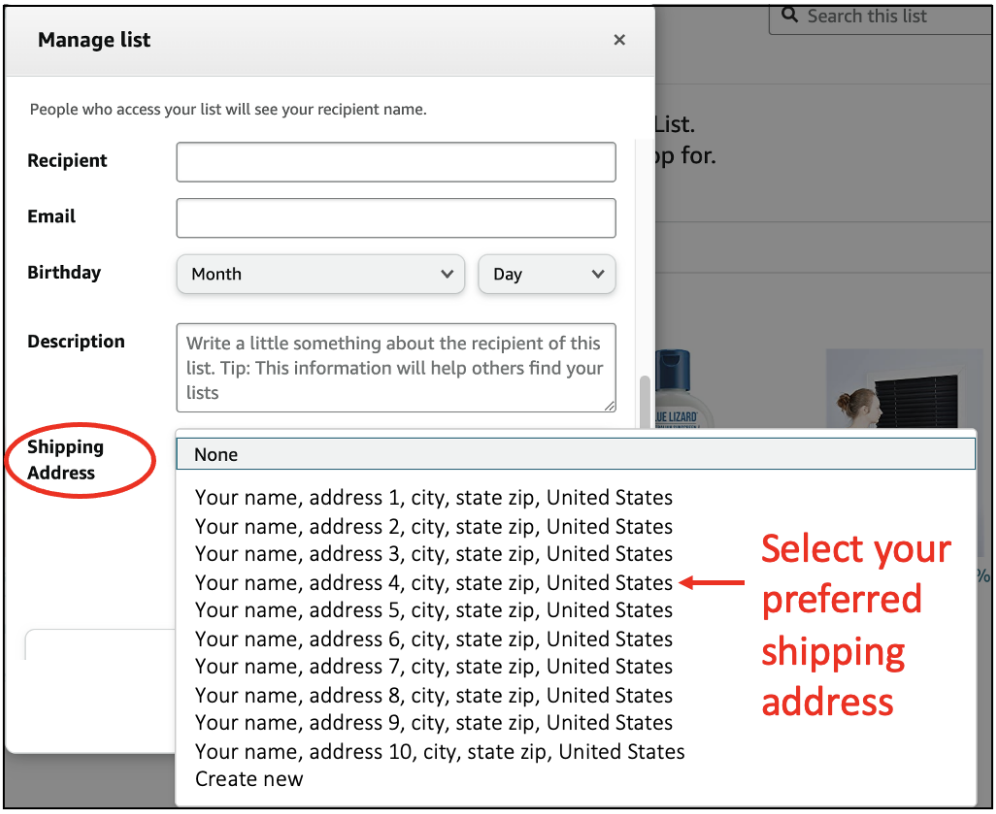
4. To add your shipping address, on the top right side of the list click on "More" and then "Manage List."



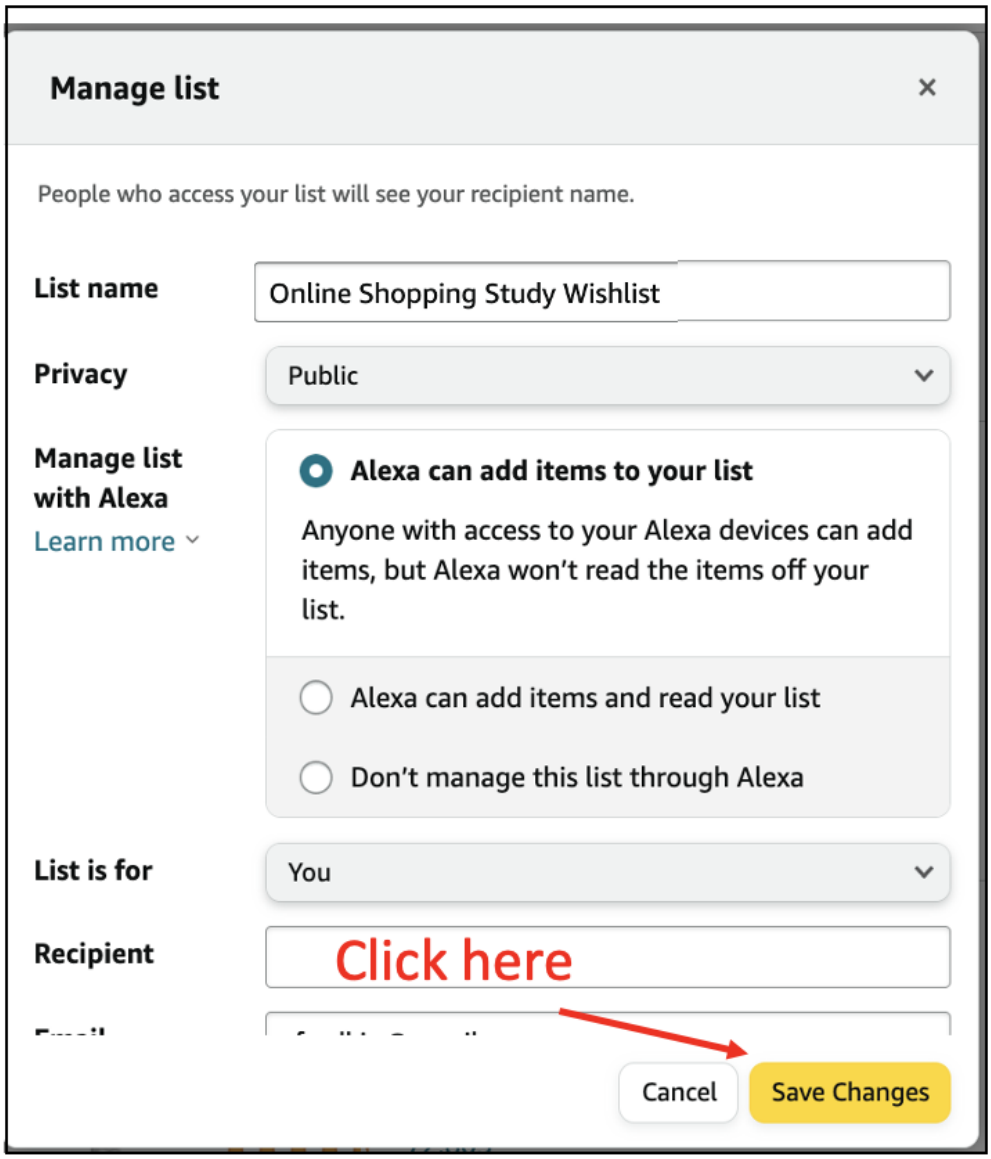
5. Click on the Privacy tab and select "Public". This will allow us to see your list.



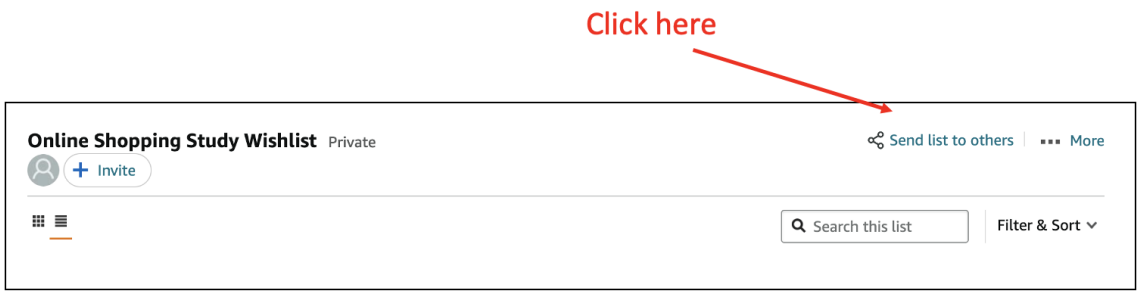
6. Scroll down to "Shipping Address" and enter the address you would like the product to be shipped to. Note, the study researchers will not be able to access your address.



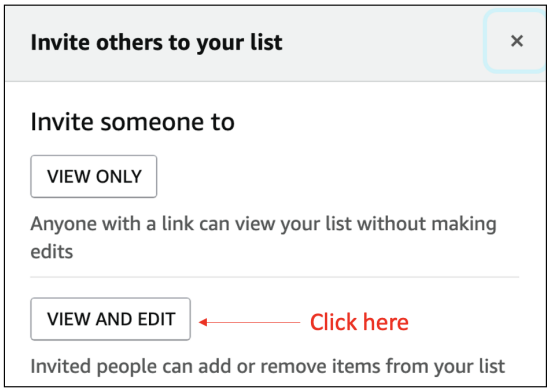
7. Click "Save Changes".

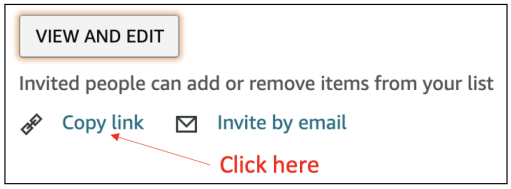


8. To share the list with study researchers, on the top right side of the list click on "Send list to others." It is next to the "More" button you clicked on before.



9. Select "VIEW AND EDIT" and "Copy link" to copy the link to your clipboard.





Please paste the link you just copied into the text form below. We will use this list to reward you for completing the study.

To paste the link, right click in the text box below and select "Paste."

Select product categories

Please select one product that you would like to purchase in each of the following categories:

Personal Care (Select one):

Nail clippers
Deodorant
Comb / brush
Toothpaste

Electronics (Select one):

Batteries

Phone charger

Monitor cable (HDMI, USB-c)

Extension cord

Apparel (Select one):

Socks

Shorts

T-shirt

Household Items (Select one):

Umbrella

Hand soap

Trash bags

Laundry detergent

Paper Products (Select one):

Toilet paper

Notepads

Envelopes

Paper towels

Health (Select one):

Allergy medication

Moisturizer

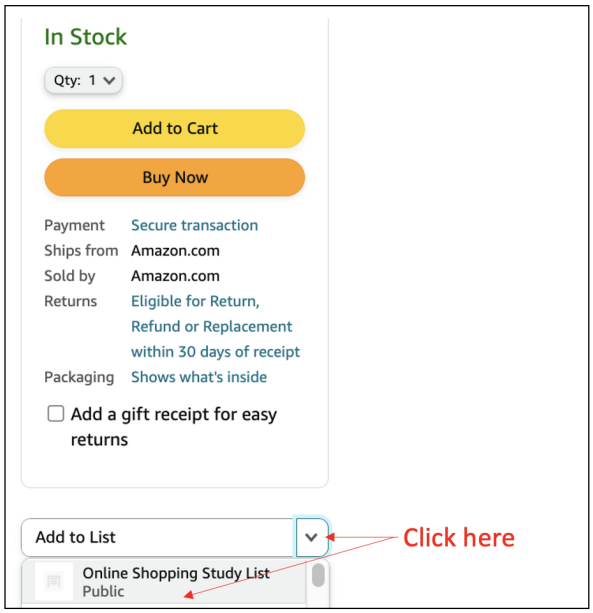
Acid reducer

Pain reliever

Personal Care

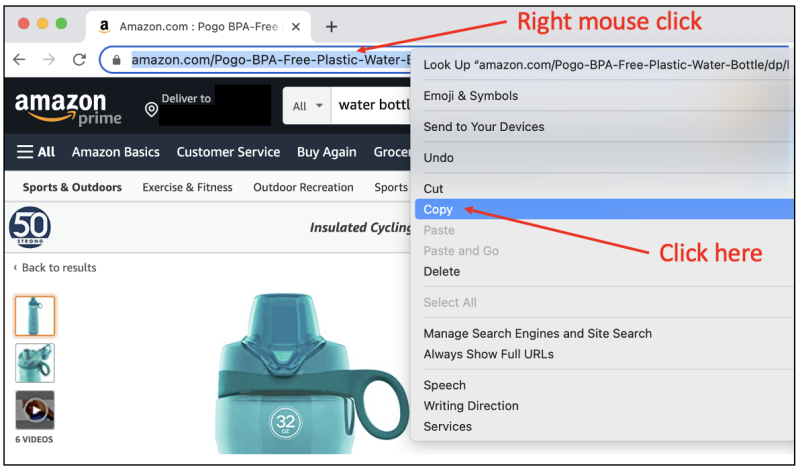
You have selected **${q://QID47/ChoiceGroup/SelectedChoices}** in the Personal Care category. Please search on Amazon for the product you would like to purchase. Make sure the product you select costs less than $50 (taxes+shipping included).

Once you find the product you'd like, please add it to the "Online Shopping Study List" wishlist. You can do this by clicking the arrow next to "Add to List" and select "Online Shopping Study List," as shown below. Please make sure you add the product to the "Online Shopping Study List" rather that adding it to your cart or to another list.



Please copy the URL of the product you selected and paste it below.

To copy the URL, right click with your mouse on the address bar, then select "Copy."

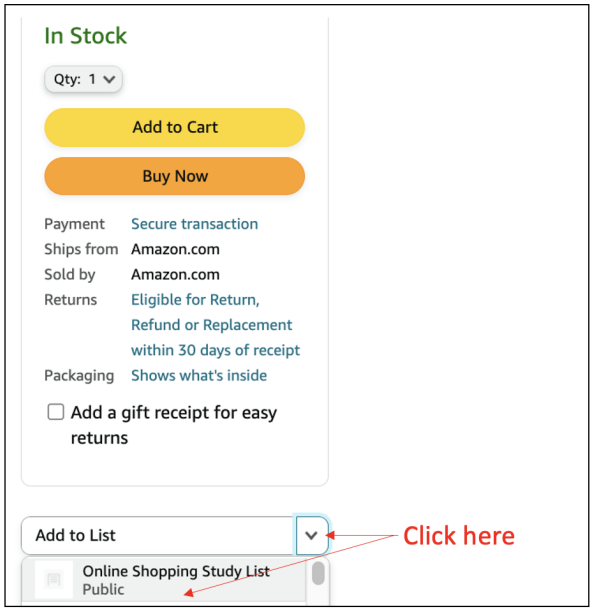


To paste the URL, right click in the text box below and select "Paste."

Electronics

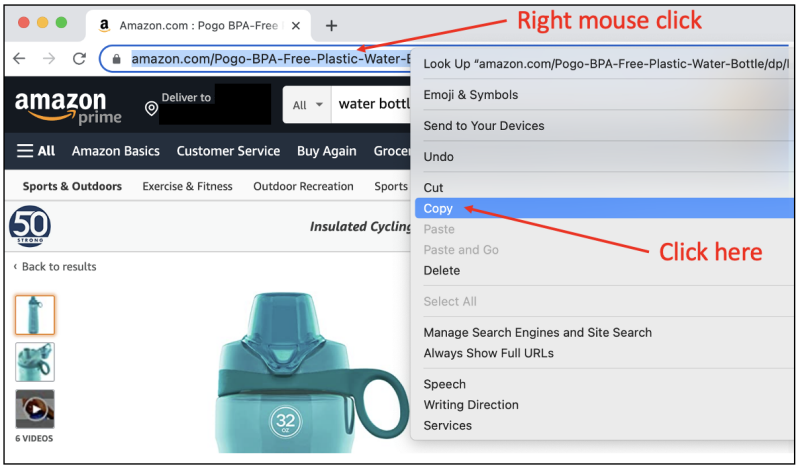
You have selected **${q://QID1/ChoiceGroup/SelectedChoices}** in the Electronics category. Please search on Amazon for the product you would like to purchase. Make sure the product you select costs less than $50 (taxes+shipping included).

Once you find the product you'd like, please add it to the "Online Shopping Study List" wishlist. You can do this by clicking the arrow next to "Add to List" and select "Online Shopping Study List," as shown below. Please make sure you add the product to the "Online Shopping Study List" rather that adding it to your cart or to another list.



Please copy the URL of the product you selected and paste it below.

To copy the URL, right click with your mouse on the address bar, then select "Copy."

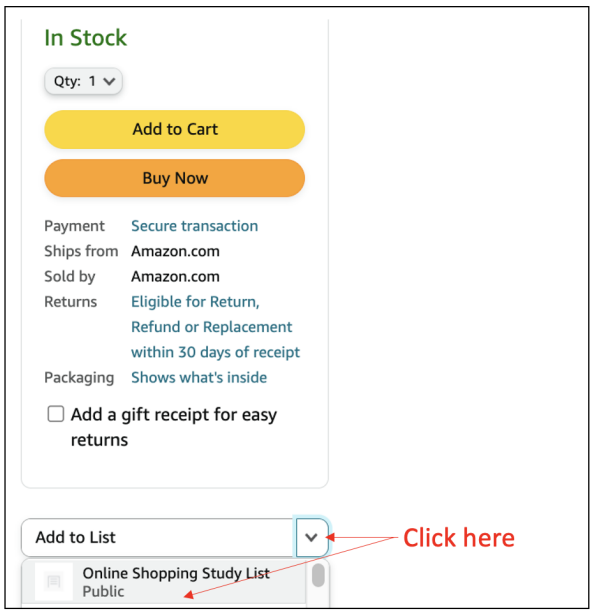


To paste the URL, right click in the text box below and select "Paste."

Apparel

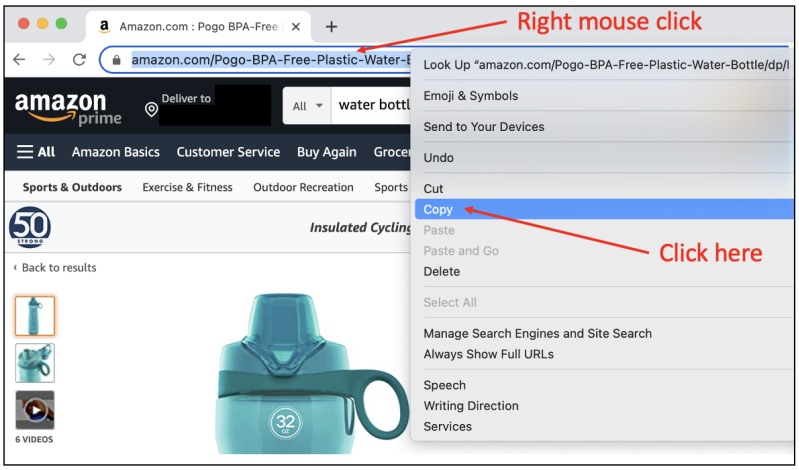
You have selected **${q://QID3/ChoiceGroup/SelectedChoices}** in the Apparel category. Please search on Amazon for the product you would like to purchase. Make sure the product you select costs less than $50 (taxes+shipping included).

Once you find the product you'd like, please add it to the "Online Shopping Study List" wishlist. You can do this by clicking the arrow next to "Add to List" and select "Online Shopping Study List," as shown below. Please make sure you add the product to the "Online Shopping Study List" rather that adding it to your cart or to another list.



Please copy the URL of the product you selected and paste it below.

To copy the URL, right click with your mouse on the address bar, then select "Copy."

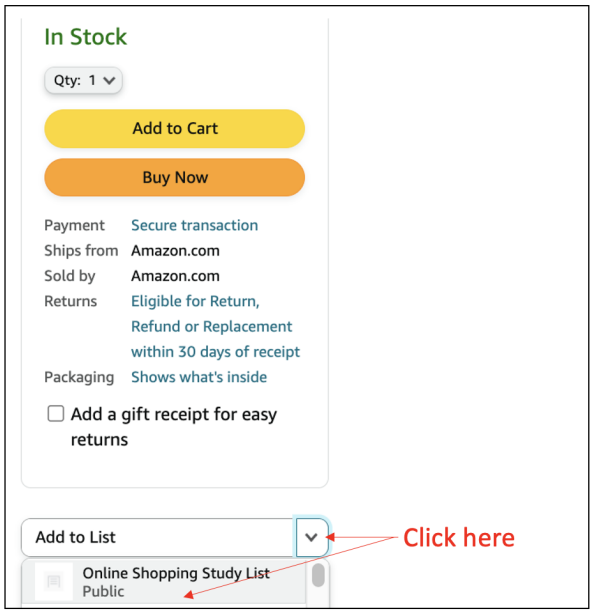


To paste the URL, right click in the text box below and select "Paste."

Household Items

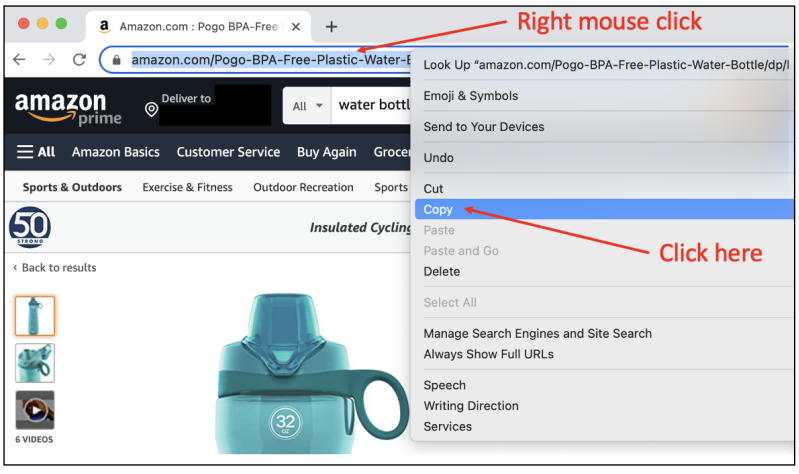
You have selected **${q://QID4/ChoiceGroup/SelectedChoices}** in the Household Items category. Please search on Amazon for the product you would like to purchase. Make sure the product you select costs less than $50 (taxes+shipping included).

Once you find the product you'd like, please add it to the "Online Shopping Study List" wishlist. You can do this by clicking the arrow next to "Add to List" and select "Online Shopping Study List," as shown below. Please make sure you add the product to the "Online Shopping Study List" rather that adding it to your cart or to another list.



Please copy the URL of the product you selected and paste it below.

To copy the URL, right click with your mouse on the address bar, then select "Copy."

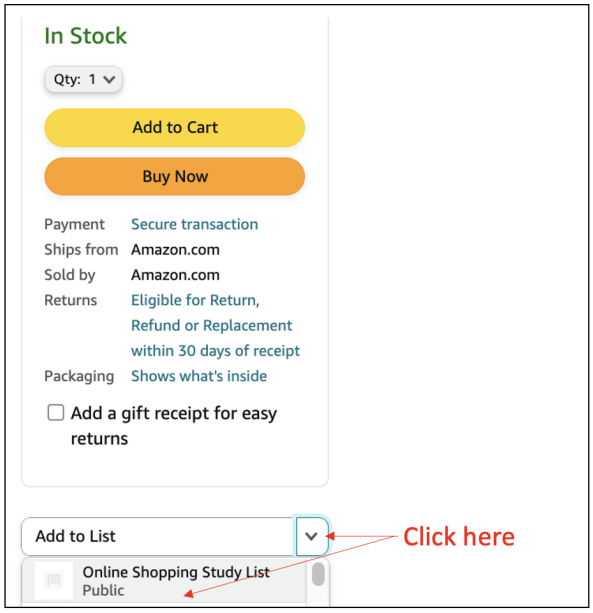


To paste the URL, right click in the text box below and select "Paste."

Paper and Wipes

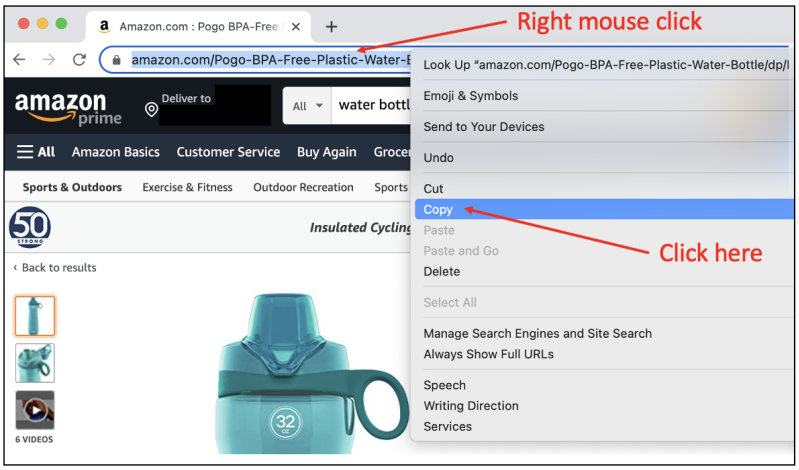
You have selected **${q://QID5/ChoiceGroup/SelectedChoices}** in the Paper and Wipes category. Please search on Amazon for the product you would like to purchase. Make sure the product you select costs less than $50 (taxes+shipping included).

Once you find the product you'd like, please add it to the "Online Shopping Study List" wishlist. You can do this by clicking the arrow next to "Add to List" and select "Online Shopping Study List," as shown below. Please make sure you add the product to the "Online Shopping Study List" rather that adding it to your cart or to another list.



Please copy the URL of the product you selected and paste it below.

To copy the URL, right click with your mouse on the address bar, then select "Copy."

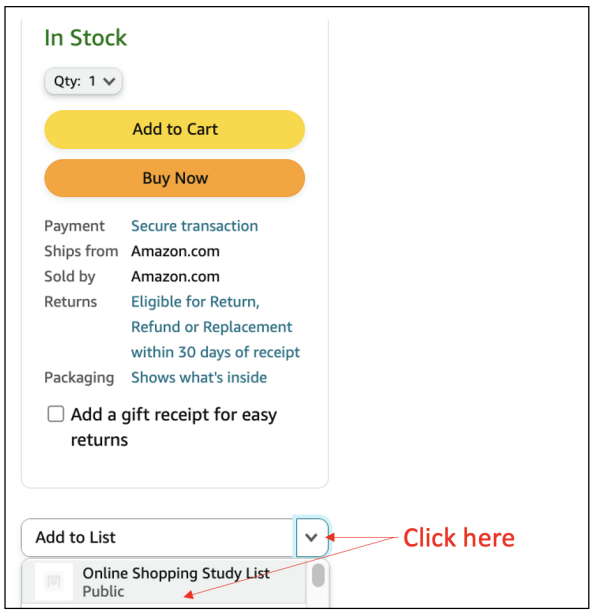


To paste the URL, right click in the text box below and select "Paste."

Health

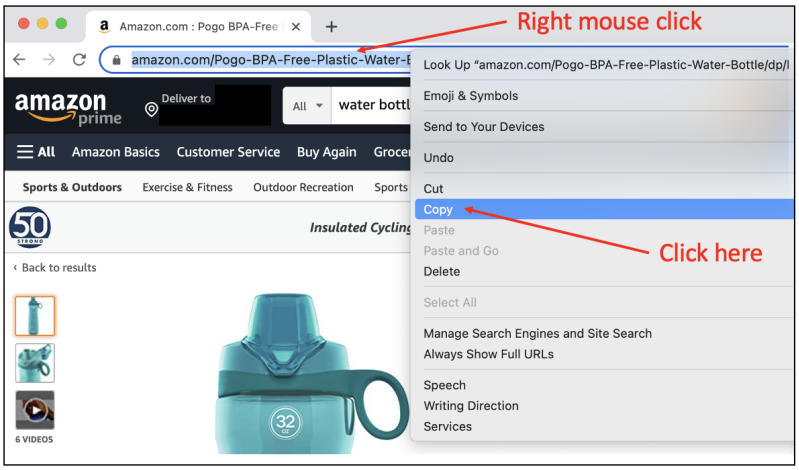
You have selected **${q://QID6/ChoiceGroup/SelectedChoices}** in the Health category. Please search on Amazon for the product you would like to purchase. Make sure the product you select costs less than $50 (taxes+shipping included).

Once you find the product you'd like, please add it to the "Online Shopping Study List" wishlist. You can do this by clicking the arrow next to "Add to List" and select "Online Shopping Study List," as shown below. Please make sure you add the product to the "Online Shopping Study List" rather that adding it to your cart or to another list.



Please copy the URL of the product you selected and paste it below.

To copy the URL, right click with your mouse on the address bar, then select "Copy."



To paste the URL, right click in the text box below and select "Paste."

Upload data

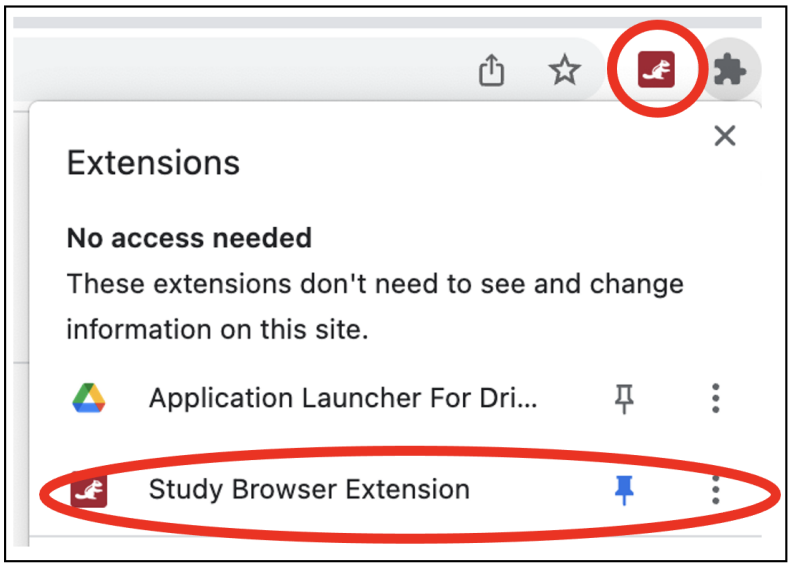
We're almost at the end of this survey.

Let's make sure you have added 6 items to your Online Shopping Study Wishlist:

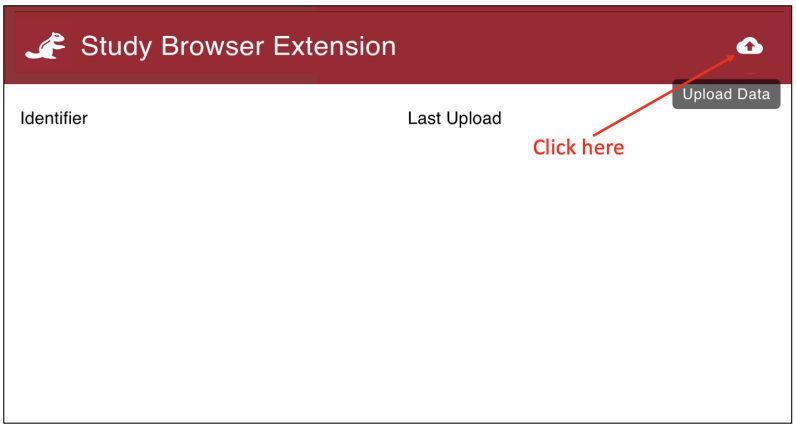
- Navigate to your wishlist. Here's the link that you shared earlier that you can copy and paste into your browser: ${q://QID1714808541/ChoiceTextEntryValue}
- **Check that you have 6 items on the list**, one per category you selected. Note: you will need to have these items in the list in order to receive compensation. If you do not, please go back and add products in the remaining categories.

It is now time to upload data to the study browser extension:

- To do that, click on the extension icon on the top-right corner of your browser. If you don't see it, it may be hidden under the puzzle icon, which is visible in the upper right corner of the screenshot below.



- A pop-up window should appear. If it does not, it may be hidden behind another browser window. Click on the "Upload Data" icon, as in the screenshot below.



The data upload may take a while. Please do not close Chrome. If you need to close it, the data upload will restart automatically the next time you open Chrome.

If you encounter any trouble, please email us at webmunk_study@hbs.edu.

In the meantime, **click below to answer the last few questions in this survey**.

Final Questions

What were the most important factors to you when shopping for the items for your wishlist? Select up to three factors:

Familiarity with Seller	Quality
Delivery Speed	Easy Returns
Value for Money	Quantity of Product
Price	Ratings/Reviews
Brand	Other Product Features

If you had to buy products in these categories again, would you shop for them again on Amazon.com?

	Definitely not on Amazon.com	Likely not	Unsure	Likely yes	Definitely yes on Amazon.com
Personal care	○	○	○	○	○
Electronics	○	○	○	○	○

	Definitely not on Amazon.com	Likely not	Unsure	Likely yes	Definitely yes on Amazon.com
Apparel	○	○	○	○	○
Household items	○	○	○	○	○
Paper products	○	○	○	○	○
Health	○	○	○	○	○

How satisfied are you with your online shopping experience during this survey?

Very dissatisfied Dissatisfied Neutral Satisfied Very satisfied

Now that you've completed the shopping tasks, do you have any feedback for us about the task or the survey?

You have answered all of the questions in the initial survey. Please be sure to complete other tasks remaining in the browser extension window, including uploading your Amazon order history.

In 8 weeks, the browser extension will automatically prompt you to complete the final survey.

Please click the arrow below to complete this task.

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Default Question Block

Welcome back to our study!

Today we'll ask you some final questions about your recent online shopping experience. After you complete it, we will provide you with instructions on how to uninstall the study browser extension from your browser. This step will conclude your participation in the study and you will receive the second payment.

Please complete this survey on the computer where you have the study browser extension installed.

Block 3

Which of these statements do you agree with the most?

Over the last couple of months, I primarily shopped for myself and my family.
Over the last couple of months, I primarily shopped for myself and my partner.
Over the last couple of months, I primarily shopped for myself.

At which retailers did you shop **in-store** over the past two months? (Select all that apply)

Best Buy	Whole Foods	Dollar General
Walmart	Dollar Tree	Walgreens
CVS	Costco	Macy's
Apple	Sam's Club	Kohl's
Target	Kroger	Other (specify below):

At which retailers did you shop **online** over the past two months? (Select all that apply)

Apple.com	Ebay.com	Etsy.com

Samsclub.com	Target.com	Wayfair.com
Kohls.com	Amazon.com	Shein.com
Walgreens.com	Walmart.com	Costco.com
Macys.com	Bestbuy.com	Other (specify below):

Which of the following product categories have you shopped for **online** over the past two months?

Shoes	Personal Care	Home, Garden, and Tools
Appliances	Sports and Outdoor	Electronics
Jewelry and Watches	Health	Household Items
Furniture	Groceries	Toys
Pet Supplies	Books	Beauty
Paper Products	Apparel (Clothing)	Other (specify below):

What were the most important factors to you when shopping for items online over the past two months? Select up to three factors:

Value for Money	Easy Returns
Quality	Delivery Speed
Ratings/Reviews	Price
Familiarity with Seller	Quantity of Product
Brand	Other Product Features

How satisfied are you with your online shopping experience during this study?

Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied

Was your Amazon.com shopping experience similar or different compared to before the start of the study?

Similar

Different

What was different? Please describe.

wishlist product

We bought the following product from your Amazon wishlist:

${e://Field/wl_product}

Have you received it?

Yes

No

How would you rate this product based on the following aspects?

	Very bad	Bad	Average	Good	Very good
Price	○	○	○	○	○
Quality of product	○	○	○	○	○
Overall rating	○	○	○	○	○

product1

In this page we will ask you to review products that you purchased on Amazon in the past couple of months.

Have you received the item below?

${e://Field/product1}

I have not received it yet

I have received it

I bought it for somebody else

Somebody else bought it

How would you rate this product based on the following aspects?

${e://Field/product1}

	Very bad	Bad	Average	Good	Very good
Price	○	○	○	○	○
Quality of product	○	○	○	○	○
Delivery speed	○	○	○	○	○
Overall rating	○	○	○	○	○

Product 1 and 2

In this page we will ask you to review products that you purchased on Amazon in the past couple of months.

Have you received the item below?

${e://Field/product1}

I have not received it yet

I have received it

I bought it for somebody else

Somebody else bought it

How would you rate this product based on the following aspects?

${e://Field/product1}

	Very bad	Bad	Average	Good	Very good
Price	○	○	○	○	○
Quality of product	○	○	○	○	○
Delivery speed	○	○	○	○	○
Overall rating	○	○	○	○	○

Have you received the item below?

${e://Field/product2}

I have not received it yet

I have received it

I bought it for somebody else

Somebody else bought it

How would you rate this product based on the following aspects?

${e://Field/product2}

	Very bad	Bad	Average	Good	Very good
Price	○	○	○	○	○
Quality of product	○	○	○	○	○
Delivery speed	○	○	○	○	○
Overall rating	○	○	○	○	○

Product 1, 2 and 3

In this page we will ask you to review products that you purchased on Amazon in the past couple of months.

Have you received the item below?

${e://Field/product1}

I have not received it yet

I have received it

I bought it for somebody else

Somebody else bought it

How would you rate this product based on the following aspects?

${e://Field/product1}

	Very bad	Bad	Average	Good	Very good
Price	○	○	○	○	○
Quality of product	○	○	○	○	○
Delivery speed	○	○	○	○	○
Overall rating	○	○	○	○	○

Have you received the item below?

${e://Field/product2}

I have not received it yet

I have received it

I bought it for somebody else

Somebody else bought it

How would you rate this product based on the following aspects?

${e://Field/product2}

	Very bad	Bad	Average	Good	Very good
Price	○	○	○	○	○
Quality of product	○	○	○	○	○
Delivery speed	○	○	○	○	○
Overall rating	○	○	○	○	○

Have you received the item below?

${e://Field/product3}

I have not received it yet

I have received it

I bought it for somebody else

Somebody else bought it

How would you rate this product based on the following aspects?

${e://Field/product3}

	Very bad	Bad	Average	Good	Very good
Price	○	○	○	○	○
Quality of product	○	○	○	○	○
Delivery speed	○	○	○	○	○
Overall rating	○	○	○	○	○

Amazon Questions (Group A)

The following questions pertain to shopping on Amazon.com. Amazon sells its own lines of products, which we refer to as "Amazon-branded" products. These products include brands such as Amazon Basics, Presto!, and Solimo.

Suppose an Amazon-branded product you want is selling on Amazon for $10, and there is a similar product available (not Amazon-branded) with the same rating and delivery options.

What is the most you might be willing to pay for the other product?

Price of the Other Product (not Amazon-Branded) ($)

0 2 4 6 8 10 12 14 16 18 20

Suppose a product you want is selling on Amazon for $25, and there is a similar Amazon-branded product available with the same rating and delivery options.

What is the most you might be willing to pay for the Amazon-branded product?

Price of the Amazon-Branded Product ($)

0 5 10 15 20 25 30 35 40 45 50

Suppose a product you want is selling on Amazon for $25, and there is a similar Amazon-branded product available with the same delivery options.

However, the Amazon-branded product has a **lower rating.** It has 4 stars, compared to 4.5 stars for the other product. What is the most you might be willing to pay for the Amazon-branded product?

Price of the Amazon-Branded Product ($)

0 5 10 15 20 25 30 35 40 45 50

Suppose a product you want is selling on Amazon for $25, and there is a similar Amazon-branded product available with the same rating.

However, the Amazon-branded product has a **faster delivery time**. It offers 1-day delivery, compared to 3-day delivery for the other product. What is the most you might be willing to pay for the Amazon-branded product?

Price of the Amazon-Branded Product ($)

0 5 10 15 20 25 30 35 40 45 50

Amazon Questions (Group B)

The following questions pertain to shopping on Amazon.com. Amazon sells its own lines of products, which we refer to as "Amazon-branded" products. These products include brands such as Amazon Basics, Presto!, and Solimo.

Suppose an Amazon-branded product you want is selling on Amazon for $25, and there is a similar product available (not Amazon-branded) with the same rating and delivery options.

What is the most you might be willing to pay for the other product?

Price of the Other Product (not Amazon-Branded) ($)

0 5 10 15 20 25 30 35 40 45 50

Suppose a product you want is selling on Amazon for $10, and there is a similar Amazon-branded product available with the same rating and delivery options.

What is the most you might be willing to pay for the Amazon-branded product?

Price of the Amazon-Branded Product ($)

0 2 4 6 8 10 12 14 16 18 20

Suppose a product you want is selling on Amazon for $10, and there is a similar Amazon-branded product available with the same delivery options.

However, the Amazon-branded product has a **lower rating.** It has 4 stars, compared to 4.5 stars for the other product. What is the most you might be willing to pay for the Amazon-branded product?

Price of the Amazon-Branded Product ($)

0 2 4 6 8 10 12 14 16 18 20

Suppose a product you want is selling on Amazon for $10, and there is a similar Amazon-branded product available with the **same rating**.

However, the Amazon-branded product has a **faster delivery time**. It offers 1-day delivery, compared to 3-day delivery for the other product. What is the most you might be willing to pay for the Amazon-branded product?

Price of the Amazon-Branded Product ($)

0 2 4 6 8 10 12 14 16 18 20

End of Survey

Thank you for completing the final survey.

After completion, you will be prompted to uninstall the study browser extension from the extension pop-up window.

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C Webmunk Misc

List of domains tracked: anthropologie.com apple.com barnesandnoble.com bathandbodyworks.com bestbuy.com bhphotovideo.com birchbox.com bodybuilding.com boxed.com chewy.com costco.com cvs.com dillards.com dollargeneral.com ebay.com etsy.com forever21.com gamestop.com gap.com gnc.com hm.com homedepot.com hsn.com iherb.com ikea.com warbyparker.com johnlewis.com kohls.com kroger.com lego.com lordandtaylor.com nyxcosmetics.com lowes.com macys.com microsoft.com neimanmarcus.com newegg.com nike.com nordstrom.com overstock.com qvc.com rakuten.com riteaid.com samsclub.com sephora.com shop.app staples.com target.com vitaminshoppe.com ulta.com urbanoutfitters.com victoriassecret.com walgreens.com walmart.com wayfair.com yoox.com zappos.com zulily.com shop.app