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. Using this variation, we document several patterns about consumer behavior. In the absence of Amazon brands, 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 find no evidence that consumers exhibit additional search effort in the absence of Amazon brands, nor that they shift their shopping behavior to other retail websites. On the supply side, we do not find evidence that Amazon discriminates in favor of its own products in search results. We estimate a structural model and use the model to quantify the channels by which private labels affect consumer welfare on Amazon [in progress].

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 among other lawsuits, 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 as "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, especially if the gatekeeper treats its own products more favorably, i.e., engages in self-preferencing.

We study the effects of Amazon private labels 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 in particular, to remove Amazon private label brands from Amazon. This allows us to measure the (short-run) effects on consumer searches and product choices

We focus on four demand-side channels by which the presence of private label products can affect consumer welfare. First, their presence increases the number of options that consumers can choose from—the variety effect. Second, their presence can have competitive effects on equilibrium prices of other products. Third, their presence may increase or decrease search intensity for consumers. Fourth, their presence may affect cross-platform or cross-retailer behavior, e.g., private labels may encourage consumers to shop on Amazon, instead of Walmart.com.

On the platform side, we consider Amazon's decision to rank products higher or lower in search results. We examine the extent to which Amazon may exhibit self-preferencing, i.e., favoring its own products in search. [In progress:] On the supply side, we evaluate how the

[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.

presence of private labels influences the price of substitute products.

We use our experimental variation to provide reduced-form evidence on the extent of most of these mechanisms. We find that when Amazon brands are not available, consumers substitute to broadly similar products, except that those substitutes have fewer reviews. We find no evidence of changes to search behavior on Amazon, nor evidence that consumers spend more time on other online retail sites. On the platform side, we find no evidence that Amazon provides a distinct advantage to its own products in search results. [In progress:] To measure the impact to welfare and conduct counterfactual prices and rankings, we estimate a structural model of demand. The model allows us to quantify the equilibrium effects of Amazon brands on prices.

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 and then track their organic browsing behavior on Amazon for the following 8 weeks. In the incentivized 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.

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. When asked to rate the chosen products, consumers scored them similarly, regardless of whether they had access to private labels. If anything, Ama-

[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`.

zon private labels are valued $1.65 less on average relative to similar non-Amazon products valued at $25, with substantial heterogeneity around this mean. Conversely, stated preferences indicate larger values for higher average ratings and for a faster delivery speed.

The second set of results concern whether Amazon 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 test identifies platform bias in favor of a product if the product attains lower success among consumers, after conditioning 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, by hiding certain products our experiment induces random variation in the realized ranking of non-hidden items, which allows us to observe counterfactual outcomes for searches in which Amazon products would have otherwise been shown.

We find no evidence of self-preferencing according to this test. 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).

[In progress:] As evidence of consumer preferences for Amazon private labels and to measure their effects on welfare, we estimate a structural model of demand and supply. We use a discrete choice demand model allowing for a large degree of preference heterogeneity across individuals. We use the demand estimates from the demand model for two purposes. First, we predict product ranks from our estimates of consumer mean utilities and other product characteristics. If ranks were fully explained by consumer preferences, other product characteristics should not have any additional explanatory power. Second, we simulate counterfactual pricing decisions by the sellers and ranking decisions by the platform to quantify the competitive effects of private labels on welfare. The model uses our experimental variation for identification. Section 6 describes our approach.

Our study is subject to limitations. Our study design ensures that the participants have been

active Amazon shoppers. Further, we require the participants to use a desktop browser. Because of these margins of selection, our results may not completely generalize to the full population of online shoppers. Another limitation is that our study was conducted over a limited time frame: an incentivized shopping task followed by a 8-week observational period. Consumer behavior along various margins, such as search and cross-platform behavior, may take longer than 8 weeks to adjust to the removal of Amazon brands. Thus, the results from our experimental variation are limited to short-run effects.

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 participants' 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 practice 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 and pro-competitive nature of these practices offline, regulators have taken a different approach towards Amazon and its private labels given the dominant position that Amazon and other similarly large platforms have in their respective markets (Dubé, 2022).

The rest of the paper is structured as follows. Section 2 describes our data collection methodology and presents summary statistics about our study population. In Section 3, we present reduced-form evidence on demand effects, including substitution between Amazon brands and non Amazon brands, search effort, and cross-platform effects. Section 4 addresses platform ranking behavior and presents results about self-preferencing. Section 5 discusses our analysis of survey responses about consumer perceptions of Amazon brands. Section 6 introduces our ongoing work in estimating a model of supply and demand. Finally, Section 7 concludes.

2 Data Collection

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 participants to perform specific tasks. Second, it tracks participants' browsing behaviors on pre-determined websites. Third, it allows us to manipulate participants' browsing experience to create different treatment conditions across users and estimate treatment effects of interest. We discuss each of the three functionalities as part of the study design, and then present our sample of study participants.[7]

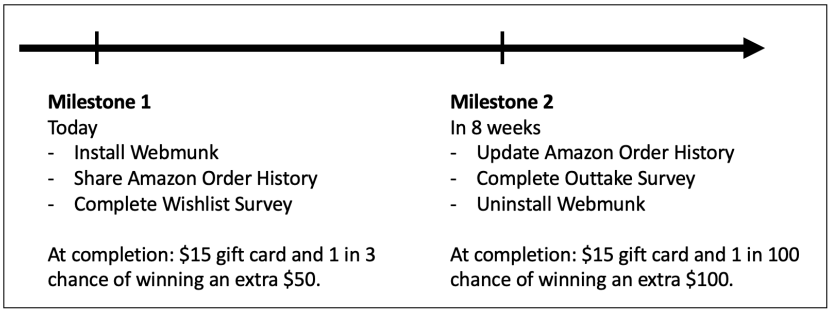
2.1 Study Design

Recruitment and Study Timeline. We recruited American adults through Facebook advertisements between mid-June and beginning of October 2023.[8] participants filled out an initial Qualtrics survey, which determined eligibility for the study and collected explicit participant consent to participate. The survey is available in Appendix D. Three eligibility criteria are worth highlighting. 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 participants satisfy this

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

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

Figure 1: Study Timeline



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, participants 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 participant 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 participants 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.[9]

Figure 1 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.[10] The remaining tasks to complete appear on the extension pop-up window, as shown in Appendix Figure C.1. 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). Participants 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 D. When they complete these final tasks (*Milestone 2*), participants receive an additional $15 gift card and a 1/100 chance to win an extra $100.

[9]Webmunk employs industry-standard encryption protocols so that personally identifiable information about participants 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 participant's anonymous identifier is stored separately from the participant data collected by Webmunk, which are associated to the anonymous identifier.

[10]The order history is automatically crawled by Webmunk after participants click on "Upload your Amazon order history" on Webmunk's pop-up window (see Appendix Figure C.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

Incentivized shopping tasks. Upon enrollment, participants are asked to fill out an initial survey, available in Appendix D. 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 within those categories to add to an Amazon wishlist especially created for our study. Informed by pilot studies, we selected categories (Figure C.4) 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 Appendix Table A.2).

Randomization and data tracking. When participants install the extension, Webmunk randomizes them into one of three treatment groups. In the control group, the extension does not

modify anything of the participant'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').[11]. The extension also checks if an item was flagged by Amazon as an Amazon brand.[12] When the extension identifies a product as an Amazon brand, it hides the HTML block corresponding 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 C.2 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 C.2a—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 C.2a. 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 C.3), 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 participant 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.

While installed, the extension tracks a selection of the URLs participants 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

[11]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'.

[12]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.

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 participant performs. This data collection effort allows us to, for example, identify that a participant 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.[13] This allows us to identify the extent to which participants shop across many competing e-commerce sites.

2.2 Study Population

This section presents descriptive statistics about our study population. We start with Table 2, which presents the number of participants across the various steps of the experiment. Over 14,000 participants started the eligibility survey. Of these, 2,779 qualified and formally consented to the study, but only 74% of them successfully installed Webmunk. Out of the successful installs, 75% completed the incentivized shopping tasks, meaning that they shared with us an Amazon wishlist with 6 items across the categories listed in Table 1 (*wishlist choice sample*). This wishlist choice sample is the main dataset we use in this paper.

The study experienced further participant attrition. Even for those who completed their wishlist task, we were not always able to collect their order history. As a result, the total number of individuals who completed Milestone 1 was 1,255. This is close to our planned sample size of 1,000—1,200 people who would complete milestone 1.[14] Finally, not all participants kept the extension installed for the following 8 weeks. Eventually, 903 study participants successfully completed the fully study.

To understand the pattern of attrition, we compare age and gender along the experiment funnel. The share of female participants increases along the study funnel (76% to 81%), but the average age remains approximately constant around 44 years old. The large proportion of women is clearly not representative of the US population and likely related to the fact that the research was advertised as a study of online shopping behavior. Yet, the large share of women is likely to be representative of who is responsible for household-related shopping, which is what we are interested in studying here. Indeed according to Numerator, 75% of Amazon shoppers are female.[15]

For participants who completed the incentivized shopping tasks, we have more demographic characteristics. Participants reside across the US, with the largest states being California (9.1%

[13] A full list of domains tracked is available in Appendix B.

[14] See our pre-registration here: 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 2: Number of Participants across the Experiment Funnel

Stage	N	Percent	% Female	Avg. Age
IRB Consent	2779	100.0%	76%	44
Webmunk Install	2063	74.2%	78%	44
Wishlist Choice Sample	1549	55.7%	78%	43
Order History	1433	51.6%	81%	45
Milestone 1	1255	45.2%	81%	44
Milestone 2	903	32.5%	81%	44

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.

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.

Appendix Figure C.5 compares the study population to the US population across 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.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. Lastly, white and Asian populations are overrepresented, whereas Black and Hispanic populations are underrepresented.

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 participant data, there is no differential tracking across treatment groups. We find no differences in participants across these margins. We report these checks in Appendix A.1.

3 Reduced-Form Evidence of Demand Effects

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.

3.1 Substitution Patterns

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 other observable characteristics), then Amazon brands are likely offering alternatives 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 do not constitute a fundamentally different offering. Lastly, to the extent that Amazon self-preferences, the offering of these products could be harmful to consumers.

We study these effects with simple linear regressions. 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.[16] 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 participant is in the *Hide Amazon* treatment group. We compare the choices of participants in the *Hide Amazon* treatment group with the control and *Hide Random* groups separately. We cluster standard errors at the participant level.

Before turning to the results, we discuss some measurement issues when conducting this analysis. We would like to measure the characteristics of the products chosen by participants. We observe product characteristics from three different sources: search results, product pages, and wishlist pages. The observable characteristics vary across sources, since search and wishlist pages only have a subset of product information. Furthermore, some characteristics of the product such as the price and reviews may change over time, and can result in measurement error issues when tracked through the wishlist pages.[17] We describe these data cleaning decisions in Appendix B.1.

Table 3 presents summary statistics of the selected products, 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

[16] These characteristics are tracked through Webmunk. As discussed in Section 2.2, tracking is missing for a subset of the products. However, Appendix Table A.4 shows no differential tracking rates across treatment groups.

[17] We have HTML screenshots of the wishlist pages as part of our verification process of task completion. These screenshots can happen with a delay of a few days from when the participant completed the task.

Table 3: Summary Stats

	Meta-Categories with Amazon Brands			Personal Care categories without Amazon Brands		
	Control (1)	Hide Amazon (2)	Hide Random (3)	Control (4)	Hide Amazon (5)	Hide Random (6)
Amazon Brand	0.09	0.02	0.10	0.00	0.00	0.00
Average Star Rating	4.54	4.56	4.54	4.48	4.53	4.51
Fast Delivery	0.40	0.38	0.39	0.44	0.43	0.48
Free Delivery	0.75	0.77	0.75	0.80	0.83	0.84
Nr. Reviews	27,525	18,973	25,805	12,703	14,326	13,954
Price ($)	21.08	20.45	20.61	16.69	15.80	16.49
Prime Eligible	0.60	0.60	0.62	0.66	0.65	0.68

Notes: This table presents summary statistics for the incentivized shopping tasks. The first row shows the share of products selected by participants 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.

selected carry an Amazon brand. In the *Hide Amazon* group, that share drops to 2%.[18] On the left-hand side of the table, we highlight the key difference between the *Hide Amazon* group and the other experimental conditions. When Amazon brands are not available, participants select products that have accumulated a much lower number of reviews (about 19,000 compared to 26,000-27,000 accumulated reviews).

Table 4 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 participants are indistinguishable from one another: prices, average star rating, Prime eligibility, and whether the product was sponsored in search are all comparable. On the other hand, the number of reviews is significantly lower in the *Hide Amazon treatment*. The removal of Amazon Brands also helps major brands, who see a 4.4 percentage-point increase in choice probability. Note that the increase in major brands is larger than a simple substitution pattern. Major brands have a 36% market share, and if 36% of the individuals who would have bought Amazon products (7.6% from column 1) bought major brands instead, the increase in major brands would have been lower, at 2.8 percentage points.

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 4 compares the *Hide Amazon* treatment with the *Hide Random* treatment, both of which experience the same type of page modifications and the same sized reductions in search result products. Results are similar to those in Panel a, although the reduction in the chosen product reviews is not as large (seven vs nine thousand reviews).

[18]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 participants in the treatment group from selecting the item and adding it to the wishlist (or purchasing it).

Table 4: Treatment Effect Regressions

(a) Amazon vs Control

	Amazon Brand (1)	Price (2)	Reviews (3)	Stars (4)	Major Brand (5)	Prime Eligible (6)	Sponsored (7)
Hide Amazon	-0.076***	-0.758	-9,049.732***	0.030	0.044***	-0.006	-0.028
	(0.007)	(0.402)	(1,669.677)	(0.015)	(0.013)	(0.021)	(0.018)
R^2	0.085	0.109	0.111	0.077	0.296	0.116	0.032
Observations	5,200	5,120	5,135	5,193	4,789	4,734	3,482
Mean of Y	0.092	21.083	27930.659	4.538	0.36	0.603	0.416
Category fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes

(b) Amazon vs Random

	Amazon Brand (1)	Price (2)	Reviews (3)	Stars (4)	Major Brand (5)	Prime Eligible (6)	Sponsored (7)
Hide Amazon	-0.083***	-0.071	-7,160.784***	0.028	0.047***	-0.023	-0.017
	(0.007)	(0.398)	(1,552.692)	(0.016)	(0.013)	(0.021)	(0.018)
R^2	0.085	0.110	0.100	0.081	0.282	0.115	0.025
Observations	5,105	5,037	5,043	5,101	4,697	4,654	3,446
Mean of Y	0.098	20.613	26189.158	4.536	0.366	0.62	0.404
Category fixed effects	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, price, number of reviews, major brand, whether the search result is sponsored, whether the chosen product is sold by Amazon (note, we omitted this variable since we could not reliably measure it). The other outcomes are secondary outcomes.
$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$, $.p < 0.10$.

Overall, the results suggest that, when Amazon brands are not available, consumers choose fairly similar alternatives, except that these alternatives have fewer reviews. Appendix Table C.3 conducts this analysis for the personal care meta-category, where there were no Amazon brands. We find no effects, consistent with proper randomization, and no unintended treatment side effects. Additionally, Appendix Table C.4 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 participants being randomized in multiple treatments, and the second difference comes from comparing categories with and without Amazon brands. We again find similar results.

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 participants see when searching on the platform, thereby potentially biasing purchases—and thus number of reviews—towards its own products. It can also solicit reviews for its own brands at a higher rate than the reviews of other brands, thereby letting its products accumulate reviews faster.[19]

3.2 Search Behavior

Even if participants find close substitutes to Amazon brands, the absence of these Amazon brands may still result in changes in search behavior. For example, if participants 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 participant 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 participants 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, then they may refine the search in a variety of ways. Searches with different keywords are of particular interest.[20] Second, we look at the number of unique products participants visit. This is a measure of the consideration set. Third, we look at the total number of product pages participants 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

[19]Using data from Keepa, we have analyzed the review accumulation pattern of Amazon branded products compared to other similar products, and we find that Amazon brands show a steeper adoption rate in every period, from first review to the most recent time.

[20]In about 15% of searches, participants use search filters, such as price or brand filters that are commonly available on Amazon.

Table 5: Effects on Search

	Number of URLs (1)	Number of ASINs (2)	Number of Product Page Visits (3)
Hide Amazon	-0.092	-0.070	-0.108
	(0.084)	(0.086)	(0.112)
R^2	0.058	0.151	0.128
Observations	5,260	5,260	5,260
Mean of Y	1.685	1.621	2.068
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 visited (URLs), 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. $p * ** < 0.001$; $**p < 0.01$; $*p < .05$.

tasks. We first restrict attention to logs between the start and end times of the Qualtrics survey that participants fill out as they complete the incentivized shopping tasks. Then, we use OpenAI's gpt4 model to classify search terms (for searches) and product titles (for product pages) to the 23 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. We test whether these outcomes are different between *Amazon Hide* and the control group.

Table 5 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. The point estimates are all small in size and statistically indistinguishable from zero. When Amazon products are not available, people search similarly, indicating that they find suitable substitutes without much additional effort.

3.3 Cross-Platform Effects

The presence of private label brands may attract consumers to Amazon instead of other websites, even when a consumer ultimately purchases another product. In this way, private label brands can play an important role in increasing overall demand for all products on a platform. In this way, private labels could have cross-platform competitive effects.

To assess whether Amazon brands affect cross-platform consumer behavior, we use the URLs visited by participants during the 8-week organic shopping period, after the incentivized shopping task. During this window, participants are not asked to complete any task; the Webmunk extension collects data on shopping behavior passively. However, the randomization into three conditions: Hide Amazon, Hide Random, and Control, persists during this period.

For each participant, we calculate the share of URL visits that belong to the Amazon.com

Table 6: Effects on Amazon Traffic Share

	Amazon vs. All (1)	Amazon vs. Target and Walmart (2)	Amazon vs. eBay (3)
Constant	0.529***	0.783***	0.919***
	(0.014)	(0.013)	(0.008)
Hide Amazon	0.002	0.000	-0.004
	(0.019)	(0.019)	(0.012)
Hide Random	0.004	-0.003	0.002
	(0.020)	(0.019)	(0.012)
R^2	0.000	0.000	0.000
Observations	1,237	1,237	1,237

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

domain out of the all retail websites.[21] The full list of tracked domains is in Appendix B. We then regress these shares on treatment indicators to determine whether removing Amazon brands has an influence on cross-platform activity.

Table 6 reports the results. The Constant coefficient in column (1) indicates that Amazon.com accounts for 53 percent of all retail URLs visits tracked by our extension. The near-zero coefficients on Hide Amazon and Hide Random (which should be interpreted as marginal effects compared to the Control group) indicate that neither treatment group saw meaningful changes in the share of website visits to Amazon. The standard errors allow us to reject the hypothesis that the presence of Amazon brands have a moderate effect on Amazon's website traffic, relative to other retailers.

We consider specific platform substitution channels in columns (2) and (3). For column (2), we construct the share Amazon URL visits out of a more narrow set of domains: Amazon.com, Target.com, and Walmart.com. For column (3), we construct the share of Amazon URL visits out of visits to Amazon and eBay. Amazon has a 78 percent share of webpage visits out of the group that includes Target and Walmart, and it has a 92 percent share of out Amazon and eBay. As in column (1), we do not find evidence that either treatment affected Amazon's website traffic relative to these other retailers, and the standard errors are precise enough to reject moderate decreases in traffic.

Additionally, we provide corroborating evidence using survey responses about whether participants would shop again on Amazon. Table 7 presents the results for each of the 6 product categories. The outcome is the participant's answer to the following question: "If you had to buy products in these categories again, would you shop for them again on Amazon.com?" There were five possible answers, from "Definitely not on Amazon.com" to "Definitely yes." We

[21] Since we observe participant activity in sequence, we determine new website visits based on whether it a different URL from the one that was previously visited. Thus, a specific URL, such as the Amazon home page, may count as multiple webpages for a single participant on a given day.

Table 7: Effects on Shopping Again on Amazon – Survey Evidence

	Personal Care (1)	Electronics (2)	Apparel (3)	Household Items (4)	Paper Products (5)	Health (6)
Constant	4.192***	4.302***	3.801***	4.178***	3.900***	4.050***
	(0.044)	(0.038)	(0.049)	(0.043)	(0.052)	(0.046)
Hide Amazon	-0.062	-0.009	-0.063	-0.053	-0.041	-0.012
	(0.062)	(0.054)	(0.069)	(0.060)	(0.073)	(0.065)
R^2	0.001	0.000	0.001	0.001	0.000	0.000
Observations	1,037	1,037	1,037	1,037	1,037	1,037

Notes: This table presents regressions of the answer to the following question: "if you had to buy products in these categories again, would you shop for them again on Amazon.com?" There were five possible answers, from "Definitely not on Amazon.com" to "Definitely yes." We convert the 5 categories to a Likert scale where 5 is definitely yes. $p * ** < 0.001$; $**p < 0.01$; $*p < .05$.

convert the 5 categories to a Likert scale where 5 is definitely yes. While the propensity to shop on Amazon for these products varies by categories, with the lowest for apparel and the highest for electronics, there is no differential effect of removing Amazon brands—as indicated by the Hide Amazon coefficients—from the choice set.

Our results suggest that Amazon private label brands do not play a large role in steering consumers to the Amazon platform in the short run. It may well be the case that, over a horizon longer than the 8 weeks in our study, the absence of Amazon brands may have a larger effect.

4 Platform Rankings and Tests for 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 8 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 reviews (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 alone is not determinative evidence that Amazon treats its own products more favorably 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.

Table 8: 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$< .05$.

We test whether Amazon favors its own products relative to third-party products using the approach of Becker (2010). The approach is based on differential outcomes and has been applied to digital settings 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 lower success conditional on its ranking in search results. Importantly, for such a test to be credible, we need exogenous variation in rankings, since otherwise ranking could be correlated with characteristics of the search or searcher unobservable to the econometrician. Our treatment creates this variation by removing products and shifting rankings as a result.

For our outcome measure, we use the product addition to the wishlist. This is our strongest signal of consumer preferences. Since a large share of products are discovered through search results (Farronato, Fradkin and MacKay (2023)), we focus on the search ranking, though, in general, the question of self-preferencing could apply to all product positioning decisions across all pages on the platform.

To test for self-preferencing, we estimate the following linear probability model:

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

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.[22] We have controls for 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

[22]The selection does not need to be directly from the search results. For example, a participant 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 9: Test of Self-Preferencing

	(1)	(2)	(3)	(4)
Amazon Brand	0.013***	0.008**	0.011**	0.005
	(0.003)	(0.003)	(0.004)	(0.004)
Log(Reviews + 1)		0.003***		0.003***
		(0.000)		(0.000)
Price			0.000***	0.000
			(0.000)	(0.000)
Prime Eligible				0.004·
				(0.002)
Major Brand				0.006***
				(0.002)
Star Rating				0.009***
				(0.002)
Fast Delivery				-0.002
				(0.002)
Free Delivery				-0.005·
				(0.003)
R^2	0.034	0.036	0.074	0.078
Observations	278,736	271,539	144,180	140,054
Page-User fixed effects	Yes	Yes	Yes	Yes
Realized Rank fixed effects	Yes	Yes	Yes	Yes

Notes: This table displays regressions of whether a product was added to a wishlist during incentivized shopping tasks, as a function of whether it is an Amazon private label, product characteristics, page by user fixed effects, and the realize rank. ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$.

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 9. Column (1) displays a specification without covariates. The coefficient on Amazon Brand is positive and statistically significant, which is not what we would expect to find if self-preferencing occurred. The positive coefficient on Amazon brand may reflect that Amazon products have more reviews and lower prices. Columns (2) and (3) add these covariates in sequence. We find that even after controlling for reviews and price, the coefficient on Amazon brand remains positive. Lastly, column (4) includes additional covariates. The coefficient on Amazon brand shrinks and becomes statistically indistinguishable from zero. Thus, the test does not support the presence of self-preferencing in search results.

5 Survey Evidence on Consumer Preferences

Although we find no differences in search behavior across treatment groups, it is possible that participants are less satisfied with the products they choose when Amazon brands are not avail-

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). $p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$

able. To study this, in the final survey, we asked a variety of questions about participant satisfaction with the 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.

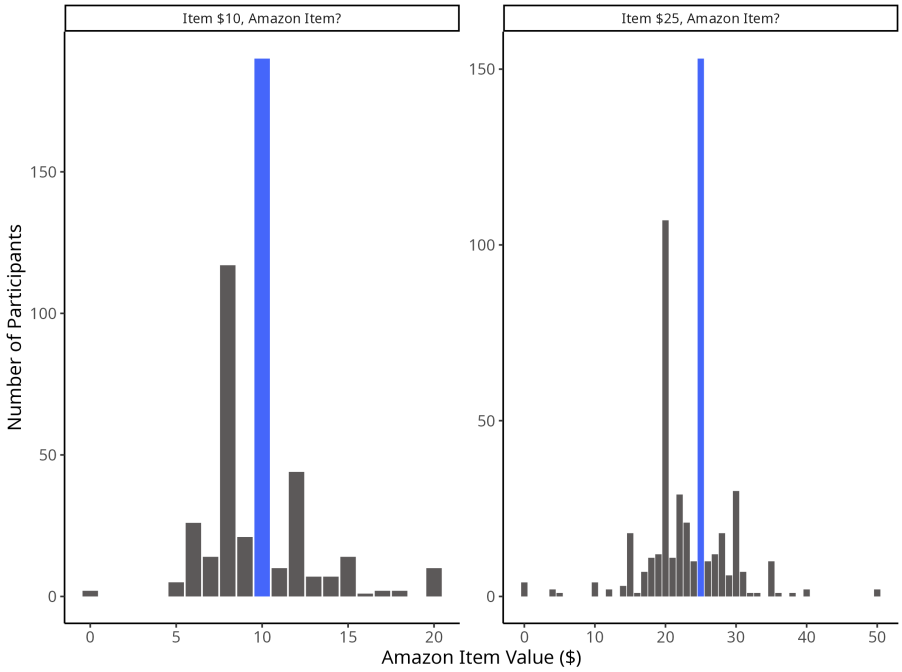
First, for those who received an item from the incentivized shopping tasks, we asked how they would rate the product, overall and separately for price and quality. Table 10 displays the results of regressions where satisfaction (on a scale from 1 to 5) is regressed on treatment assignment. Note that 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 participant satisfaction, overall nor for price or quality separately. Even if the statistical power of this analysis is limited due to small sample size, the estimates exclude large changes in satisfaction.

Next, we consider a set of survey questions in which we asked participants 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 2 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 C.6).

These preferences are greatly affected by slight changes in ratings and delivery characteris-

Figure 2: Willingness to Pay for Amazon Branded Products



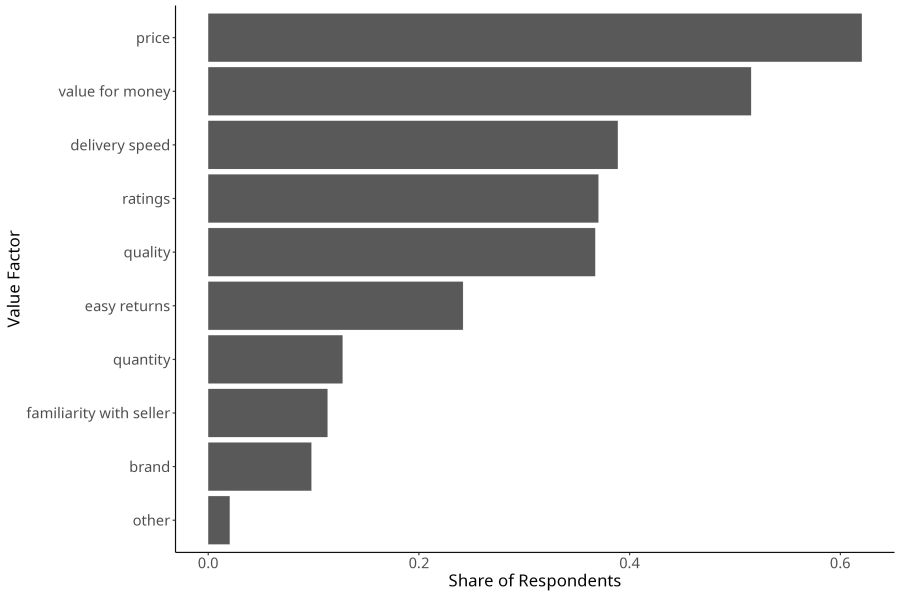
Notes: This plot presents the distribution of participants' responses to hypothetical questions in which they are asked their willingness to pay for an Amazon branded product, if a similar non-Amazon branded product they want costs either $10 (left) or $25 (right).

tics. 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 2) 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 3 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

Figure 3: Share of Respondents Valuing Each Factor



was also important for more than 20% of respondents. Lastly, quantity, familiarity with seller, and brand were the least important product features.

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 3.

6 Model [In Progress]

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. For a given product category from the incentivized shopping tasks, consumer i's consideration set J_i includes all ASINs appearing on search results pages, product pages (including recommended alternatives below the main product), 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 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 (such as "Best Seller"). Because we observe many products in search, and only have a limited sample size, we are unable to use standard techniques (e.g., fixed effects) to account for product-level unobserved heterogeneity. 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 when calculating welfare and conducting counterfactuals. Note that our experimental design ensures that the value of the outside option is balanced across treatment and control groups, and Table 7 confirms that the treatment does not affect whether participants prefer other stores to Amazon.

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

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

where p_j is price, $\mathbf{x}_j$ is the vector of product characteristics, 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. We allow preference parameters $(\alpha_i, \beta_i, \zeta_i, \gamma_i)$ to vary across individuals by observed demographic characteristics: income, children, and Amazon Prime membership. ϵ_{ij} is distributed Type I extreme value, and independent on product characteristics, rank, and price. For welfare, we will 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 a latent quality term that is unobserved to the econometrician. Since the platform chooses this ranking to maximize a weighted sum of consumer, supplier, and platform surplus, we include the product mean utilities estimated in our demand model as predictor of rank. This index yields product rank on search pages. After removing products from our intervention, we obtain the observed rank, r_j,

Table 11: Demand Estimates

		Interactions with Demographics		
Variable	**Mean**	**ln(Income)**	**Children**	**Prime Subscriber**
	(1)	(2)	(3)	(4)
Price	-0.0097	0.0010	0.0032	-
	(0.0011)	(0.0013)	(0.0024)	
Stars	0.5745	0.1701	-	-
	(0.0612)	(0.0696)		
ln(Reviews)	0.1087	0.0030	-	-
	(0.0060)	(0.0070)		
Prime	-0.2155	0.0061	-	2.2586
	(0.0519)	(0.0598)		(0.1166)
Amazon Brand	0.1244	-0.0336	0.2850	0.5146
	(0.0560)	(0.0670)	(0.1202)	(0.1446)
In Search Results	1.7454	0.1798	-0.0076	-0.2148
	(0.0396)	(0.0476)	(0.0861)	(0.1131)
Search Rank	-0.0790	-0.0080	0.0014	0.0412
	(0.0012)	(0.0014)	(0.0027)	(0.0039)

Notes: This table represents parameter estimates for our demand model. Column (1) presents the mean coefficients, while columns (2) through (4) present interactions of participant characteristics with product characteristics. Note that these are preliminary estimates, and are based on a subset of the product characteristics of the final model. Zeros in the interactions are there by assumption.

for a particular search.

Supply We assume that suppliers set prices while taking into account that their decision 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 and Results 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 (six) for each consumer.

In Table 11 we display preliminary estimates of this demand model, using a subset of product characteristics and consumer demographics. Column (1) shows the mean effects of the covariates. Price and search rank have a negative effect on utility, while number of reviews and stars have a positive effect on utility. Of particular interest, Amazon brand has a positive coefficient, suggesting that it is valued by consumers even conditional on covariates.

Columns (2) through (4) report interactions between shopper characteristics and covariates. We see that consumers with higher income care more about star ratings and see a steeper decline in utility with search ranking, consistent with a higher value of time. Column (3) reports interactions with the number of children. Those with children value Amazon brands more and are less price sensitive. Lastly, column (4) reports interactions with whether the individual is a Prime subscriber. We see that Prime subscribers value Prime and Amazon Branded products

substantially more than other participants.

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.

7 Conclusion

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 participants have ample choices in categories where Amazon brands exist. As a result, removing Amazon branded products leads participants 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.

Our analysis is subject to 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.

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A Additional Data Details

A.1 Balance Checks

Table A.1: Covariate Balance—Demographics

	White (1)	Income Code (1-7) (2)	Household Size (3)	Spend Share Code (1-4) (4)	Prime Member (5)	Ad Blocker (6)
Constant	0.744***	4.139***	2.426***	2.829***	0.828***	0.242***
	(0.019)	(0.076)	(0.055)	(0.037)	(0.017)	(0.019)
Hide Amazon	-0.018	0.096	-0.042	-0.066	0.001	-0.003
	(0.027)	(0.106)	(0.076)	(0.052)	(0.023)	(0.026)
Hide Random	-0.014	-0.054	0.127	-0.031	0.005	0.003
	(0.028)	(0.108)	(0.078)	(0.054)	(0.024)	(0.027)
R^2	0.000	0.001	0.003	0.001	0.000	0.000
Observations	1,549	1,359	1,549	1,549	1,549	1,549

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.
$^{***}p < 0.01$; $^{**}p < 0.05$.

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 participant 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 participant 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 A.1 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—participants are statistically indistinguishable across experimental conditions. Note that the share of participants with a Prime membership is high, at 82% in the control group and the share of participants who have an ad blocker is 24%.[23]

Similarly, participants are comparable across treatment conditions in their shopping behavior on Amazon. Table A.2 uses data collected by the browser extension about participants' Amazon orders from the beginning of 2022 until enrollment in the study. Participants 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 participants in the *Hide Amazon* condition purchase a slightly larger number of items for each order compared to the control group, although the dif-

[23] **??** performs analogous tests for the participants who completed Milestone 1.

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	159.456***	1.411***	4,960.817***	23.331***	0.416***	0.025***
	(7.628)	(0.013)	(238.535)	(0.394)	(0.008)	(0.002)
Hide Amazon	4.658	0.052**	26.039	-0.403	-0.003	-0.004
	(10.293)	(0.023)	(314.596)	(0.531)	(0.011)	(0.002)
Hide Random	15.658	0.028	208.480	0.232	-0.012	0.000
	(10.967)	(0.022)	(328.453)	(0.783)	(0.011)	(0.003)
R^2	0.002	0.003	0.000	0.001	0.001	0.002
Observations	1,463	1,463	1,463	1,460	1,463	1,463

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

Table A.3: 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 completed Milestone 1. $^{***}p < 0.01$; $^{**}p < 0.05$.

ference is less than 4%. Note that the average share of items sold by Amazon roughly matches publicly available figures on the share of first-party sales on Amazon.[24]

Since participants' browsing experience on Amazon is manipulated in the treatment groups, one may worry that such manipulation may worsen participants' 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 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 A.3). 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 participants in the treatment groups were less likely to be tracked by Webmunk. Note that participants had the possibility to uninstall the extension or turn it off temporarily. Such actions would limit our ability to manipulate and track participants' browsing behavior for the duration of the interruption. For every item included in a participant's wishlist, we verify whether that item's product page was tracked on Webmunk. Table A.4 displays results of linear probability models. On average, just over 75%

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

Table A.4: 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. ***$p < 0.01$; **$p < 0.05$.

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.[25]

B List of Tracked Domains

During the experiment, the Webmunk extension tracked a list of top retail domains. The list is as follows:

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

B.1 Data Cleaning Details

[In progress]

[25]Table C.1 performs a similar test for whether products in the wishlist are found in search results tracked by Webmunk.

Table C.1: 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 A.4.

Table C.2: 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 3 except that the wishlist products have been matched to products in search data.

C Additional Figures and Tables

Figure C.1: Webmunk Tasks

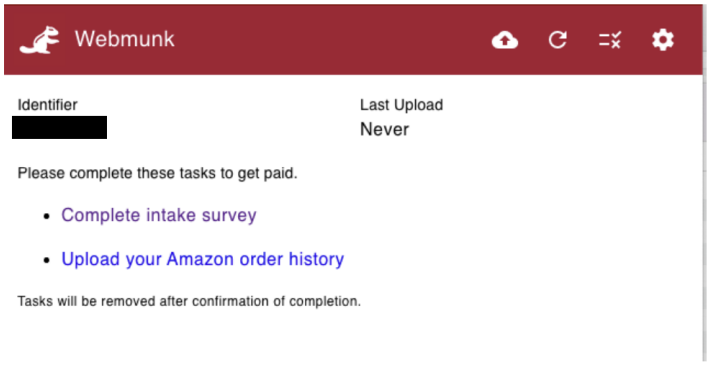


Table C.3: Treatment Effect Regressions – Personal Care Category

	Price (1)	Reviews (2)	Stars (3)	Major Brand (4)	Prime Eligible (5)	Sponsored (6)
Hide Amazon	-0.803	1,594.037	0.049	0.001	-0.017	0.031
	(0.577)	(1,178.242)	(0.026)	(0.026)	(0.031)	(0.036)
R^2	0.046	0.019	0.030	0.346	0.008	0.005
Observations	1,033	1,040	1,045	971	968	770
Mean of Y	16.693	12802.945	4.483	0.429	0.662	0.399
Category fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

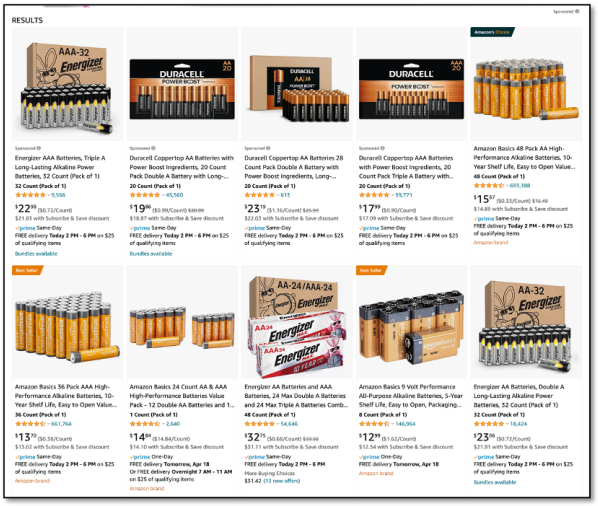
Notes: $p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$.

Table C.4: Treatment Effect Regressions – Difference-in-Differences

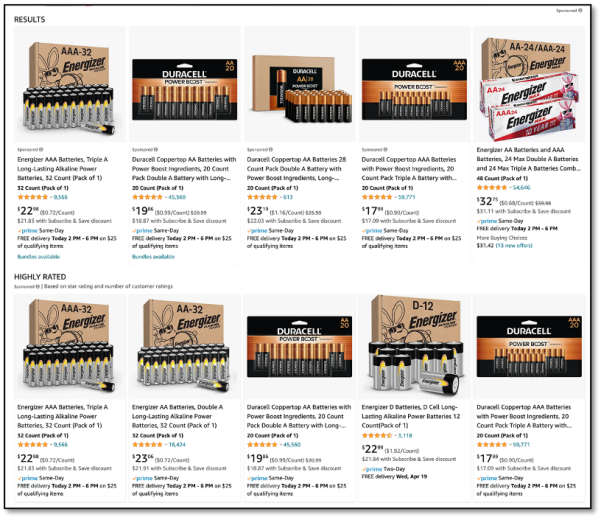
	Amazon Brand (1)	Price (2)	Reviews (3)	Stars (4)	Major Brand (5)	Prime Eligible (6)	Sponsored (7)
Hide Amazon	-0.076***	0.081	-10,604.613***	-0.015	0.039	0.015	-0.062
	(0.007)	(0.553)	(2,005.129)	(0.029)	(0.027)	(0.025)	(0.039)
R^2	0.278	0.473	0.273	0.252	0.457	0.541	0.307
Observations	6,245	6,153	6,175	6,238	5,760	5,702	4,252
User fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Category fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes

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

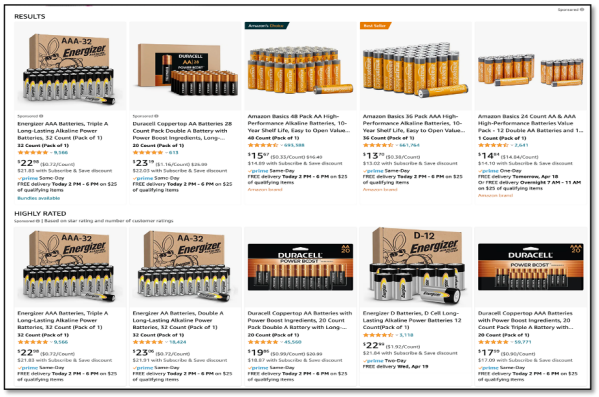
Figure C.2: Treatment Groups



(a) Control Group



(b) Amazon Hide Treatment



(c) Random Hide Treatment

Figure C.3: Special Product Positioning

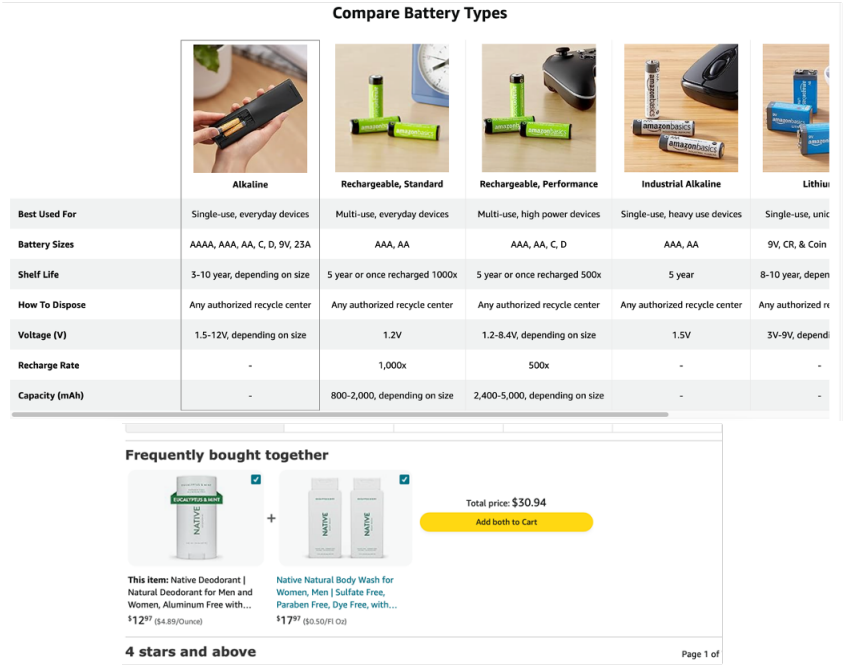


Figure C.4: Product Categories Selection

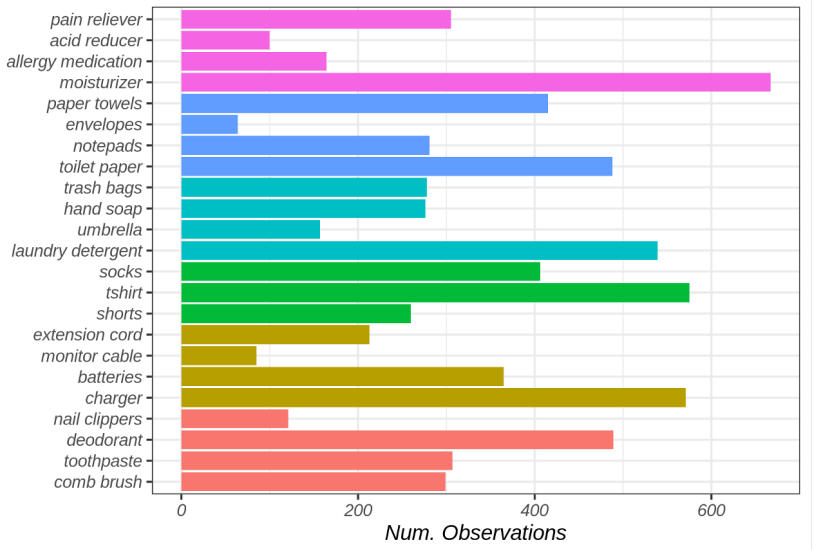


Figure C.5: Demographics Distribution of the US and the Study Population

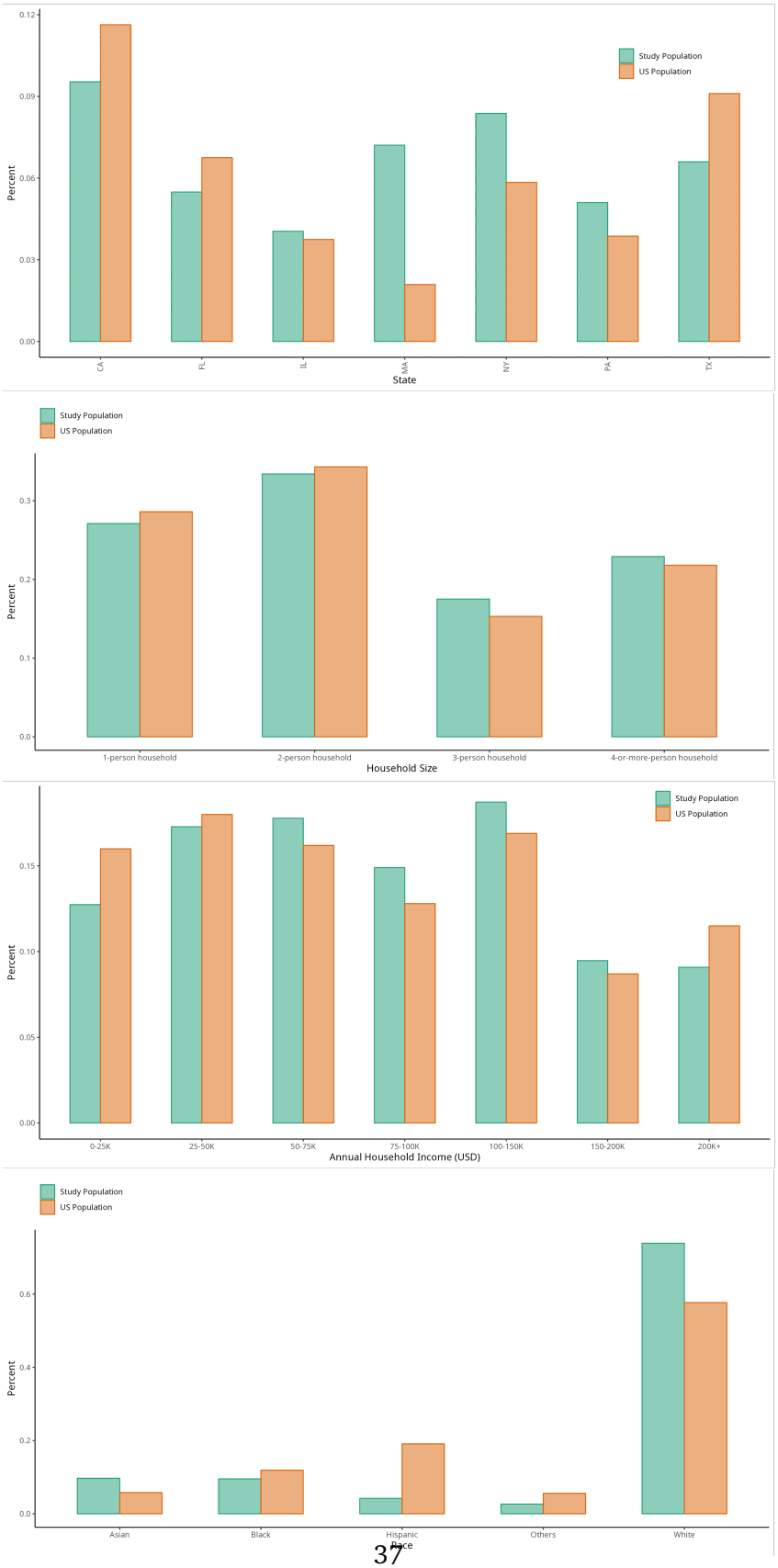
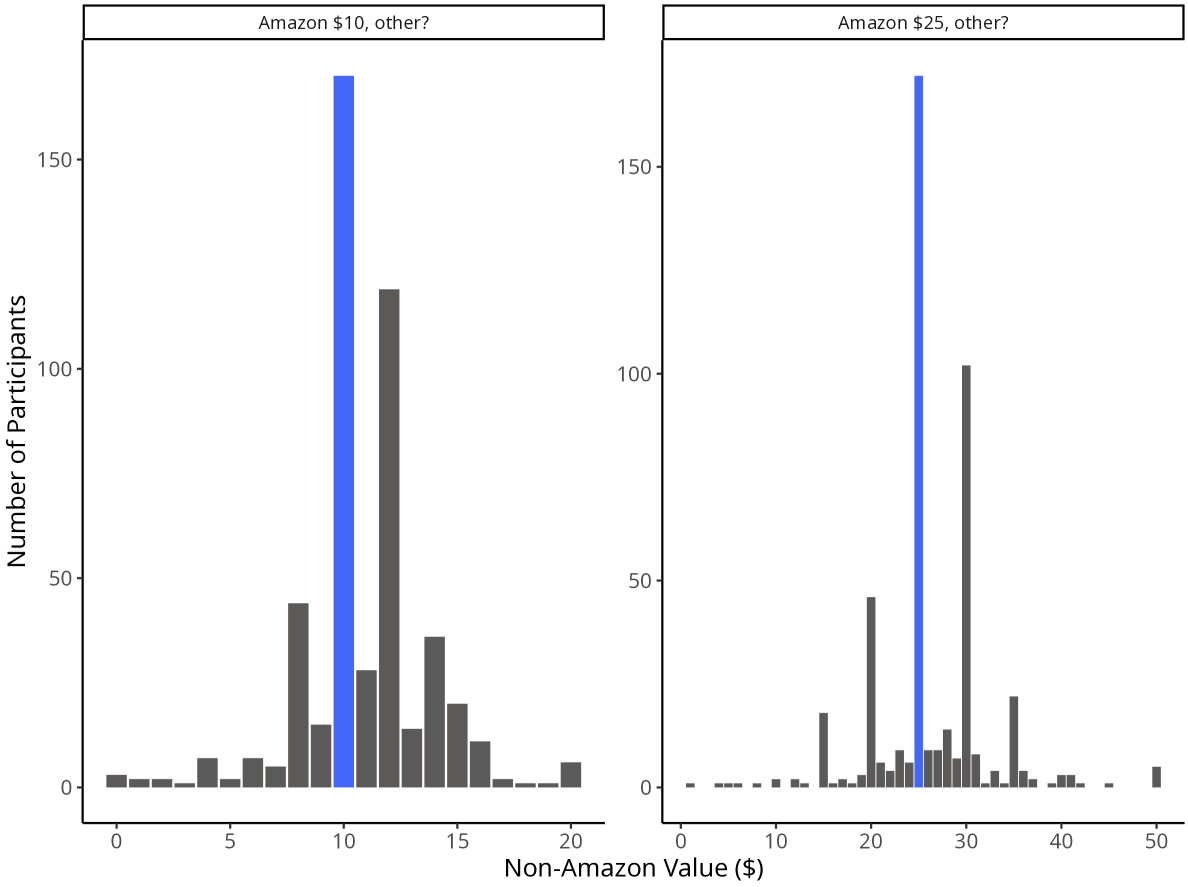


Figure C.6: Willingness to Pay for Non-Amazon Branded Products



D 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)

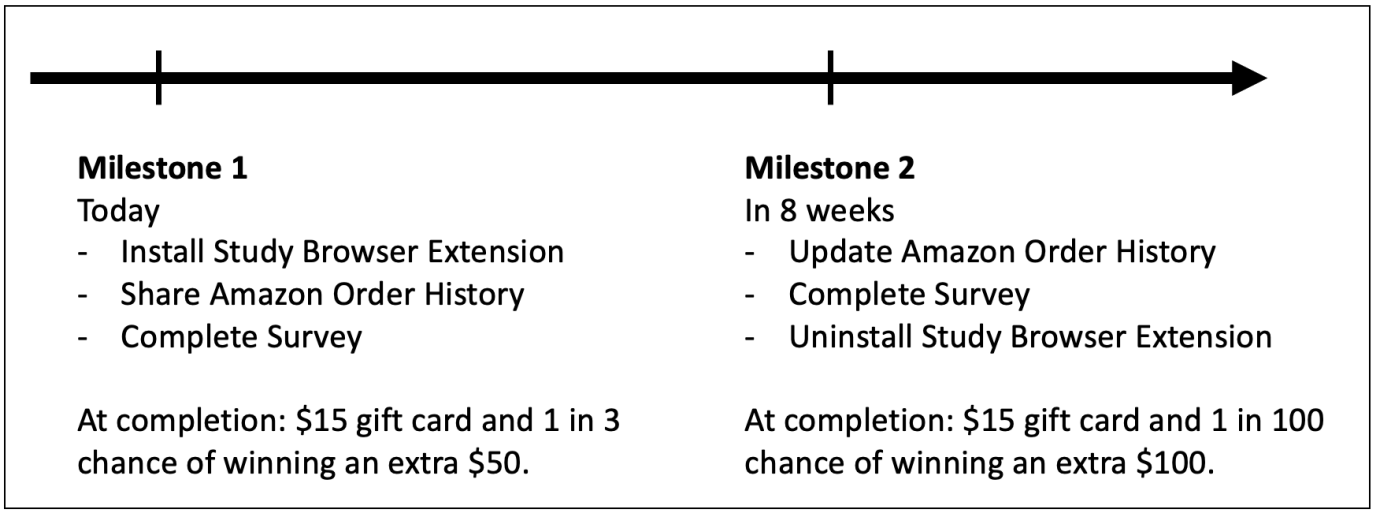
What should I know about a research study?
Research studies are conducted to better understand the choices we make. Whether or not you take part is completely up to you. Your decision will not be held against you. You can ask all the questions you want before you decide. You can even agree to take part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

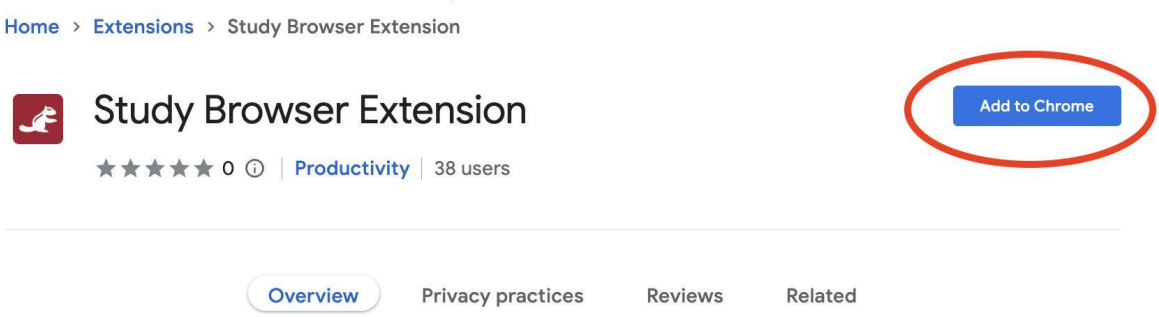
We'll ask you to install the study browser extension next.

App Installation

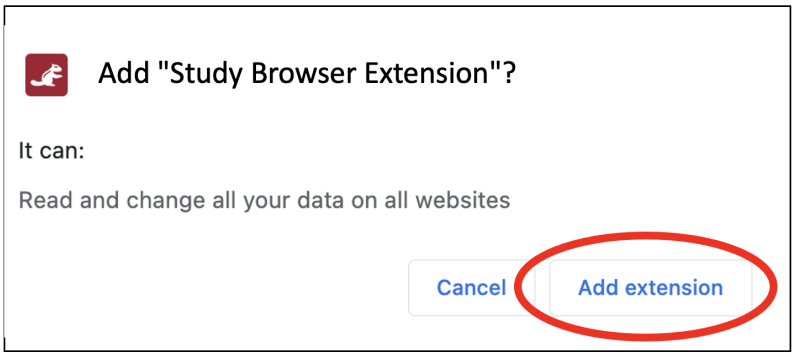
Study Browser Extension Installation Instructions.

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

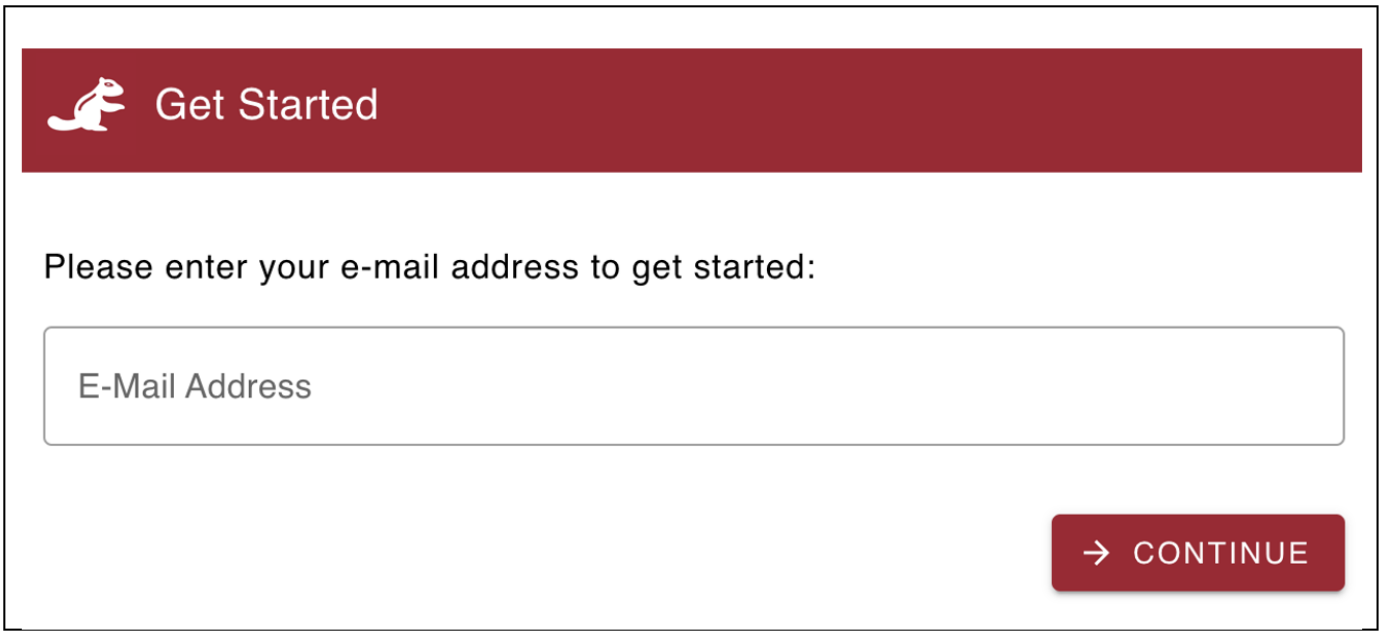
- Click here. This will open a new window from where you can install the browser extension.
- Click “Add to Chrome.”



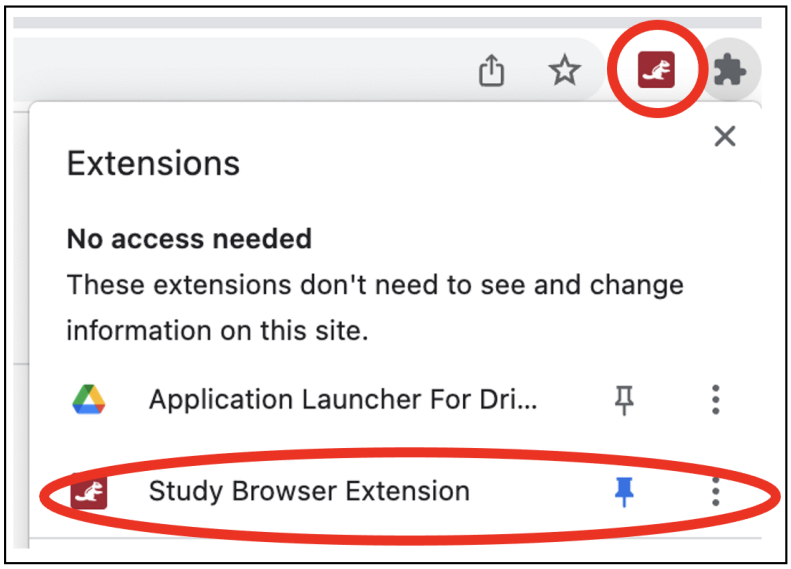
- When prompted, click “Add Extension.”



- 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

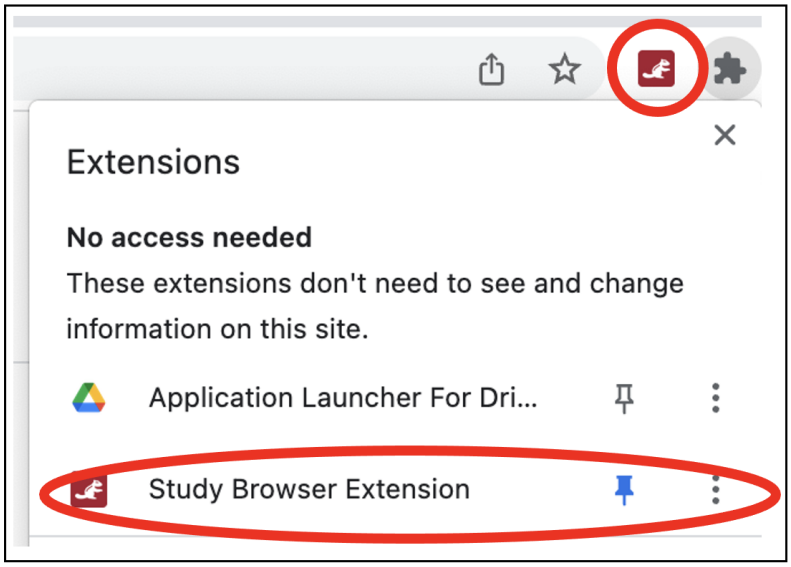
Do you use an ad blocker such as AdBlock or uOrigin?

- 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.

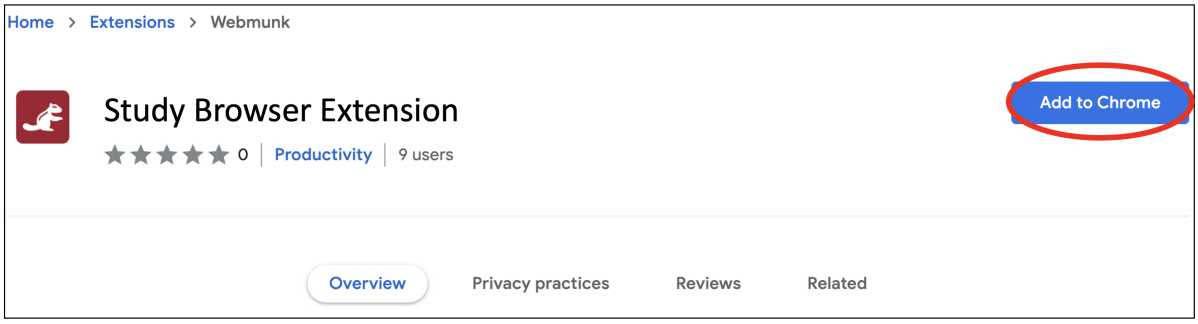
No, I do not have study browser extension installed on my web browser.

App Installation

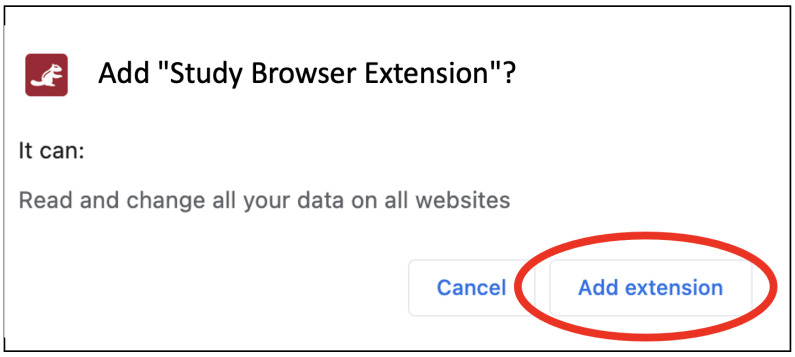
Study Browser Extension Installation Instructions.

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

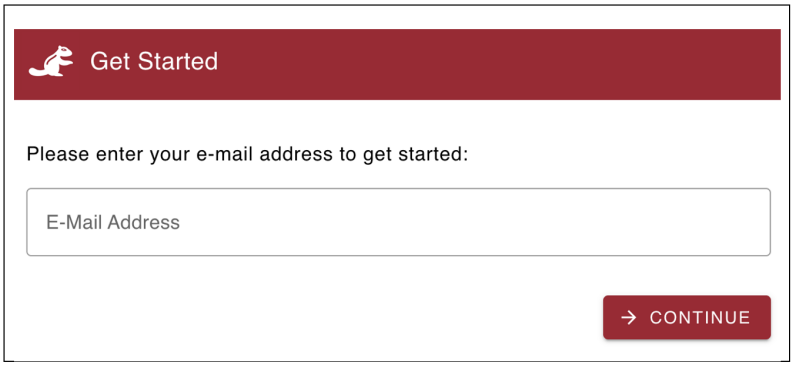
- Click here.
- Click "Add to Chrome."



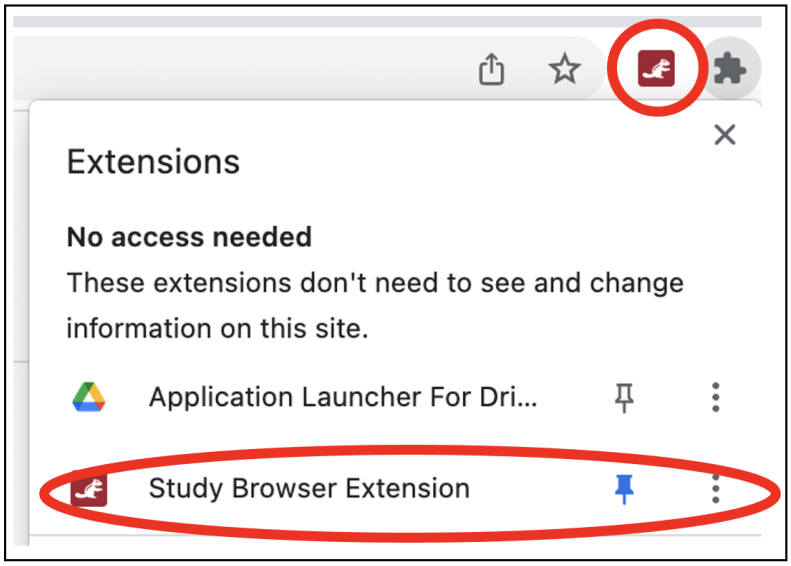
- When prompted, click “Add Extension.”



- 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

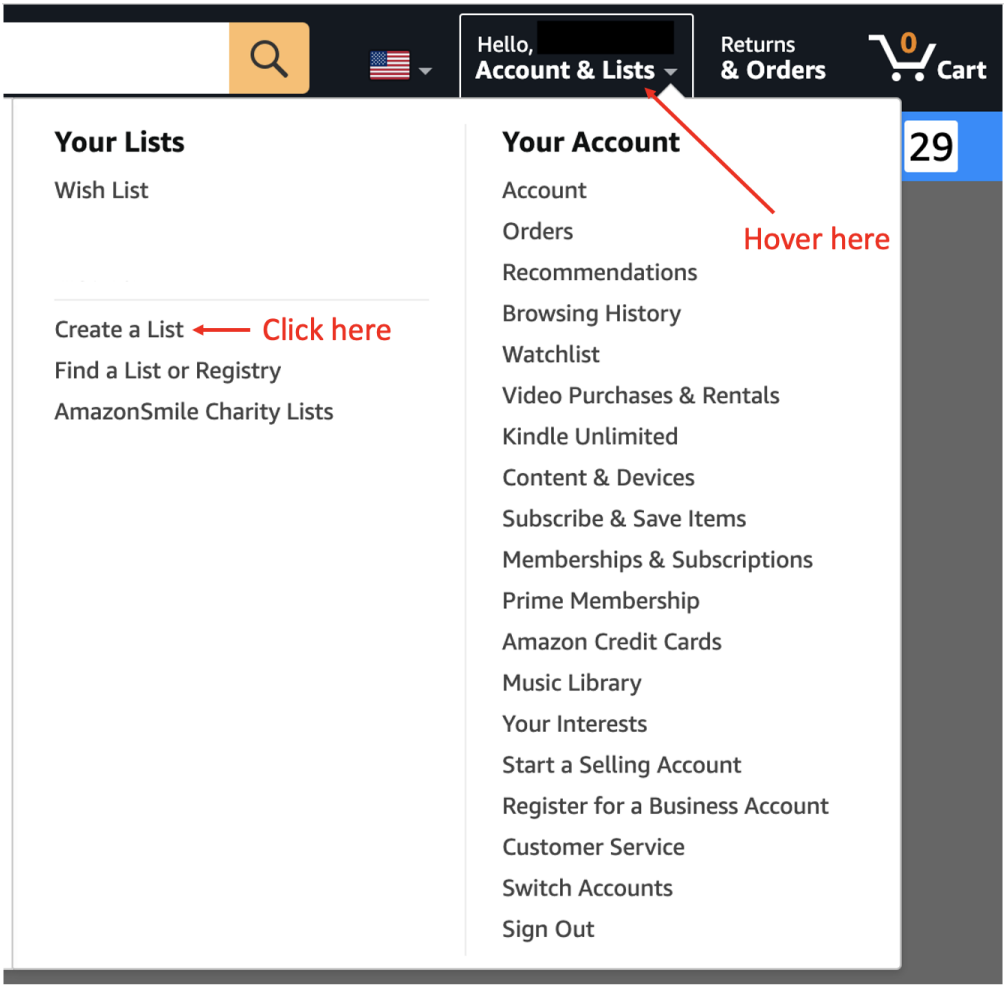
No, but I have emailed you

What difficulties have you encountered installing the extension?

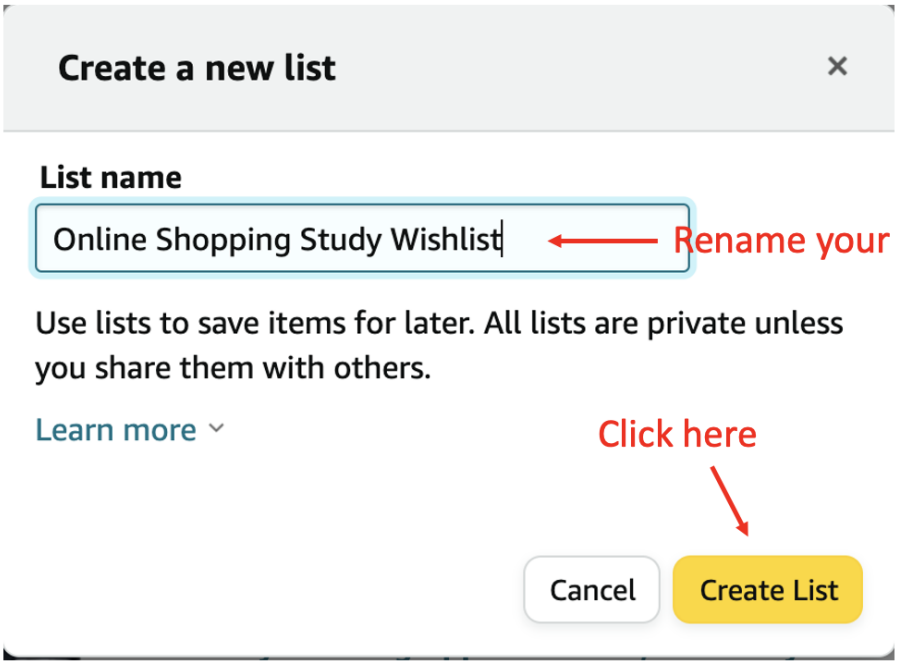
Introduction to the Wishlist Task

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

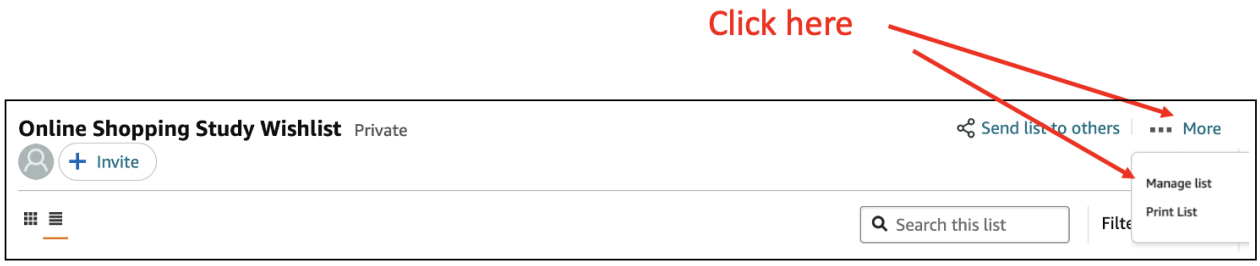
1. Go to amazon.com and log into your Amazon account.
2. On the top right side, hover on the tab titled "Account & Lists" and select "Create a List."



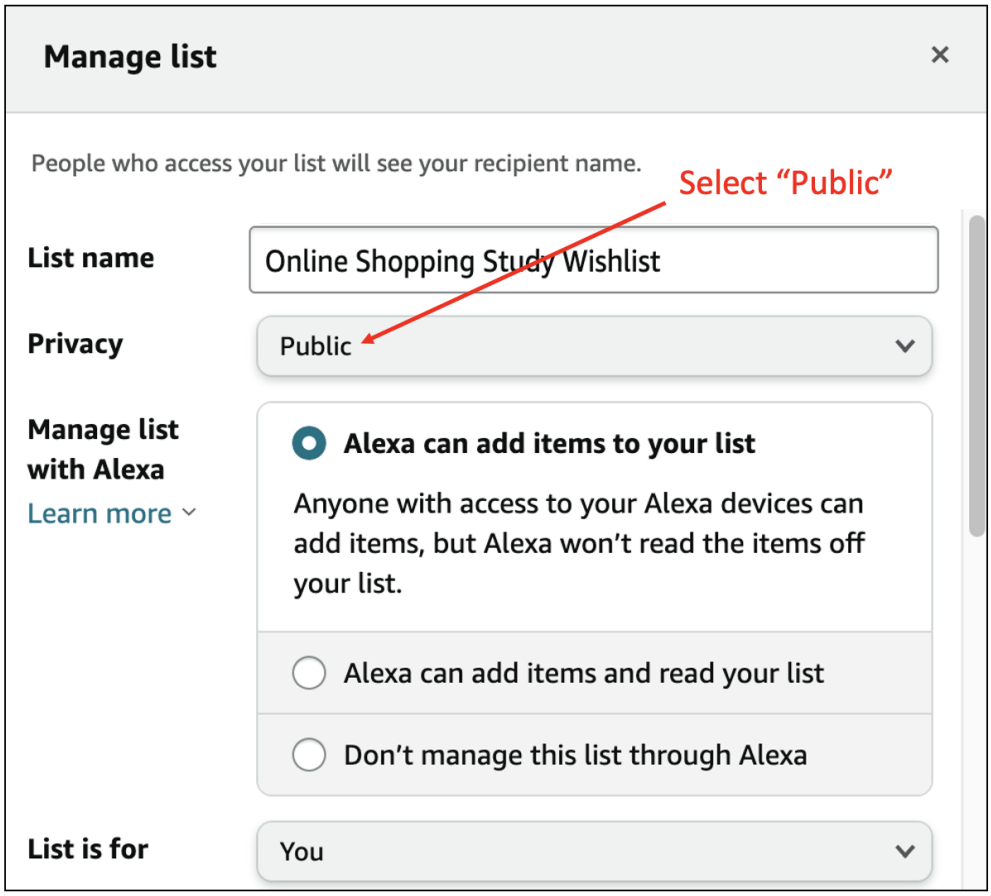
3. A new tab will pop up asking you to enter your list name. Please name it "Online Shopping Study Wishlist". The list will now appear empty.



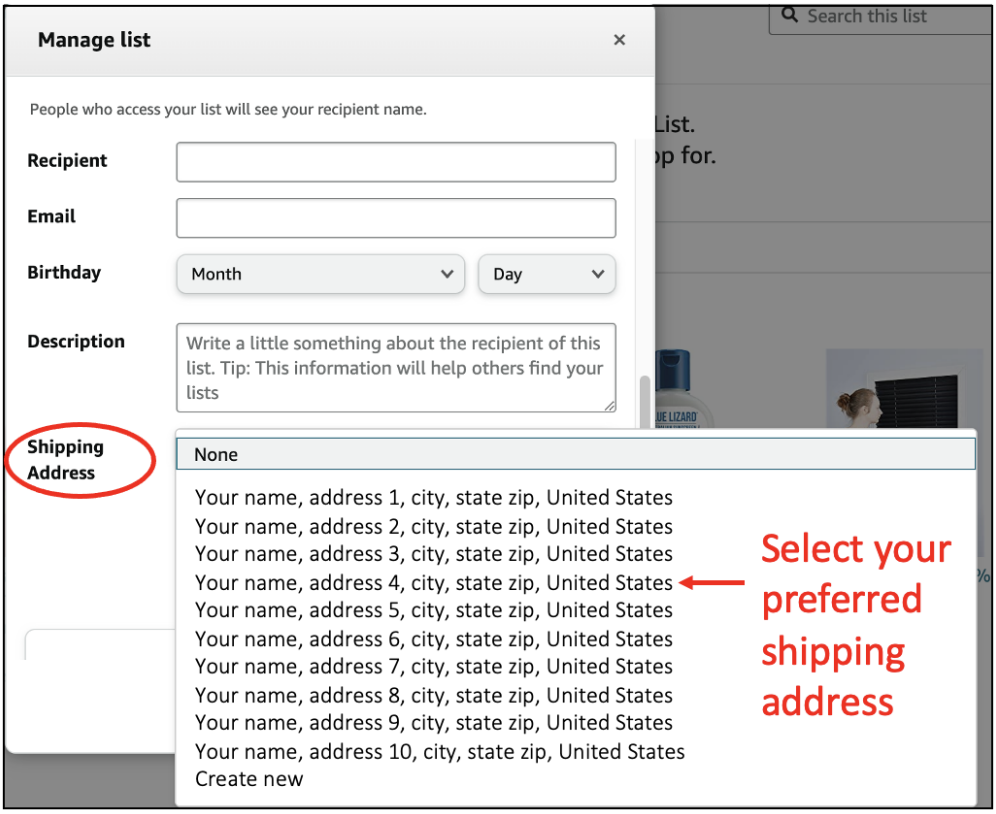
4. To add your shipping address, on the top right side of the list click on "More" and then "Manage List."



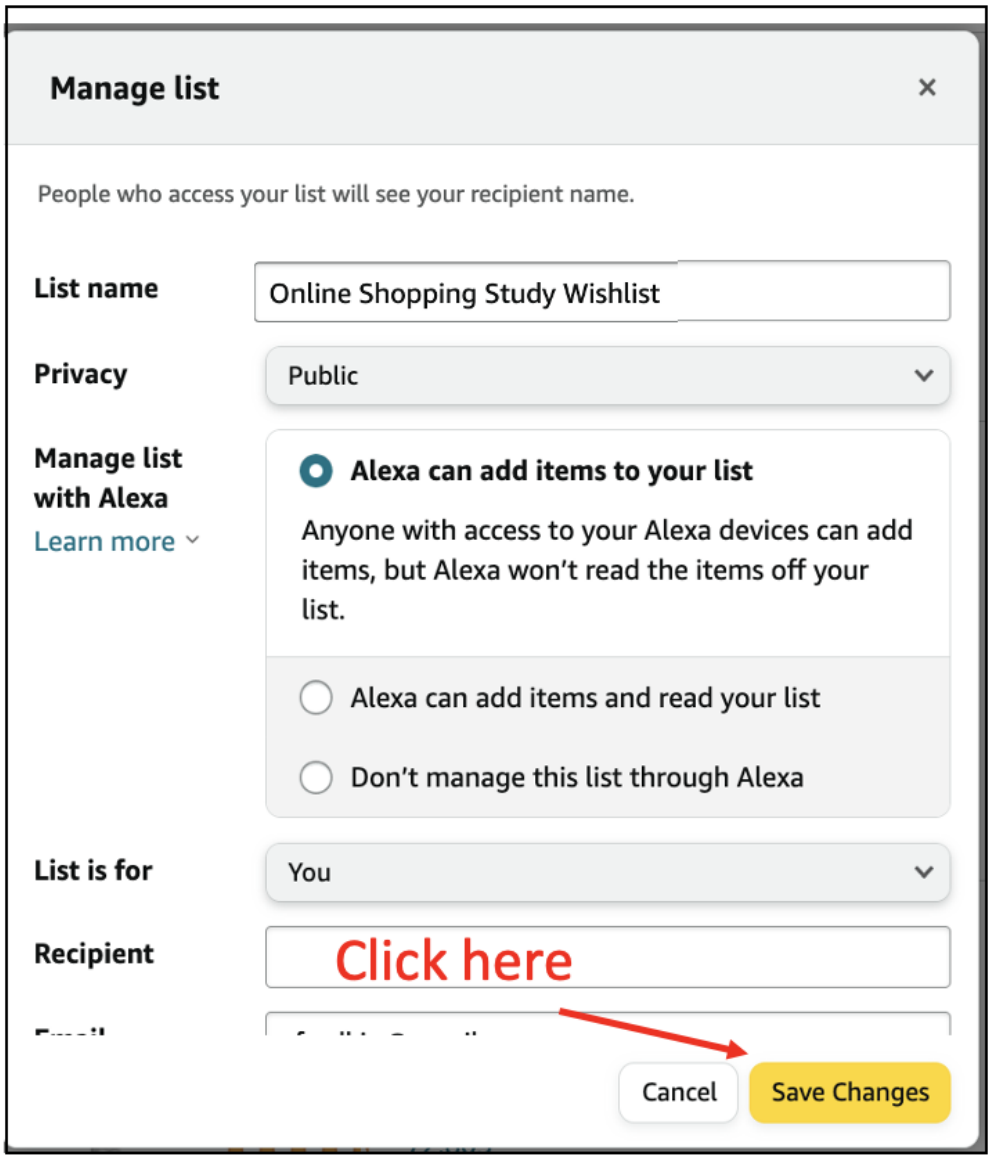
5. Click on the Privacy tab and select "Public". This will allow us to see your list.



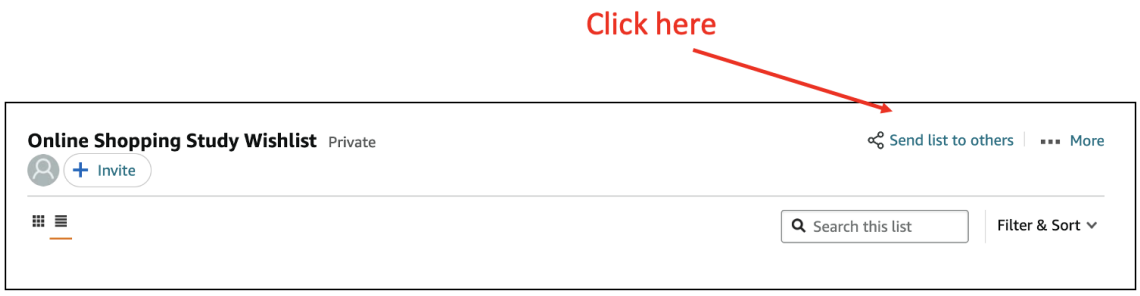
6. Scroll down to "Shipping Address" and enter the address you would like the product to be shipped to. Note, the study researchers will not be able to access your address.



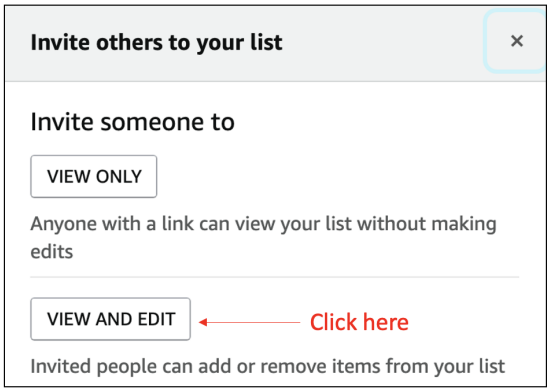
7. Click "Save Changes".

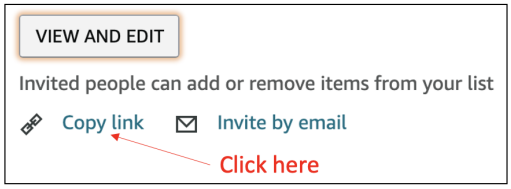


8. To share the list with study researchers, on the top right side of the list click on "Send list to others." It is next to the "More" button you clicked on before.



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

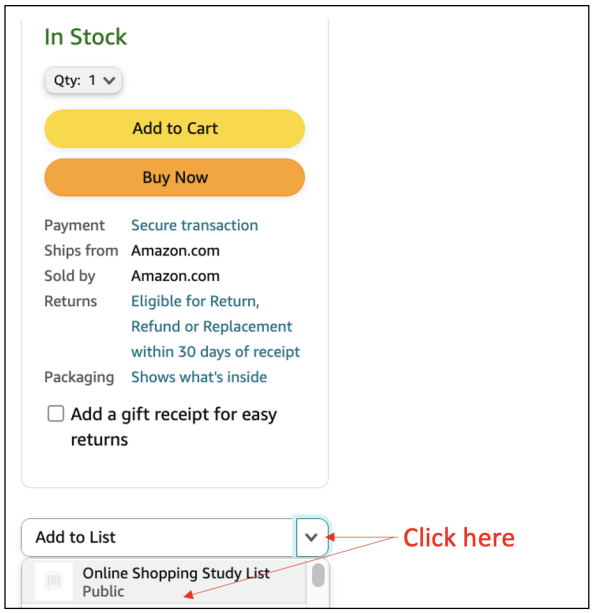
Acid reducer

Pain reliever

Personal Care

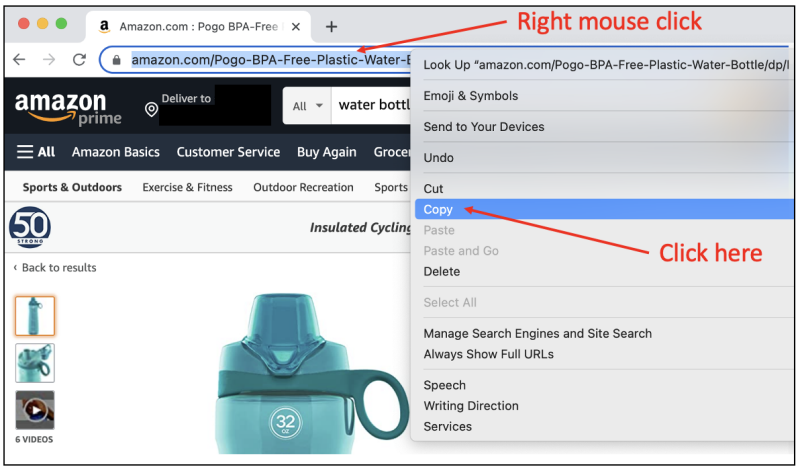
You have selected **${q://QID47/ChoiceGroup/SelectedChoices}** in the Personal Care category. Please search on Amazon for the product you would like to purchase. Make sure the product you select costs less than $50 (taxes+shipping included).

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."

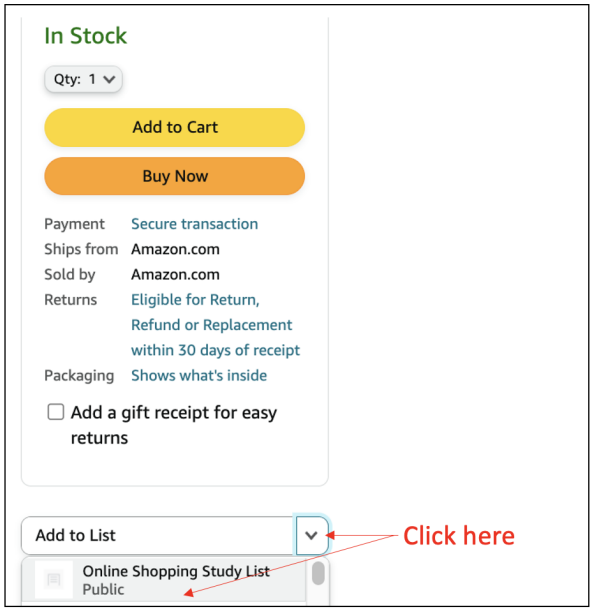


To paste the URL, right click in the text box below and select "Paste."

Electronics

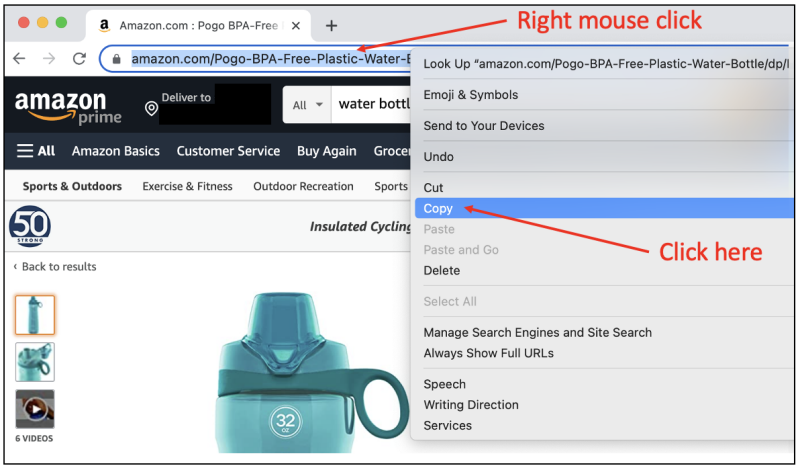
You have selected **${q://QID1/ChoiceGroup/SelectedChoices}** in the Electronics category. Please search on Amazon for the product you would like to purchase. Make sure the product you select costs less than $50 (taxes+shipping included).

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."

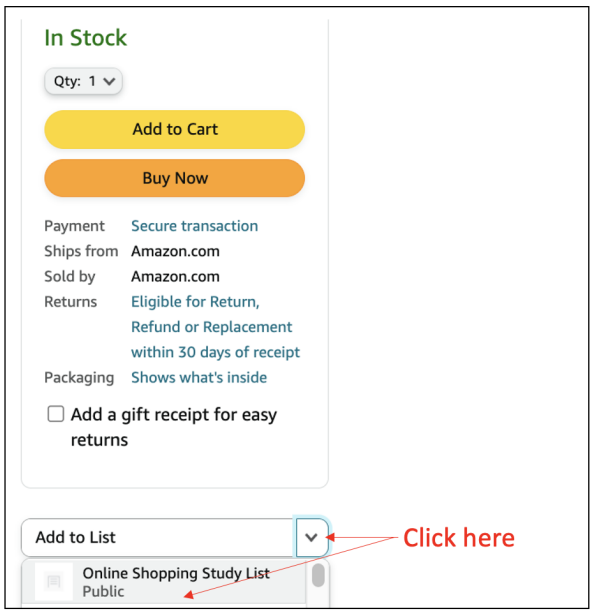


To paste the URL, right click in the text box below and select "Paste."

Apparel

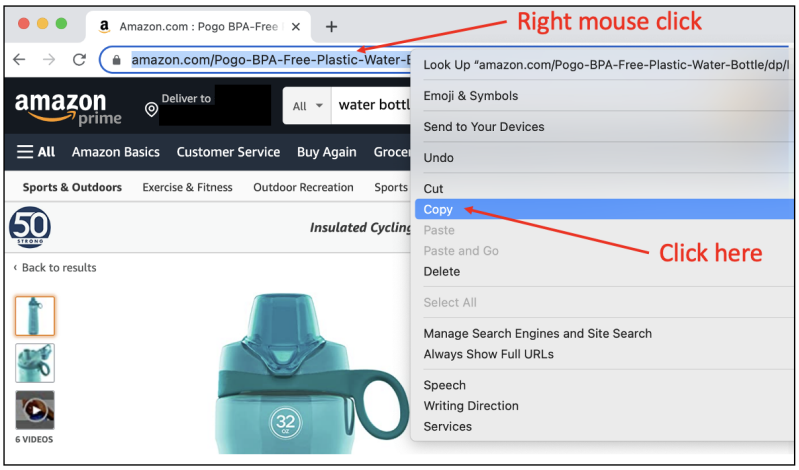
You have selected **${q://QID3/ChoiceGroup/SelectedChoices}** in the Apparel category. Please search on Amazon for the product you would like to purchase. Make sure the product you select costs less than $50 (taxes+shipping included).

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."

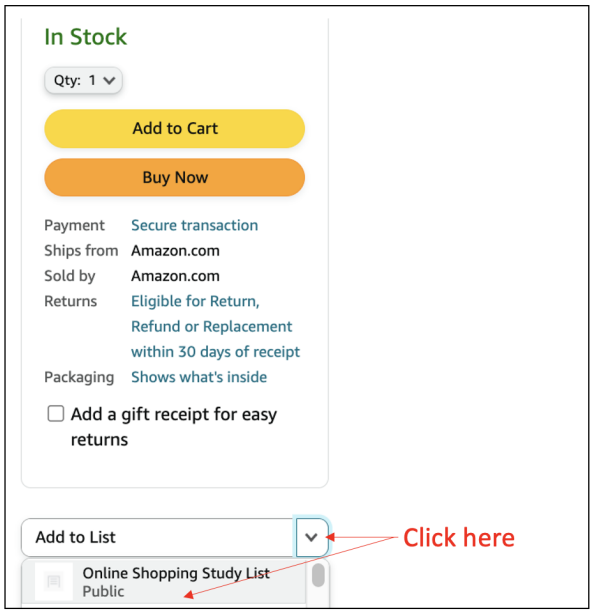


To paste the URL, right click in the text box below and select "Paste."

Household Items

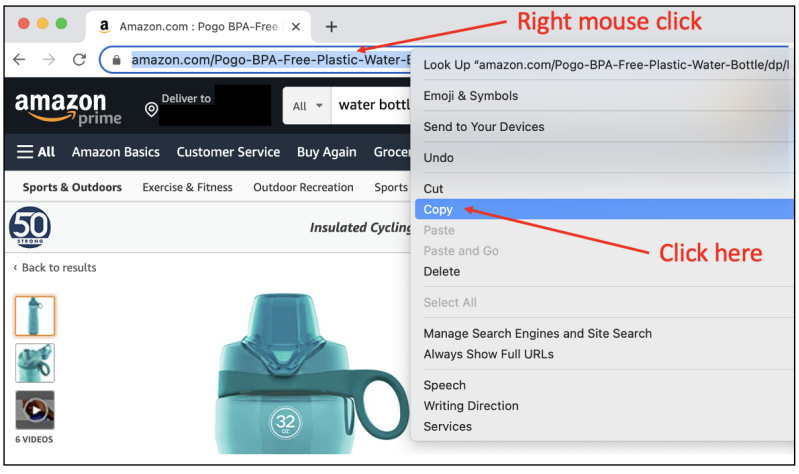
You have selected **${q://QID4/ChoiceGroup/SelectedChoices}** in the Household Items category. Please search on Amazon for the product you would like to purchase. Make sure the product you select costs less than $50 (taxes+shipping included).

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."

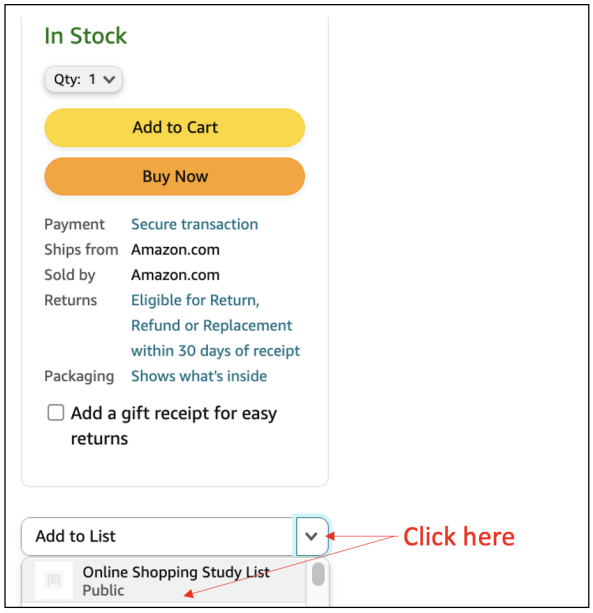


To paste the URL, right click in the text box below and select "Paste."

Paper and Wipes

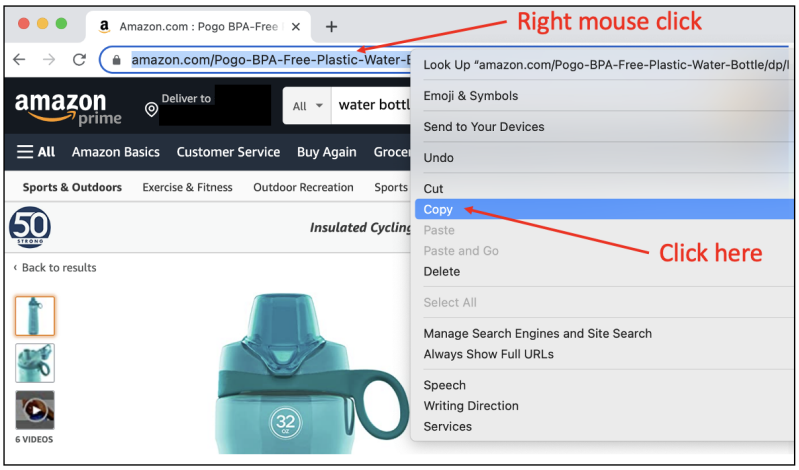
You have selected **${q://QID5/ChoiceGroup/SelectedChoices}** in the Paper and Wipes category. Please search on Amazon for the product you would like to purchase. Make sure the product you select costs less than $50 (taxes+shipping included).

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."

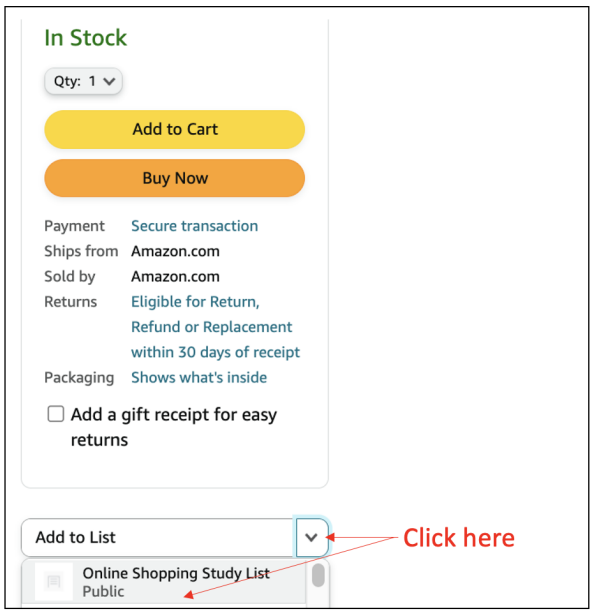


To paste the URL, right click in the text box below and select "Paste."

Health

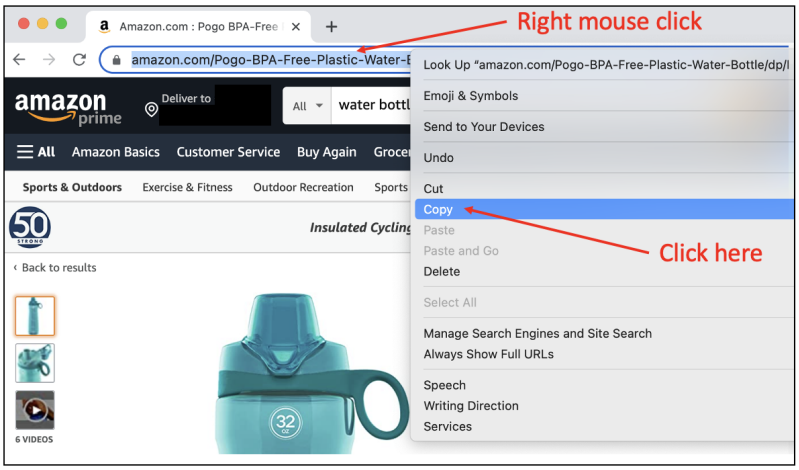
You have selected **${q://QID6/ChoiceGroup/SelectedChoices}** in the Health category. Please search on Amazon for the product you would like to purchase. Make sure the product you select costs less than $50 (taxes+shipping included).

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

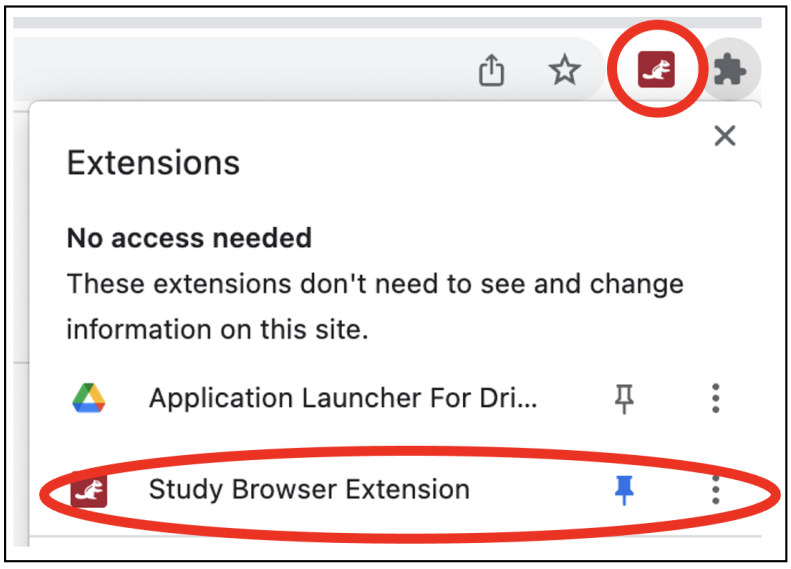
We're almost at the end of this survey.

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

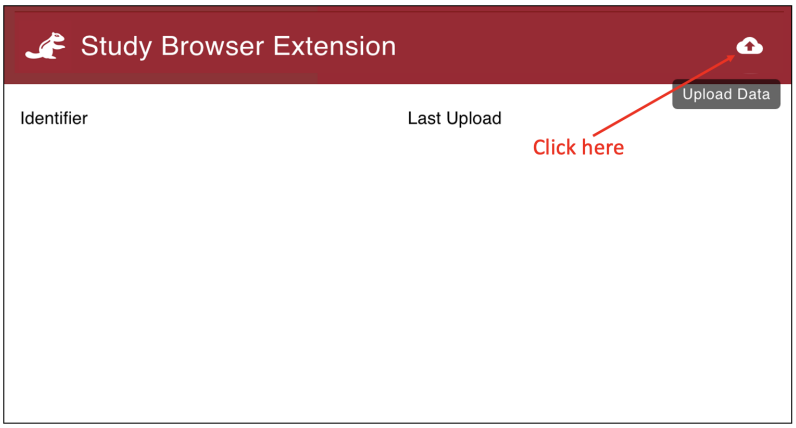
- Navigate to your wishlist. Here's the link that you shared earlier that you can copy and paste into your browser: ${q://QID1714808541/ChoiceTextEntryValue}
- **Check that you have 6 items on the list**, one per category you selected. Note: you will need to have these items in the list in order to receive 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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