Microgiving with Digital Platforms*

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Abstract

Microgiving, a new form of digital fundraising, operates by soliciting minuscule, recurring donations from large numbers of potential donors. We evaluate a charity subscription program operated by Alibaba, China's largest retail platform, which allows sellers to pledge a tiny portion of a product's revenue (2 cents per order) to charity, with donations made automatically as transactions occur. We present three sets of descriptive findings. First, sellers tend to pick their best-selling products for charity subscription, and many did so right before sales promotion of the associated products. This suggests revenue-maximizing motives. Second, charity subscriptions are almost never canceled, despite limited evidence that they increase revenues; interview evidence suggests that sellers' decision to keep donating is sustained by joys of giving that worth the tiny monetary sacrifices; we also observe sellers to purchase more charity-linked products themselves after they become charity subscribers. This suggests warm-glow utilities. Third, between 2018 and 2020, the program attracted more than 2 million Alibaba sellers and generated 1.2 billion yuan of charitable funds, representing one of China's largest online fundraisers and accounts for 12% of the country's overall online charitable sector. We conclude that digital platforms can create an incentive-compatible environment to scale up microgiving.

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1. Introduction

Charitable giving – one of the most important social mechanisms for economic redistribution – is shifting online. A recent estimate shows that 8.7% of total fundraising in the U.S. nonprofit sector came from online giving, with the share growing at a high speed (Blackbaud Institute, 2019).[1] In the past decade, a "microgiving" approach has emerged that solicits donations of small amounts in online settings: some digital apps allow users to round up purchase payments and donate the pennies to charities; other applications allow online shoppers to make small donations at check out.[2] The common idea behind these microgiving fundraisers is that many individuals have willingness to make small donations but are hindered by frictions such as high transaction fees, information barriers, or hassle costs due to inconvenient donation processes.

The crowd-based microgiving scheme is an appealing complement to conventional charitable fundraisers which often rely heavily on large-value contributions from a small group of donors. However, most microgiving programs that we are aware of remain small in scale. This paper documents the possibility of scaling up microgiving through the integration with large digital platforms which often feature large user bases, huge transaction volumes, strong product competition, and numerous intermediary functions that are designed to reduce frictions.

We study the "Goods for Good" program ("**g**ong-**y**i-**b**ao-**b**ei", henceforth **gybb**) operated by Alibaba, China's largest online marketplace that registers an annual active user base of 500 million people (36% of the Chinese population) and a reported transaction volume of 3 trillion yuan in 2017 (3.7% of GDP), where sellers can pledge a tiny portion of a product's sales revenue to a charity of their choice. The program uses a subscription mechanism through which an interested seller makes a one-time decision to subscribe a product to charitable giving; donations are then made out of the product's sales automatically as transactions occur. The default, lowest-acceptable donation amount is 0.02 yuan ($0.003 in 2022 dollars) for each transaction for an associated product. For the typical product on the platform, this quantity represents 0.05% of the sales revenue.[3] Though Alibaba does not reward charity-linked products explicitly

[1] For example, from 2018 to 2019, online charitable giving grew by 6.8%, compared to a growth rate of 1% in overall giving during the same period.

[2] Two example rounding apps are the Roundup App and Payroll Giving. Other microgiving examples include ShareTheMeal, one of the first charitable crowdfunding mobile apps, which enables users to make small donations (typically a monthly contribution of 80 cents) to the United Nations World Food Programme to fight global hunger; Pennies integrates voluntary small giving with point-of-sale machines; AmazonSmile (a separate portal from the main Amazon marketplace) donates 0.5% of the price of eligible purchases to users' preferred charities.

[3] Given the tiny contribution rate, we do not expect sellers to micro-raise product price to pass through the donation cost to the consumers. We believe both the statutory and economic incidence of donation are born by the sellers in our study context.

(e.g., through product recommendation), contributing products are given a charity label (💝) that is visible to consumers. To reduce search cost and to foster donor trust, Alibaba employs a vigorous vetting process to determine which charities may receive donations from the program. Sellers are provided with a menu of trustworthy charities that they can choose from when subscribing their products.

This research documents the fundraising performance of the microgiving program, then analyzes why sellers donate. Our analysis is based on Alibaba's administrative sales database, which provides transaction-level information for the universe of sellers, products, consumers, and their interlinkages (e.g., who sold what products and who bought them) from 2018 to 2020. Our analysis data contain information about 400,000 randomly selected sellers who participated in the program, their sales records at the product-by-month level, and information on more than 260 million consumers who bought these products. The data allows us to construct panel information on both seller and product-level pricing and sales activities, and to measure changes in a product's underlying customer pool.

We **first** document the program's overall fundraising performance. Between 2018 and 2020, over 27.9 billion product transactions from over 2.5 million sellers contributed to the program. The vast majority of sellers chose a low contribution rate, with a median donation of 0.05% of revenue (mean = 0.17%, IQR=0.02% to 0.13%); fewer than 2% of sellers contributed more than 1% of product revenue. During the three-year study period, the program generated a large amount of charitable funds (1.2 billion yuan, or about 190 million USD), fullfilling fundraising objectives for nearly 200 charitable projects.

We argue that the fundraising outcomes are extraordinary through two sets of comparative analyses. We first compare the program's performance with all 11 other online platforms eligible for hosting charitable fundraisers in China – none of which adopted a marketplace-integrated microgiving approach like gybb did. Gybb featured a uniquely low average donation value of 0.05 yuan (compared to the next-lowest of 2.4 yuan) but a uniquely high donation volume of 6 billion donations (compared to the next-highest of 203 million). The program ended up as the third-highest in total funds raised, and it accounted for 12% of China's overall online charitable sector in 2017. Our second comparative analysis contrasts gybb with the Alibaba Online Charity Stores (OCS) program, a separate charitable fundraising operation on the same retail platform that features a similar set of charities as gybb, but adopts a conventional fundraising method where charities operate "stores" on their own and take active donations from consumers. We document that during the same time period (2018-2020), the OCS program also generated a remarkable 207 million yuan in charitable funds – a figure that is nonetheless a fraction of the 1.2 billion yuan raised by the gybb program. Both comparative analyses suggest that microgiving with retail platform integration can be a competitive model of fundraising in the digital sphere.

Second, we analyze what motivates sellers to subscribe their products to charitable contribution. Prior research has documented that charitable actions can sometimes be driven by profit-maximizing motives (e.g., Strahilevitz and Myers, 1998; Fong, 2017; Khadjavi, 2017; Bertrand et al., 2020; Bertrand et al., 2021). In particular, linking products to charitable causes may provide a charity premium (Elfenbein and McManus, 2010; Leszczyc and Rothkopf, 2010; McManus and Bennet, 2011). In a related study, Elfenbein, Fisman and McManus (2012) analyze the Giving Works (GW) program operated by eBay where sellers can choose to contribute between 10%-100% of their product auction revenue towards charity; they show that eBay sellers (consumers) use charity linkage to signal (infer) product quality, which is especially relevant for new sellers that have limited alternative options to signal quality. The mechanisms, however, are likely different in a retail platform context: first, most Alibaba sellers are long-term vendors that already have established sales histories whose revenues come from repeated sales of relatively fixed product lines; second, because charity subscription is remarkably cheap, the signaling value, if any, is likely negligible.[4]

We present several characterizations of seller's donation decision to analyze their microgiving incentives. We first study which products sellers link to charity. We show that sellers do not differentially create charity links based on product prices (a proxy for quality); instead, sellers are more likely to link their *best-selling* products to charitable giving. Both pieces of evidence are consistent with the view that, in the presence of easily verifiable reputation, seller's charity linkage is unlikely to be driven by a quality-signaling motivation but rather by considerations regarding, for example, increasing consumer utility.

Next, we examine the timing of sellers' charity subscription. For this exercise, we focus on "switcher" products that had transaction records as a non-charity product but started gybb program subscription at some point during our study period. Tracking seller's product pricing behavior over time, we find a 29% jump in the frequency of product promotion activities immediately following the linking of the product to charity.[5] Such a pattern is *only* observed for the switcher products, and is not observed for other non-participating products offered by the same seller. The exact coincidence in the timing of gybb subscription and product promotion provides a strong indication that sellers' subscription decision is partly motivated by an upcoming plan for a promotion of the corresponding product. As a piece of collaborating evidence, we show that charity subscription rates also spike on major consumption festivals, such as the November 11th Singles Day. This, too, is consistent with intentions to promote charity-linked products.

Analyzing when sellers *unsubscribe*, we find that charity subscriptions are in fact rarely canceled, and they are remarkably robust against business shocks. Over 95% of subscriber products were still in the

[4] Sellers on Alibaba have various platform tools that are much more credible for quality-contingent contract enforcement, such as reviews from verified purchases, and no-questions-asked return policies.
[5] Sellers could directly adjust prices or provide discount coupons for product promotion. Our data records the number of these activities by sellers in a given month.

program by the end of the first year of subscription. We find no evidence of significant subscription changes during the COVID-19 outbreak which took a major toll on consumer spending. Indeed, sellers do not unsubscribe or adjust contribution levels in response to revenue shocks *in general*. This leads us to the **third** part of our evaluation: why do sellers keep contributing? To gain initial insights, we conducted interviews with a small number of participating sellers. Several responses emerge that shed light on our econometric findings. First, the sellers' initial decision to participate in the program was partially motivated by the hope that the charity label would help promote the subscribed product. Second, whether the charity link indeed helped sales was often unclear or too small to be discerned. Third, though sellers believed charity label had little to no effect on product revenue, they kept their subscriptions – and in many cases continued to add new products to the program. Sellers reported joys from acting in altruistic ways at very low costs. Importantly, we note that the sellers we interviewed often mentioned both revenue-maximizing and warm-glow motives: the former drives sellers' initial decision to participate in the program, and the latter explains why they keep donating even after they saw little evidence that a charity subscription has raised product revenue.

We provide econometric evidence that is consistent with the presence of an altruistic component in seller's motivation. Linking participating sellers to their own consumption accounts on Alibaba, we show that, after sellers began participating in the program, their own purchasing habits changed to increasingly favor charity-linked products (a 0.7 percentage points increase in the share of spending on charity-linked products from a mean of 31 percent). We interpret this data as evidence that sellers' contributions are partially explained by a preference for charitable behavior per se (rather than by purely strategic revenue-maximizing considerations), and that this in turn makes them appreciate similar behavior of other sellers.

A final missing link in our query is whether subscribing to microgiving in fact has *some* revenue benefits, though they are difficult to discern for an individual seller. For example, the fact that some sellers learn to like purchasing charity-linked products is evidence on the existence of a consumer preference for the charity linkage. We lack quasi-experimental variation in gybb participation status to causally identify changes in consumer demand.[6] Instead, we implement two sets of second-best strategies to cast light on a potential revenue effect. We first return to our event study analysis that showed that sales promotion activities increased after a product's gybb participation. We use a regression approach to model the relationship between product revenue and promotions; we then show that little of the revenue increases post-gybb participation remains once we control flexibly for promotion efforts. These regressions are

[6] A limitation of the sales events database we use is that they do not contain detailed product information beyond broad product category for us to match gybb and non-gybb products based on observable characteristics. A within-product design that exploits timing of gybb subscription will confound with strategic product promotion, as we have discussed.

noisily estimated, but they suggest the revenue impact of gybb participation is unlikely to be enormous. Our second strategy leverages our data's ability to observe the consumer involved in each transaction, which allows us to examine changes in a product's customer pool after it is linked to charity contribution. We find that a product's link to the gybb program is associated with an immediate increase in the share of customers who have a general inclination to purchase charity-linked products, as measured by the consumer's share of spending on charity-linked products over the entire three-year study period (a 2.4 percentage points increase from a mean of 29 percent). Our second strategy therefore provides evidence that is consistent with the existence of a (small) group of consumers who are particularly attracted to charity-linked products. In total, our analysis does not rule out a positive revenue impact from participating in the program, although we take away from the evidence that the magnitude of such impact is likely small.

We also show that, for the same product that subscribed to charity contribution, there are no associated changes in the customer pool's average age, gender mix, and, as a proxy for income, the three-year average spending on the Alibaba platform. The lack of substantial changes in these basic consumer indicators is consistent with the charity premium being not sufficiently large to cause substantial shifts in consumer composition. It also alleviates the concern that charity linkage may distort consumer choices in a welfare-decreasing manner due to sellers' promotion (for example, if sellers were to use to the program to advertise overpriced products that consumers would not have chosen otherwise). If anything, the program may have provided a new way for certain consumers to act on their preference for charitable actions by purchasing products that are committed to charitable contribution.

Related Literature. Our paper is related to several strands of literature. First, microgiving is related to research that shows that a lower expected donation quantity increases the chances that individuals make a donation (Karlan and List, 2007; Meier, 2007; Spencer et al., 2009; List 2011; Meer 2014). The gybb program leverages the platform economy to further push expected donation quantity down to levels that have not been pursued as feasible in conventional fundraising settings. The results demonstrate that microgiving is indeed a viable and competitive fundraising model when successfully integrated with digital platforms that feature huge volumes of transaction activities.

Prior research shows that *how* to ask for donation matters in addition to *how much* to ask.[7] Our research is among the first to feature the subscription mechanism – a widely used customer retention technique in the streaming and gaming industries (e.g., Danaher, 2002) – where interested donors only need to make a one-off decision to donate. The automated nature of the subscription method, combined with

[7] A rich line of prior literature studies the social and behavioral aspects of what influences people's decisions to give. Factors related to this research include trust (Taniguchi and Marshall, 2014; Adena et al., 2019), suggestions and default options (Edwards and List, 2014; Goswami, and Urminsky, 2016; Altmann et al., 2019), and reminders (Sonntag and Zizzo, 2015; Knowles and Servátka, 2015).

small donation quantities, helps achieve high rates of recurring donations. This addresses a practical challenge of fundraising that we believe is less emphasized in the economics literature: in both offline and online settings, less than 25% of first-time donors give a second time (Sargeant, 2013; Althoff and Leskovec, 2015; Blackbaud Institute, 2019), and cultivating recurring donations among first-time donors is difficult (Ryzhov, Han, and Bradic, 2016).[8] Because donors tend not to cancel subscriptions even in difficult economic times, the gybb program adds countercyclicality into charitable fundraising. This feature contrasts sharply with the characteristics of traditional fundraising operations, whose charitable donations are affected by general economic conditions and/or idiosyncratic factors, such as occurrence of natural disasters (List, 2011; Meer, Miller, and Wulfsberg, 2017; Deryugina and Marx, 2021). For many organizations that work in non-disaster relief contexts such as education and child/elderly care, the sheer stability and regularity of the flow charitable funds could be valuable for day-to-day operations.

This research also unpacks microgivers' incentives. Charitable actions can reflect profit-maximizing motives, and in particular, linking products to charitable causes may provide a charity premium (Strahilevitz and Myers, 1998; Elfenbein and McManus, 2010; Gneezy et al., 2010; Leszczyc and Rothkopf, 2010; McManus and Bennet, 2011; Elfenbein, Fisman, and McManus, 2012; Elfenbein, Fisman, and McManus, 2019). How do these findings extend to microgiving settings where the monetary value underlying the charity link approaches zero? Our paper shows that sellers still attempt to leverage the charity linkage to attract consumers, suggesting that the revenue-maximizing motivation manifests in microgiving contexts as well. But once subscribed, sellers tend not to adjust whether or how much to contribute. Both institutional, econometric, and interview evidence lead us to believe that the latter finding has to do with the fact that the program provides a low-cost way for sellers to gain utility from acting charitably.[9] Our analysis also reveals that both consumers and sellers (when themselves shop on the platform) favor charity-linked products. In an experimental study by McManus and Bennet (2011), consumers responded positively when their merchandise choices could generate revenue for a charitable cause, particularly so for small ($1) donation pledges. We extend these results to a general retail platform consumption setting and where the underlying charitable contribution is even smaller in value.

[8] As we note in Section 2.1, about 26% of charitable funds in China came from individual donations, compared to a rate of 70% in the U.S. Cultivating donation habit thus seems particularly important in the China context.

[9] Prior literature shows that people give for heterogenous and sometimes mixed motivations. Factors related to our study include true altruism (Smith, Kehoe, and Cremer, 1995; Ribar and Wilhelm, 2002; Andreoni, 2007; List and Samak, 2013; Echazu and Nocetti, 2015), warm-glow preferences (Andreoni, 1989; Andreoni, 1990; Crumpler and Grossman, 2008; Mayo, and Tinseley, 2009; Null, 2011; Ottoni-Wilhelm, Vesterlund, and Xie, 2017), mixed altruism and warm-glow (Harbaugh, Mayr, and Burghart, 2007), empathy (Andreoni, Rao and Trachtman, 2017), social pressure (DellaVigna, List, and Malmendier, 2012), and reciprocity and profit/strategic motives (Strahilevitz and Myers, 1998; Fong, 2017; Khadjavi, 2017; Elfenbein, Fisman, and McManus, 2012; Bertrand et al., 2020; Bertrand et al., 2021). See Andreoni and Payne (2013) for a comprehensive review.

Finally, we believe the gybb program is among the first successful integration of microgiving with a large digital platform, and this paper is the first to comprehensively evaluate the program. The success of the program is attributable to many intermediary functions of the Alibaba retail platform, including information aggregation, customer retention techniques, the ability to easily divide and aggregate digital money, among other functions that are designed to reduce frictions and encourage frequent trades (Haltiwanger and Jarmin, 2000; Garicano and Kaplan, 2001; Rysman, 2009; Agarwal et al., 2020). Platforms are also good at fostering product competition, which may provide incentives for sellers to link their products to charitable causes. We note these functions are by no means unique to the Alibaba platform, and our findings may be relevant for many other digital platforms today that share similar features.

The rest of the paper is organized as follows: section 2 provides institutional details and describes the data. Section 3 sketches a conceptual model of microgiving. Section 4 documents program outcomes. Section 5 analyzes seller (i.e., donor) decisions. Section 6 studies consumer responses. Section 7 presents comments from two big charities that have benefited from the program. Section 8 concludes.

2. Background and Data

2.1. Charitable Giving in China and the Digital Economy

The charitable sector is a small but growing part of the Chinese economy. Domestic charitable donations have grown at an annual rate of 8% from 84.5 billion yuan in 2011 to 151 billion yuan in 2019 (about 0.15% of GDP), or 108 yuan in per capita terms. A majority, 69.2% of gifts are monetary; the rest are in-kind donations. About 26.4% of donations are made by individuals, while the rest largely comes from companies.[10] As is usually the case in the context of charitable giving, contributions are concentrated: in 2018, 23% of business donations came from top-100 companies, and 48% of individual donations came from just 100 individuals (China Charity Alliance, 2018).

Online charitable fundraising began to grow in popularity in the 2010s. In September 2016, the Chinese government established the first regulation of the sector, requiring any charitable fundraiser to be registered and hosted by one of the 11 platforms designated by the central government.[11] These platforms include what were by then the largest players in various electronic enterprises in social media (Tencent and Sina), the online marketplace (Alibaba), and payment vehicles (Alipay). In general, individual fundraisers

[10] This fraction of contribution from individual donors is small relative to the U.S. (about 70%). Many individuals have not developed the habit of giving and do not know where to donate, which makes cultivating charitable giving important.

[11] http://www.gov.cn/xinwen/2016-08/31/content_5104095.htm (民发〔2016〕157 号)

negotiate terms with the platform and are subject to platform's own policies.[12] In 2018, over 21,000 fundraising projects from 1,400 charitable foundations were on online platforms. These fundraisers attracted an estimated 8.5 billion clicks – about 10 clicks per internet user – and about 0.37 yuan of actual giving per click. Government statistics show that the online charitable sector grew from less than 2 billion yuan before 2017 to over 5.4 billion yuan in 2019.

2.2. Alibaba's Charitable-giving Program

Overview. We study the online charity program offered by Alibaba through Taobao.com, its customer-to-customer platform, and Tmall.com, its business-to-customer platform. For brevity, we refer to these as the Alibaba platform. The Alibaba platform is China's largest online marketplace. In 2017, the reported transaction volume was 3 trillion yuan (3.7% of GDP), with an annual active user body of over 500 million people (36% of the Chinese population).

The main focus of our study is the Goods for Good program ("公益宝贝"). We use the phonetic abbreviation "**g**ong-**y**i-**b**ao-**b**ei", or **gybb**, to refer to the program. The program was conceived by Alibaba in 2006 as a fundraiser for Zhou Lihong, an elementary school teacher who was diagnosed of an end-stage breast cancer. A single parent to her then five-year-old child, Zhou decided to sell garments on Alibaba in hopes of earning extra income to provide for her family. Zhou's story was publicized on the internet by the physician who handled her case, calling for people to purchase from Zhou's Alibaba shop. The call was initially encountered with internet commercial censorship, yet it eventually received widespread attention by netizens and strong support among fellow sellers on Alibaba. In response, Alibaba set up the first version of the gybb program, giving all platform sellers the option of voluntarily donating as little as 0.02 yuan per order to support Zhou's family. The initiative has since expanded to fund thousands of charitable projects, and it is now an important part of Alibaba's Corporate Social Responsibility plan. By 2020, the program generated annual charitable funds on the order of 400 million yuan contributed by more than 2.5 million sellers. Below we describe several specific aspects of the program that are relevant to our study.

Charity Vetting. Alibaba employs a stringent vetting process to determine which charities are eligible to receive gybb donations. Most projects that Alibaba considers are operated by the largest charitable foundations in China. To be included, charities must agree to revelation clauses such as separate budgeting, book-keeping, and third-party auditing for charitable funds received through the gybb program, as well as reporting of any relevant partnerships and business relationships. Various rules govern how much

[12] The list of platforms has expanded over time. In 2021, 32 platforms were eligible to host online charitable fundraising.

money a charity may raise through the program and how these funds may be spent. For example, a charity's income from the gybb program in any given year cannot exceed 50% of the total funds raised in the foundation's previous fiscal year across all venues. For recurring fundraisers (e.g., projects that raise funds for schools on an academic-year basis), charities must provide detailed spending reports, and no new rounds of fundraisers can be held until over 70% of funds raised in the previous round have been spent properly.[13]

Subscription Process. Appendix Figure B.1 provides an example interface sellers use when subscribing a product as a source of contributions to the charity program. Sellers first decide which product(s) to link to the gybb program, and which charitable project to contribute to. For each candidate project, the seller observes the charity classification (poverty alleviation, environmental protection, etc.), and a brief description of the purpose of the project. After selecting one of the eligible charity projects, the seller then specifies how much to donate for each transaction. Contributions can be set as a fixed amount (0.02 yuan, 0.1 yuan, or 1 yuan per transaction) or customized as a proportion of the transaction value at levels ranging from 0.1% to 100%. The default option is to donate a fixed, 0.02 yuan per transaction. Using a similar procedure, the seller can unsubscribe a product from the program at any time.

Consumer Interface. Once a product is subscribed to the program, it earns a charity label, which is visible to consumers. Appendix Figure B.2 provides an example consumer interface, showing screenshots of a toy that is subscribed to the program. The left panel is the product summary screen, showing information on price, current promotions, and general product attributes. The bottom of the screen shows that the product is linked to the charity program. The right panel shows the product detail screen. Above the main exhibit, the consumer can see the charity program badge along with an explainer. In this case, the consumer is told that each transaction leads to a donation of 0.02 yuan to support a charity project called the "New Future High School Student Fellowship Program," and that a total of 726 transactions have been made so far.

It is worth emphasizing that it is the seller, not the consumer or the platform, who bears the statutory incidence of the donation. Of course, the cost of donation may eventually be passed on to consumers. However, given the tiny contribution rate, we do not expect sellers to micro-raise product price in the microgiving context.

Tax Implications. While donations made through the gybb program are tax deductible, we believe tax considerations are unlikely to be important in our study context. By law, sellers with monthly revenues

[13] The 2019 version of the gybb problem participation rules can be accessed here: http://www.zggyw.org/huodong/content-128-4471-1.html (in Chinese).

of less than 30,000 yuan (or annual revenues of less than 360,000 yuan) are exempt from paying taxes.[14] To receive tax benefits, sellers with revenues above these thresholds can request donation receipts from the charitable foundation; the receipts can then be filed with the tax bureau for a deduction. In practice, tax deductions are a negligible matter because contributions to the program constitute only a tiny fraction of sellers' overall revenue (less than 0.4% of revenue for over 95% of sellers); even the largest 5% of sellers contribute only 1,263 yuan on average, meaning the resulting tax deductions for which they would be eligible would also be very small. Our conversation with a charitable foundation that receives donations through program corroborates this, suggesting that receipt requests are indeed rare.

Program Promotion. It is our perception that Alibaba has largely adopted a conservative approach in promoting the gybb program. An intricate balance needs to be maintained between promoting the program so that more sellers can learn about the program and contribute, and preventing the program from evolving into a pure competition/signaling tool. So far, Alibaba has mostly promoted the program in a low-key manner through background push notifications to sellers in lieu of platform-wide campaigning. Many designs of the program can also be seen as measures to maintain user trust. The vetting process is extraordinarily stringent so that only the most trustworthy, well-functioning, and financially transparent charities can receive donations. There are no direct rewards for products subscribed to the program, except for a charity label of arguably low visual salience. The extremely low expected levels of contribution may also make the commitment too small to be perceived as an effective competition tool (especially given a range of alternative, high-salience competition/signaling tools sellers have available, such as free return policies and customer ratings). Alibaba has also organized "charity field tours" for its contributors to visit the actual charity project sites, and to offer donors a chance to learn about the impacts of their giving.[15] A majority of participating sellers we interviewed cited their trust in Alibaba (both in terms of the charitable intention of the program in general and in terms of Alibaba's ability to pick trustworthy charities) as an important reason for participating in the program (see Section 5.4).

2.3. Data

Our analysis uses de-identified data coming from the universe of Alibaba's administrative sales records for 2018, 2019, and 2020. Each record in the database contains information on a sales event: a product offered by a seller was sold to a consumer and when. The empirical analysis uses four main data files derived from the sales records database. This section briefly describes how each file was generated

[14] http://www.chinatax.gov.cn/n810341/n810755/c1151131/content.html (财税〔2014〕71号). The revenue threshold was raised to 1.2 million yuan annually in 2019.
[15] See news coverage of a 2019 event here: https://posts.careerengine.us/p/5f5b9e1c4d278a173a543182.

and the interlinkages among the files. We note that our analyses are done using aggregated variables derived from the underlying sales records (e.g., the average age across all consumers underlying a given product's transactions within the month). To further protect consumer and business privacy, all of our analysis scripts are executed by a designated data scientist at Alibaba Research, while we only observe log files of the scripts subject to privacy screening. We also note that the raw sales records database maintained by Ali Research is already fully de-identified using scrambled seller, consumer, and product IDs, and hence even the data scientist himself cannot observe the true underlying identifiers of any individuals or products.

Seller File. We first identify a list of all Alibaba sellers who participated in the gybb program at any time between 2018 and 2020 – that is, sellers who had subscribed at least one product to the program during the study period. From this list, we draw a random sample of 400,000 sellers.[16] For each of these sellers, we use the full sales records to aggregate the information to the monthly level. For each seller-month, we observe total revenues and quantities (i.e., how many units of the product were sold) across all products, including both those that are and are not part of the program. That is, we have total sales figures, the total number of transactions, and, for products enrolled in the program, the total number of charitable contributions and the amount contributed. We have information on the seller's basic characteristics including age and gender. We also have the date of first product's subscription to the program made by each seller. The seller file is the basis for calculating the distribution of annual donations (Figure 1), estimating revenue shocks (Figure 9), measuring the time of the seller's first product subscription (Figure 11), and for any other calculations requiring representative information on the program's participating sellers and their business performance.

Product File. Because sellers often offer many products, product-level data are massive in size. Because we primarily use product-level data to conduct an event-study-style comparison (Section 5.2), we focus on the subset of sellers in our Seller File who first participated in the program between November 2018 and March 2020. This ensures that we can construct a balanced panel of products for 10 months before and 10 months after gybb program subscriptions began. Note that we use the full universe of sales records for these sellers, which means we also have sales information on these sellers' products that were never subscribed to the program – a feature that is important for us to construct comparison groups. The Product File covers 162,840 sellers and 17.8 million products. We observe revenues, quantities, and the amount contributed to the program, all at the monthly level. We also observe number of intra-month price-change

[16] The sample size reflects the computational capacity allocated to our research project. We use the period from 2018 to 2020 as our focal study period because sales databases for older years were already archived when we started the project, making those data difficult to access.

incidents. In our analysis we call these incidents *promotions* because they are predominantly associated with price discounts or the issuance of promotional coupons. (See an example in Appendix Figure B.2.)

Because our data are drawn from the sales events database, we do not observe product characteristics except for a broad sector classification (e.g., garments, food). This means we cannot control for or conduct matching with detailed product characteristics when we undertake treatment-control comparisons. Instead, we leverage the panel nature of the data to conduct parallel trends tests to help assess unobservable selection issues. (See Section 5.2 for more detail on this process.)

Product Buyer File. For each product-month in the Product File, we gather information on the universe of underlying consumers who purchased a given product using anonymized consumer identification numbers associated with the sales event. In total, this involves more than 260 million consumers throughout our study period. The Product Buyer File allows us to characterize changes in the composition of the buyers of a certain product. For each product-month, we use the associated cross section of underlying consumers to calculate their average age, the gender mix, the average amount they spend (over the study period), and the average share of their total spending on charity-linked products on the platform. We use these data to assess compositional changes in the types of consumers that the same product attracts before and after it becomes charity-linked (See Section 6.)

Seller's Consumption File. We examine changes in the purchasing behavior of sellers themselves after they began contributing to the program. We use anonymized seller and consumer account identification numbers to link sellers in our Seller File to their Alibaba consumption accounts; we are able to identify 54% of the 400,000 sellers in the Seller File with consumption records between 2018 and 2020. For each linked seller, we calculate the share of total monthly spending on charity-linked products in the program.

Our analysis makes use of two additional data files provided by Alibaba.

Gybb Charitable Project File. We observe total gybb contributions received for every charitable project ever listed through the program between 2018 and 2020. We observe each project's name, the parent charitable foundation with which it is affiliated, and the project's classification (e.g., education, disaster relief, child support).

Alibaba Online Charity Stores File. We obtain the universe of de-identified consumer donation records that come through the Alibaba Online Charity Stores program between 2018 and 2010. For each donation event, we observe the amount donated as well as the demographic information about the donor. The Charity Stores program provides an opportunity to study a different philanthropy operation that does not use some of the key features of the gybb program, such as the linkage with product sales and

subscription-based contributions. We will use the Charity Stores program as a comparative case study to contrast its performance with that of gybb.

3. Microgiving: A Conceptual Model

We briefly outline a model in which a large set of individuals are in fact willing to donate more than they do under traditional fundraising schemes (where they face fixed costs of donation), and we formalize how the microgiving scheme can unleash such potential for giving. Consider an individual i making a one-off donation decision based on utility function:

$$u(D_i) = \theta_i \cdot v(D_i) - D_i - FC$$

where θ_i denotes individual i's preference shifter and $\theta_i \cdot v(D_i)$ is the individual utility from making a donation of quantity D_i. We interpret θ_i as generally capturing the individual's inclination to donate regardless of the underlying motivation. We assume that $v(\cdot)$ is a concave function so that the marginal utility from making a donation is diminishing. Besides the direct cost of the donation, the decision to make a donation incurs a fixed cost FC, which captures the individual's search for trustworthy charitable foundations. A utility-maximizing donor's decision D_i^* can be characterized by the first-order condition $u'(D_i^*) = 0$ whenever $u(D_i^*) > 0$:

$$\begin{cases} \theta_i = \frac{1}{v'(D_i^*)} \text{ if } v(D_i^*) \cdot \theta_i - D_i^* - FC > 0 \\ D_i^* = 0 \text{ otherwise} \end{cases} \qquad (1)$$

That is, an individual only donates a positive amount if the realized utility is larger than zero; whenever this condition holds, the optimal donation amount is given by the first-order condition $\theta_i = 1/v'(D_i^*)$. Given a set of individuals with a preference distribution θ_i, those who make donations are characterized by

$$v(D_i^*) \cdot \theta_i - D_i^* - FC > 0 \Rightarrow \theta_i > \frac{D_i^* + FC}{v(D_i^*)} \qquad (2)$$

Appendix Figure B.4, panel A provides a numerical illustration of the decision problem. We begin with a universally positive but right-skewed distribution θ_i, assuming a disproportionate fraction of the

population with a small preference parameter.[17] The orange-shaded area of the θ_i distribution highlights those individuals who will make positive donations, characterized by the cutoff $\bar{\theta} = (D_i^* + FC)/v(D_i^*)$ from equation (2). The corresponding optimal donation function D_i^* is given by the black line.

In this baseline model, the difficulty of fundraising lies in the fact that only individuals with large preference parameters will make donations. This is driven by two forces. First, large fixed costs prevent most individuals from making contributions, even though they have positive preferences for giving. It is straightforward to show that reducing such fixed costs (e.g., by hosting online fundraisers on a large platform that vets trustworthy charities for potential donors) relaxes the decision constraint and expands the set of individuals, characterized by the cutoff $\bar{\theta}$, who will contribute to the charity. Second, equations (1) and (2) together imply that donations will only take place when $\theta_i = 1/v'(D_i^*) > D_i^*/v(D_i^*)$. For concave $v(\cdot)$, this condition only holds for large values of D_i^*.[18] Therefore, in the baseline model, we will observe zero donations, except for the gifts from a small group of individuals with large preference values θ_i who make disproportionately large donations.

The gybb program can be viewed as an alternative fundraiser design that aims to involve a larger number of individuals, many with low levels of θ_i, by eliminating individual fixed costs (FC) and lowering the quantity of donation per capita. For simplicity, we consider a subscription contract $\{d_t = d\}_{t=1}^{T}$ where an individual makes a one-off commitment to donate a small, fixed amount d for T periods of time into the future. Instead of deciding both whether and how much to contribute, here the individual needs only to decide if subscribing to such a contract gives rise to positive utility:

$$u = \sum_{t=1}^{T} \delta^t \cdot \theta_i \cdot v(d) - \sum_{t=1}^{T} \delta^t \cdot d > 0 \qquad (3)$$

where δ is the discount factor. The set of individuals making donation is therefore characterized by

$$\theta_i > \frac{\sum_{t=1}^{T} \delta^t \cdot d}{\sum_{t=1}^{T} \delta^t \cdot v(d)} = \frac{d}{v(d)} \qquad (4)$$

Notice the analogy between this condition and equation (2), except that here the search cost is zero, and that d is a small, fixed number instead of an optimal, chosen quantity. For concave $v(\cdot)$, it is easy to see that $d/v(d) < D^*/v(D^*)$ for $d \ll D^*$, and therefore that the microgiving model is able to elicit donations from a much broader set of individuals (Appendix Figure B.4, panel B).

[17] For the numerical example of Appendix Figure B.4, we parameterize the distribution of preference parameters as $\theta_i \sim \chi_k^2$ and the utility function as $u(D_i) = \theta_i \cdot \alpha D_i^{\beta} - D_i - FC$ where $\{k, \alpha, \beta, FC\} = \{8, 0.2, 0.5, 5\}$.

[18] A cost function analogy here is that, for a concave cost function, the marginal cost (MC) curve lies below the average cost (AC) curve only for large quantity Q.

Our simple model highlights the main difference between traditional fundraising and microgiving. Traditional fundraisers rely heavily on a small set of donors who make big donations; by contrast, microgiving programs aggregate small-value donations from a large set of individuals. These people would not find it possible to donate at such low levels under traditional fundraising schemes.

Our model implies that microgiving is more likely to lead to good fundraising outcomes under two conditions. The first regards the underlying distribution of the preference parameters: our model assumes that there is a large set of individuals with small but non-zero preferences who will not engage in donating under traditional fundraising schemes. While we cannot empirically observe the same individual's counterfactual donating behavior under different fundraising schemes, we undertake two sets of comparative analyses in Section 4.2 where we compare the fundraising outcome of the gybb program with other programs that adopt traditional, solicitation-based methods. The second condition for the microgiving approach to be successful is a greater ability to elicit recurring donations. In addition to a large donor population, a high donor retention rate as capture by the contract length T is also of first-order importance to the program's fundraising outcome. We show that the gybb program's subscription mechanism has been highly successful in retaining donors (Section 5.3.)

4. Program Performance

4.1. Fundraising Outcomes

We first analyze the efficacy of the gybb program in achieving its first-order goal: generating donations without imposing substantial burdens on any donor. In panel A of Figure 1, we begin with all gybb products contained in the Product File. For each sales event, we divide the donation amount by the revenue, and we then plot the ratio, which we call the rate of contribution. The median rate of contribution in is 0.0005 yuan per yuan revenue (i.e., 0.05% of revenue), and the rate is lower than 0.004 per yuan revenue for over 95% of products. Figure 1 also features several spikes at 0.001, 0.015, 0.002 and so on, which correspond to sellers who opt to contribute a certain percentage (0.1%, 0.15%, 0.2%, etc.) of the sales price per quantity. In Section 4.2 below, we show this contribution rate is uniquely low among all other online charitable fundraisers in China.

We do not have direct information on whether sellers chose the fixed contribution option (e.g., 0.02 yuan per transaction) or the proportional contribution option (e.g., 0.1% of sales price) when setting up gybb. But one can get a rough sense from product-level donation and quantity information. In Appendix Figure B.6, we present the distribution of gybb donations per transaction. About 22% of products have a

donation-per-transaction value of exactly 0.02 yuan; these products likely opted for a donation of 0.02 yuan per transaction. Other significant spikes are seen for values 0.03 yuan (7.2% of products), 0.04 yuan (13.6%), and 0.10 yuan (3.4%). By this rough estimate, at least half of gybb subscriptions come from fixed contributions.

Figure 1 panel B summarizes annual total contributions at the seller-year level. We group sellers into ventile bins (5 percent) by their annual total revenue, and for each bin, we plot the average annual donation.[19] The figure features an exponential pattern, with large sellers contributing disproportionately more than smaller sellers: the average seller in the highest 5% revenue bin contributes 1,263 yuan year, which equals to the sum of the remaining 95% sellers. The median seller contributes 5.7 yuan, while the average seller contributes 127.7 yuan (IQR=107 to 1,234 yuan). For reference, annual per capita charitable giving in China in 2018 was 103 yuan.

Figure 1 panel C shows platform-wide donations. Total donations grew over the years as increasing number of sellers joined the program. There was a slight dip in 2020 because total donations are linked to total volume of transactions, which decreased as a result of the COVID-19 pandemic. During our study period (2018 to 2020), the program generated over 1.2 billion yuan of charitable funds.

In Appendix Figure B.7, we summarize beneficiaries of these charity funds by classifications. The largest two categories are education and disease/disaster relief; the two combined received about 70% of donated funds. The next largest sectors are child support (24.5%), poverty alleviation (10.8%), and environment/animal protection (2.5%). This raw distribution (shown by gray bars) is largely driven by differences on the "demand" side (e.g., there were fewer child support-related projects than disaster relief-related projects listed). Once adjusted by such demand-side difference, we find that the distribution of funds (shown by orange bars) is much more even. The donation-per-revenue metric is also largely the same across classifications. Overall, we see no evidence that sellers strongly prefer certain charity classifications over others.

4.2. Does Microgiving Do Better Than Traditional, Solicitation-Based Fundraisers?

We conduct two sets of comparative analyses that contrast the performance of the gybb microgiving program with other online fundraising programs that adopt a more conventional, solicitation-based method. We first use cross-platform statistics in 2017 to compare gybb with all 11 other online platforms eligible for conducting online fundraising in China – none of which adopted a marketplace-integrated microgiving

[19] To address staggered participation, we first calculate monthly donation, and then multiply 12 to derive the annual figures.

approach like gybb did. The data are sourced from China Philanthropy Times (2017). Figure 2 reports the statistics. Fundraising through gybb features the lowest average value per donation of 0.05 yuan per donation, which is orders of magnitude smaller than the platform with the second-lowest value-per donation metric (Ant Financial, 2.4 yuan per donation). Gybb features the highest frequency of donations of 6 billion donations throughout the year, compared to 203 million donations on the Ant Financial platform with the second-highest donation frequency. The gybb program ranked the third-highest in total charitable funds generated (300 million yuan), compared to the second-place Ant Financial which raised 487 million yuan and a fourth-place United For Charity that raised 69 million yuan. In total, gybb accounted for 12% of China's overall online charitable sector in 2017.

The benefit of gybb's microgiving approach can also be seen by a comparison with another charitable fundraising program operated by Alibaba on the same platform. Since 2005, a number of charitable organizations were permitted to operate "online charity stores" (henceforth OCS) on Alibaba. Instead of selling products, these shops directly accept consumer payments as donation to charitable projects of the consumer's choice. Appendix Figure B.5 shows an example store and the consumer interface.

The OCS program presents a unique opportunity for a comparative analysis with gybb. The two programs have some common features: for both, the basic idea is to source small donations from a large number of contributors; Alibaba also screens the charitable foundations that are allowed to operate charity stores.[20] The charity stores program, however, differs in other respects. First, in the OCS program, charitable funds come from active donations of consumers rather than from passive contributions from sellers. The OCS program thus work more in the vein of the traditional, ask-based fundraiser model, in which a consumer must make a series of active decisions about when to donate, how much to donate, and which program to support. This corresponds to a larger value of fixed cost FC in the language of our model in Section 3. Second, the minimum acceptable donation differs: the minimum is 1 yuan in the OCS program, compared to 0.02 yuan in gybb. This corresponds to the $d \ll D^*$ setting in the theory model where traditional fundraisers feature a much higher expected donation amount than microgiving. Third, incentives differ: consumers do not receive any explicit recognition for donating, in contrast to the gybb program's charity label for products that sellers enroll in the program.

In Figure 3, we document two data facts using records of the universe of transactions (i.e., donations) for about 600 charity stores from 2018 to 2020. First, the online charity stores raised less funds than the gybb program did (Panel A). From 2018 to 2020, the OCS program generated a total of 207 million yuan in donations, nearly six times less than what gybb generated during the same period of time. In other words,

[20] The charitable projects that are listed by Alibaba on the gybb program are in fact a *subset* of high-performing OCS projects. That is, the OCS program includes strictly more projects than the gybb program does at any point in time.

for a charitable endeavor to achieve a certain fundraising goal, it would likely require a length of time an order of magnitude longer by relying on a traditional, online fundraising model than by using the microgiving model. We believe this result is due to the OCS program not harnessing the high frequency and massive volume of transactions in the digital economy, and instead relies on individual donation decisions. This finding is also consistent with our conversation with charities who pointed out that fundraising through gybb is extraordinarily fast compared to traditional venues.

Second, donors at the charity stores comprise a very distinct demographic group. Panel B of Figure 3 shows that the age distribution is heavily skewed toward a younger population with a modal age of 21, compared to the modal age of Alibaba's overall consumer pool (31 years old) and the modal age of sellers involved in the gybb program (31 years old).[21] From an efficiency standpoint, this pattern suggests that the OCS fundraiser approach may attract the younger population who are perhaps more tech-savvy and more energized by online charitable causes but who do not have a high ability to contribute.

5. Seller (Donor) Motivations

5.1. Sellers Subscribe Their Best-selling Products to Charity

We begin by tabulating the likelihood of a product's gybb subscription as a function of its sales characteristics. For each seller, we rank his or her products by *revenue share*: the product's total revenue over the entire study period (2018-2020) as a fraction of the seller's overall revenue during the same time window. Products with higher ranks are therefore the seller's more successful products and more important sources of revenue. The left panel of Figure 4 presents a ventile bin scatterplot between the product's gybb subscription status as of December 2020 and its revenue share rank. The dashed line is a superimposed cubic fit. On average, slightly less than 30 percent of a seller's products are subscribed to charity, and there is a strong tendency for the sellers to subscribe products that are responsible for a bigger share of their total revenue.

The revenue-share gradient may partly reflect differences in product price. To separate out this margin, in the right panel of Figure 4 we repeat the same tabulation exercise but now relating gybb subscription to the product's sample-average "price" (revenue per quantity), also ranked among the seller's goods. We find no significant gradient with respect to price. The odds of a product being listed with gybb

[21] The overall consumer distribution is largely consistent with the overall age distribution of Chinese netizens. By estimates of the China Internet Network Information Center (CNNIC), in 2019, members of the modal age group range in age from 20 to 29; an estimated 65% of netizens are younger than 39, and about 14% of netizens are age 50 or older.

stay virtually constant except for a mild drop for products in the lowest 20 percent of the rankings of a seller's products by price.

The evidence provides an initial understanding of why sellers subscribe products to charitable giving: to the extent that charity subscription was more frequently observed for products that already had good sales records – and not those with particularly high or low prices – the evidence suggests that the charity link is not used primarily as a signaling tool for sellers or products with short sales record. Instead, the evidence is consistent with a behavior where the sellers use gybb to further promote their best-selling products. This differentiates from prior work by Elfenbein, Fisman, and McManus (2012) that discovered a signaling mechanism in the eBay auction setting. A major difference here regards the accessibility of product quality information: the typical seller on the Alibaba platforms is more akin to an Amazon vendor who has established sales records and whose revenue comes from repeated sales of the same set of products. There are many platform tools for quality-contingent contract enforcement, including reviews from verified purchasers, and no-questions-asked return policies. In contrast, many eBay auctions feature one-off listings, so consumers have to rely on scattered sources of information to infer product quality, especially in cases where a seller has a short sales record. Hence, in the Alibaba context, a product's charity link is more likely to be driven by a consumer utility consideration, rather than a quality-signaling motivation.

5.2. Charity Subscription Timing Is Strategic

To further understand the motives underlying sellers' charitable giving, we analyze the timing of gybb subscriptions. We examine "switcher" products that had sales records as a non-charity product but started gybb program subscription at some point during our study period, and we characterize any changes in sales activities – noting any pricing changes, in particular – before and after subscription.

Econometrics. We first describe the econometric framework we use to study seller behavior. (We will use the same framework to examine changes in customer composition in Section 6.) Consider the standard event-study estimation equation:

$$Y_{it} = \alpha + \sum_{\tau=-10,\, \tau\neq-1}^{10} \beta_\tau \cdot 1(t = \tau) + ctrls_{it} + \varepsilon_{it} \qquad (5)$$

where Y_{it} is an outcome of product i at month t, α is the regression constant, $1(t = \tau)$ is a set of 20 dummy variables that indicate month t is the τ-th period since the product joined gybb, with $1(t = -1)$ omitted from the regression so that the month immediately before gybb participation ($\tau = -1$) is the reference period. $ctrls_{it}$ denotes a matrix of control variables. In our analysis, we present both raw trends where $ctrls_{it}$ includes only dummy variables for periods out of the +/-10 month event window; in further analysis

described below, we also enrich $ctrls_{it}$ to strengthen the research design by controlling for various unit and time fixed effects. The coefficients β_τ's therefore represent the simple averages of Y_{it} by event months relative to the month before gybb participation. ε_{it} is the error term, and we compute 95% confidence intervals using standard errors clustered at the seller level.

The key variable we examine is Y_{it}, which is the number of intra-month price changes ("promotions"). As discussed in Section 2, these price changes include discounts and coupons that reduce the consumer's out-of-pocket pay for a product. Once a product is listed, a change in price is arguably the most important promotional decision a seller can make to influence revenue. We also examine product prices and revenue as the dependent variables, both of which are expected to respond as a consequence of promotional activities.

It is important to clarify that equation (5) is a descriptive regression, and its goal is not to estimate the causal effect of a gybb subscription on promotions in a potential-outcome sense: charity subscription is a choice rather than a treatment, and it is unlikely that subscription itself will cause a seller to change her sales strategy for a product. Instead, equation (5) is a descriptive characterization of a seller's behavior around the timing of embarking on a product's subscription into the program; the goal is to understand the motives underlying the subscription decision. As an analogy, consider the timing of one's decisions to purchase life insurance and to undertake risky behavior: insurance itself does not cause risky behaviors, but an increase in risky actions immediately following an insurance purchase will explain the motives for purchasing insuring in the first place.

It is also worth clarifying how we construct a panel dataset of products for the purpose of estimating equation (5). Our Product File is an *event* database that consists of all incidents of transactions between January 2018 and December 2020. When no transactions are observed for a product in a given month, it could mean either that the product was available but no consumer made any purchases, or that the product was not available for purchase – for example, that it was out of stock, or that it was not yet listed. Therefore, we must decide what values Y_{it} to assign to months when no transactions occurred. In all subsequent analyses, we stick to the following principles: first, we assume a product is not available for sale until we observe the first transaction in our database. Hence, all outcomes are assigned with missing values before the first sale. Second, we assume that all no-sale months after the first sale represent a lack of consumer purchases rather than a lack of availability, assigning promotions and revenue both to zero for those months; we use a nearest-neighbor interpolation to fill in prices during months without transactions, implicitly assuming there are no changes in the product's listed price during these no-sale months. In simpler terms, one can think of the dataset as a monthly panel of products with different "start dates," with all gaps after the start dates filled with zero transaction activities (promotions and revenue) and interpolated price.

From the panel dataset, we next build a balanced panel for the event study. Recall that the aim of equation (5) is to analyze changes in pricing activity for the *same* product before and after gybb subscription. We therefore look at a subset of "switcher" products that were not listed as gybb products initially, but switched to become part of the gybb program at some point during our study period. To do so, we restrict our analysis to products whose gybb subscription month is (a) at least 10 months after its start date (i.e., the date when the product was first traded as a non-gybb product) and (b) on or before March 1, 2020. These restrictions ensure that we are working with a balanced panel for the event study in the sense that all products have at least 10 months of both pre- and post-subscription periods. In other words, each event-month coefficient β_τ we report will have the exact same number of underlying observations, and thus the results will not be driven by compositional changes.

The assumptions and restrictions are introduced to match the usual configurations one would expect from any event study, but they come at costs. For example, a product may well be available before we observe the first sale during the sample period, and it may go offline after its first sale.

To alleviate these concerns, we introduce a comparison group. We compare switcher products with the *same* seller's other products that never subscribed to gybb over the study period. Specifically, for each seller s, let $\tilde{\imath}_s^{gybb}$ denote the set of gybb products included in the event study, and let $\tilde{t}_s$ be the corresponding vector of months when these products first made charitable contributions (i.e., the event month $\tau = 0$ in equation 5). To identify the comparison products, we search among seller s's non-gybb products for the set of products $\tilde{\imath}_s^{non-gybb}$ that were also traded on $\tilde{t}_s$; we then use $\tilde{t}_s$ to assign event time variables $1(t = \tau)$ to each member in $\tilde{\imath}_s^{non-gybb}$ and construct a balanced event-study panel dataset applying the exact same assumptions and restrictions we used for $\tilde{\imath}_s^{gybb}$. To facilitate understanding, Appendix Figure B.8 illustrates the process using an imaginary example in which the seller set $\tilde{\imath}_s^{gybb} = \{\text{item\#1}, \text{item\#2}\}$ with corresponding subscription dates $\tilde{t}_s = \{\text{Sep-2018}, \text{Dec-2018}\}$. The corresponding comparison products are $\tilde{\imath}_s^{non-gybb} = \{\text{item\#3}, \text{item\#5}\}$ that also had transactions during these two months. Note that item #3 had transactions in both September 2018 and December 2018, and so in principle it may serve as a comparison product to both item #1 and item #2. To avoid creating duplicate units in the comparison group, in practice we use the first matched date – in this case Sep-2018 for item #1 – whenever a non-gybb item can be matched to multiple gybb items.

The comparison group serves two purposes. First, it enables us to investigate what happens to non-gybb products around the time of gybb products' subscription. Are price promotions put in place for them as well? Or are price promotions only for gybb products? In Appendix Figure B.8, item #3 provides information on how product promotions, prices, and revenues change between November 2017 and June

2019, the same +/- 10 months around the time when item #1 joined gybb (September 2018). In some regression specifications, we include "group fixed effects," thereby effectively restricting the comparison to the group of item #1 and item #3. Second, to the extent that we construct the comparison group data in the exact same way we do for gybb products, any biases resulting from sample definitions/restrictions should manifest in both groups, and are thus expected to be "controlled for" when we compare the two groups.

Our final event-study estimation sample contains 500,683 products (including both treated and comparison products) from 30,804 sellers. Our final event-study dataset includes a total of 16,624,469 product-month observations. Note that our estimation sample consists of a small subgroup of sellers in the overall Product File (a total of 162,840 sellers). This is because many gybb subscriptions occurred when the product was *first* listed, whereas our switcher event-study sample restricts to products that switched to gybb program at some point after they were listed. Focusing on switcher products, however, helps identify strategic motives because it allows us to observe changes in sales activities before and after the gybb switch.

Results. Figure 5 reports β_τ's coefficients for the switcher group ("gybb products") and for the comparison group ("non-gybb products"). To provide a reference of statistical precision, for the comparison group we also plot the 95% confidence band.

Panel A shows intra-month price promotions. We find that promotional activities move in parallel for gybb and non-gybb products in the months leading up to gybb subscription. Promotional activities then rise sharply for gybb products upon subscription, whereas the trend for non-gybb products remains entirely smooth. Promotions concentrate in the first five months after subscription. At its peak – one month after gybb subscription – the subscribed products have about seven more price promotion events in a month than the comparison products.

Panels B and C provide corroborative evidence with price and revenue outcomes. Panel B shows that the revenue-per-quantity metric, or "price," decreases for the gybb products after subscription, which is an expected result from increased price promotions. Panel C shows that revenue jumped after a gybb subscription, a pattern that echoes the dynamics of promotional activities as well. For both outcomes, we observe that the pretrends match closely between the gybb and non-gybb groups as is the case in Panel A.

We have purposely reported trends for both the gybb and non-gybb products to compare decisions that sellers make regarding their pricing and promotion. Table 1, panel A presents a parsimonious version of Figure 5 with a difference-in-differences (DD) estimation:

$$Y_{it} = \alpha + \beta \cdot 1(\text{gybb})_i \times 1(\text{post})_t + 1(\text{gybb})_i + 1(\text{post})_t + \text{ctrls}_{it} + \varepsilon_{it} \qquad (6)$$

where $1(\text{gybb})_i$ indicates units in the "gybb products" group, and $1(\text{post})_t$ indicates post subscription periods. An advantage of the DD specification is we may conveniently assess robustness of the results by varying the type of controls included in ctrls_{it}. Column 1 first reports summary statistics of the promotions, price, and revenue variables. Column 2 begins with a simple DD specification where we only include product fixed effects. Column 3 adds month-of-year fixed effects to further control for seasonality. Comparing columns 2 and 3, we notice seasonality controls make little difference in the estimation of β because the way we construct comparison group makes sure the event time zero is the same point of time for all products within a treated-control group, thus parsing out seasonal impacts. In column 4, we obtain similar results with a full set of group fixed effects, product fixed effects, and month-of-sample fixed effects.

In Appendix Figure B.9, we report the event study version of the DD estimates in column 3 of Table 1, replacing the $1(\text{post})_t$ indicator in equation (6) with a full set of event month indicators $\{1(t = \tau)\}_{\tau=-10,\, \tau\neq-1}^{10}$ as in equation (5). Overall, the results are insensitive to specification changes and echo the simple raw trends presented in Figure 5.

Interpretation. The most significant feature of panel A of Figure 5 is a high correspondence between a product's gybb subscription and its subsequent promotional activities: price promotions follow immediately from the month of gybb subscription; the jump in promotional activities is seen *only* among products that the sellers chose to subscribe to gybb, but not other products from the same seller. We interpret these findings as strong indication that sellers' decision to subscribe a product to gybb is motivated by an upcoming plan for a promotion of the corresponding product. The gybb subscription is a strategic action alongside the price promotion to maximize the sales outcome.

We consider several alternative ways to interpret the data. A first possibility is that the coincidence between subscription and product promotions reflects some third, unobservable factors that are unrelated to strategic motives. The primary type of non-strategic price promotion is associated with platform- or category-wide consumption festival events, where the platform provides discount coupons to encourage spending across the entire platform or in specific categories. However, any platform-, category-, or even seller-level event that applies to all products of the same seller cannot drive the findings because we have already implemented a within-seller, cross-product comparison.

A second possibility is that gybb subscription indeed causes a change in pricing strategy. For example, if a gybb status substantially boosts the attractiveness of the product, then the seller may decide to "ride the trend" and promote the product even further. We cannot exclude such possibility, but the likelihood appears to us very low given (a) a product's gybb information has low visual salience on the consumer interface (Section 2) and (b) gybb products are not rewarded with search priority, which is understood to be an important determinant of sales. Our interview data (Section 5.4) corroborates these

arguments as most sellers do not believe gybb participation has increased revenue, or at least not to a degree that is noticeable to them.

Finally, we note that the response of promotions (or price or revenue) is unlikely to be explained by the mechanics of our sample construction, such as the zero-filling of months without sales events; this is because whatever mechanical relationship holds for the gybb group will also manifest in the non-gybb group as they were both constructed in an identical manner.[22]

We are therefore left with the conclusion that seller's timing for gybb subscription is strategic. A caveat of this conclusion is, as we mentioned before, that most gybb subscriptions occurred when the product was *first* listed for sale. Products that *switched* to gybb contribution after they were listed represent a small subgroup. However, exploiting the timing of the switching behavior among this small subgroup of products helps us econometrically tease out strategic motives. We believe strategic motives do not just prevail among the switcher products. For example, a profit motive (e.g., the belief that the gybb label may help improve one's brand image) is in fact commonly mentioned in our interviews with sellers. We provide further discussions on seller motives in Section 5.4.

Which gybb Products Do Sellers Promote More? The exercise in Section 5.1 examines which products sellers are more likely to be subscribed to the gybb program. In Figure 6, we present a supplementary analysis of which products sellers promoted the most following gybb subscription. We estimate an augmented version of equation (6) that fully interacts with a measure of the product's characteristic X_i prior to the gybb subscription:

$$\text{Promotion}_{it} = \alpha + \tilde{\beta} \cdot 1(\text{gybb})_i \#\# 1(\text{post})_t \#\# \log X_i + \text{ctrls}_{it} + \varepsilon_{it} \qquad (7)$$

where ## denotes the full factorial operator, and $\tilde{\beta}$ is understood to be a vector of coefficients. Control variables (ctrls_{it}) include group fixed effects, product fixed effects, and month-of-sample fixed effects. The rest of the specification is the same as in equation (6). The objective of this regression is to answer the question: do products with a higher level of baseline characteristic X_i receive more promotions after being enrolled in the gybb program?

[22] To give a concrete example, consider the fact that sales do not occur every month for a product. By construction, *some* sales must have occurred at event time zero; otherwise, one would not have observed any charitable contribution. The same does not have to be true for the rest of the event window. This can potentially cause a mechanical spike of sales at event month zero compared to other months. That is, the probability of having sales at event time zero is one, while the probability for the rest of the event windows is less than or equal to one. However, this concern is alleviated by the fact that by our design all products in the non-gybb comparison group also have sales at event time zero with probability one.

The top row of Figure 6 repeats the baseline DD estimate corresponding to equation (6) in Table 1. The rest of the rows report the three-way interaction coefficients, each obtained from a separate regression that examines the interactive effect of a different characteristic. The second row shows that the increase in promotional activities following subscription is larger for products that had more sales revenue prior to the beginning of the gybb subscription. Products with (a log unit) more prior sales are associated with a more than five-unit increase in promotions after subscriptions begin; this is a magnitude on par with the baseline DD estimate (first row). Roughly speaking, this suggests that the variations in a product's prior sales can explain a large share of the heterogeneity in the promotion increase after subscription. Rows three to five report interaction coefficients for three seller-level business characteristics: overall quantities, number of store followers, and number of store-product followers; there is no statistically significant evidence of heterogeneity along these margins.

Together, the evidence suggests that sellers leveraged the gybb program to promote their best-selling products. Items with the highest revenue shares are more likely to have a charity subscription; once a product is subscribed, promotion activities further concentrate on products that were already selling well prior to the subscription.

Additional Evidence: Charity Subscription Spikes During Shopping Festivals. We have argued that the timing of seller's gybb subscription reveals that the decision is motivated strategically by the intension to promote the corresponding product. Perhaps a more concrete setting to see this behavior is during the Singles Day shopping festival which occurs November 11th each year. (The date gives rise to the commonly used name, the "Double 11" festival.) Double 11 is China's largest online consumption festival, and in recent years, Double 11's single-day sales on Alibaba are reported to have been on the order of 300 billion yuan (about 47 billion USD).[23] For most sellers, the "Double 11" festival is a high-stakes event that generates a substantial share of the year's sales revenue.

Figure 7 shows a histogram of when sellers first subscribed to gybb for any of their products. A clear spike can be seen on November 11th; a smaller spike can also be seen on December 12th which corresponds to the spin-off "Double 12" festival. This exercise represents a specific context in which gybb subscription is likely driven by the intention to promote products – the sole purpose of the shopping festivals.

[23] Double 11 was originally an unofficial holiday celebrated by college students not in a relationship. The concept went viral and paradoxically evolved into a Black Friday-like shopping day in which almost all participate. See https://en.wikipedia.org/wiki/Singles%27_Day.

5.3. Sellers Rarely Cancel Charity Subscription

An important ingredient for a successful fundraiser is its ability to retain donors and to encourage recurring donations. Having analyzed subscription decisions, we now use the same event-study dataset to examine sellers' decisions about whether and when to *unsubscribe* their products from the gybb program.

Figure 8 plots the fraction of products still subscribed to the program after initial participation at event time zero (when the corresponding fraction is one by construction). Our data show that less than 3.2% of products were discontinued contribution by the end of event month 10. Figure 8 also shows that, among the products that stayed on gybb, their average donation-per-revenue metrics are also stable over time, suggesting that sellers rarely adjust how much to contribute.

We next assess whether gybb donation activities remain in place in the face of business shocks. Given our study period (2018-2020), a natural beginning point is to examine how sellers respond to the COVID-19 shock, which took an abrupt toll on platform consumption as many logistics services and parcel shipping services came to an abrupt halt. We begin with the product-level event-study estimation sample. For each product, we restrict to periods from one month after initial opt in (i.e., the portion of the event-study sample in Figure 5 with event month greater than or equal to one). Figure 9, panel A's left column plots average gybb status as a time series from January 2019 to December 2020. The vertical dashed line marks the initial COVID-19 outbreak (designated by the Wuhan lockdown that began on January 23, 2019), followed by a shaded area that spans until April 8, 2020, a period that covers the COVID-19 lockdowns for vast majority of cities. The graphical pattern suggests no obvious change in participation due to the shutdowns. Similar findings are shown on the right column of Figure 9, panel A for the donation-per-revenue metric, suggesting that sellers did not reduce how much they contributed per transaction during bad business conditions.

More generally, we can consider the relationship between business shocks and gybb donation activity. To capture business shocks, we use revenue data in the Seller File (Section 2.3) and for each seller (s) and quarter (q), we estimate the following regression equation:

$$\text{Revenue}_{sq} = \alpha_s + \varepsilon_{sq} \qquad (8)$$

where Revenue_{sq} denotes seller's logged quarterly revenue, α_s is a set of seller fixed effects, and ε_{sq} is the error term. The residuals of this regression therefore represent the quarter-to-quarter revenue variation for the same seller. We refer to these as *revenue shocks*. The left column of Figure 9, panel B presents the relationship between the product's gybb status and revenue shocks using a ventile bin scatterplot. The range of the x-axis (in log scale) shows there is substantial quarter-to-quarter revenue variations; the graphical

pattern suggests that, once a product joins gybb, its participation status depends little on changes in the seller's business condition. The right column of Figure 9, panel B shows that the same conclusion holds for donation per revenue for the product.

Despite being quite simple, Figure 9 illustrates a major advantage of microgiving over traditional fundraisers. A robust flow of charitable funds can be valuable in many ways. In particular, charitable donation from traditional venues is often observed to be correlated with economic conditions, with giving decreases during economic downturns, at the very time when the needs of those living in poverty may increase (List, 2011; Meer, Miller, and Wulfsberg, 2017).[24] Donor retention is also a major practical challenge for charities; less than 25% of first-time donors give a second time in either offline or online settings (Sargeant, 2013; Althoff and Leskovec, 2015; Blackbaud Institute, 2019). Evidence suggests that returning donors are more likely to give and contribute more than donors asked to contribute for the first time (Landry et al., 2010).

Another rarely discussed benefit of the subscription model is its revenue predictability. Because subscriptions are rarely canceled, the flow of funds will be much easier to predict than those from fundraisers that rely on one-off donations. For many charitable organizations that work in a non-disaster relief context – such as education and child/elderly care – predictability and reliability of charitable funds are valuable for the planning of day-to-day operations.

5.4. Is There an Altruistic Component in Seller's Motivation?

Why do sellers keep donating to the program? In this subsection, we attempt to cast further light on sellers' motivation underlying their charity contributions. We first conduct a small-scale interview survey to gain direct insights from gybb-participating sellers. Guided by the interview evidence, we then report a revealed-preference-style test of seller motivation that leverages our ability to observe changes in the seller's own consumption habit before and after gybb participation.

Interviews. To gain some initial insights, we conducted interviews with a small number of sellers. With the help of Alibaba, we reached out to 10 participating sellers who represented businesses of various scales and sectors. Nine sellers responded to the interview requests. Two research assistants conducted telephone interviews with these nine sellers. Each interview contained four groups of open-ended questions

[24] To be clear, this is not to say that gybb contributions are not subject to changes in economic conditions at all. Total contributions are mechanically linked to the total volume of transactions; this volume in turn depends on overall economic conditions. Figure 1 shows that, as COVID-19 hit, total donation declined in 2020 compared to 2019. This said, robust participation means that the pool of donors is likely to remain stable during recessions, thus saving the cost of finding new donors or coaxing donors who discontinued giving during recessions to give again.

about the sellers' reasons for participating in the program, the factors that influence their subscription and unsubscription decisions, and their beliefs about how participation had affected revenue. The interviews were recorded to document anything the sellers had to say about their gybb experience. In the interest of space, we have included only the key points that sellers made in the interviews (see Appendix A). Raw interview scripts are available upon request.

Several correlated responses emerged. First, sellers said that they initially subscribed to the program because they were motivated in part by the hope that the charity label would help promote the product. While the program makes it clear that no explicit reward will be given to participating products, sellers nonetheless hoped that linking the products to a charitable cause might help increase the attractiveness of the product among the consumers. Second, the sellers said that any effect of the charity link on revenue was unclear or too small to be discerned. An oft-mentioned point was that the charity label was so discreet that it likely went unnoticed by many consumers. Third, once sellers realized that the charity label had little if any impact on product revenue, sellers kept their subscriptions and, in many cases, they continued to add new products to the program. Sellers frequently reported a sense of satisfaction that stemmed from their ability to take altruistic actions that the program makes possible because of its low cost (in terms of both effort and donation amounts). Importantly, we note that four of nine sellers interviewed mentioned that they chose to participate in the program for both the potential for higher revenue and the opportunity to contribute to charitable causes – suggesting a mix of underlying motivations. Finally, sellers mentioned two other factors in their decisions: the convenience of the program compared to other donation options, and their trust in the Alibaba platform's screening of reputable charities.

In Figure 10, we further present selected insights from three sellers. Seller A (a vendor of beauty products) mentioned that large online platforms like Alibaba help people discover and act on a willingness to donate by finding charities that can be trusted. The seller said that it can often be overwhelming for individuals to do their own work to find trustworthy charitable foundations that one can give donations with confidence that the money will be used as intended. This point resonates with our view that the microgiving model helps reduce search costs involved with individual-level donation decisions.

Seller B (a vendor in the processed food sector) mentioned that he or she tends to purchase products that are linked to the gybb program when shopping on Alibaba. We find this to be an interesting point about charitable preferences: if the seller's motive to contribute to the gybb program is at least partly explained by an altruistic preference for charitable actions per se, then similar behaviors of other sellers might be appreciated – which will in turn make gybb-listed products relatively more attractive. We would not expect this preferential behavior if a seller's charitable contribution were driven solely by a strategic concern. Below, we leverage linked seller-consumption data to implement an empirical test of this mechanism.

Seller C (a large seller in the baby products sector) mentioned social responsibility and the role of charity linkage on shaping brand image. In the seller's words, consumer's perceptions that a seller has warmth and a high level of caring for others are important for businesses in the baby products sector.

Distinguishing between motivations also has welfare implications. For example, suppose that the sole purpose for gybb participation is short-term sales promotion, but that the sellers simply forgot or found it administratively burdensome to initiate the action of unsubscribing; in such a situation, the persistence of participation in the program could be simply the consequence of decision inertia, which could potentially harm seller welfare. But if, instead, sellers have an intrinsic preference for charitable actions, then the program could make them better off than they would be in a scenario in which they had no access to infrastructure that offers such a convenient charitable donation mechanism or such a low charitable donation threshold. Our general takeaway from the interviews is that sellers' motivation leans more towards the latter case, where sellers who chose to stay on with the gybb program found it an efficient tool to make charitable contributions.[25] An obvious competing explanation is that gybb participation indeed raised product revenue. We examine this possibility in greater detail in Section 6.

Changes in Sellers' Own Purchasing Habits. We provide an additional piece of evidence on sellers' preferences for charitable actions by examining whether sellers' own purchases of other sellers' charity-linked products change after joining the program. We conjecture that if the seller's motive to contribute indeed contains an altruistic component, then similar behavior by other sellers will be appreciated, in turn making gybb-listed products relatively more attractive to her or himself. By contrast, if the seller's motive to contribute is entirely driven by strategic considerations and/or by an inertia over making an effort to unsubscribe, then we would not expect to observe an increase in the seller's preference for other sellers' gybb-listed products.

We first identify participants in the Seller File whose initial date of gybb contribution is between November 2018 and March 2020. Linking these sellers to their own consumption accounts on Alibaba, we calculate the share of the seller's monthly spending on gybb-listed products (see Section 2.3). We then implement a version of equation (5) using the seller (s)-by-month (t) dataset:

$$\{\%\text{Spending in charity-linked products}\}_{st} = \sum_{\tau=-10,\,\tau\neq-1}^{10} \beta_\tau \cdot 1(t=\tau) + \alpha_s + \alpha_t + \varepsilon_{it} \qquad (9)$$

[25] We also acknowledge that, while understanding the mechanisms at play could be of policy and academic interest, the welfare implications for the sellers are likely small in magnitude due to the small size of their contribution relative to sales revenue. On the other hand, the social utility generated from these charitable funds can be large. We present comments from charities that received donations through the program in Section 7.

where $1(t = \tau)$ now indicates month t being the τ-th month relative to when the *seller* first contributed to gybb (that is, the date when any of her/his products first contributed). The regression also includes controls for seller fixed effects (α_s) and month fixed effects (α_t). We cluster standard errors at the seller level. Our ultimate regression sample includes 94,317 sellers and 3,395,412 seller-month observations.

Figure 11 plots the β_τ coefficients. We find a statistically significant increase of the seller's spending share on gybb-listed products after the seller became a gybb contributor. The magnitude of the increase is mild, roughly 0.66 percentage points increase relative to a mean of 0.307 (a 2.1 percent change.) While the magnitude of this effect appears small, the fact that a change in purchasing habit can be detected for the average gybb seller suggests altruism may be a significant component for seller's underlying motivation to donate.

6. Consumers Preferences for Charity-Linked Products

We now turn to the final link in understanding sellers' motivation for microgiving: whether charity linkages increase product revenue. We learn from interviews that many sellers had hoped for a revenue effect at the outset, but did not see evidence of it – although one cannot rule out the possibility of a small revenue effect that was difficult to discern behind the noise at the individual seller level. A direct econometric test is to examine differences in consumer demand due to the charity linkage, holding everything else constant such as product characteristics and price. Lacking quasi-random variation in charity subscription, we present two second-best strategies to speak to potential revenue effects of gybb program participation.

6.1. Residual Revenue Effects

We first return to our event study analysis in Section 5.2 which showed that sales promotion activities increased after a product's gybb participation. Conceptually, we want to learn how product revenue would have changed after gybb participation in the absence of the influence from sales promotions. We use a regression approach to model the relationship between product revenue and promotions, and then assess how much of the revenue increases post-gybb participation remains after we control flexibly for promotions – any "residual" revenue effect might be suggestive of the direct effect of the charity linkage.

Specifically, we control flexibly for product promotions in equation (6), and assess how the difference-in-differences β coefficient changes as a result. That is, we ask how much of the revenue

increase we observe after gybb participation (Figure 5, panel C) remains unexplained once we taken into account the general relationship between product revenue and sales promotions.

We begin by establishing that there *is* indeed a link between sales promotions and revenue to begin with. In Appendix Figure B.10, we report a distributed lag model where we regress product-month level revenue on 10 leads, 10 lags, and a concurrent term on the number of promotions for the product-month, controlling for product and month fixed effects. The results show an immediate increase of 2.9 percent of revenue (95% CI = 1.5 percent to 4.2 percent, with standard errors clustered at the seller level) in the month of promotion.

Figure 12 reports the β coefficients for sales revenue (panel A) and quantities (panel B). The first row repeats equation (6) without no sales promotion controls. In the second row, we augment equation (6) with a linear term of promotions (i.e., the outcome variable of Figure 5, panel A). The third and fourth rows include quadratic and decile-bin controls of promotions. We find that the post-gybb participation boost in product revenue seems to be largely explained by promotions, suggesting the charity linkage itself has limited impact on revenue. These regressions are noisily estimated, but they suggest the revenue impact of gybb participation is unlikely to be enormous.

6.2. Changes in Product's Consumer Pool

Our second strategy analyzes information on the consumers underlying each transaction, testing for consumer composition changes after a product is linked to the gybb program. We leverage the Product Buyer File (Section 2.3) which allows us to observe the consumer underlying each purchase event present in the Product File. We observe consumers' age, gender, and total consumption on Alibaba between 2018 and 2020; for each consumer, we also compute the overall fraction of spending on gybb-listed products throughout the entire three-year study period.

Figure 13 repeats the same event-study analysis as in Figure 5 but using consumer characteristics as the dependent variables. We find no indication that a gybb subscription is associated with any change in the average age of people in the consumer pool (upper-left panel), the share of females (upper-right panel), or total spending (lower-left panel); trends for gybb and non-gybb product groups moving in parallel with each other both before and after gybb subscription. We report the corresponding DD estimates in panel B of Table 1. In all three cases, the DD estimates are statistically insignificant with estimated effect sizes near zero.

By contrast, the lower-right panel of Figure 13 shows a sharp increase in the gybb product spending-share metric by 2.4 percentage points, meaning the pool of consumers who purchase gybb-listed

products shifts, showing an increase of those who have higher propensity to purchase gybb-listed products. No similar change in consumer composition is observed for non-gybb products sold by the same seller. Relative to an average gybb spending share of 0.285 percent, this increase represents an 8.4 percent change above the mean.[26]

The evidence is consistent with the interpretation that there is a group of consumers who are particularly attracted to charity-linked products. This can render in several ways. In its simplest form, a product's switch to gybb helped attract consumers with charitable preferences ("charitable products attract charitable consumers"). For example, some consumers may use the "gybb" filter when searching for products (Appendix Figure B.3); others may compare similar products and, with all else equal, they may then decide to go with the one with a charity linkage. A product's switch to gybb increases its attractiveness to this group of "charitable" consumers. The obvious competing explanation is that charitable products have some latent attributes. By our econometric design, however, any such latent factors need to be time variant, changing exactly at the time when the product switched to gybb, and they cannot influence three general measures of consumer composition (age, gender, and overall consumption).[27] We believe these alternative explanations are unlikely.

Assuming that no consumer "dislikes" charity-linked products and moves away from a product upon its gybb subscription, we can provide a back-of-the-envelope calculation on how many new consumers the gybb product need to attract per month to generate the observed increase in the consumer pool's average gybb spending share metric. The average sales volume at the product-month level is 7 orders or, for simplicity, 7 consumers; the average gybb share among these consumers is 28.5 percent (i.e., on average, these consumers spend 28.5 percent of their consumption on charity-linked products over 201-2020). It therefore takes an increase of 1/0.6/0.3 more transactions per month from consumers with an average gybb share of 48/60/80 percent to raise the average gybb spending share by 2.4 percentage points.[28] We note that an effect size of this magnitude is likely difficult to be detected by individual sellers – as we find in interviews – or by our regression analysis of Section 6.1 where we try to tease out gybb's direct effect by controlling for the correlation between promotion activities and sales revenue.

[26] Note that the spending share variable provides a measure of a consumer's overall inclination to purchase gybb-listed products as the metric is constructed using all-time purchases throughout the study period (2018 to 2020). Therefore, there is little in the way of a mechanical link between the variable and the timing of any particular seller's gybb subscription.

[27] In Appendix Figure B.12, we show that controlling for sales promotions (as we did in Section 6.1) does not explain away the results on consumer composition.

[28] After a product becomes gybb-linked, it may attract consumers that are much more enthusiastic about the charity linkage than its existing consumer pool, e.g., those who use gybb filters to shop among charity-linked products (Appendix Figure B.3). For these consumers, a much higher gybb spending share is expected.

Our findings on consumer characteristics also provide some implications for consumer welfare: rather than leveraging the charity link to promote products with short sales records or those that are particularly expensive or cheap, sellers promote products that were already very popular prior to gybb subscription (Section 5.1); neither do we detect substantial shifts in the consumer pool for the charity-linked products measured broadly using basic characteristics including age, gender, and purchasing power. Instead, we find evidence that is consistent with the existence of a preference for charity-linked products, suggesting the program may improve consumer utility by providing a venue through which shoppers can conveniently engage in charitable causes.

7. Charity's Experience with the Program

Through our study period, the gybb program has fulfilled fundraising objectives for nearly 200 charitable projects. Appendix A.2 documents our conversations with directors of two charitable foundations whose projects have received donations from the gybb program. Their comments largely echo our observations about three key advantages of gybb's microgiving model over traditional fundraising mechanisms: the speed of fundraising, the stable flow funds, and the reduced burden in donor outreach:[29]

"*[The gybb program] is very stable and very fast in fund raising. We raised 5 million yuan for our projects in two to three months, which would have been really difficult to achieve through alternative venues*."

"*We don't have to do much, and we just 'automatically' get donations from the sellers once we are listed on the gybb program…it would be a lot more costly to find donors ourselves in the real world*."

One charity director mentioned that the gybb program is a significant source of the charity's overall fundraising. Consistent with our analysis in Section 4.2, the gybb program generates funds much more efficiently than the Charity Store program:

"*About 30%-40% of the total revenue of our foundation may come from gybb. Funds raised through the Charity Store program are limited because you need many one-off donors, which is difficult*."

The success of the gybb program also ties closely to its stringent regulation, including the requirements for the charities to produce monthly reports to the platform and the donors, to conduct separate book-keeping about funds received from the program, and to have a third party auditing the charities' overall accounts:

[29] With lower fundraising expenses, charities could allocate more resources to improve their programs and fulfill their missions. The low-cost gybb fundraising scheme may help program ranking as well, as charity rankings often discount a program's total expenditure on promoting its programs. For an example, see: <https://www.charitywatch.org/our-charity-rating-process>

"*The cost of fundraising is really low because sellers trust the platform … [the gybb program] has the most strict requirements among all similar programs. It established a joint evaluation system and required charities to provide reports every month*."

"*I would say it is not easy to meet the high standards of [the gybb program]. We put all of our projects on Alibaba Charity Store and only some of our best projects get to be listed on gybb*."

Finally, like we learn from the interviews with sellers, one charity interview included an anecdote that suggests a mixture of profit and altruistic motives underlying sellers' decision to participate in the gybb program:

"*Sellers expected that gybb may help increase sales. But I think that along the way [the gybb program] brought them closer to philanthropy and cultivated trust on charitable causes overall. We have received messages from sellers like 'I grew up in countryside myself, and I want to give back to those kids.' They also expressed a lot of expectations for our projects.*"

8. Conclusion

Analysis of participation in the gybb program on the most widely used online marketplace in China provides several insights on the key components of microgiving that underpin its success as a new model of charity fundraising. First, the expected donation quantity is extremely low – effectively pennies. Any user is able to engage in philanthropy with such an extremely marginal contribution. Second, donor retention is high. The program uses a subscription mechanism so that sellers only need to make a one-time decision; subsequent contributions then occur automatically as transactions that are linked to the program occur. These two features – a minuscule contribution and an ongoing subscription begun with a single decision – yield a high donor-retention rate. This combination helps the program generate charitable funds that are robust to business shocks. Third, search costs associated with donating are low. A key feature of the program is that the Alibaba platform takes on the job of screening trustworthy charities so that donors do not have to do the search themselves. The platform in effect plays an intermediary role in both screening the charities on behalf of potential donors, and reaching out to potential donors on behalf of charities that would otherwise need to conduct outreach. Fourth, a recognition mechanism – in this case, a charity label posted online for participating products – creates small but meaningful incentives for users to be engaged. We hope our analysis casts light on the possibility of integrating microgiving in other digital platforms, especially those that also feature frequent transactions and product competition.

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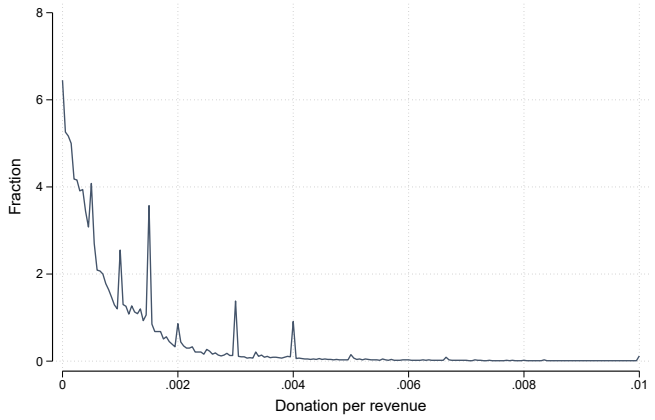
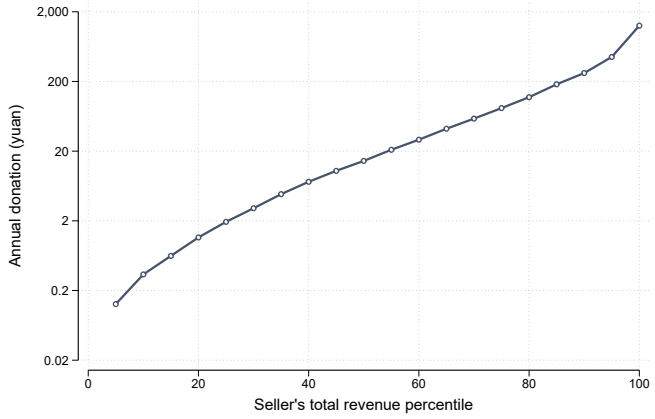
Figure 1. Fundraising outcomes of the gybb program

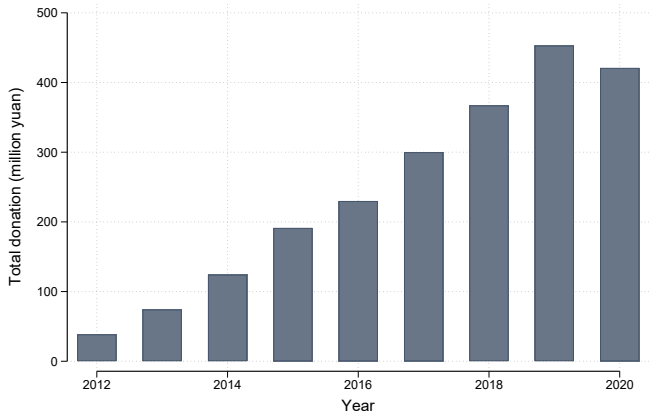
A. Donation per unit of revenue



B. Average annual donation per seller, by revenue percentiles

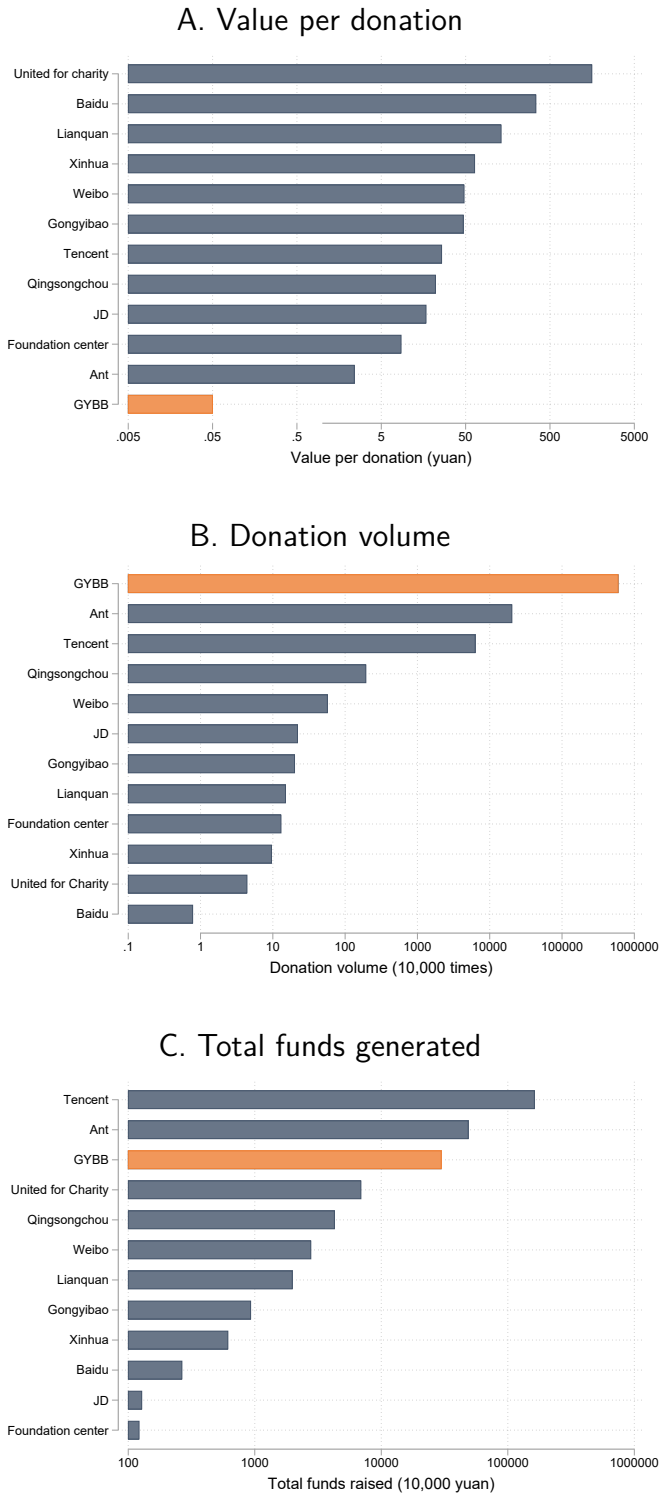


C. Platform-wide donation generated



Notes: Panel A plots distribution of donation per unit (yuan) of revenue among all gybb products. The median is 0.0005 yuan per yuan revenue (mean=0.0017 yuan). Panel B plots average donation among users grouped by ventiles bins of annual revenue distribution. For example, the average user at the top 5% of the revenue distribution donated an average 1,263 yuan per year as a result of participating in the charity program. Panel C plots total platform-wide donation from the charity program. Note our study period spans 2018-2020. Aggregate statistics for earlier years are provided by Alibaba.

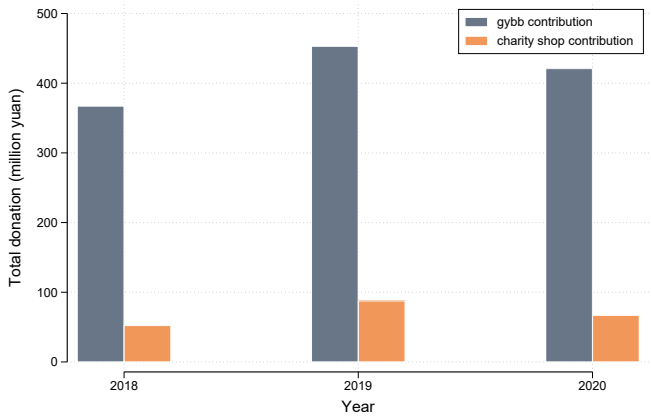
Figure 2. Comparison with all 11 other online fundraising platforms



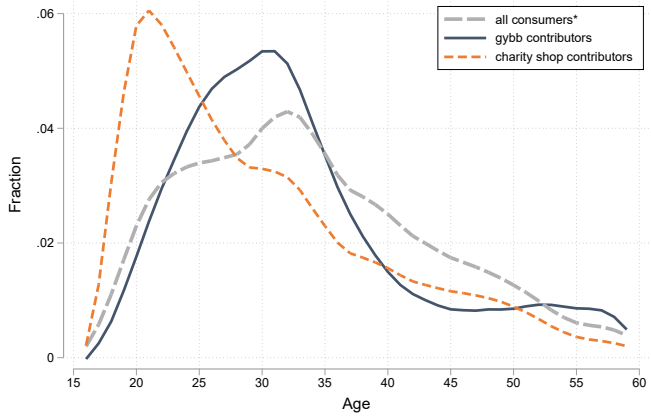
Notes: Data are sourced from China Philanthropy Times and reflect conditions in year 2017. Panel A plots average value per donation. Panel B plots total donation volume of the year. Panel C plots total charitable funds raised. Axises are in log scale to improve readability.

Figure 3. Comparison with Alibaba Charity Stores

A. Total contributions

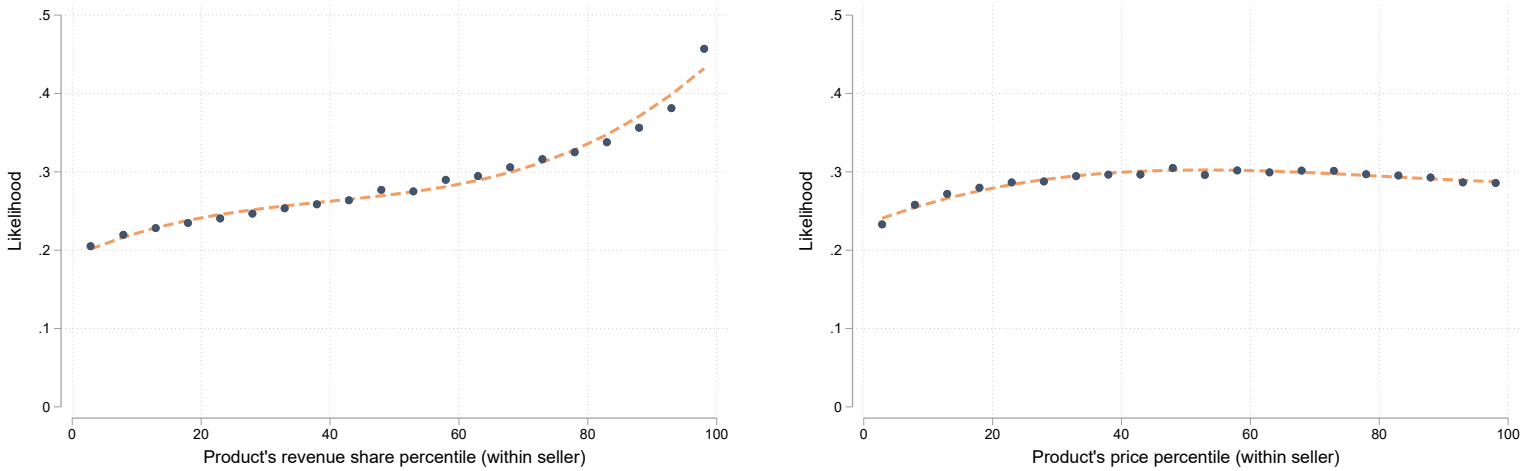


B. Age distribution of contributors



Notes: * "all consumers" include all consumers who ever made any purchases from any sellers in the Product-Buyer File. "charity shop contributors" include the universe of consumers who contributed to Alibaba charity stores between 2018-2020. "gybb contributors" include all gybb sellers in our study sample.

Figure 4. What products do sellers link to charity:
Subscription concentrates among products that sold very well (L) but not particularly cheap or expensive (R)

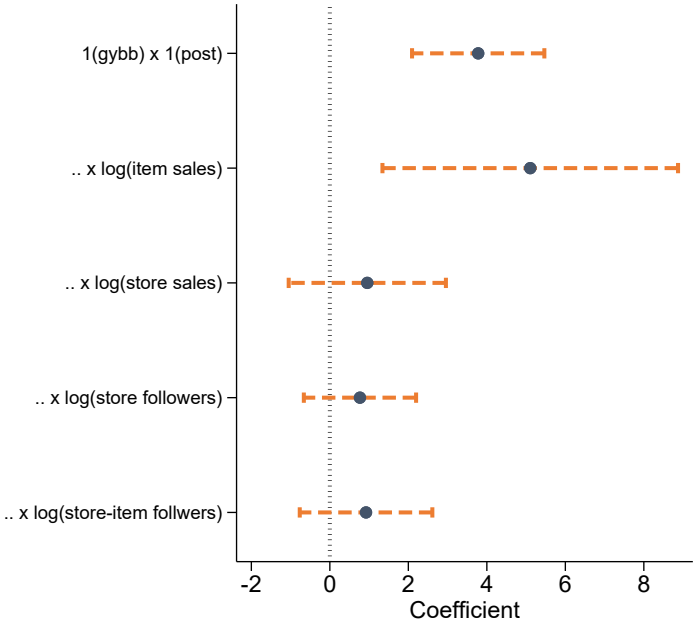


Notes: Left panel shows likelihood of a product's gybb participation as a function of its ranking of revenue share for the seller; 100 means the product brings the most revenue among all products of the seller. Right panels shows likelihood of a product's gybb participation as a function of its average price (measured by revenue per transaction); 100 means the product is the most expensive product offered by the seller.

Figure 5. Sellers' timing for charity subscription is strategic

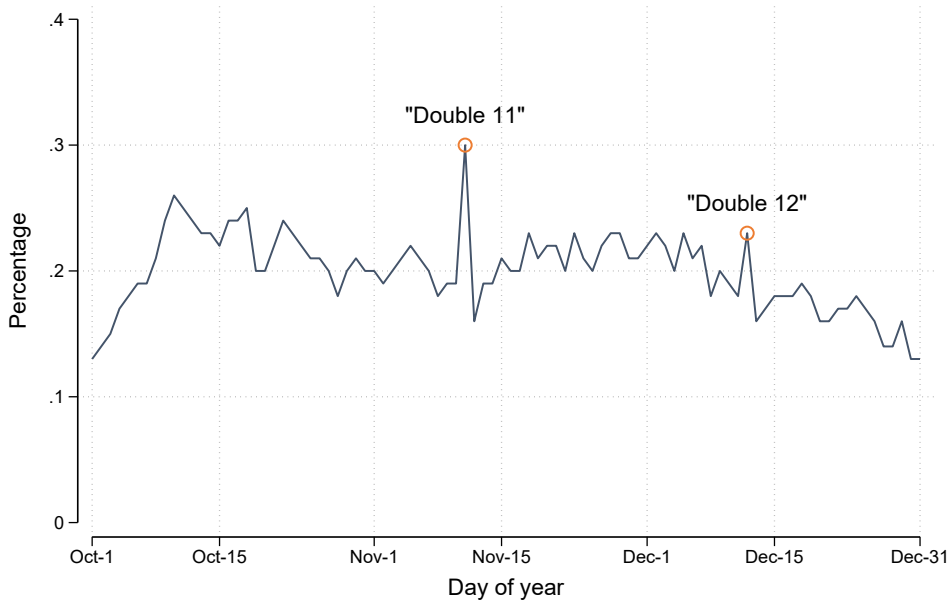
Notes: This figure shows trends in product's intra-month price promotions (panel A), revenue per order (panel B), and revenue (panel C) as a function of months relative to gybb subscription. For the "gybb products" group, event time 0 corresponds to the first month when any sales of the product contributed to gybb charity. "non-gybb products" group consists of products from the same seller that also had sales at the switching months (i.e., the set of months when products in the other group started gybb subscription), but had never themselves contributed to gybb throughout the study period. For both gybb and non-gybb groups, we restrict to active products that already had sales at or earlier than 10 months before event time 0. Outcome variables are normalized to zero for event month -1. Regressions are run separately for gybb and non-gybb groups, and include no fixed effects control variables. See Appendix Figure B.9 for difference-in-differences event study regressions with full sets of controls. For non-gybb products, shaded areas show 95% confidence interval constructed using standard errors clustered at the seller level.

Figure 6. What products do sellers promote following gybb participation:
Price promotions concentrate among products that sold very well pre-gybb



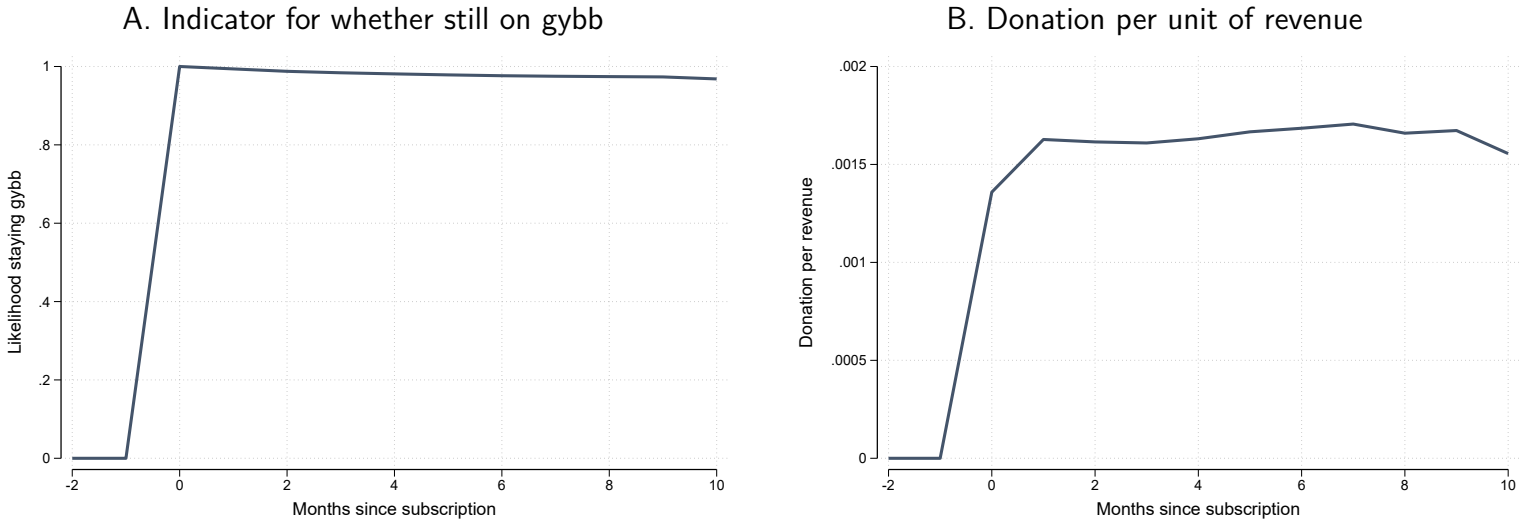
Notes: Each bar represents coefficient from a separate regression. The first row repeats the baseline DD estimate on changes in product promotion following gybb participation, corresponding to equation 6. The rest of the rows show three-way interaction coefficients from equation 7, where the 1(gybb) x 1(post) are fully interacted with a measure of the product's (or the store's) pre-gybb characteristics. "log(item sales)" is log total number of transactions of the item. "log(store sales)" is log total number of transactions of all items of the seller. "log(store followers)" and "log(store-item followers)" are log total number of consumers who had followed the seller or the item. Range bars show 95% confidence intervals constructed using standard errors clustered at the seller level.

Figure 7. Seller gybb participation rates spike on consumption holidays



Notes: This figure plots the distribution of seller's first gybb subscription date by day-of-year between October and November. Data are pooled for 2018-2020. The two highlighted spikes correspond to the November 11th Singles Day shopping festival and the December 12th spin-off.

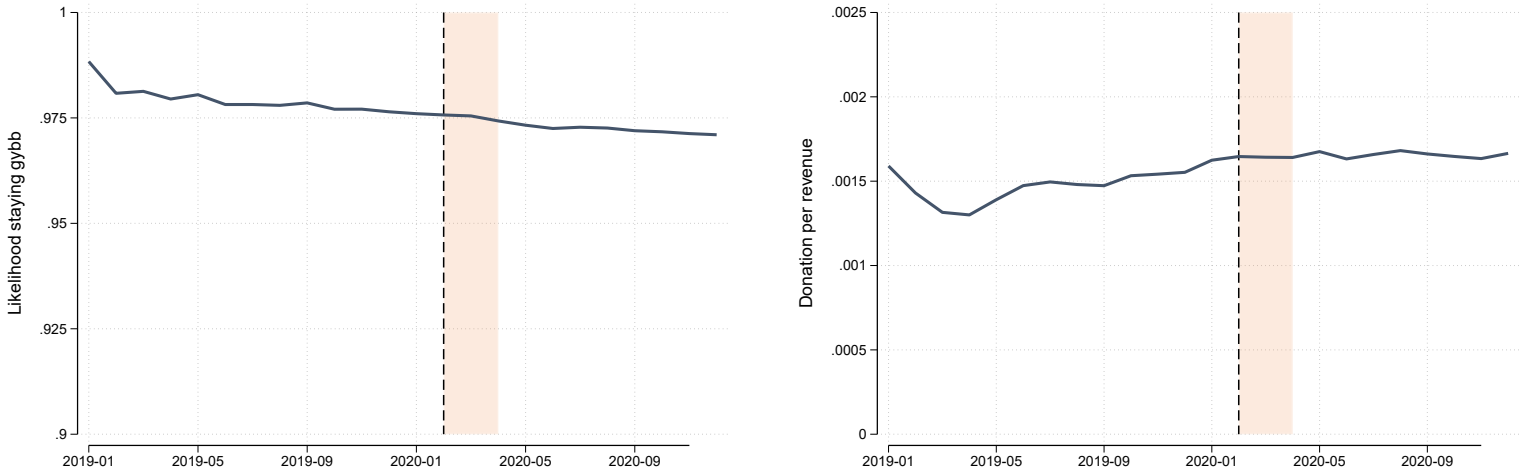
Figure 8. Sellers rarely cancel subscription or change how much to contribute



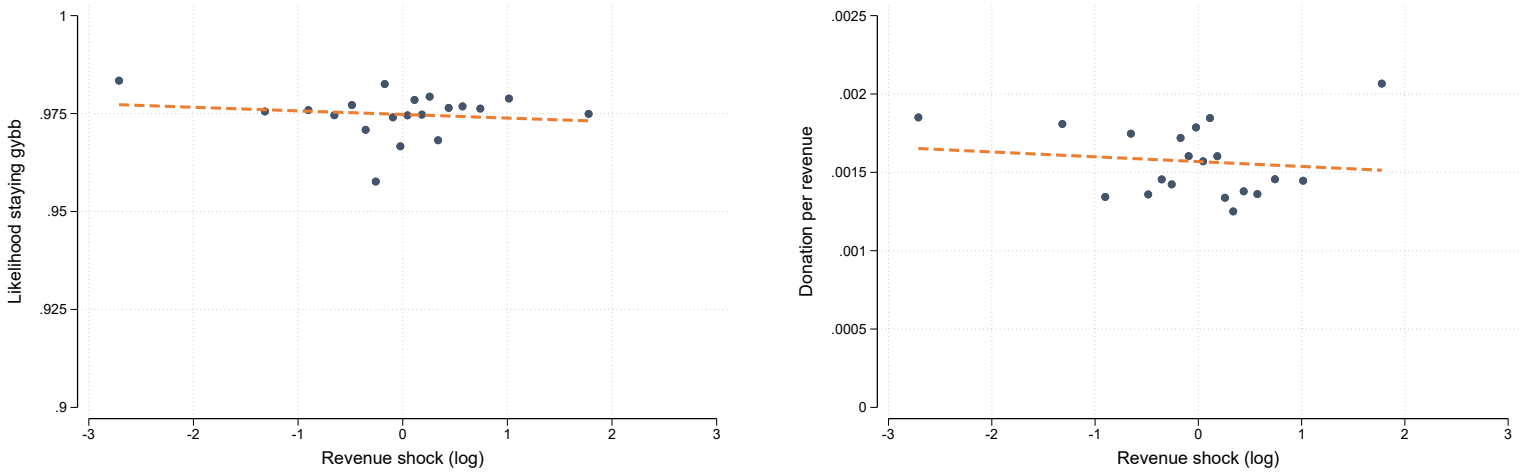
Notes: This figure plots gybb subscription status (left) and contribution-per-revenue metric (right) as a function of months relative to a product's gybb subscription. For both outcomes, coefficients prior to (and including) event month -1 are mechanically zero. Regressions include no control variables.

Figure 9. Contribution is robust against business shocks

A. COVID-19 shutdowns



B. Revenue shocks more generally



Notes: Sample restricts to periods from one month after products' gybb subscription (i.e., the portion of the event study sample in Figure 6 with event month greater or equal to 1). Panel A plots gybb subscription status (left) and contribution-per-revenue metric (right) as a function of time. The vertical dashed line marks the initial outbreak (January 23, 2019 Wuhan lockdown) followed by a shaded area that spans until April 8th, 2020 which covers the covid shutdowns for most Chinese cities. Panel B plots a ventile binscatter of gybb subscription status (left) and contribution-per-revenue metric (right) as a function of within-seller log revenue shocks. See text for more details about the construction of revenue shocks. Dashed lines are simple OLS regression lines.

Figure 10. Interview excerpts

Seller A
Sector: beauty products
Monthly revenue: between 300k – 700k yuan

How did you learn about the program: saw the option by chance when putting up products.

Why donate: like the look of the gybb product label; want to be involved in charitable causes; gybb donation costs little for the seller, but can mean a lot for those in need.

I mostly make donations through large platforms including Alipay, Tencent, and Taobao; have less trust for offline donation venues; donation is often intermittent, occurring when there were events (that caused emergent needs for charitable giving, such as natural disasters); people have little idea where to find trustworthy charities even if they wanted to donate money; the gybb program makes charitable giving a convenient and everyday practice.

Would you unsubscribe if sales aren't great: no, donation amount is small, and I do not make donations when no sales occur anyways.

Did participation help improve sales: unknown – didn't pay attention; consumers probably do not care.

Seller B
Sector: processed food
Monthly revenue: about 1 million yuan

How did you learn about the program: saw the gybb option by chance when putting up products.

Why donate: initially hoping to gain consumer traffic benefits and be able to contribute to charity at the same time; believed the gybb label may give consumers a good impression; trusts Alibaba's choice of charitable foundations.

Would you unsubscribe if sales aren't great: no, total contributions too small to matter.

Did participation help improve sales: little if any influence on sales; haven't paid attention for a while; consumers probably do not notice; but when I choose between similar products to buy, I tend to go with the one that makes gybb contributions.

Seller C
Sector: baby products
Monthly revenue: over 10 million yuan

How did you learn about the program: saw the option by chance when putting up products.

Why donate: social responsibility; being involved in charitable causes is important for brand image especially in my industry; highly agree with the gybb program's charitable approach (small amount per person, big effect in total); trust Alibaba's choice of charitable projects.

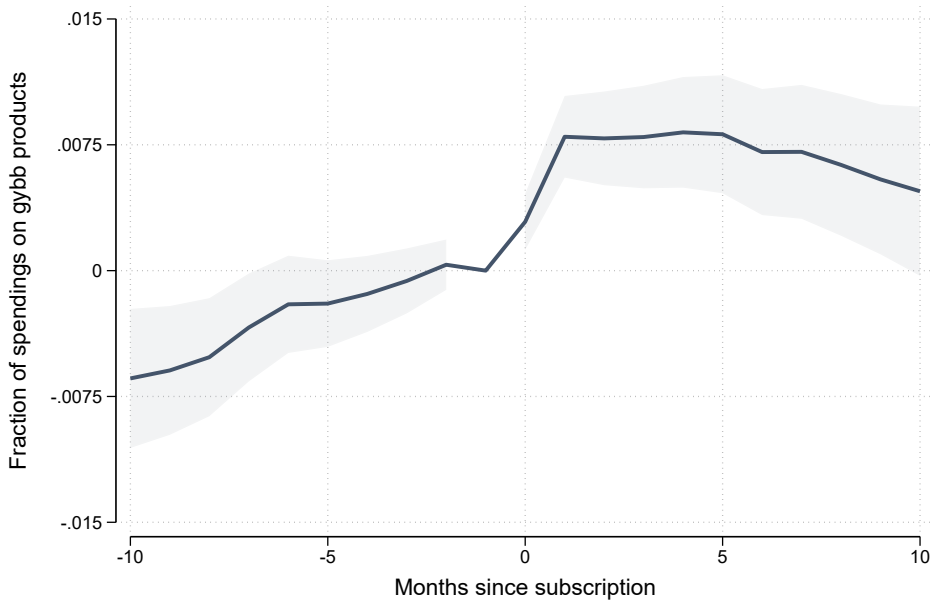
It would be a good idea for Alibaba to urge more large brands to participate in gybb, which can serve as role models and motivate many more firms to contribute as well.

Would you unsubscribe if sales aren't great: no, having been donating 0.02 yuan per transaction for >80% of my listed products and did so for many years; would probably consider donating more to help the society in bad economic times.

Did participation help improve sales: probably but not sure; consumers may prefer products with a charity linkage.

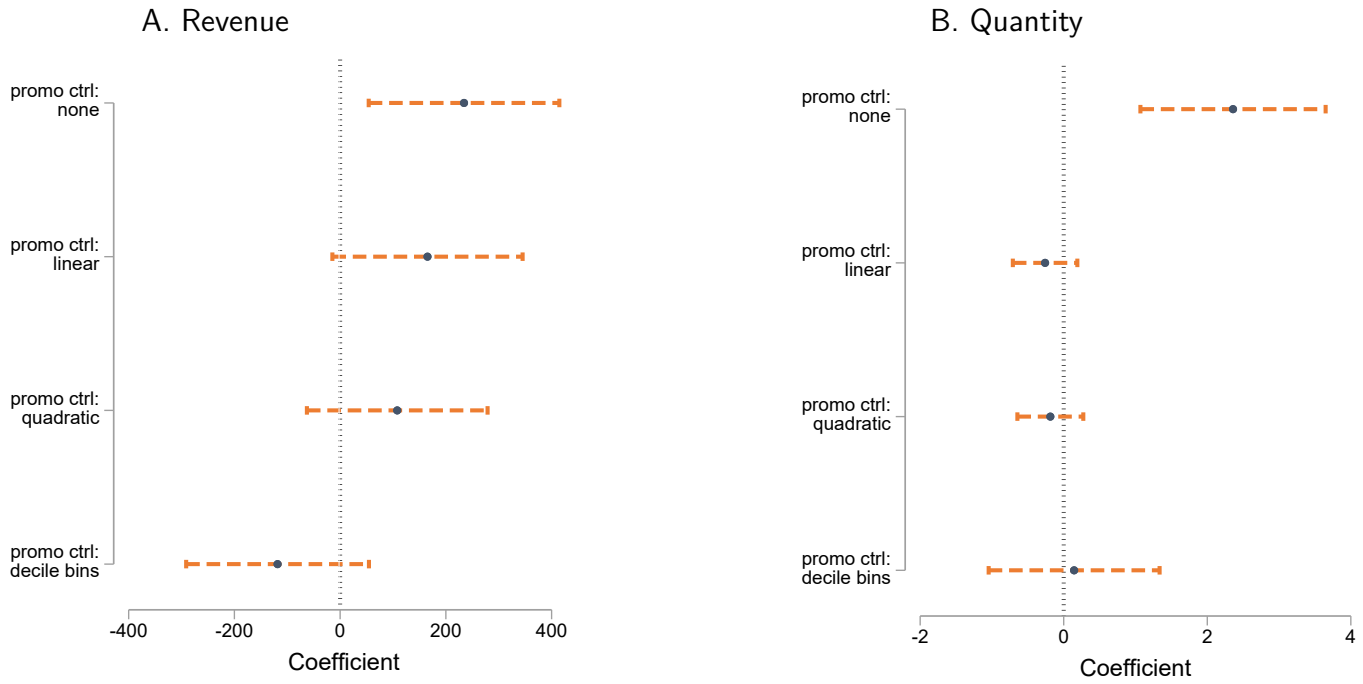
Notes: This graph shows selected response from three gybb participating sellers we interviewed. Detailed interview data are provided in Appendix A.1.

Figure 11. Evidence on a preference for charitable actions:
Sellers themselves buy gybb products more



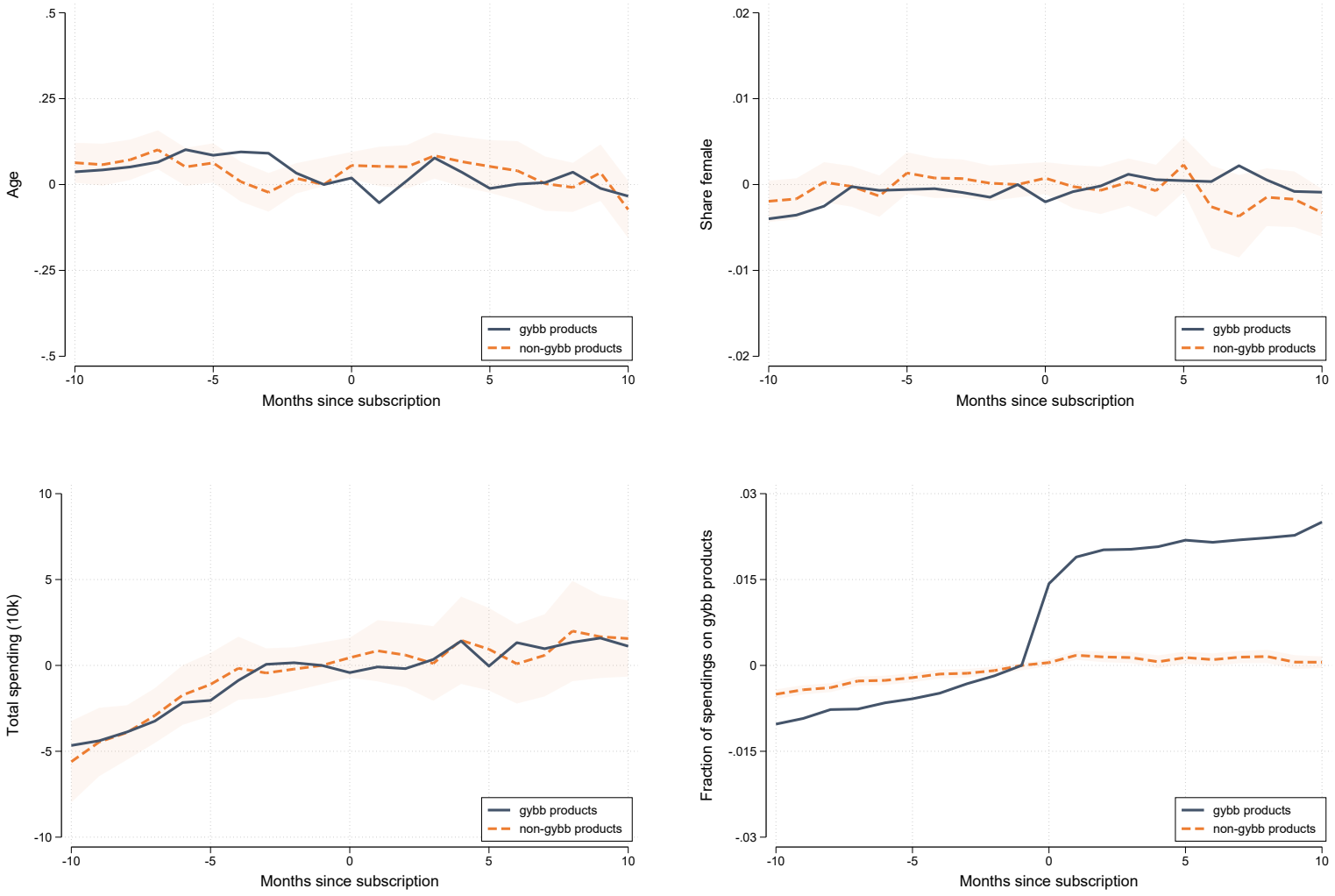
Notes: This figure shows sellers' own Alibaba spending share towards gybb-listed products as a function of time relative to the first month any of their products contributed to gybb. Event month -1 is normalized to zero. Shaded areas show 95% confidence interval constructed using standard errors clustered at the seller level.

Figure 12. Revenue effect estimates controlling for product promotions:
Revenue increases after gybb participation are largely explained by changes in promotions



Notes: Each bar represents the difference-in-differences coefficient estimate from a separate regression. "promo ctrl: none" is the baseline estimate without controlling for promotions (repeating Table 1). The rest of the chart presents estimates after controlling for linear, quadratic, and decile bins of promotions. Outcome variables are product sales revenue (panel A) and number of orders (panel B). Bars show 95% confidence interval constructed using standard errors clustered at the seller level.

Figure 13. Evidence on a consumer preference for charitable products:
Change in product buyers' characteristics



Notes: This figure shows trends in product buyers' age (UL), share female (UR), 2018-2020 total spending (LL), and 2018-2020 share of total spending on gybb-listed products(LR) as a function of months relative to gybb subscription. For the "gybb products" group, event time 0 corresponds to the first month when any sales of the product contributed to gybb charity. "non-gybb products" group consists of products from the same seller that also had sales at the switching months (i.e., the set of months when products in the other group started gybb subscription), but had never themselves contributed to gybb throughout the study period. For both gybb and non-gybb groups, we restrict to active products that already had sales at or earlier than 10 months before event time 0. Outcome variables are normalized to zero for event month -1. Regressions are run separately for gybb and non-gybb groups, and include no fixed effects control variables. See Appendix Figure B.11 for difference-in-differences event study regressions with full sets of controls. For non-gybb products, shaded areas show 95% confidence interval constructed using standard errors clustered at the seller level.

Table 1. Estimates of event studies

	(1) mean/[sd]	(2) β/(se)	(3) β/(se)	(4) β/(se)
A. Changes in seller activity				
promotions	13.2	3.68***	3.66***	3.78***
	[392.6]	(0.86)	(0.86)	(0.86)
"price"	260.8	-11.3***	-11.2***	-10.3***
	[1,255]	(2.47)	(2.47)	(2.47)
revenue	1,840	224.6**	224.4**	234.4**
	[28,228]	(90.0)	(90.8)	(92.0)
B. Changes in consumer composition				
age	36.8	-0.032	-0.037	-0.023
	[7.15]	(0.031)	(0.031)	(0.032)
female	0.455	0.0016	0.0016	0.0014
	[0.401]	(0.0011)	(0.0011)	(0.0011)
3-y spending (10k)	20.1	-1.38	-1.38	-1.88
	[328.9]	(1.18)	(1.18)	(1.22)
3-y %spending on gybb	0.285	0.024***	0.024***	0.024***
	[0.112]	(0.0006)	(0.0006)	(0.0006)
Product fixed effects		✓	✓	✓
Month-of-year fixed effects			✓	
Month-of-sample fixed effects				✓
Group fixed effects				✓

Notes: This table reports the difference-in-differences (β) estimates of equation (6). The corresponding event study estimates are in Figure 6 and Figure 13. Each cell corresponds to a separate regression. The outcome variables are indicated by row names. Standard deviations are reported in brackets. Standard errors are clustered at the seller level. *: $p < 0.10$; **: $p < 0.05$; ***: $p < 0.01$.

Appendix A.1. Sellers' Comments

Seller 1: pet supplies sector, annual revenue 30 million yuan

Q: Initial motivations to opt in

A: I first knew gybb in 2013 through advertising of Taobao. Taobao told sellers that gybb items will be displayed with labels when consumers search for certain kind of products on Taobao. Initially I thought it would increase sales of my products. That was the main reason why I joined this program. Most of the items that we sell are labelled as gybb all the time ever since listed. Sometimes I choose to label items as gybb when I offer discounts.

Q: Acceptable donation amount for each deal and other charitable contributions

A: The donation proportion I set for each item is the default minimum level. I can accept a maximum of 3% of the item's price per deal. Meanwhile, I still participate in philanthropy in other ways. For example, I often donate to charities that help street dogs and cats.

Q: Post opt-in experience and whether to opt out

A: Although I initially thought gybb would increase sales revenue, we didn't find it actually help after we joined gybb. I feel consumers don't really care about whether an item has the gybb label, neither do I when I shop online myself. But I am still going to continue supporting gybb because it gives me a positive feeling that sales will increase with gybb label. However, if the profit shrinks, we may want to quit gybb. We cancelled gybb for some items. I don't take gybb as the primary way of charity participation, so that I don't have much feeling of giving when I donate through gybb. It also doesn't change my devotion to charity through other ways.

Q: General reviews of gybb and suggestions

A: I don't trust the charities because there are lots of negative news about online giving. I don't know much about how my donation is used, and I have no idea about the progress of their projects. I also don't think the charities who receive donation from gybb will use their fund properly.

The problem of gybb is that consumers do not pay enough attention to it, so that sellers are not motivated. I think Taobao needs to do more advertisement about sellers donating. For example, publishing a ranking of donations made by sellers. It can help consumers become more aware of sellers' contributions. I have participated in a charity project in Juhuasuan and the platform put my store on the news. I was happy about that.

Seller 2: garment sector, annual revenue 3 million yuan

Q: Initial motivations to opt in

A: I knew gybb by seeing the gybb label on Taobao app. There is a check box that I can select to label items as gybb. Taobao also posted information about gybb. I want to join gybb because I am interested in philanthropy. Besides that, it helps to improve the brand image of my shop. I didn't think gybb will have much impact on sales. All my items are labeled as gybb. Some items are sold more while some are not, so I don't know whether gybb actually increases sales. I don't pick a special time to label items as gybb. I select gybb when I list every item.

Q: Acceptable donation amount for each deal and other charitable contributions

A: I set 0.1 yuan of donation for all items. I think 0.5% of selling price would be the maximum level I can accept, because the profit margin of my items is relatively low. Other than gybb, I donated to a project that helped building sports grounds for primary schools.

Q: Post opt-in experience and whether to opt out

A: I am happy to donate through gybb as I feel I contribute something to the society during the process. Like I said, I don't see any sales increase brought by gybb, but I will definitely keep participating. My participation to gybb doesn't affect my giving to charity through other ways. Even if my business faces some difficulties, I will not cancel gybb because donation is already linked to sales. Donation through gybb will not be a burden in any situation. I think only a small proportion of buyers will consider the gybb label in making purchase decisions. Me personally don't pay attention to gybb label when I do shopping in other e-stores.

Q: General reviews of gybb and suggestions

A: I highly trust the charitable organizations that I donate to through gybb. I know how my donation is used but I don't know much about the progress of their projects. I believe my donation will be put to good use. gybb is a very convenient way of making donations.

I think there are two aspects that need to be improved. One is that the gybb label is not so clear and consumers can hardly notice it. It used to be quite noticeable but Taobao has added too many attribute labels to items in recent years. Another suggestion is that sellers don't know exactly how much benefit we can get from the platform by donating through gybb. If Taobao can reward sellers with searching recommendations (placing gybb items in better positions upon consumer searches), sellers will have more incentives to donate.

Seller 3: electronics sector, annual revenue 10 million yuan

Q: Initial motivations to opt in

A: I first knew gybb by seeing the gybb option when I listed my products. I join gybb purely because I want to give to charity. gybb label may help increasing sales, but I never thought about that when I joined gybb. All items in my store are labeled as gybb and I don't pick any specific time to label them.

Q: Acceptable donation amount for each deal and other charitable contributions

A: The amount of donation I set is 0.1 yuan for each deal. I will not consider setting any value higher than that because I make almost no profit at the moment. I give a lot to charity other than through gybb. I donated 200,000 yuan for flood rescue in Henan and I have been supporting some underprivileged kids to go to school.

Q: Post opt-in experience and whether to opt out

A: I will keep giving through gybb, unless I keep making losses. gybb doesn't really make me feel much because it is not the main way I contribute to philanthropy. However, I think being part of gybb potentially encourages me to give more through other ways, because the platform gives me more information about the current needs of charities and their specific projects. Speaking of the impact of gybb on sales, I don't think there is any. I've compared sales of two similar items, one is gybb and another one isn't. There is almost no difference in sales, as I can perceive. Many people including me don't care about gybb labels when shopping online.

Q: General reviews of gybb and suggestions

A: I trust the charities that approved by Taobao. I don't know the progress of projects I give to, but I am sure they use our donation properly. My donation will do good to the society. I suggest Taobao releasing some reports to make buyers and sellers more aware of the impact of gybb, and encouraging more people to participate.

Seller 4: books sector, annual revenue 0.2 million yuan

Q: Initial motivations to opt in

A: With the guidance of lecturers in Taobao university and the publicity in the Taobao platform, I learned about gybb. I saw other sellers set up gybb and I did the same. From my perspective, as long as the sellers operated on Taobao for more than one year, they should know of gybb. The lecturer in Taobao University once said that after joining the gybb, my products will have better opportunities to be shown to consumers. The gybb label looks pretty good and I want to send care and love to charity through gybb, so I decided to label some goods as gybb. At the very beginning, I guess gybb could help increase sales more or less. Since I joined, I kept adding newly listed commodities as gybb.

Q: Acceptable donation amount for each deal and other charitable contributions

A: I set the donation rate at 2% when I was working in the clothing industry, and now for books, the donation rate is often 10 cents per transaction. As profits from books are fairly low, donations are not usually raised. If Taobao can help sellers increase sales by participating in gybb, the maximum donation rate acceptable can be 6%-10%. Before opting in gybb, I participated in the Shuidichou program on Wechat, but nothing else.

Q: Post opt-in experience and whether to opt out

A: There's no data about whether gybb can help increase sales or not and I know little about it. I think since many businesses participate in gybb, the effect may not be very big nowadays. I feel good about participating in gybb and I will definitely continue to support it. But opting-out may also be considered when business is not good. If I feel that doing charity is not in my interest, I may cancel it. I think that a relatively small number of buyers would prefer gybb commodities, and I don't tend to pay special attention to gybb sellers or gybb-labelled goods when I shop. However, when the prices of similar products are the same, I will give priority to gybb-labelled goods. After participating in gybb, I didn't cut charitable giving through other channels, and other charitable giving will continue.

Q: General reviews of gybb and suggestions

A: I do think gybb is a more convenient charity platform, compared with offline charity channels or other online charity platforms. Not only do I trust the charitable organizations that receive my donation, but I think that my donation will play the role as expected. I never looked into whether the fund has been actually donated or not. Because I trust Alibaba and the charity organization that are partner of the Ali platform. The platform announced the usage of the donation and the progress of the charity project. I would like to give some suggestions to the gybb program for its improvement. As for gybb itself, it would be even better if local charity projects could be set up. Taobao platform can launch similar charity projects like "Shuidichou" to help people around, which would make the fundraising even warmer. As for technology, the system can only set up 20 goods as gybb at a time and there's no function of one-click selection for all items.[1] However, books have many categories, and it takes a long time for businesses to set up gybb every time. I hope the platform can add the function of "one-click setting as gybb for all items" in future.

[1] The first half of this statement is not true. A seller can subscribe unlimited number of products to gybb. This seller's comment probably refers to the fact that, on the gybb subscription interface, items are listed page by page, and each page lists 20 items. It is true that there is currently no functionality that allows the seller to subscribe all products simultaneously in one pass.

Seller 5: baby products sector, annual revenue over 100 million yuan

Q: Initial motivations to opt in

A: When I first joined gybb, there was no publicity and guidance. I saw the option by coincidence in the background, and setting up gybb is simple. I think most sellers didn't know of gybb before this year's (*i.e., 2021*) Double 11. After Ali platform promoted gybb this year, setting up a separate column and a leaderboard for gybb, an increasing number of sellers started to know about it. Warmth and emotional communication in the industry of maternal and childcare products is very important, which fits our corporate culture, so I chose to label some goods as gybb. Sales promotion was not our original intention to join gybb and we have never thought about increasing sales through participating in gybb. It was purely altruistic. About 80% of our products are subscribed to gybb when they were first listed. We do not set products as gybb specifically when they are promoted or discounted. gybb has become a regular part of our corporate.

Q: Acceptable donation amount for each deal and other charitable contributions

A: A 2-cent donation was set for each order for nearly 10 years. No more than 1%, or 0.5 yuan (depending on the unit price) is the maximum donation for each commodity that I could accept. Before opting in gybb, I did donate to other activities or programs, for instance, providing maternity kits for the "Rural Pregnant Women Protection Project" program of China Charities Aid Foundation for Children. I also donated during the Covid-19 epidemic and the Henan flood.

Q: Post opt-in experience and whether to opt out

A: No statistics have been made concerning whether gybb subscription may help increase sales or not. Sales is increasing every year, which may be the trend of economic growth. There is no specific statistics on the contribution of gybb to sales. But with the link to charity, sales may improve. Since participating in gybb, I profoundly felt that the sellers should undertake the social responsibility, which is also the core of our corporate culture. We'll undoubtedly continue supporting gybb. If the business is not very good, I wouldn't consider opting out gybb. Instead, the engagement is going to be deeper. Consumers may have a higher degree of brand recognition of our firm, and our enterprise will have a better identity and leave a more favorable impression. I pay attention to gybb sellers or gybb-labelled goods during daily online shopping, and so do other buyers. Because gybb has a charity label, I will definitely prefer gybb products to other similar but non-gybb ones. I didn't cut charitable giving through other channels after participating in gybb. I will definitely continue to support other charitable causes.

Q: General reviews of gybb and suggestions

A: I quite agree with the model of gybb and regard gybb as a more convenient charity platform. Donations are small amounts of money, but every penny helps, making the operation of donations easier and consumers more likely to recognize companies and brands. I very much trust the charitable organizations that receive my donation. I believe my donation will play the role as I expected because the Internet has made relevant public welfare activities more open and transparent. I also know the usage of my donation or the progress of the charity project. The platform will regularly announce the flow of funds, convene meetings and hold offline activities to tell the public about the progress of the charity project.

Finally, as for suggestions, I would recommend that more sellers to join the program. gybb should be a be an exemplary program in this business.

Seller 6: grocery sector, annual revenue 0.8 million yuan

Q: Initial motivations to opt in

A: In 2019, I was invited by Alibaba to go to Inner Mongolia and participated in an event that donated books to students. Alibaba also advertised gybb in the event. That is how I get to know gybb in the first place. I joined gybb just because I wanted to help people in need. I label all my items as gybb when they were first listed. I never thought about how it will affect sales.

Q: Acceptable donation amount for each deal and other charitable contributions

A: I set 0.2 yuan for every deal. I don't mind to make it higher, probably up to 1 yuan if business is doing good. I need to be realistic because the main purpose of my business is not charity. Other than gybb, I have given many times to charity when disasters like earthquake happened.

Q: Post opt-in experience and whether to opt out

A: I feel satisfaction when I give to people in need through gybb. That is the reason I will keep doing it regardless of whether it helps my business. I don't think gybb actually increases sales. Most consumers don't care about gybb when they make choices. When I do shopping, I only care about the price and quality of good itself. Even if my business is not doing good, I will not consider quitting gybb, because it only accounts for a small proportion of overall expenses which I can accept. gybb doesn't affect my participation to charity in other ways.

Q: General reviews of gybb and suggestions

A: I like the platform of gybb because it is very convenient. However, I almost don't know anything about how my donation is used after I give money away. In general, I trust the charities who receive the donations, and I believe they will put donations to good use.

The only suggestion to the program is that the gybb label should be displayed in a more noticeable way. It would be good to also add more information about gybb on the item's page, like the total amount of donation made through purchasing this item.[2] It can probably make gybb more attractive to consumers.

Seller 7: home sector, annual revenue unanswered

Q: Initial motivations to opt in

A: I knew gybb from the advertisement of Taobao. I just wanted to contribute to the society, so I joined gybb. I did not think gybb will increase sales, even if it does, the effect would be tiny. All items are labeled as gybb when I first list them.

Q: Acceptable donation amount for each deal and other charitable contributions

A: I set 3% of price as donation, it is already a quite high percentage, and I cannot accept anything higher. I have also donated through Wechat and Alipay.

Q: Post opt-in experience and whether to opt out

A: In my opinion, consumers don't pay attention to gybb label. Neither do I when I search for items on Taobao. I don't think gybb affected my sales after I joined. I will stay in the program because I want to do good. I am satisfied about what I am doing. If my business faces some difficulties, I will not cancel gybb but might lower the giving percentage. Most people don't give 3% like me. What I give through gybb doesn't affect my other charitable acts.

Q: General reviews of gybb and suggestions

A: gybb is more convenient compared to other ways of donation. But if you have clear targets, other more direct way of giving would be better. I generally trust the charities on gybb. I know what my donation is used for, but I don't know the progress of those projects. But I think they will use the funds properly.

[2] We note this information is in fact available (See the example product in Appendix Figure B.1).

The problem I experience with gybb is that most of the charities (80%) don't give me invoices. I ask for invoices but sometimes I don't hear back, or I was told my request is being processed but they ended up giving me nothing. I suggest Taobao to strictly supervise the charities and make sure they give us invoices of donation.

Seller 8: beauty sector, annual revenue 3 million yuan

Q: Initial motivations to opt in

A: The Ali platform shows the label of gybb, which looks pretty good and nice. I really like that label. After consumers buy the items, gybb can contribute to the charity, and it costs shop owners very little. Over the years, when I saw how many gybb donations I had contributed, I can roughly know how many sales my shop had made. In my opinion, most sellers should know gybb. My family members who are engaged in Taobao e-commerce are all gybb participants. As for the reason why I choose to label some goods as gybb, I simply want to donate my love through this channel. The money deducted from joining gybb is not much for the store owner, but it is a great help and encouragement for those in need. Before joining gybb, I never thought it could help increase sales. I subscribe products to gybb when they are first listed, because I'm afraid I'll forget setting them up later. When launching other new products, I will also check which products have not been set up as gybb.

Q: Acceptable donation amount for each deal and other charitable contributions

A: Usually, I choose to set 20 cents or 1% of price as donation for each gybb commodity, which is the default option by system.[3] Recently, the new rule seems to increase the donation amount. I also used the default setting, but I can't remember the exact amount. Because the unit price of the product is low in my store, the maximum amount of donation per order I could accept is 1 yuan. Before joining gybb, I made donations on Alipay and Tencent, and I also made donations for veterans and flood disasters through Taobao. My donations mostly are online. For example, in the case of epidemic and flood disasters, donations can be made directly through Alibaba's charity shop platform, which is also a very good donation platform. Other offline donation channels may not be so trustworthy.

Q: Post opt-in experience and whether to opt out

A: I didn't pay attention to whether gybb subscription helps increase sales. What I want is to have a label of gybb. I think gybb got most of the stores on Taobao involved. Without this program, I really don't know how to participate in charity. There are few donation activities in daily life, and there are no specific places to donate. The best thing about gybb is that you can donate whenever you want. When the sales are good, I always think of donation and I want to make some contributions to the society. I'll continue to participate in gybb. Even when the business is not very good, I would never consider unsubscribing from gybb. The donation is not much and is affordable. The money is deducted after the transaction occurs, and so donations are made only when items are sold. I don't think that buyers will notice or care about gybb label. When I shop online, I don't care whether the commodity is gybb or not. Most people are demand-oriented. They won't buy just because the products are labeled as gybb. If the two products have the same other characteristics, I will give priority to gybb products. After participating in gybb, I didn't cut charitable giving through other channels.

Q: General reviews of gybb and suggestions

A: I do think gybb is a more convenient charity platform, compared with offline charity channels or other online charity platforms. If I donate to a charity offline, I may not know where the money goes.

[3] This is incorrect. The default option for proportional contribution if 0.3% of product revenue.

But donations made through gybb is different. They are all open and transparent. I trust the charitable organizations that receive my donation and I know the usage of my donation or the progress of the charity project. Each payment is transparent. I have personally witnessed the achievement of Alibaba Charity, and conducted field research on the results and implementation of charity projects. I believe that my donation will play the role as I expected. I think gybb is a good program for public welfare. Without this platform, people will not deliberately donate money. With this platform, charitable donation becomes a natural behavior. For individuals, this is just a tiny amount. But when we do it together, it becomes a big deal.

Seller 9: processed food sector, annual revenue 12 million yuan

Q: Initial motivations to opt in

A: I saw other sellers set gybb, so I chose to participate in gybb program. I also wanted to attract more customers in this way. I thought gybb label could help increase sales, so I chose to opt in gybb. I label the commodity items as gybb when launching a new commodity, but not at the time when putting a commodity on sale or promotion.

Q: Acceptable donation amount for each deal and other charitable contributions

A: I usually choose to donate 0.2% for each gybb commodity and the maximum donation fraction of the commodity price that I could accept is 5%. Before joining gybb, I never participated in public service or donated for other activities or programs.

Q: Post opt-in experience and whether to opt out

A: I didn't pay much attention to whether gybb opt-in help increase sales or not. The reason why I continue to participate in gybb is that it is good for customers and sellers to donate and do something for the society when purchase happens. If the business is not very good, I'll still continue to participate in gybb, as the amount donated by gybb is particularly small and has little impact on profits anyways. I don't think buyers actually notice or care about gybb labelling, but I do. When I shop on Taobao platform, I would prefer gybb sellers or gybb labelled goods.

Q: General reviews of gybb and suggestions

A: I think gybb is a more convenient charity platform, compared with offline charity channels or other online charity platforms. I think both the charitable organizations and the usage of my donation are trustworthy, because they are under the supervision of the Ali platform. And I know the progress of the charity project. As for suggestions, it would be better if the invoice could be issued more timely rather than once a month.

Appendix A.2. Charities' Comments

Charity 1: One Foundation (https://onefoundation.cn/)

General comments:

In 2012, Yileyuan (a charitable program that provides sporting goods for rural students) joined gybb and we received 6 million in that year. In 2020 we received 64 million yuan which accounts for 95% of the total fund raised from all venues. gybb gives sustainable support to the project, so we can put more energy on the project itself to improve the quality. Operation of the project expanded very fast. It now operates in over 3000 schools in 23 provinces. Yileyuan is one of the three long-term projects we have on gybb since 2012. Besides, we also have some temporary projects and we raise fund very quickly through gybb.

Q: Who donated?

A: We did the research in 2018. Since 2012, there are thousands of sellers who kept donating to us. The top ten among them donate about 200,000 yuan every year. If we look at the category of shop owners, at first it looks like there is no pattern but later we found most donors run shops which belong to baby care and sports equipment categories. More of them are from regions like Zhejiang, Jiangsu, and the Pearl River Delta. In 2016, the gybb platform started to organize offline events to let sellers experience philanthropy in the field. We keep in touch with active participants of the project and give award to generous shop owners. But we find that they aren't very interested in following up. Most of them give through gybb because they think it can help increasing their sales.

Q: How stable is the donation?

A: I will give 10 out of 10 for the stability of gybb. It's a very stable source of funds to us. We don't have to do much and we just "automatically" get donations from the sellers once we are listed on the gybb program. It's important to give large donors monthly feedback and receipts so they can get tax deductions. The platform has been continuously increasing its scrutiny and management of the eligible projects listed. To prevent "effortless gains", qualifying gybb projects must have already raised at least 10 million and generate over 10% of revenue from Ali's charity shops program.

Q: How much feedback information is provided to donors?

A: We will give very specific information and gybb has the most strict requirements among all similar platforms. It established a joint evaluation system and required charities to report every month. We contact sellers mainly by email and we give invoices, which can be used for tax deductions. But the proportion of donors requesting invoices is not high, around 500 sellers each year, which is less than 1% of total sellers. Some sellers did reach us to learn about the progress of our projects.

Q: Comparison between gybb and other fundraising channels?

A: The cost of fundraising is really low because sellers trust the platform. As long as we have good projects, we can generate stable funds from gybb.

Q: Comparing gybb to other online giving platforms, what are some of the advantage and disadvantages?

A: It is very successful. It represents the best of online charity in China. There are other platforms trying to imitate gybb but none of them do better than gybb. gybb is the earliest and it keeps supporting good projects while constantly improving its rules. It prevails in terms of professionalism and experience. Compared to Tencent philanthropy, for example, gybb has stricter requirements, and it doesn't require charity organizations to find donors by themselves. Tencent has its own advantage that it has a higher match ratio so the total amount of donation is larger. Other platforms like Meituan, JD and Byte Dance's E-commerce are trying to copy the model of gybb but I don't think any of them are doing better than

gybb.

Q: Other comments?

A: Sellers expected that gybb may help increase sales. But I think along the way [the gybb program] brought them closer to philanthropy and cultivated trust on charitable causes overall. We have received messages from sellers going like 'I grew up in countryside myself and I want to give back to those kids.' They also expressed a lot of expectations on our projects.

Charity 2: Society of Entrepreneurs and Ecology (http://www.see.org.cn/index.html)

General comments:

We put two projects on gybb in 2017 and 2018. In around two to three months, we raised 5 million yuan and subsequently delisted the projects as we reached out fundraising goals. The platform controls the priority of charity projects. If a project raised more than half of total fund needed, it will not get recommended to sellers.

Q: Who donated?

A: We are not sure. Some sellers have lots of items and some get sold out quickly. The donation per transaction is approximately 0.02 yuan. We raised 5 million in a short period of time, so it means many stores have given to us.

Q: How stable is the donation?

A: I rate 9 out of 10. It is very stable and very fast in fundraising. We raised several million for the projects in 2-3 months, which would have been really difficult to achieve through alternative venues.

Q: How much feedback information is provided to donors?

A: A lot. gybb has high requirements for feedback to donors. It required monthly report in a given format and it has independent auditing.

Q: Comparison between gybb and other fundraising channels?

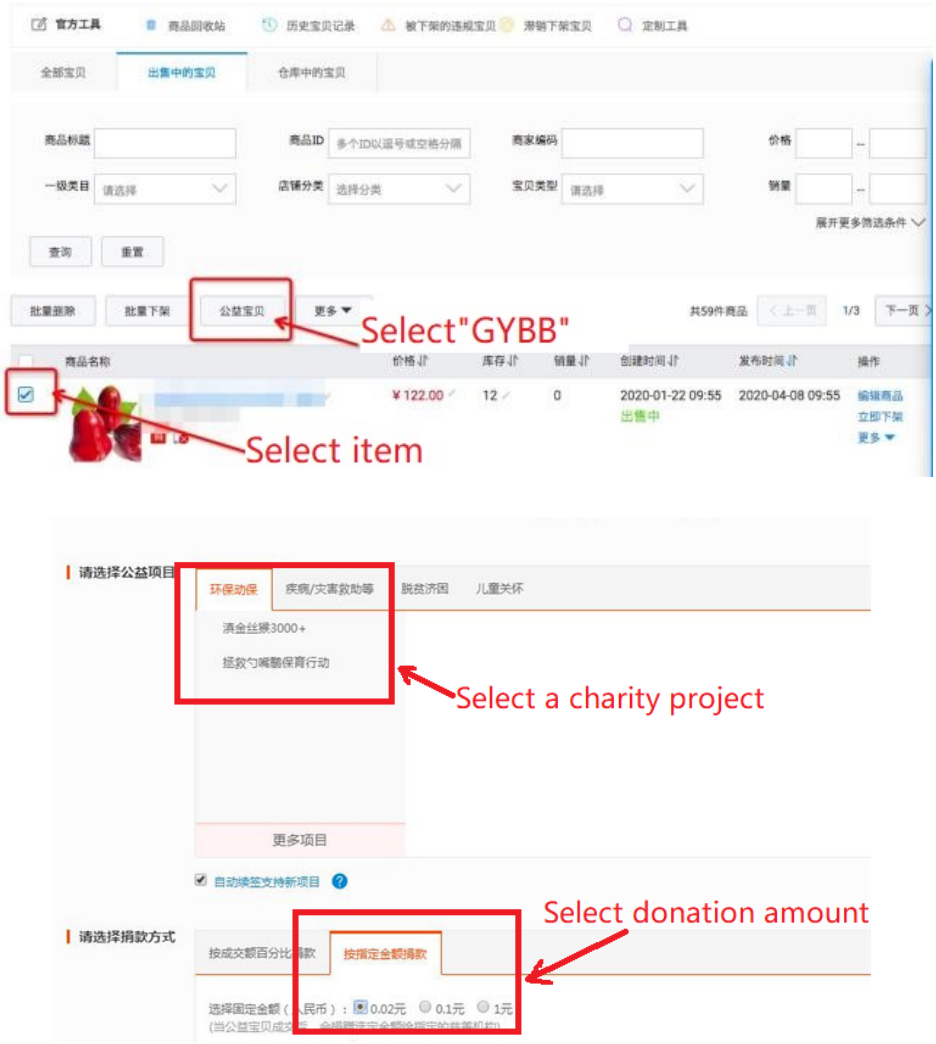
A: It would be a lot more costly to find donors ourselves in real world. But I would say it is also not easy to meet the high standards of gybb. We put all of our projects on Ali Charity Store and only some of our best projects get to be listed on gybb. As I said, you need to pick the best part of the your project for gybb. About 30%-40% of the total revenue of our foundation may come from gybb. Funds raised through the Charity Store program is limited because you need many one-off donors, which is difficult.

Q: Comparing gybb to other online giving platforms, what are some of the advantage and disadvantages?

A: There are two main advantages. One is that it can raise money very quickly. Another is that gybb itself has a very strong brand image in philanthropy, so it will also benefit our image if we get approved by gybb.

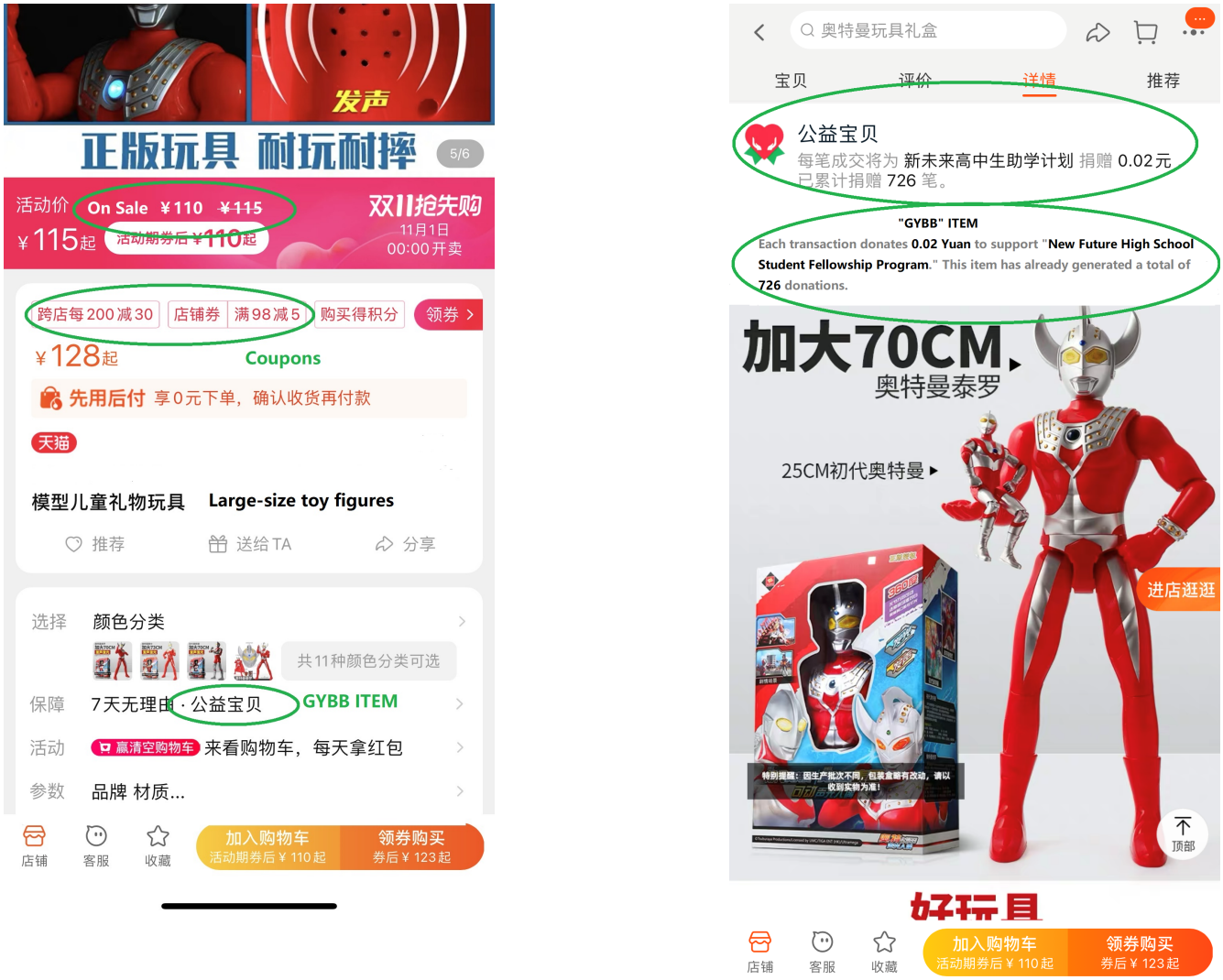
Appendix B. Additional Figures and Tables

Figure B.1. Example seller interface: gybb subscription steps



Notes: Examples of seller interface when subscripting a product for gybb.

Figure B.2. Example consumer interface: a product that subscribed for gybb contribution



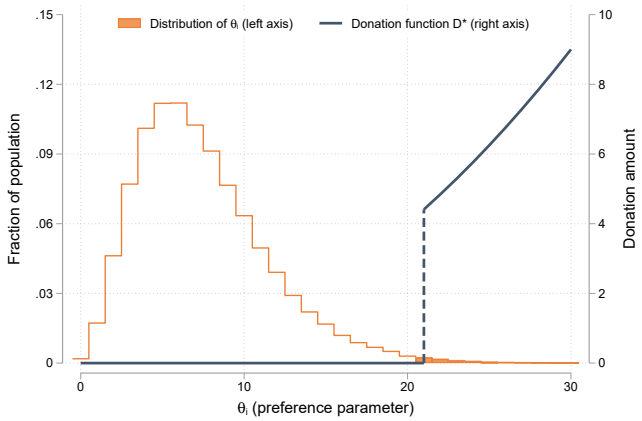
Notes: Example screenshots of the consumer interface. Left panel shows the product's basic information. The "gybb product" status can be seen at the bottom part of the screen. Price promotion information can be seen on the top part of the screen. Right panel shows more details about the charitable foundation that will receive the donation.

Figure B.3. Example consumer interface: product filters

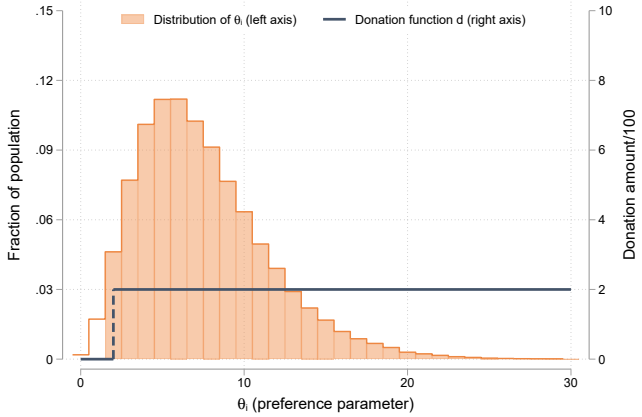
Notes: An example of consumer interface when filtering products on Alibaba. The "gybb product" filter can be seen at the middle of screen.

Figure B.4. A conceptual model of fundraising

A. Conventional fundraiser



B. Microgiving

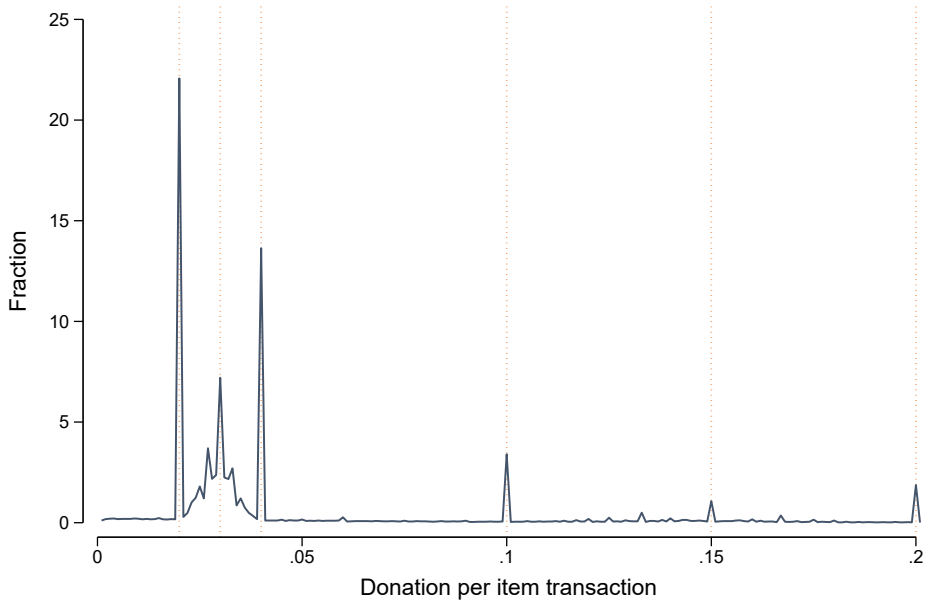


Notes: Histogram shows the population distribution of θ_i. Highlighted area of the histogram corresponds to individuals who will end up making donations. Black curves represent optimal donation functions.

Figure B.5. Example consumer interface for the Alibaba Charity Store program

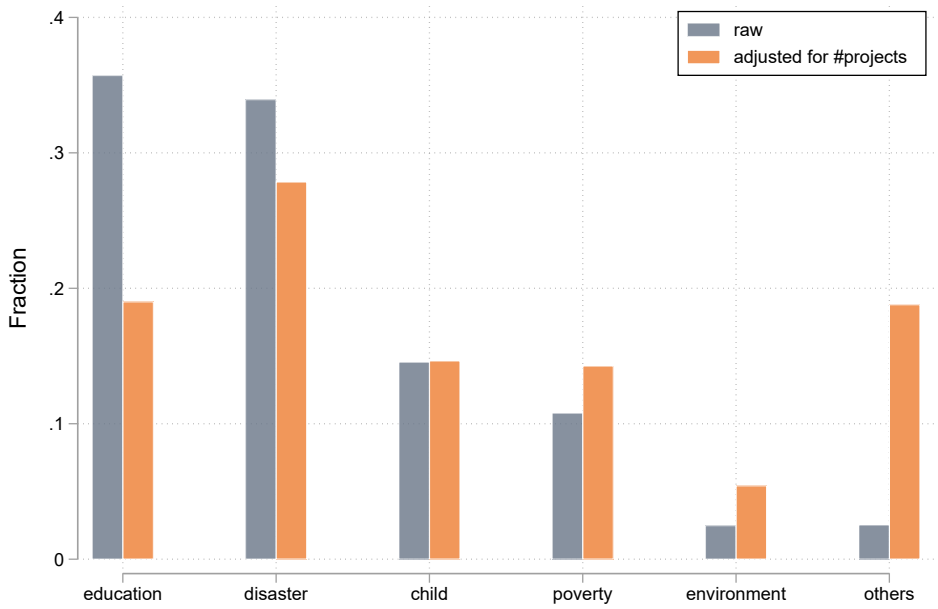
Notes: Example screenshots of the consumer interface. Left panel shows a list of charity stores. Right panel shows more details about one particular charity store.

Figure B.6. Distribution of gybb donation per transaction



Notes: This figure plots distribution of donation per transaction among all gybb products up to value 0.2 yuan per transaction. Vertical dashed lines mark values of 0.02, 0.03, 0.04, 0.1, 0.15, and 0.2 yuan.

Figure B.7. Distribution of gybb funds by charity classification



Notes: This figure plots the distribution of gybb funds by the receiving charitable foundation's classification. Gray bars show raw distribution. Orange bars show the distribution after re-weighted by the number of charity projects listed on gybb.

Figure B.8. Illustration of comparison group construction

seller	item	time	sales	donation
...	...	...	...	...
5e15kc	#1	2018-06	347	0
5e15kc	#1	2018-07	417	0
5e15kc	#1	2018-08	340	0
5e15kc	#1	2018-09	430	0.645
5e15kc	#1	2018-10	342	0.513
5e15kc	#1	2018-11	351	0.5265
5e15kc	#1	2018-12	.	.
5e15kc	#1	2019-01	.	.
5e15kc	#1	2019-02	317	0.4755
5e15kc	#1	2019-03	489	0.7335
5e15kc	#1	2019-04	347	0.5205
5e15kc	#1	2019-05	418	0.627
...	...	...	...	...

item #1: treated unit
event date: 2018-09

seller	item	time	sales	donation
...	...	...	...	...
5e15kkc	#2	2018-06	352	0
5e15kkc	#2	2018-07	371	0
5e15kkc	#2	2018-08	.	.
5e15kkc	#2	2018-09	320	0
5e15kkc	#2	2018-10	481	0
5e15kkc	#2	2018-11	446	0
5e15kkc	#2	2018-12	385	0.5775
5e15kkc	#2	2019-01	300	0.45
5e15kkc	#2	2019-02	.	.
5e15kkc	#2	2019-03	414	0.621
5e15kkc	#2	2019-04	459	0.6885
5e15kkc	#2	2019-05	345	0.5175
...	...	...	...	...

item #2: treated unit
event date: 2018-12

seller	item	time	sales	donation
...	...	...	...	...
5e15kkc	#3	2018-06	288	0
5e15kkc	#3	2018-07	216	0
5e15kkc	#3	2018-08	327	0
5e15kkc	#3	2018-09	191	0
5e15kkc	#3	2018-10	214	0
5e15kkc	#3	2018-11	285	0
5e15kkc	#3	2018-12	306	0
5e15kkc	#3	2019-01	.	.
5e15kkc	#3	2019-02	334	0
5e15kkc	#3	2019-03	247	0
5e15kkc	#3	2019-04	291	0
5e15kkc	#3	2019-05	340	0
...	...	...	...	...

item #3: comparison unit
"event date": 2018-09

seller	item	time	sales	donation
...	...	...	...	...
5e15kkc	#4	2018-06	237	0
5e15kkc	#4	2018-07	198	0
5e15kkc	#4	2018-08	226	0
5e15kkc	#4	2018-09	.	.
5e15kkc	#4	2018-10	163	0
5e15kkc	#4	2018-11	170	0
5e15kkc	#4	2018-12	.	.
5e15kkc	#4	2019-01	.	.
5e15kkc	#4	2019-02	174	0
5e15kkc	#4	2019-03	.	.
5e15kkc	#4	2019-04	221	0
5e15kkc	#4	2019-05	212	0
...	...	...	...	...

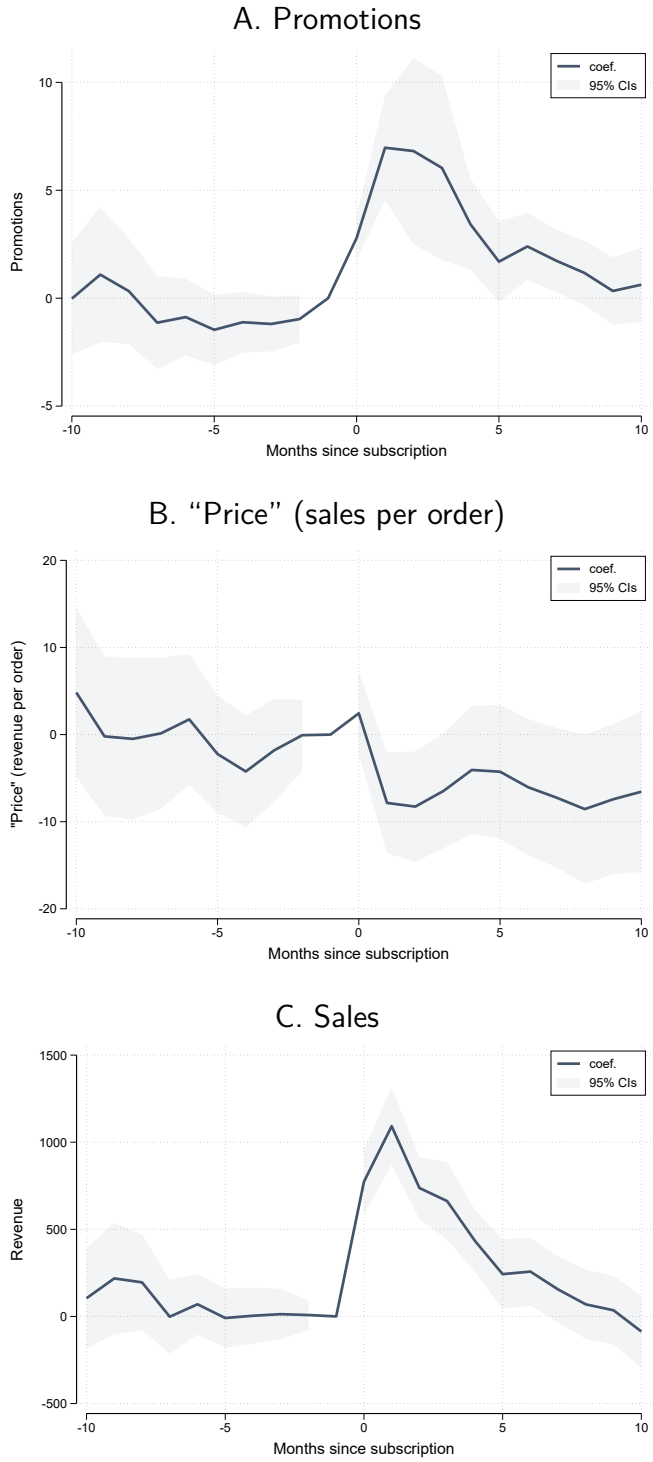
item #4: not included
in event study

seller	item	time	sales	donation
...	...	...	...	...
5e15kkc	#5	2018-06	345	0
5e15kkc	#5	2018-07	285	0
5e15kkc	#5	2018-08	230	0
5e15kkc	#5	2018-09	.	.
5e15kkc	#5	2018-10	266	0
5e15kkc	#5	2018-11	217	0
5e15kkc	#5	2018-12	314	0
5e15kkc	#5	2019-01	.	.
5e15kkc	#5	2019-02	295	0
5e15kkc	#5	2019-03	266	0
5e15kkc	#5	2019-04	313	0
5e15kkc	#5	2019-05	195	0
...	...	...	...	...

item #5: comparison unit
"event date": 2018-12

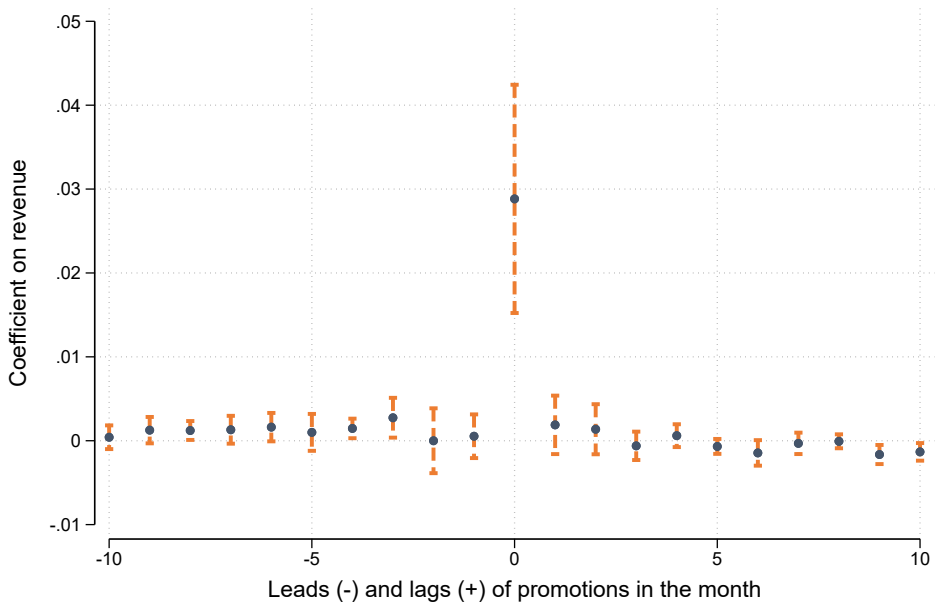
Notes: This figure provides an illustration of how we pair treated product with comparison product from the same seller. See text in Section 5.2 for more details.

Figure B.9. Event study estimates of Figure 5



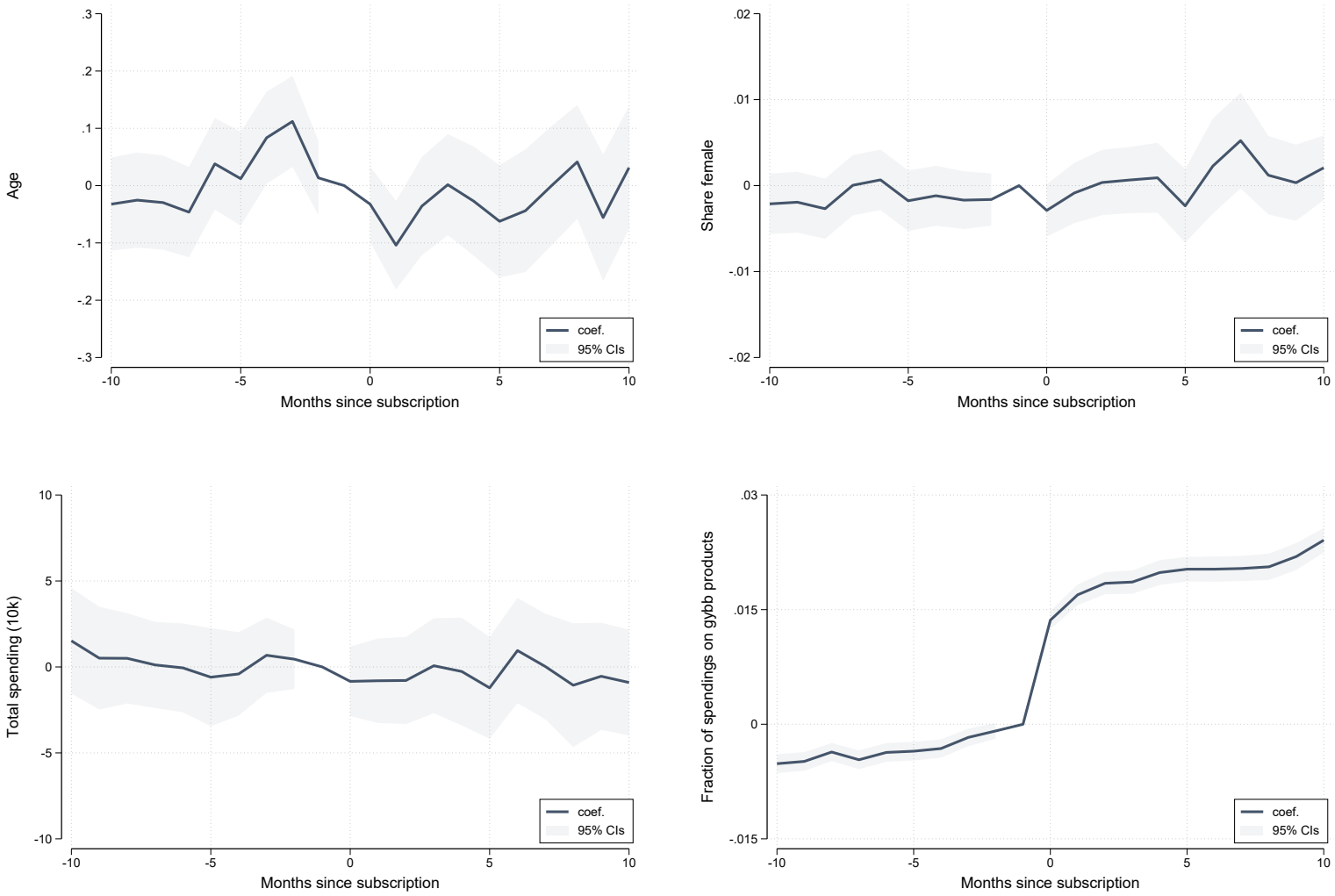
Notes: Event study version of the difference-in-differences estimation equation (6). Outcome variables are product's intra-month price promotions (panel A), sales per order (panel B), and sales (panel C). Outcome variables are normalized to zero for event month -1. All regressions include product fixed effects and month-of-year fixed effects. Shaded areas show 95% confidence interval constructed using standard errors clustered at the seller level. See Section 5.2 for more details.

Figure B.10. Product promotion and sales



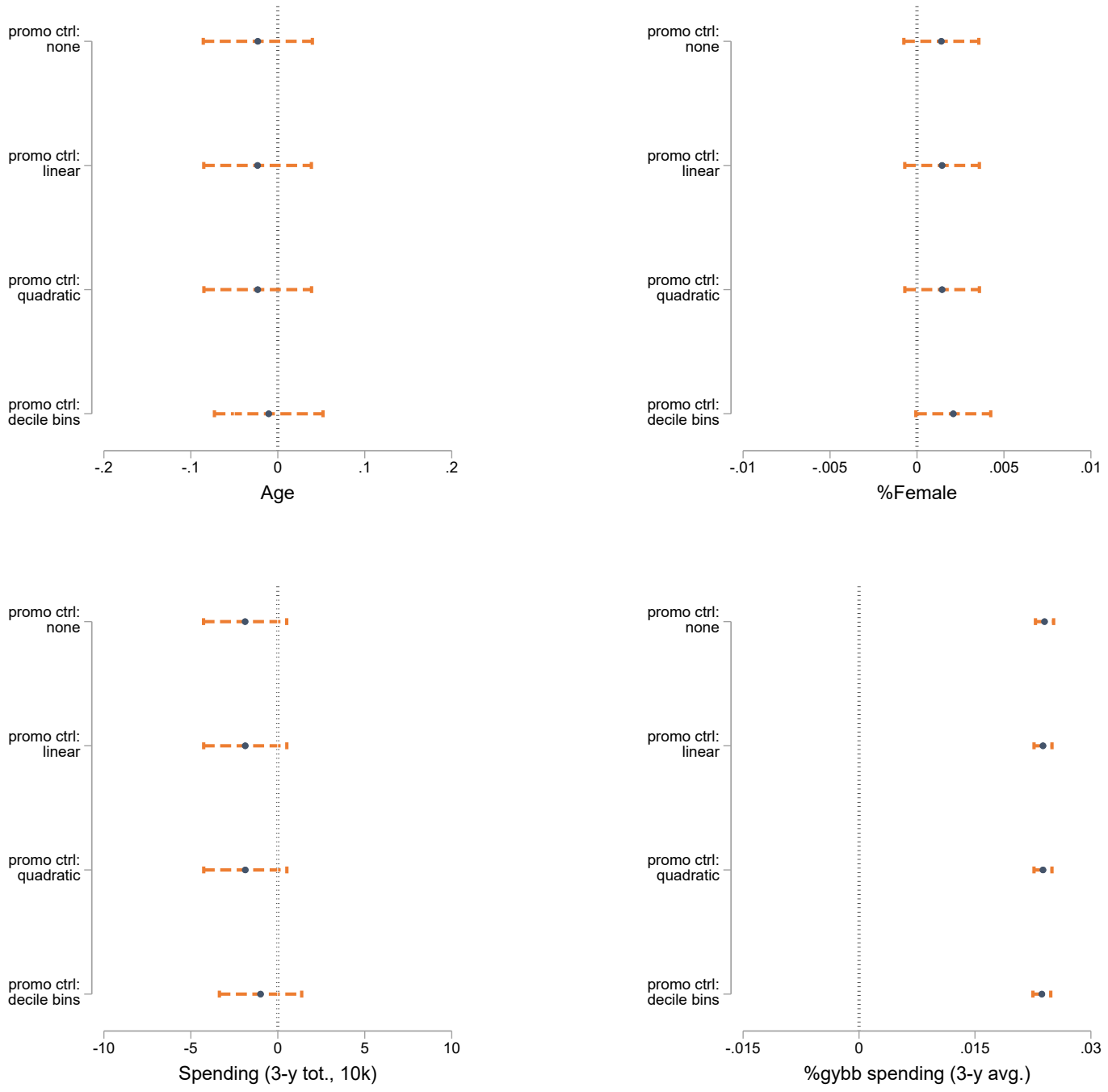
Notes: Regression of monthly log product sales on 10 leads, 10 lags, and current month's number of promotion events. The regression includes product fixed effects and month fixed effects. Bars show 95% confidence interval constructed using standard errors clustered at the seller level.

Figure B.11. Event study estimates of Figure 13



Notes: Event study version of the difference-in-differences estimation equation (6). Outcome variables are product buyers' age (UL), share female (UR), 2018-2020 total spending (LL), and 2018-2020 share of total spending on gybb-listed products(LR). Outcome variables are normalized to zero for event month -1. All regressions include product fixed effects and month-of-year fixed effects. Shaded areas show 95% confidence interval constructed using standard errors clustered at the seller level. See text Section 6 for more details.

Figure B.12. Consumer composition estimates controlling for product promotions: Changes in consumer composition are not explained by promotions



Notes: Each bar represents the difference-in-differences coefficient estimate from a separate regression. "promo ctrl: none" is the baseline estimate without controlling for promotions (repeating Table 1). The rest of the chart presents estimates after controlling for linear, quadratic, and decile bins of promotions. Outcome variables are product buyers' age (UL), share female (UR), 2018-2020 total spending (LL), and 2018-2020 share of total spending on gybb-listed products(LR). Bars show 95% confidence interval constructed using standard errors clustered at the seller level.