

# The Life and Death of a Digital Currency: Lessons on Money and Barter from the Field

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March 2024

## Abstract

This paper documents the rise and fall of a redeemable digital currency in a Toronto-based barter community using unique high-frequency transaction data. The observed effects of unexpected monetary events are compared with predictions from models in monetary economics. I find that a large expansion of token supply persistently increased monetized transactions without generating inflation. A subsequent reduction in redeemability did not reduce token prices or supply, but it decreased token acceptance and transactions. When redemption was fully halted, token prices still did not change and barter volume was largely unaffected, but token acceptance declined and monetized exchange dwindled. These findings are consistent only with models of money as a medium of exchange with price coordination frictions.

Keywords: barter, money, medium of exchange, redemption

JEL: E42, E52, E65

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\*Email: mbwong@hku.hk. I am indebted to Suhas Vijaykumar and especially Donghee Jo for initial collaboration on this project. I thank Glen Weyl, who provided us with an introduction to Bunz. I thank all the staff at Bunz for their generous help with this project, especially Sascha Mojtabaei, Perry Haldenby, and Jessica Brown. Tim Yeung Chan and Ningxi Song provided excellent research assistance. I thank Robert Townsend for inspiration, encouragement, and guidance, Baiyun Jing, Yang You, and Yulin Zhong for wonderful collaboration on related papers, as well as Martin Beraja, Pingyang Gao, John Greenwood, Basil Halperin, David Rappoport, Robert Remuszka, Karthik Sastry, Takashi Shimizu, Zijian Wang, Ivan Werning, Chris Wolf, Russell Wong, Anthony Zhang, and seminar participants at the Canadian Economics Association Conference 2023, the Asia Econometric Society Meetings Beijing and Singapore 2023, HKU, HKUST, MIT, Novi Economics, the Search and Matching Workshop in Asia-Pacific, and the Virtual East Asia Macroeconomics Seminar for helpful comments. I gratefully acknowledge funding from the National Science Foundation and the Kuok Foundation.

# 1 Introduction

To many economists, the essential use of money is to solve the problem of double coincidence in barter.<sup>1</sup> This idea of money as a medium of exchange is ubiquitous in economics textbooks. It also underpins a large class of models that economists use to analyze monetary phenomena (Kiyotaki and Wright 1989, 1993; Lagos and Wright 2005).<sup>2</sup> Historians and anthropologists, however, have questioned this view of money by pointing to evidence that money emerged not from barter but rather from credit or the state (Humphrey 1985; Wray 2004; Graeber 2011).<sup>3</sup> In macroeconomics, the dominant class of new Keynesian models also ignores the function of money as a medium of exchange and focuses only on price adjustment frictions (Calvo 1983; Woodford 2004). Given these disagreements at the heart of monetary economics, it is worthwhile to investigate which models of money explain the actual conduct of barter and monetized exchange.

To date, evidence on money and barter from the field is very rare. Famously, Radford (1945) described the emergence of cigarettes as a medium of exchange in a prisoners-of-war camp, while Sweeney and Sweeney (1977) recounted how a recession of baby-sitting in a co-op on the US Capitol Hill was averted through expanding the supply of scrip (see also Krugman 1998). More recently, Colacelli and Blackburn (2009) present evidence from the 2002 Argentine Crisis that participation in private fiat-issuing exchange clubs is associated with increased consumption. Because barter is typically informal and unrecorded, these studies rely on anecdotes and surveys. A related and useful literature simulates models of money and barter in the laboratory (Brown 1996; Duffy and Ochs 1999, 2002; Duffy and Puzzello 2014; Camera, Goldberg and Weiss 2019; Jiang et al. 2023; Camera 2024), but it is unclear whether lab findings regarding artificial economies generalize to real-world settings with much larger populations.<sup>4</sup>

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<sup>1</sup>In the parlance of Hahn (1973), money is essential if more desirable outcomes are feasible when money is available. Economists generally believe that the essential function of money is its role as a medium of exchange (e.g., Adam Smith 1776, chap. 4; Jevons 1875; Ostroy and Starr 1974).

<sup>2</sup>For surveys, see Ostroy and Starr (1990); Lagos, Rocheteau and Wright (2017); Rocheteau and Nosal (2017).

<sup>3</sup>The related credit theory of money states that money and credit are essentially the same thing (Mitchell-Innes 1913, 1914). According to the state theory of money, which is also known as chartalism, government-issued money is implicitly government debt redeemed through taxation and therefore it is not intrinsically worthless fiat money but rather a form of credit money (Knapp 1924; Lerner 1947). The opposing school of thought, metallism, posits that commodity money emerges spontaneously in the market to mediate exchange (e.g. Menger 1892). See Goodhart (1998) for a comparison of these two schools of thought.

<sup>4</sup>Relatedly, economists have tested for the effects of monetary policy on macroeconomic output (e.g., Romer and Romer 2004; Nakamura and Steinsson 2018). Studies have also measured the effects of the availability of digital

This paper documents the rise and fall of a digital currency in a Toronto-based barter economy named Bunz. Like many other barter communities, Bunz emerged in the wake of an economic downturn to facilitate trade amongst a cash-strapped population.<sup>5</sup> Its participants were primarily environmentally conscious young millennial adults in Toronto who arranged to meet and trade second-hand items such as clothing, accessories, plants, and groceries through a mobile app platform. Since the community's founder forbade cash transactions, the platform's roughly ten thousand daily active users, who were largely strangers meeting bilaterally in a decentralized manner, initially had to barter. To facilitate trade, the Bunz platform introduced a digital token, named BTZ, that could be transferred among users and redeemed at designated local stores for retail goods at a fixed exchange rate. Subsequently, when faced with dwindling reserves, the platform reduced the scope of its redemption program, eventually halting redemption altogether.

Although monetary transitions have been studied using theoretical models (e.g., [Ritter 1995](#); [Selgin 2003](#); [Choi and Liang 2023](#)), in this paper I directly observe them using a unique data set that comprehensively captures in real time all transactions arranged through the Bunz platform. The data set contains the universe of token issuances, token redemptions, and peer-to-peer token transfers in the Bunz economy, as well as time-stamped information on the items that each user posted on the platform, the messages that each user sent to other users to arrange trade, and the ratings that each user provided for each other upon trade completion. Since the data contain a large amount of detail regarding each token and barter transaction, they represent a substantial improvement on previously available information. The data are also supplemented with interviews and observational analysis.

Using these data, I analyze the extent to which transaction behavior in the Bunz economy is consistent with different classes of models in monetary economics. To frame the analysis, I formally match some key features of Bunz economy by extending the [Kiyotaki-Wright \(1993\)](#)

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payment systems on consumption ([Jack and Suri 2014](#); [Xu, Ghose and Xiao 2019](#); [Alvarez and Argente 2020\*a,b\*](#)). There is also a large and related literature on currency pegs, runs, and capital controls (e.g., [Eichengreen, Rose and Wyplosz 1994, 1995](#)) and a rapidly growing literature on platform-issued currencies, cryptocurrencies, and stablecoins (e.g., [You and Rogoff 2019](#); [Sockin and Xiong 2020](#); [Lyons and Viswanath-Natraj 2020](#); [Gorton and Zhang 2021](#)). None of these papers, however, analyze data on both monetized and barter transactions in an economy.

<sup>5</sup>Both barter and private currencies became widespread during the 1930s Great Depression and the 2002 Argentine Crisis ([Fisher 1934](#); [Pearson 2003](#)). In recent economic downturns, bartering communities with thousands of members popped up on online forums such as Facebook and Nextdoor to help people trade necessities without cash ([Lerman 2020](#); [Shilton 2020](#)).

model of money to incorporate redeemability. In the model, agents randomly meet pairwise and decide whether to accept a unit of money in exchange for a unit of a commodity when there is a lack of double coincidence. Agents may also redeem money for a consumable good from an exogenous player whenever a desire for that good arises. The possibility of redemption encourages agents to accept money, thereby eliminating the non-monetary equilibrium. This is unlike models of intrinsically worthless money, where a non-monetary equilibrium always exists.

Three unexpected monetary events in the Bunz economy allow me to test the predictions of the model. The first event is a quintupling of token supply in the Bunz economy resulting from increasing direct token issuance to users in September and October 2018. The second is an abrupt and unexpected halt in token redemption for stores other than coffee shops and restaurants in September 2019, which caused an uproar widely reported in local news. The third is the complete halting of the redemption program, which was quietly announced as a temporary measure to address fraudulent behavior.

I use interrupted time series designs to estimate the effects of these monetary events. To measure transaction volume, I count the ratings that users provide for each other after each trade, which are available both before and after token introduction. Transactions are defined as token-mediated if there are concurrent token transfers between the same pair of users. The willingness to accept BTZ tokens is measured by the share of items posted with a BTZ price. The BTZ price level is measured by the ratio between the posted BTZ price and the face value for a select set of frequently transacted store gift cards. For robustness, I analyze a subsample of regular users that account for the large majority of transactions on the platform, as well as subsamples that neither enter nor exit the platform during the relevant period.

The monetary expansion in October 2018 caused peer-to-peer in-person transactions to persistently increase by roughly 70 percent. The increase persisted for almost a year, even after token issuance was reduced and token supply stabilized. The rise in transaction volume is entirely explained by an increase in token-mediated trade, while the volume of barter transactions did not change. Alternative drivers such as the arrival of new users and changes in user willingness to accept tokens are ruled out.

The partial reduction in token redeemability in September 2019 reduced token-mediated trans-

action volume, as predicted by the model. Redemption immediately spiked, as some users rushed to spend down their BTZ holdings, but the money supply did not significantly drop. Nevertheless, token-mediated transaction volume began to fall and was roughly 29 percent lower a month thereafter. The share of items posted with a token price immediately fell by roughly 8 percentage points from an initial level of 35 percent. The number of items posted on the platform also substantially fell. The event also reduced barter volume. This asymmetry is inconsistent with new monetarist models and suggests that after partial halting, users forsook profitable barter trade as a retaliatory response to the breach of trust.

The final halting of the redemption program, which transformed BTZ from redeemable money into an intrinsically worthless money, caused token-mediated exchange to collapse. Most surprisingly, the token price still remained anchored at the fixed exchange rate. The impact of partial halting on acceptability was immediate, while the effects of full halting on acceptability deepened over time. A possible explanation is that the final halt to redemption was announced to be only a temporary measure to address instances of fraud, so users only gradually realized that the halt would be permanent.

Based on these findings, I conclude that exchange in the Bunz barter economy is consistent with neither of the two dominant classes of models currently used by macroeconomists to analyze monetary phenomena. New Keynesian models where money functions purely as a unit of account (e.g., [Calvo 1983](#); [Woodford 2004](#); [Doepke and Schneider 2017](#)) cannot explain the evidence from Bunz, since these models feature no role for redemption and do not distinguish between barter and money-mediated transactions. New monetarist models that feature efficient price determination (e.g., [Lagos and Wright 2005](#); [Menzio, Shi and Sun 2013](#)) also cannot explain the evidence. The reductions in acceptability and lack of inflation in the Bunz economy suggest significant price coordination frictions that are absent from many popular search-theoretic models.

Instead, the data are best explained by models wherein money functions as a medium of exchange and prices are rigid ([Kiyotaki and Wright 1993](#); [Green and Zhou 1998](#); [Kamiya and Shimizu 2011](#)). In this class of models, money is non-neutral and the equilibrium level of trade can exhibit real indeterminacy. Possible reasons that monetized trade in the Bunz economy resembles these models include the uncoordinated manner in which users update posted prices and the

lack of a centralized currency exchange to facilitate price discovery. Since price determination is uncoordinated and decentralized in many other settings, my conclusions may not be limited to the Bunz economy.

The paper is organized as follows. Section 2 describes the setting and data. Section 3 presents the theoretical framework. Section 4 documents the effects of monetary expansion. Section 5 analyzes the effects of reduced redemption. Section 6 analyzes the transition to fiat money. Section 7 concludes.

## 2 Background

This section describes the Bunz community and the conduct of trade on the Bunz platform, discusses the features of the redeemable digital currency and the transaction data used for analysis, and provides summary statistics regarding user characteristics.

### 2.1 History of the Bunz Community

The barter community Bunz began in 2013 as a Facebook group, created “to make city living easier for a cohort of millennials who graduated into a post-recession labour market and felt squeezed by precarious employment, stagnant wages and the soaring cost of living” (McIntyre 2019). In its early days, community members published posts in the group indicating that they were either in search of some item or were looking to get rid of some other item. Interested members would write back and offer to trade. Initially known as “Bumz”, the community was highly popular among cash-constrained young adults in Toronto, who often posted funny commentary about local happenings in addition to the items they wished to trade. The community grew rapidly between 2013 and 2016. Roughly 200 Facebook groups were created, each dedicated to trading different types of items and discussion of different topics, some with thousands or even tens of thousands of members.

In early 2016, the community leaders decided to migrate the community’s trading activities to a dedicated mobile app. The app’s interface was designed specifically to enable users to post, search, and message each other about items to trade. The app had been independently developed

by a separate company (Shufi Inc.) and had functionality similar to other apps that later emerged, like Facebook Marketplace. However, the app lacked users. The migration of Bunz community members onto the app therefore benefited both parties. It provided the app with a user base, while the community benefited from improved trading experiences. But the merger also created an ideological divide within the community. The company (henceforth, “Bunz HQ”) was interested in growing the user base beyond the initial community and profiting from the app, while the community leaders, who continued to administer the Facebook discussion groups on a voluntary basis, wanted to preserve the anti-capitalist ethos of the community.<sup>6</sup>

## 2.2 Trading Mechanics on the Bunz Platform

Because of the anti-capitalist spirit of its founder, the Bunz community had a rule: no cash. Instead, users were to transact through “true trades,” i.e. barter.<sup>7</sup> Bunz HQ enforced this ban by taking down any item postings that requested cash, and the ban on cash was by and large observed by the app’s users. According to textual analysis of messages sent between Bunz users, less than five percent of conversations mentioned cash or dollars.<sup>8</sup>

On the app, each user maintained a public profile, which displays a short description of the user’s trading interests, an “ISO” (in search of) list, which indicates what types of items that user would be willing to accept in exchange for items that she posts, and a list of the items that the user that posted for sale. A posted item typically included a photo, a title, a description, and the location of the seller. If a user comes across an item she liked while browsing or searching, she would click a button to send an offer message to the seller, asking if he would be interested in any item that she posted (“Anything in mine?”). He would then browse her profile and message back to indicate whether there was any such item. If a possible trade was found, then the two would then message to arrange a time and location to meet. In the message screen, users are prompted to rate each other once they complete a trade. Appendix Figures A2 and A3 shows photos of the

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<sup>6</sup>A fascinating article by McIntyre (2019), published in The Logic, provides a detailed and colorful account of the history of this merger, as well as useful context for the launch of BTZ and subsequent currency crisis.

<sup>7</sup>See Bunz FAQ in the Appendix.

<sup>8</sup>Interviews with app users in May 2019 revealed a range of opinions about the ban on cash transactions among users. Many interviewees, especially those who were involved in the administration of the Facebook groups, expressed strong agreement with the cash ban. However, at least one frequent seller admitted that they prefer transacting in cash and sometimes tried to gently steer buyers towards paying in cash.

mobile app and examples of typical in-app interactions.

Due to the ban on cash, the need for double coincidence of wants posed an impediment to transactions on the Bunz app. Interviews with users reveal that transactions frequently failed because the buyer did not have an item that the seller desired. When a lack of double coincidence occurred, sellers often offered to complete the transaction through alternative payments as beer, gift cards, and transit tokens. These objects did not function as media of exchange in the Bunz economy, since these objects were typically procured by the buyer immediately before a transaction and directly consumed or used by the seller soon after the transaction. Such offers were occasionally rejected in favor of a “true trade” by users who prefer to barter.

The simplicity of the Bunz barter economy makes it an ideal setting to study the nature of money. Repeated interactions in the Bunz economy were exceedingly rare. Traders who met through the Bunz app were largely strangers who would not meet again. Exchange was almost always bilateral and simultaneous.<sup>9</sup> Traders were incentivized against opportunistic behavior such as no-shows and scams by a system where users could publicly rate and review each other after they agreed to trade. In interviews, many users reported that other users were typically trustworthy and friendly, which led them to prefer Bunz over other popular platforms such as Craigslist and Kijiji, where scams were more common.

### 2.3 Introduction of BTZ

In April 2018, Bunz HQ introduced “a brand new digital currency,” BTZ, as part of a major app update. The stated purpose of BTZ was to facilitate trade within the app. At the time of BTZ introduction, each user was endowed with 1000 BTZ upon digital wallet activation inside the app. In addition to receiving BTZ from other users, users could earn extra BTZ directly from the app through the “Daily BTZ Drop” by opening the app and answering a survey. The goal of “Daily BTZ Drop” was to increase user traffic and BTZ adoption in the app. Users could also earn more

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<sup>9</sup>Credit among Bunz users was very rare. Interviewed users report receiving BTZ payments as deposit to secure a trade or because they anticipate that their cellular data will be wonky at the trading location. Users may also receive slightly deferred payment, when a new user cannot remember their digital wallet PIN, or when a reputable user who is low on BTZ promises to deliver BTZ after another imminent trade that has already been arranged. However, other than these very short-term credit arrangements, credit among Bunz users was not known. This absence of credit and banking in the Bunz economy is a departure from the macroeconomy that allows me to focus on the role of money as a medium of exchange.

BTZ by inviting friends to join the app or posting new items. Each item could now be posted with a BTZ price. BTZ could also be easily transferred among users by tapping on buttons on another user’s profile or by scanning another user’s QR code.

To promote the token and to ensure price stability, Bunz HQ created the “Shop Local” program, which allowed users to purchase goods using BTZ at partner local stores around Toronto, such as coffee shops, at a fixed exchange rate of 100 BTZ to 1 Canadian dollar (CAD).<sup>10</sup> After accepting BTZ payments, the owners of local stores could then redeem BTZ for cash from Bunz HQ at the same fixed exchange rate. Other than token redemption through the Shop Local program, users could neither buy nor sell BTZ for cash in the Bunz app. As such, the total supply of tokens on the app was strictly determined by token issuance by the app and token redemption by users at local stores.

## 2.4 Data and Descriptive Statistics

The data provided by Bunz HQ are extraordinarily rich and comprehensive. I observe the universe of BTZ token transfers with timestamps, amounts, and the identities of the sender and receiver. The BTZ holdings of every user at any moment can therefore be inferred. I also observe the ratings that users submit to the platform after a transaction, which allows me to identify barter transactions. In addition, I observe all items that users post, along with descriptions and timestamps. The full text of the messages that user sent to one another are also available. For each user, I observe a rich set of characteristics, including user geolocation and answers to the “Daily BTZ Drop” surveys, which asks for information such as demographics.

Despite their richness, these data have some limitations. First, the items transacted on the platform are typically used and highly non-standardized, and barter transactions feature no posted price, so it is often difficult to know the price or value of the traded goods. Because of this, my analysis focuses on the number of transactions, as measured by ratings sent and received, rather than the terms of trade. Second, there is no centralized exchange between BTZ and other currencies, so it is not possible to directly measure the token price. As explained further below, I measure the price level using a subset of item posts involving gift cards with both a face value in

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<sup>10</sup>In 2018, the average exchange rate was 1 CAD to 0.77 USD.

Canadian dollars and a posted BTZ price.

The types of goods transacted on the platform are highly heterogeneous. About 21 percent of items posted were clothing. Another 10 percent is jewelry. Other commonly posted items include home products, grocery, beauty products, electronics, and books. The median item on the platform has a posted price of roughly 10 Canadian dollars (see Appendix Table [A2](#)).

The Bunz user base consisted primarily of young, female, college-educated adults. As shown in Appendix Figure [A5](#), roughly 75 percent of BTZ Drop survey respondents were between 18 and 34 years old. More than half reported to have completed a university degree at the bachelors or higher level. Users also exhibited a wide range of annual incomes. While roughly 27 percent of users reported annual incomes of less than \$20,000, nearly 40 percent reported annual incomes higher than \$50,000. In March 2018, 4,243 users completed 17,284 transactions.

Regular users, defined as those who have at least 10 transactions during the entire sample period, with a maximum of 70% of transactions concentrated in one month, and have been active users for at least 6 months, account for a large share of completed in-person transactions on the platform. Between September 2018 and August 2019, these users accounted for 8 percent of active users, but 83 percent of transactions as measured by ratings sent and received, 70 percent of items posted, and 70 percent of peer-to-peer BTZ transfers (see Appendix Table [A2](#)). Their use of the platform is highly persistent. During the week one year after their first message sent on the platform, these users completed an average of 0.4 transactions, and greater than 80 percent of them sent a message to another user (see Appendix Figure [A19](#)).

### 3 Conceptual Framework

This section uses a simple model to describe the Bunz economy and illustrate the role of redeemability in monetary exchange. Specifically, I extend the [Kiyotaki-Wright \(1993\)](#) model of intrinsically worthless money to allow for redemption and issuance. In the model, redeemability can ensure that there is no non-monetary equilibrium. Testable predictions on the effects of money supply and redeemability on transaction volume are derived. I then discuss modeling choices and assumptions.

### 3.1 Setup

Consider a unit mass of infinitely-lived agents who produce, trade, and consume commodities. Consumption of a unit of a commodity yields utility  $u > c$ , where  $c > 0$  is a transaction cost. Agents cannot consume their own product, but can hold either one or zero units of money. Initially, fraction  $M \in [0, 1]$  of agents are endowed with one unit of money. Both money and commodities can be stored at zero cost. However, money can never be consumed. Following consumption of a commodity, an agent produces one unit of a commodity instantaneously at zero cost. Agents discount utility with time preference  $r > 0$ .

Agents randomly meet pairwise at Poisson rate  $\alpha$ . The tastes of the agents are heterogeneous. Upon meeting, the matched agents are able to consume the other agent's product with probability  $x \in (0, 1)$ . With probability  $xy$  where  $y \in (0, 1)$ , the pair has “double coincidence of wants,” so they are able to consume each other's commodity. Following Section 3 of [Rupert et al \(2000\)](#), we assume that agents who hold money can produce and that in a double-coincidence meeting, the agents always barter rather than trade with money.<sup>11</sup>

To model redemption, we assume that a desire for a redemption good arises with probability  $\rho$  and at this point money can be redeemed from a token-accepting store for the redemption good for utility  $u$ . We can think of  $\rho$  as capturing the ease of redemption. We assume a unit of money is randomly issued to any agent without money at the same instant, so that total money supply stays constant. The rate of money issuance is  $\sigma = \frac{M}{1-M}\rho$ . This roughly matches the empirical setting, since as shown below, the Bunz platform kept the token supply largely constant except for two short periods of monetary expansion.

Agents choose strategies for deciding when to accept various commodities and money in order to maximize their expected discounted utility from consumption, taking as given the strategies of others. Let  $\pi$  denote probability two traders agree to a trade wherein one accepts money in exchange for the other's commodity.

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<sup>11</sup>[Rupert et al \(2000\)](#) provide a micro-foundation for this assumption.

The Bellman equations are as follows.

$$rV_1 = \alpha xy(u - c) + \alpha x(1 - y)(1 - M)\pi(u + V_0 - V_1) + \rho(u + V_0 - V_1) \quad (1)$$

$$rV_0 = \alpha xy(u - c) + \alpha x(1 - y)\pi M(V_1 - V_0 - c) + \sigma(V_1 - V_0) \quad (2)$$

where  $V_1$  is the value of holding one unit of money and  $V_0$  is the value of not holding money. The first term in the two equations denotes the utility flow from barter, the second that from monetized exchange, and the final that from money redemption or issuance.

## 3.2 Equilibrium

Following Wright (1999), we consider only symmetric evolutionarily stable Nash equilibria.<sup>12</sup> We say that the equilibrium is monetary if  $\pi = 1$  and non-monetary if  $\pi = 0$ .

In our model, it is possible for agents without money to prefer to wait for a helicopter drop rather than accept money. This is because agents can accumulate at most one unit of money, so only those without money can receive a helicopter drop. Accepting money therefore comes at the potential opportunity cost of receiving money for free. This opportunity cost is especially large when a large share of agents hold money. To rule out this unrealistic possibility, we assume that  $M < \bar{M} \equiv 1 - c/u$ .

Denote  $\pi_0$  as the probability of agents accepting money in exchange for commodity and  $\pi_1$  as the probability of agents willing to pay money for commodity. It follows that  $\pi = \pi_0\pi_1$ . Let  $\Delta_0 = V_1 - V_0 - c$  and  $\Delta_1 = u + V_0 - V_1$ . It follows that:

$$\pi_j = \begin{cases} 1 & \in [0, 1] \iff \Delta_j \begin{cases} > 0 \\ = 0 \\ < 0, \end{cases} \\ 0 & \end{cases} \quad (3)$$

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<sup>12</sup>This assumption rules out the mixed equilibrium in Kiyotaki and Wright (1993), which the prior literature has shown to not be robust.

where

$$\Delta_0 = \frac{\alpha x(1-y)(1-M)\pi(u-c) + \rho(u-c) - (r+\sigma)c}{r + \rho + \sigma + \alpha x(1-y)\pi}, \quad (4)$$

$$\Delta_1 = \frac{(r+\sigma + \alpha x(1-y)M\pi)(u-c) + (r+\sigma)c}{r + \rho + \sigma + \alpha x(1-y)\pi}. \quad (5)$$

It is always the case that  $\Delta_1 > 0$ . Let  $\rho_1 = \frac{rc(1-M)}{u(1-M)-c}$  and  $\rho_0 = \frac{rc(1-M)-\alpha x(1-y)(1-M)^2(u-c)}{u(1-M)-c}$ . It is easy to check that  $\rho_1 > \rho_0$  and  $\rho_1 > 0$ . If  $\rho > \rho_1$ , then  $\Delta_0 > 0$  regardless of  $\pi$ . If  $\rho < \rho_0$ , then  $\Delta_0 < 0$  regardless of  $\pi$ . It follows that:

**Proposition 1.** *Suppose  $M < \bar{M}$ .*

1. *If  $\rho > \rho_1$ , there is a unique monetary equilibrium;*
2. *If  $\rho \in [\rho_0, \rho_1]$ , there is a monetary equilibrium and a non-monetary equilibrium;*
3. *If  $\rho < \rho_0$ , there is a unique non-monetary equilibrium.*

Proposition 1 highlights an important difference between redeemable money and intrinsically worthless money (for which  $\rho = 0$ ). Redeemable money can have a unique monetary equilibrium, while intrinsically valueless money necessarily has an evolutionarily stable non-monetary equilibrium. This result may explain why in the historical record, monies consistently emerged from a credible promise of redemption by a state or financial institution and did not emerge spontaneously from barter. Moving to a monetary equilibrium in a decentralized economy without a credible promise of redemption by a large player is difficult.

Proposition 1 is closely related to models of fiat money where the government's policy regarding acceptance is taken as exogenous (Aiyagari and Wallace 1997; Li and Wright 1998). In those models, there exists a unique monetary equilibrium when a large enough fraction of the population exogenously accepts money. Our result follows from a similar logic. The main difference is that, to match the empirical setting, the measure of agents in the population who endogenously choose whether to accept money is held constant.

### 3.3 Testable Predictions

In the model, peer-to-peer barter transaction volume is given by  $T_B = \frac{1}{2}\alpha xy$ , while peer-to-peer monetized transaction volume is given by  $T_M = (1 - M)M\alpha x(1 - y)\pi$ . Total peer-to-peer transaction volume is therefore

$$T = \frac{1}{2}\alpha xy + \alpha x(1 - y)(1 - M)M\pi.$$

Aggregate consumption (excluding that from redemption) is  $\varphi = \alpha xy + (1 - M)M\alpha x(1 - y)\pi$ . The ex ante expected utility of all agents (including that from redemption) is  $W = \frac{1}{r}[(u - c)\varphi + uM\rho]$ .

There are two testable predictions. The first prediction is that if redemption is widely available, so money is accepted, then increasing  $M$  away from zero persistently increases transaction volume, aggregate consumption, and ex ante welfare. This increase is entirely driven an increase in monetize peer-to-peer exchange, while the number of barter transactions remains constant. In other words, money is non-neutral.

**Prediction 1.** *If  $\rho > \rho_1$  and  $M < \min\{\bar{M}, \frac{1}{2}\}$ , then an increase in  $M$  unambiguously increases the number of money-mediated transactions, but does not alter the number of barter transactions.*

The second prediction is that as redemption availability falls, a non-monetary equilibrium emerges; if the fall is very significant, then the monetary equilibrium may also disappear. A transition from the monetary equilibrium to the non-monetary equilibrium would occur, causing a decline in money-mediated transactions. Importantly, however, barter is not affected.

**Prediction 2.** *If  $M \in (0, \bar{M})$  and  $\rho$  declines from above  $\rho_1$  to below  $\rho_0$ , then the number of money-mediated transactions unambiguously falls, but the number of barter transactions is unchanged.*

### 3.4 Discussion

The model above matches many features of the Bunz economy. The goods traded on the Bunz platform are highly heterogeneous, the matching of traders through the app is frictional, traders engage in bilateral bargaining, and the wants of traders often exhibit lack of double coincidence. There is a token redemption program, whose availability varies over time, as well as direct token

issuance to users, which as shown below kept the token supply largely constant except for two short periods of monetary expansion.

Before turning to the findings, however, it is useful to note some differences between the model and the empirical setting. First, the model assumes that agents are identical and do not have ideological predispositions against the use of money. Individual-level heterogeneity in  $(u, c, r, \rho)$  can be added to the above model following Shevchenko and Wright (2004).<sup>13</sup> Ideological preferences can also be incorporated by assuming that some agents have disutility from holding money. The presence of such heterogeneity attenuates the effects of changes in money supply and redeemability, since some agents never accept money and are therefore unaffected by monetary conditions.

Second, the model assumes that there is a fixed population engaging in barter and that the rates at which agents produce commodities and meet are exogenous. In reality, Bunz users endogenously choose whether to use the platform, post items, and spend time browsing and searching in the Bunz app. When transaction frictions fall, all of these margins of response may respond. This leads to bigger changes in transaction volume than implied in the baseline model above.<sup>14</sup>

Third, the model assumes that the platform will always redeem tokens whenever agents ask. In reality, the platform faces temptations and agents may not trust the platform to honor on its promise to redeem tokens. This trust is shaped by relevant laws and regulations as well as relational contracts that generate dynamic incentives for the platform. For example, the platform may earn rents from seigniorage, transaction fees, or advertising sales. If the platform reneges on its promise, agents may punish the platform by leaving or tarnishing its reputation. The fear of retaliation encourages the platform to prudently manage its finances so that its obligations are met, which in turn allows agents to trust the platform. In the absence of such trust, the promise of redemption may not be credible, so fewer agents may accept tokens.

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<sup>13</sup>See Jing, Wong, Yang, and Zhong (2023) for cross-sectional predictions in a model of the Bunz economy featuring agents with heterogeneous proximity to redemption stores.

<sup>14</sup>To model entry, we can assume that each agent  $i$  faces an entry cost  $k_i$  and they must wait to receive money after entry. In steady-state equilibrium, all agents with value  $V_{i0} \geq k_i$  enter. If money supply expands, then  $V_{i0}$  increases, so agents enter the barter economy. If redemption availability falls, then  $V_{i0}$  falls and fewer agents remain. Endogenous item posting can be incorporated into the model above by assuming that production requires time, as in Kiyotaki and Wright (1993), and that production time falls with effort whose cost is convex and increasing. Matching probabilities may also be endogenized by assuming that match rates increase with the number of items on the platform. Monetary expansion then increases the number of agents on the platform, the rates at which items are produced and agents meet, and the likelihood of transaction upon meeting. By contrast, reduced redeemability would cause a decline in all of these variables.

Fourth, the model assumes that the rate at which agents attempt to redeem tokens is exogenous and unchanging. A more realistic model would endogenize the agent’s redemption decision by introducing a random cost of redemption. In such a model, reduced redemption availability may cause a temporary increase in redemption, since some agents will be more willing to spend down their balances once they no longer wish to hold money.

## 4 Effects of Monetary Expansion

In September 2018, Bunz HQ dramatically increased token issuance, resulting in a fivefold monetary expansion. This section documents the effects of monetary expansion on platform user activity. I find no detectable change in token prices. Instead, the expansion caused the total number of peer-to-peer transactions completed to persistently increase by roughly 60%. This rise is entirely accounted for by increased token-mediated trade among more recently entering users.

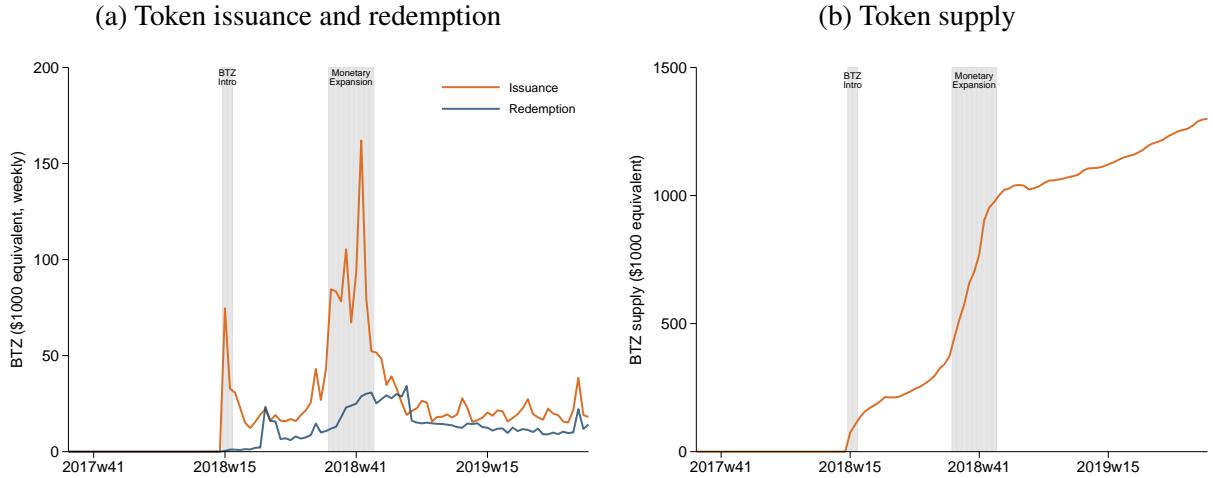
### 4.1 Token Supply

I begin with trends in the number of tokens that were issued to users, redeemed by users, and the stock of tokens in the Bunz economy.

**Token issuance.** There were two waves of increased token issuance. The first wave came in April 2018 (Week 15), when the token was first introduced and any user who activated the wallet received 1000 BTZ (equivalent to 10 CAD). The second, larger wave occurred in September and October 2018 (Weeks 36-42), when Bunz HQ increased the amount of Daily BTZ Drop to 100 BTZ per day from 10 BTZ per day, in hopes of increasing use of the token. Bunz HQ then realized that the resulting pace of token redemption would be financially unsustainable. After roughly eight weeks of increased token issuance, the app slowed the metaphorical printing presses and reverted back to Daily BTZ Drops of 10 BTZ per day.

These two episodes are clearly seen in the data. Figure 1 Panel (a) shows the trend in weekly token issuance, defined as the weekly sum of tokens issued by Bunz HQ to users, excluding local stores and Bunz employees, in orange. As mentioned in Section 2, the “Daily BTZ Drop”, wherein

Figure 1: Token issuance, redemption, and supply, before and after monetary expansion



Notes: Panel (a) shows the weekly trend in BTZ issuance, the total amount of tokens sent from Bunz directly to users, and BTZ redemption, total amount of tokens sent from users to local stores. Panel (b) shows BTZ supply, the cumulative sum of BTZ issued minus the cumulative sum of BTZ redeemed. All numbers are denominated in the Canadian dollar (CAD) at the fixed exchange rate: 1 CAD = 100 BTZ. Gray bars indicate the first and second wave of monetary expansion.

some quantity of the token was transferred from Bunz HQ to a user after the user answered a survey question each, was the primary method for Bunz HQ to change the amount of the token in circulation. The “Daily BTZ Drop” is similar to the idea of a “helicopter drop” in monetary economics (Friedman 1969; Bernanke 2002), wherein cash were directly added to the bank accounts of all citizens, as if dropped from a helicopter overnight.

**Token redemption.** Changes in token redemption were small when compared with the dramatic changes in token issuance. The blue line in Figure 1 Panel (a) plots token redemption per week, as measured by the amount of BTZ transferred from users to Shop Local stores to purchase goods. In May 2018, there was a short but sharp increase token redemption after the initial BTZ introduction. In October to December 2018, there was another wave of heightened token redemption, after large monetary expansion. However, after Christmas Day that year, BTZ redemption fell again.

**Token supply.** During the monetary expansion, token supply increased by about five times, since token issuance far exceeded token redemption. Figure 1 Panel (b) plots the total supply of tokens in circulation, calculated as the cumulative sum of BTZ issued minus the cumulative sum of BTZ

redeemed. After the first wave of monetary expansion in April and May 2018, the total value of token in circulation stabilized at roughly 20 million BTZ (equivalent to 0.2 million CAD). BTZ supply grew rapidly in September 2018 due to increased token issuance, but was stabilized after November 2018 at a level of roughly 100 million BTZ (equivalent to 1 million CAD).

## 4.2 Token Price, Acceptance, and Velocity

I next assess how the large expansion of token supply altered perceptions of the token’s value, by studying the trends in token price, token acceptance, and share of user token expenditure spent on redemption. Trends in the frequency with which tokens changed hands are also examined.

**Token price.** Despite the large monetary expansion, the token price remained anchored at the fixed exchange rate of the token redemption program. To measure the token price as perceived by users in the app, I use item postings for store gift cards that are frequently transacted on the platform and take the ratio of their posted BTZ price and their dollar-denominated face value.<sup>15</sup> Since BTZ were not freely exchangeable with other currencies, but rather redeemable at a fixed exchange rate through good purchases at local stores, this measure provides the best available proxy for the BTZ token price as perceived by users in the app.

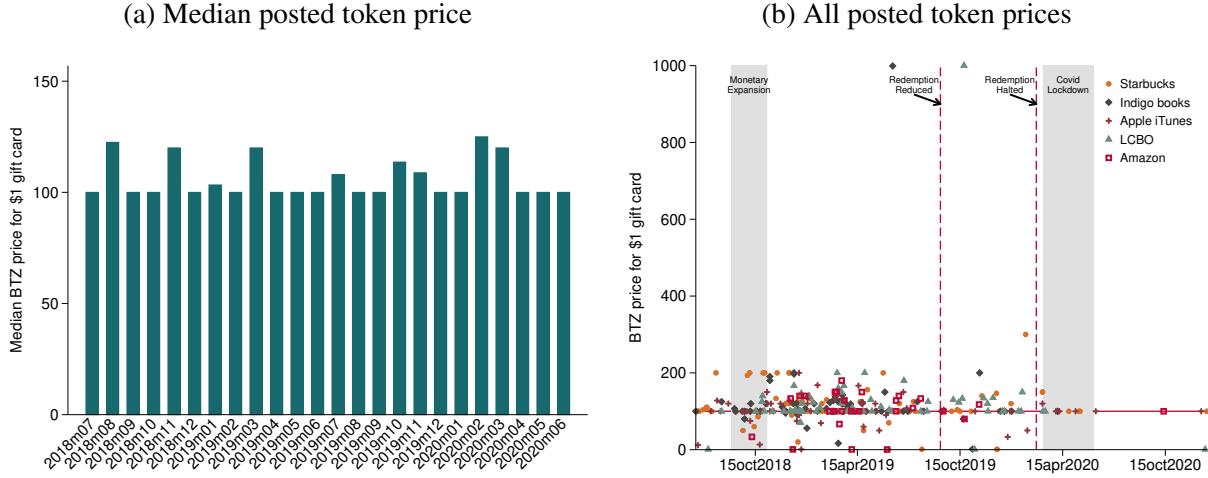
Figure 2 Panel (a) shows the median posted exchange rate for gift cards by month, which hovered unchangingly from July 2018 until May 2019 around the official fixed exchange of 100 BTZ to 1 CAD. Panel (b) plots all available relative token price from gift card posting over time. This plot shows that there was considerable dispersion in gift card exchange rates, as might be expected in an app where exchange is subject to search frictions. For a large fraction of gift cards, however, the posted token prices were exactly 100 BTZ to 1 CAD, the official exchange rate for token acceptance at local stores.

**Token acceptance.** The willingness of Bunz users to accept the BTZ token, as measured by the share of items posted with a BTZ price, did not discontinuously change during the monetary

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<sup>15</sup> Specifically, I focus on gift cards for five large sellers that are frequently sold in the app: Starbucks Coffee, Indigo Books and Music (a Canadian bookstore chain), Apple iTunes, LCBO (the Canadian government-run liquor retailer), and Amazon.

Figure 2: Token price, all available data



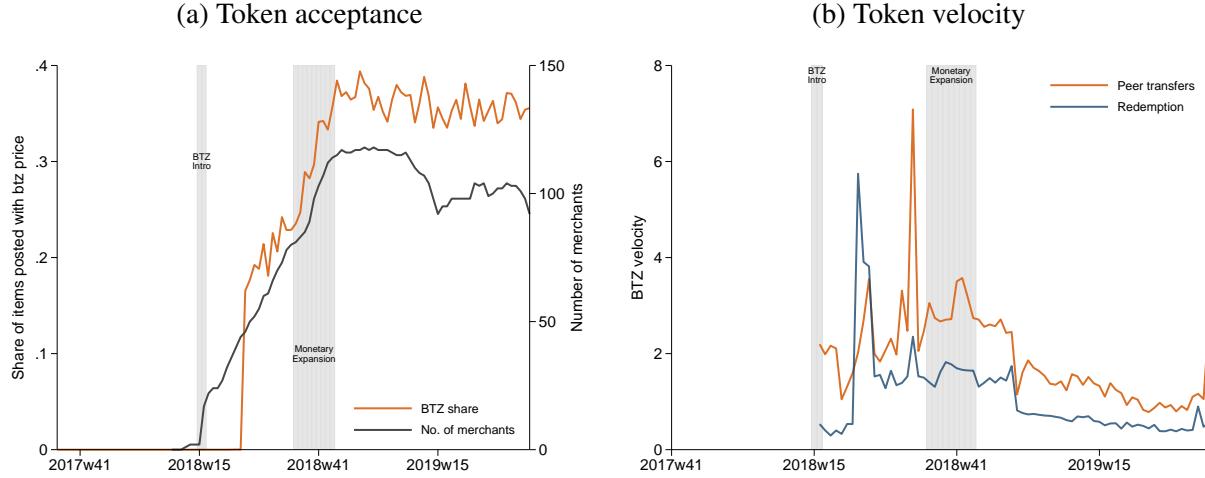
Source: The sample is all posted gift cards issued by Starbucks, Indigo books, Apple iTunes, LCBO, and Amazon with an associated BTZ value and a discernible gift card value in the post title or description. Panel (a) shows the median exchange rate for each month. Panel (b) plots every posted gift card as a dot.

expansion. As shown in Figure 3 Panel (a), token acceptance steadily increased from the day that users were able to post BTZ prices along the increasing availability of redemption stores. At the end of the monetary expansion, the expansion of redemption stores also stopped, and the share of items posted with token price stabilized at around 35 percent.

**Token velocity.** After the monetary expansion, the velocity at which token changed hands, defined as token flows divided by token stock, persistently declined. This slowdown, however, did not happen until two months after the monetary expansion, at the end of 2018. The slowdown in token velocity may have initially been masked by an increase in trade activity prior to Christmas. As shown in Figure 3 Panel (b), tokens changed hands between users around 3 times per year during the second half of 2018. Redemption at local stores per available token was roughly 1.7 times per year. Transfers and redemption per token supply, however, fell to a lower level of 1.7 and 0.75 times per year, respectively, during the first three months of 2019.

**Redemption share of token expenditure.** The share of token expenditure used for redemption remained remarkably stable around 35 percent during the monetary expansion and for the year after (see Appendix Figure A19 Panel (f)). A stable trend in redemption indicates that beliefs

Figure 3: Token acceptance and velocity, before and after monetary expansion



Notes: Figure shows the weekly trend in (a) share of items post that eventually have a posted BTZ price and number of active local stores available for BTZ redemption, which have been active for at least two weeks (b) BTZ redemption and peer transfer divided by the total BTZ supply (multiplied by weeks in a year). Gray bars indicate the first and second wave of monetary expansion.

about the value of the token did not substantially change during the monetary expansion.

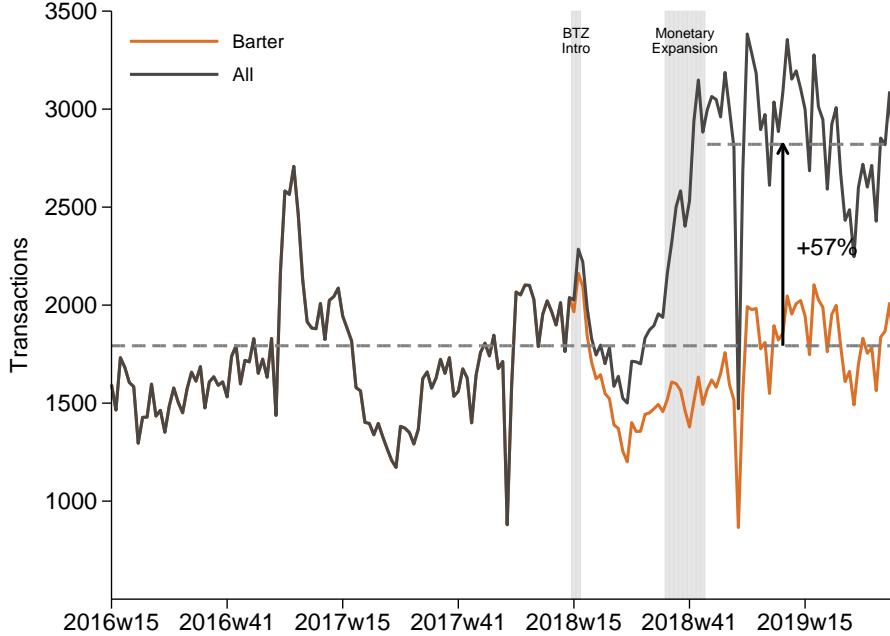
### 4.3 Barter and Token-mediated Transactions

Having shown that token price and acceptance did deviate from existing trends during the monetary expansion, I next document the trends in barter and token-mediated transactions.

**Total transactions.** To measure the volume of goods exchanged on the bartering app, I count the number of ratings that users provide one another. This measure is the closest available proxy for total trade volume, since trade occurs offline and are not directly recorded. It is also difficult to know the value of goods traded, since barter transactions are not associated with any prices, and the goods are typically used and highly heterogeneous. Since users usually provide a rating for their transaction partner upon the completion of a trade, this measure is likely to be highly predictive of the number of completed trades, even though it is likely an underestimate. Furthermore, these data are available both before and after the introduction of BTZ, whereas token transactions are only available after token introduction.

Figure 4 shows that the total peer-to-peer transaction volume was largely stable in the two

Figure 4: Effect of monetary expansion on transaction volume



Notes: Figure shows the weekly trend in the number of peer-to-peer transactions as measured by user reviews, decomposed by whether a token transfer occurred between the same user pair within 7 days. Gray bars indicate the first and second wave of monetary expansion.

years before the introduction of BTZ. Following the introduction of BTZ in April 2018, there was a small dip in completed transactions following April 2018, but this dip is likely to be driven seasonal trends, since a dip of similar magnitude is seen during the year before. After the monetary expansion in September 2018, however, there was a 57% increase in the number of transactions completed. This increase was not only large, but persistent and lasted at least a year.

Table 1 row (a) shows that the increase in transactions among all users is very similar for the subset of regular users. Furthermore, the increase is largely driven by recently joined users. As shown in Column (3), the increase in transactions is primarily driven by users who entered the Bunz economy less than one year before the monetary expansion.

**Barter vs. token-mediated transactions.** We decompose transaction volumes into barter and token-mediated transactions based on whether a token transfer occurred between the same pair of users within 7 days of the transaction as measured by the user ratings.

Table 1: Percentage change in activity, before and after monetary expansion, by user subgroup

	All users (1)	Regular users (2)	Exclude entrants (3)	Exclude leavers (4)
(a) Total transactions	57%	57%	7%	70%
(b) Barter transactions	3%	2%	-33%	10%
(c) Entries	59%	-1%		6%
(d) Exits	69%	37%	13%	
(e) Offer messages	41%	37%	-4%	48%
(f) Transactions per offer message	11%	14%	10%	15%
(g) Goods supplied	38%	38%	-6%	48%
Number of users	215271	10790	5777	9367
Pre-event transactions	1793	1489	1028	1339

Notes: Tables display the percentage change in weekly (a) total transactions (b) barter transactions (c) entries counted by the first message sent by users (d) exits counted by one month after the last message sent by users (e) offer messages (f) transactions per offer message (g) new items posted in the app during the year after the monetary expansion, compared to the year before. Regular users are defined as those who have at least 10 transactions during the entire sample period, with a maximum of 70% of transactions concentrated in one month, and have been active users for at least 6 months. The following column includes only users whose first message on the platform was sent more than one year before the event. The final column includes only users whose last message on the platform was sent more than one year after the event.

Figure 4 shows that monetary expansion did not change the overall level of barter transactions. The rise in total transaction volume is instead accounted for by the emergence of token-mediated transactions. These token-mediated trades began to emerge almost immediately following BTZ introduction, but substantially grew during the monetary expansion.

Table 1 row (b) shows that for regular users who entered at least one before the monetary expansion, barter transactions fell. By contrast, users who exited at least one year after the monetary expansion, showed increased barter transactions. In other words, earlier platform entrants primarily exhibited substitution from barter to token-mediated transactions, while later entrants exhibited

a greater overall increase in transactions.

## 4.4 Margins of Response

To understand the mechanisms underlying the increased transaction volume, I examine the response to monetary expansion along several margins, including user entry and exit, new items posted, and offer messages sent.

**User entry.** The number of new users, defined by each user's first message sent on the platform, persistently increased during the monetary expansion. However, the trend in regular users, defined as users who traded ten times or more during the available data, conducted at most 70% of trades within one month, and were active for at least 6 months, did not meaningfully change (see Appendix Figure 3). In other words, the monetary expansion drove more users to try the platform, but these new users overwhelmingly did not become regular users who traded on the platform.

**User exit.** More difficult to measure. Define as exit as occurring one month after last message sent. [MW: update]

**Offers sent.** The number of offer messages sent on the platform increased by 41% immediately after the monetary expansion, as shown in Table 1. This finding suggests that monetary expansion increased the eagerness of users to purchase goods on the platform.<sup>16</sup>

**Transactions per offer.** Transactions per offer message sent also increased by 11%. This finding suggests that monetary expansion made bargaining after a buyer makes an initial offer easier.<sup>17</sup>

**Goods supply.** The number of new items posted on the platform increased after the monetary expansion, suggesting that monetary expansion caused sellers to increase their supply of goods to the Bunz economy. However, as shown in Appendix Figure A19, the increase was gradual. This gradual increase suggests that it took time for sellers to learn or adjust and respond to the increased demand for goods on the platform.

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<sup>16</sup> Appendix Figure A19 shows that offer messages sent was stable prior to the monetary expansion.

<sup>17</sup> Appendix Figure A19 shows that transactions per offer was also stable prior to the monetary expansion.

## 5 Effects of Reduced Redeemability

In September 2019, a year after the monetary expansion considered in the previous section, Bunz HQ partially halted token redemption. This section documents how this reduction in redeemability affected the volume of trade. I recount the sequence of events and show that there was a subsequent reduction in both barter and token-mediated trade on the platform.

### 5.1 Timeline of Events

After introducing BTZ, Bunz HQ worked on developing other new features to drive user and revenue growth, including introducing a community discussion feature and selling in-app advertising. As 2019 progressed, however, Bunz HQ's financial position became increasingly untenable. There were roughly 18 employees on its payroll, token redemption continued to drain its coffers, and its budding advertising sales were insufficient to offset the cash outflow. Though Bunz HQ worked to raise funds, it soon became clear that neither new investment nor an acquisition was forthcoming ([Galang 2019](#)).

On September 9, 2019, Bunz HQ announced that tokens would henceforth only be redeemable at local partner stores selling coffee or food. In a letter sent to Shop Local partner businesses, Bunz HQ wrote, "Effectively immediately, you will no longer be able to accept BTZ and convert them into CAD currency. We will be locking your wallets, and everyone will be paid up to September 10th inclusive."

Shocked and disgruntled, Shop Local partners took to announcing these changes on the app to the wider Bunz community, criticizing Bunz HQ for the abruptness of the decision, their lack of transparency, and their reneging on a promise to provide a 30-day notice of changes to the Shop Local program. One wrote, "While I respect their decision to end the program, more notice would have been nice. This was literally [zero] notice and not professional. I now have customers that can no longer support me on this platform, many who saved BTZ for months. And now their BTZ is no longer of use to them."

The next day, Bunz HQ provided an update to the broader community in a blog post. The post confirmed that it would no longer accept BTZ except at coffee shops and restaurants. Apologizing

for “any inconvenience and disappointment this may have caused”, the blog post went on to explain that Bunz HQ also had to make the difficult decision to lay off 15 employees that same day.<sup>18</sup>

In an interview, a frequent seller of used books recounted that there was tremendous uncertainty about the price of BTZ after the announcement. Like many other users, he stopped accepting BTZ after the announcement. He then spent down his stock of tokens at local restaurants by “eating like a king”. Two weeks after, however, he realized that BTZ now traded among users at a discount. Since Bunz HQ still redeemed tokens at restaurants, this made it profitable for him to accept BTZ again. As of October 18, 2019, he was willing to accept BTZ at a 10-15% discount in exchange for books, but would immediately redeem the tokens for food at token-accepting stores. This way he kept only a very small balance of tokens and minimized his exposure to the risk that the token might eventually become worthless.<sup>19</sup>

## 5.2 Token Supply

To assess the impact of reduced redeemability, I first examine token redemption and supply.

**Token redemption.** There were two instances of unusual redemption activity by a small number of users at a single redemption store in the weeks *before* the announcement by Bunz HQ to reduced redeemability, as shown in Figure 5 Panel (a). The spike in BTZ issuance and redemption on August 13 and 14 reflects fraudulent activity wherein some user created numerous accounts and then immediately redeemed these BTZ through some Shop Local store. The data show a sudden increase in new user sign-ups and referrals, which were rewarded by Bunz HQ with 1000 BTZ and 500 BTZ, respectively. The spike on August 30 is due to a large redemption of 304778 BTZ by a single user. According to Bunz’s CEO, this behavior contributed to the platform’s decision to prevent a larger run by reducing redeemability.

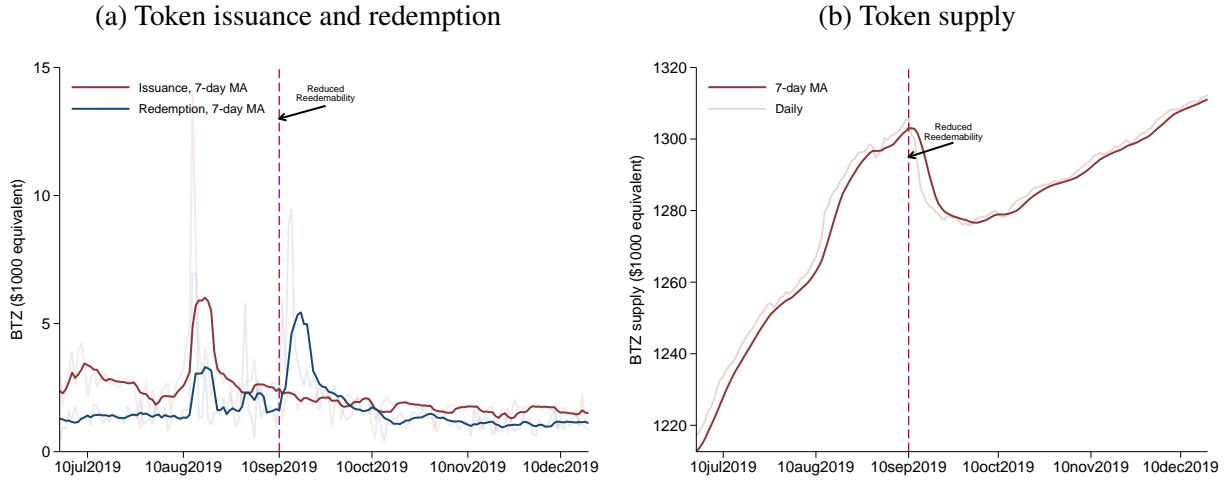
After the reduction in redeemability, there was an immediate increase in BTZ redemption that lasted several days. Unlike the previous spikes, the increase in token redemption after September 10 was neither specific to a small number of stores nor a small number of users. BTZ redemption

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<sup>18</sup>See Appendix for the full text of this blog post. The digital wallets of employees were also suddenly locked (Galang 2019).

<sup>19</sup>See the Appendix for a transcript of this interview.

Figure 5: Token supply, before and after reduced redeemability



Notes: Panel (a) shows the trend in BTZ issuance, the total amount of tokens sent from Bunz directly to users, and BTZ redemption, total amount of tokens sent from users to local stores. Panel (b) shows BTZ supply, the cumulative sum of BTZ issued minus the cumulative sum of BTZ redeemed. The dark lines show the 7-day moving average, while the light lines show the daily trend. The red dashed line indicates September 10, the day of partial cessation of Shop Local program. The pre-crisis spikes in issuance and redemption reflect unusual activity by a small number of users (see text for details).

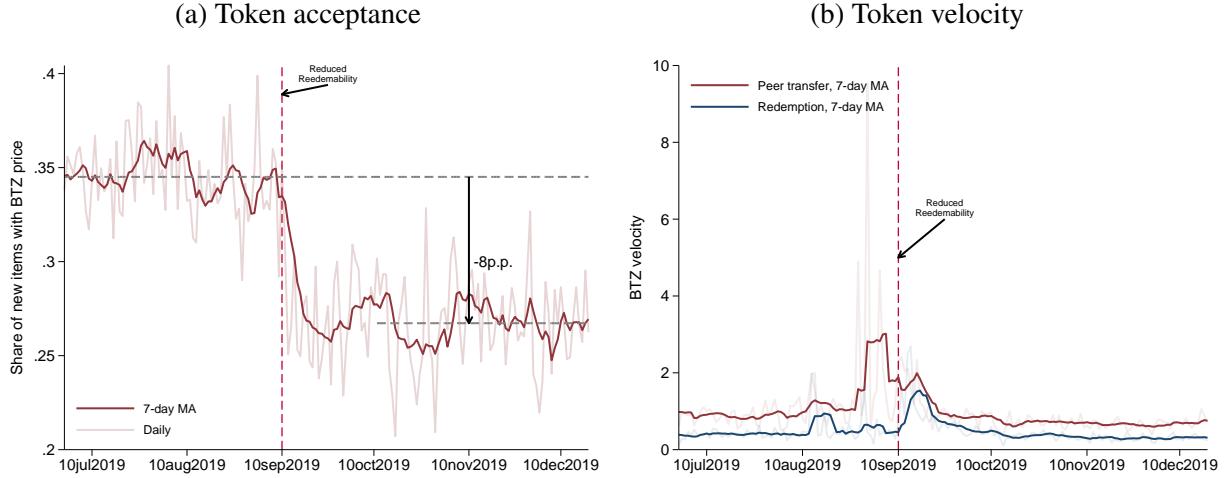
continued to be elevated above the pre-crisis level for almost two weeks. Moreover, token redemption continued at a level only somewhat lower the pre-crisis level despite reduced redeemability.

**Token supply.** Despite the spike in redemption after redeemability was reduced, there was only a small reduction in the token supply, in nominal value. As shown in Figure 5 Panel (b), the BTZ supply was steadily increasing before redeemability was reduced, since the token issuance exceeded redemption. Immediately after the announcement, token supply fell. This reduction is driven by a sharp increase in token redemption and no change in token issuance. However, the magnitude of this reduction was small relative to the total token supply. Even though token holders wanted to spend down their token holdings, the sudden restriction of token redemption to small-value and perishable items at coffee shops and restaurants had made it difficult to do so.

### 5.3 Token Price, Acceptance, and Velocity

Having shown that there was little change in token supply, I now document how reduced redeemability affected token price, token acceptance, the share of token expenditure spent on redemption,

Figure 6: Token acceptance and velocity, before and after reduced redeemability



Notes: Figure shows the trend in (a) the share of new items with a posted BTZ price, and (b) BTZ redemption and peer transfer divided by the total BTZ supply. The dark lines show the 7-day moving average, while the light lines show the daily trend. The red dashed line indicates September 10, the day of partial cessation of Shop Local program.

and token velocity.

**Token price.** There was no detectable change in the token price despite reduced redeemability. Figure 2 shows that the token price, as computed using gift cards posted on the platform, remained anchored to the exchange rate of the token redemption program.

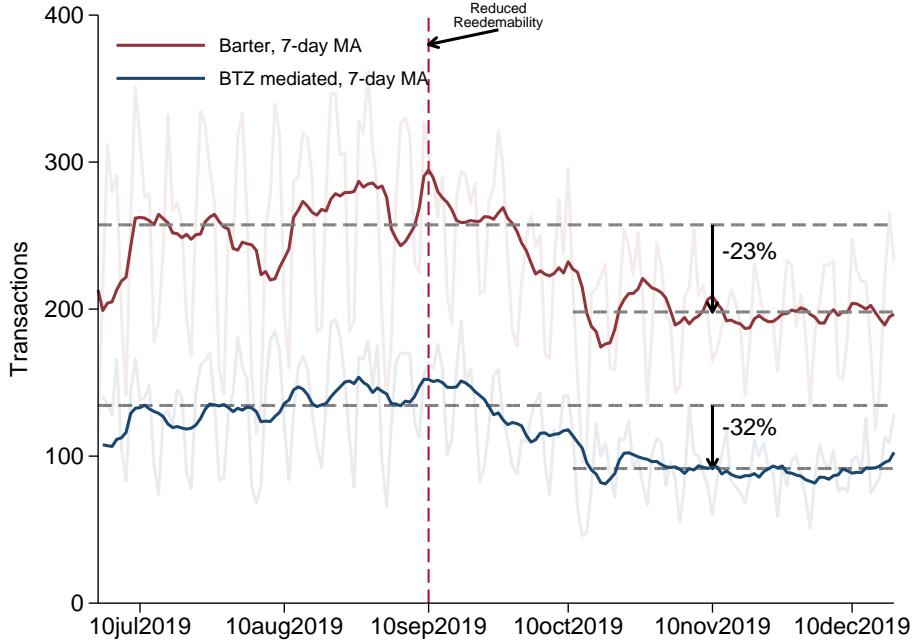
**Token acceptance.** The willingness of sellers to accept BTZ immediately fell after redeemability was reduced. As shown in Figure 6, the share of new items with a posted BTZ price hovered around 35 percent during the two months before the announcement. After the announcement, the share immediately plunged to roughly 27 percent.<sup>20</sup>

**Token velocity.** During the two weeks prior to the event, the velocity at which token changed hands between users experienced unusual spikes. Like the unusual activity in issuance and redemption, these spikes are attributable to unusual activity by a small number of users who wished

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<sup>20</sup>As shown in Appendix Figure A12, one user wrote that “I don’t accept BTZ anymore due to uncertainty. I believe BTZ & BUNZ will cease to exist shortly.” Another wrote, “I’m paused on BTZ for now, until we get some stability.” Yet another wrote, “I will only be doing TRUE TRADES from now on. I no longer believe that BTZ is a sustainable form of currency because of the lack of choices that the users have, and the fluctuating rate at which they are rewarded.”

Figure 7: Barter and token-mediated transactions, before and after reduced redeemability



Notes: Figure shows the trend in the number of transactions decomposed by whether a token transfer occurred between the same user pair within 7 days. The dark lines show the 7-day moving average, while the light lines show the daily trend. The red dashed line indicates September 10, the day of partial cessation of Shop Local program.

to convert BTZ into cash. Immediately after the announcement, there was increased token velocity, too. This increase is instead attributable to a large number of users attempting to reduce their token balances. Roughly a month after the redemption halt, token velocity returned to a steady-state level that was somewhat lower than the initial level.

## 5.4 Barter and Token-mediated Transactions

The previous subsection showed that reduced redeemability led to little change in the token price and a large reduction in token acceptance. I now study how reduced redeemability affected transaction volumes on the platform.

**Token-mediated transactions.** After redeemability was reduced, transaction volume in the Bunz economy immediately began to fall. As shown in Figure 7, before the announcement, the num-

ber of token-mediated peer-to-peer transactions, as measured by user ratings associated with a concurrent token transfer, was largely stable around 140 transactions per day. It began to decline gradually after the announcement, falling eventually to roughly 100 transactions per day about a month later.

**Barter transactions.** Figure 7 shows that barter transactions also fell. While the number of barter transactions hovered around 270 per day prior to the reduction in redeemability. Immediately after the announcement, the number began to fall with a clear trend break around the date of the announcement, reaching roughly 210 transfers per day a month later. The reduction in barter volume suggests that users reduced their activity on the platform altogether, even though barter transactions likely remained profitable on the platform.

This reduction in barter exchange is difficult to explain in a purely search-theoretic model, which predicts that users may substitute towards barter. This pattern is potentially explained by news reports that users were angry that the platform reneged on its promise of redemption. Many claimed to have reacted to its breach of trust by exiting the platform altogether.<sup>21</sup> A group of Bunz Facebook administrators even announced that they would sever their affiliation with Bunz.<sup>22</sup>

## 5.5 Margins of Response

To understand the underlying mechanisms, I now investigate the margins of responses, including user entry and exit, new item supply, and offer messages sent.

**User entry.** The number of new users, as well as new regular users, persistently fell after the announcement.

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<sup>21</sup>One article emphasized the disappointment of users, some of whom had been saving up their BTZ for bike repairs, records and other large purchases. For example, an administrator for several Bunz-related Facebook groups was quoted to say that the announcement “felt like a punch in the gut,” since she had amassed roughly \$600 worth of BTZ, and treated her stockpile as a sort of safety net, in case she ran out of money and needed to buy something for her two-year-old son, but ‘Now, it’s worthless,’ She said. ‘He doesn’t drink coffee’” (Posadzki 2019).

<sup>22</sup>As shown in the Appendix, this group renamed their Facebook groups as “PALZ”, writing, “Today, we would like to reclaim our communities. We would like to bring Bunz back to what it once was. We want our groups to remember why they exist. We do not want to profit. We do not want your app sign-ups. We do not want you to buy into an online currency that will let you down.”

Table 2: Percentage change in activity, before and after reduced redeemability, by user subgroup

	All users (1)	Regular users (2)	Exclude entrants (3)	Exclude leavers (4)
(a) Token-mediated transactions	-32%	-28%	-31%	-28%
(b) Barter transactions	-23%	-21%	-23%	-20%
(c) Entries		-61%	-56%	-56%
(d) Exits		-25%	78%	78%
(e) Offer messages		-15%	-11%	-14%
(f) Transactions per offer message	-12%	-13%	-12%	-13%
(g) Goods supplied	-29%	-23%	-26%	-22%
Number of users	215271	10790	9318	9784
Pre-event transactions	392	317	259	313

Notes: Tables display the percentage change in weekly (a) btz mediated transactions (b) barter transactions (c) entries counted by the first message sent by users (d) exits counted by one month after the last message sent by users (e) offer messages (f) transactions per offer message (g) new items posted in the app during the 2 months after the reduced redeemability, compared to the 2 months before. Regular users are defined as those who have at least 10 transactions during the entire sample period, with a maximum of 70% of transactions concentrated in one month, and have been active users for at least 6 months. The following column includes only users whose first message on the platform was sent more than 5 months before the event. The final column includes only users whose last message on the platform was sent more than 5 months after the event.

**Offers sent.** Table 1 shows that the number of offer messages sent on the platform fell by 15% immediately after redeemability reduction. As shown in Appendix Table A15, there is a mild upward pre-event trend, so the causal effect of reduced redeemability on the number of offers sent is likely to be somewhat larger.

**Transactions per offer.** Transactions per offer message sent fell by 12%. This finding suggests that reduced redeemability made bargaining after a buyer makes an initial offer more difficult.<sup>23</sup>

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<sup>23</sup>Appendix Figure A15 shows that the trend in transactions per offer was stable prior to the reduction in redeemability.

**Goods supply.** The number of new items posted on the platform sharply and persistently fell after redeemability was reduced. This finding contrasts with the gradual increase in goods supplied after the monetary expansion, suggesting that sellers quickly learned to reduce their supply of goods to the Bunz economy.

## 6 Effects of Redemption Halt

On February 28, 2020, Bunz HQ halted all redemption of the BTZ token. Unlike the previous reduction in redeemability, the platform said that the halt in redeemability was due to technical difficulties and would be temporary, but redemption was never resumed. There was an immediate reduction in token acceptance, no detectable reduction in barter exchange, and only a gradual impact on token-mediated exchange, which remained positive for many months before its dwindled towards zero.

### 6.1 Timeline of Events

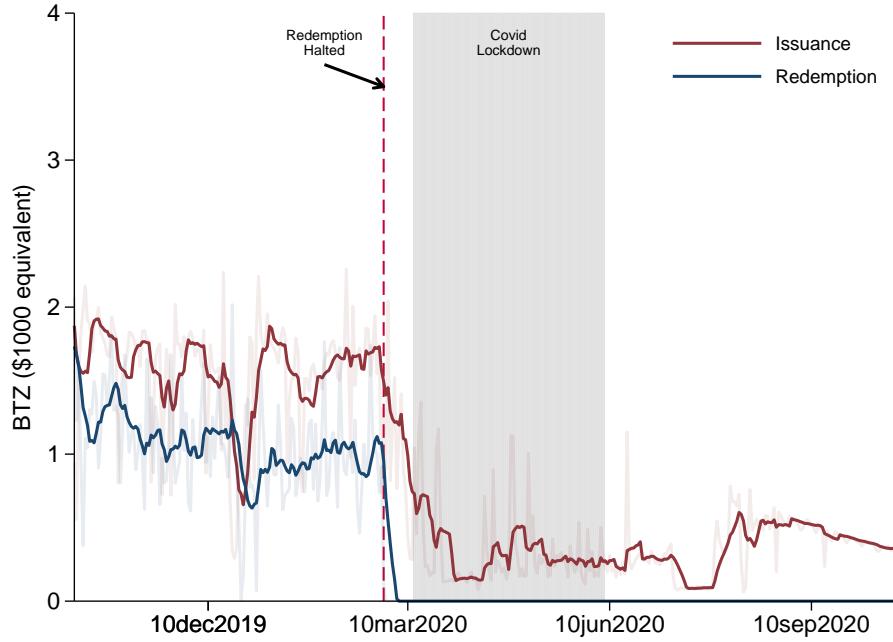
In the announcement post, titled "BTZ Shop Local Redemption - Gaming Update", the pause to the Shop Local program was promised to be "temporary." During this time, the platform would address "the gaming of BTZ rewards" by "implementing additional checks and controls, which [they] will communicate out once those controls are in place." It is likely that this wording was carefully chosen to avoid the backlash and bad publicity when Bunz HQ partially halted redemption. There was in fact no plan to restart the Shop Local program.<sup>24</sup>

Shortly thereafter, the first wave of the Covid-19 pandemic arrived in Toronto. Before March 12, public transit usage in Toronto had not deviated from normal levels. On that day, however, Ontario Premier Doug Ford announced that publicly funded schools across the province will be closed for two weeks following March break. Immediately after, public transit usage began to fall and reached 60% below baseline within five days. On March 17, Ford declared a state of

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<sup>24</sup>Even with its scaled down Shop Local program, Bunz HQ continued to suffer cash outlays from token redemption. Having laid off almost all of its employees, Bunz's CEO departed from the company and only one employee, the Bunz community manager, remained. Management of the app was transferred to one of the company's investors, who continued to operate the app by selling in-app digital advertising.

Figure 8: Token issuance and redemption, before and after redemption halt



Notes: Figure shows the trend in BTZ issuance, the total amount of tokens sent from Bunz directly to users, and BTZ redemption, total amount of tokens sent from users to local stores. The dark lines show the 7-day moving average, while the light lines show the daily trend. The red dashed line indicates February 28, the day of full cessation of Shop Local program

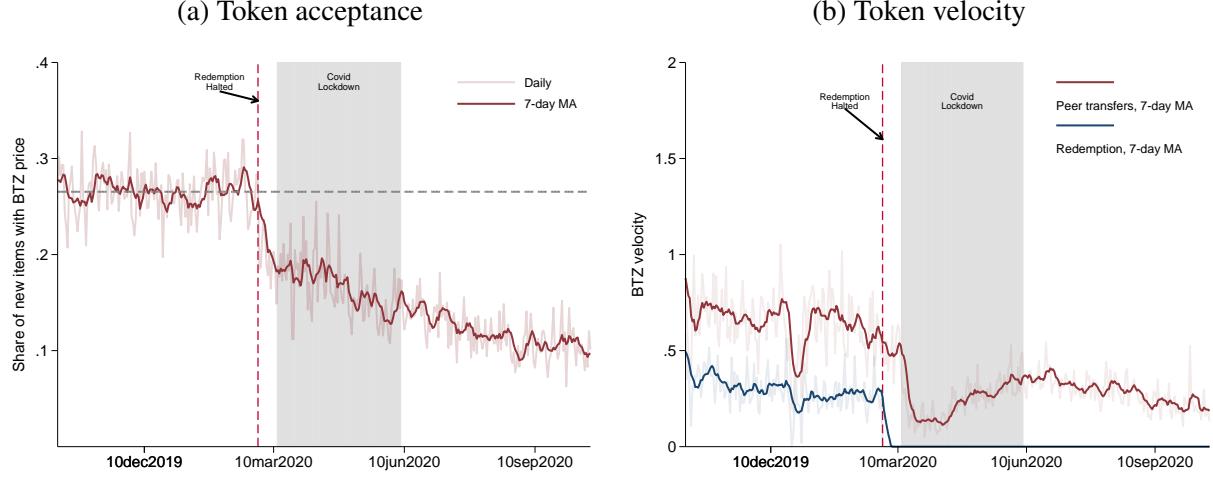
emergency in Ontario and orders business including daycares, bars and restaurants, theatres and private schools to be closed. In late April, Covid-related deaths peaked. In mid-May, relaxation of stringent social distancing rules and business closures very gradually began.

## 6.2 Token Price, Acceptance, and Velocity

I first document the changes in token supply, prices, and acceptance.

**Token supply.** Figure 8 shows that after the redemption halt, BTZ redemption immediately and persistently dropped to zero. Token issuance also immediately, indicating that users were much less likely to answer the “Daily BTZ Drop” surveys or take other actions on the platforms that were rewarded users with tokens.

Figure 9: Token acceptance and velocity, before and after redemption halt



Notes: Figure shows the trend in (a) the share of new items with a posted BTZ price, and (b) BTZ redemption and peer transfer divided by the total BTZ supply. The dark lines show the 7-day moving average, while the light lines show the daily trend. The red dashed line indicates February 28, the day of full cessation of Shop Local program.

**Token price.** Even though redemption was entirely halted, there was no detectable change in the token price despite reduced redeemability. Figure 2 shows that the token price, as computed using gift cards posted on the platform, remained anchored to the exchange rate of the token redemption program. However, the number of gift cards posted quickly dwindled. A few months later, these items became very rare.

**Token acceptance.** The willingness of sellers to accept BTZ immediately fell after redeemability was reduced. As shown in Figure 9, the share of new items with a posted BTZ price hovered around 26 percent during the two months before the halt. After the halt, the share immediately plunged to roughly 17 percent. Thereafter, the share continued to slowly slide downward. By the end of 2020, only about 10 percent of item posts had a BTZ price.

**Token velocity.** Token velocity also fell, but more gradually than the share of posted item with token prices. The sharp drop two weeks after the halting of redemption appears to be driven by Covid lockdowns, and token velocity increased as the lockdown ended, before finally falling again.

Figure 10: Barter and token-mediated transactions, before and after redemption halt

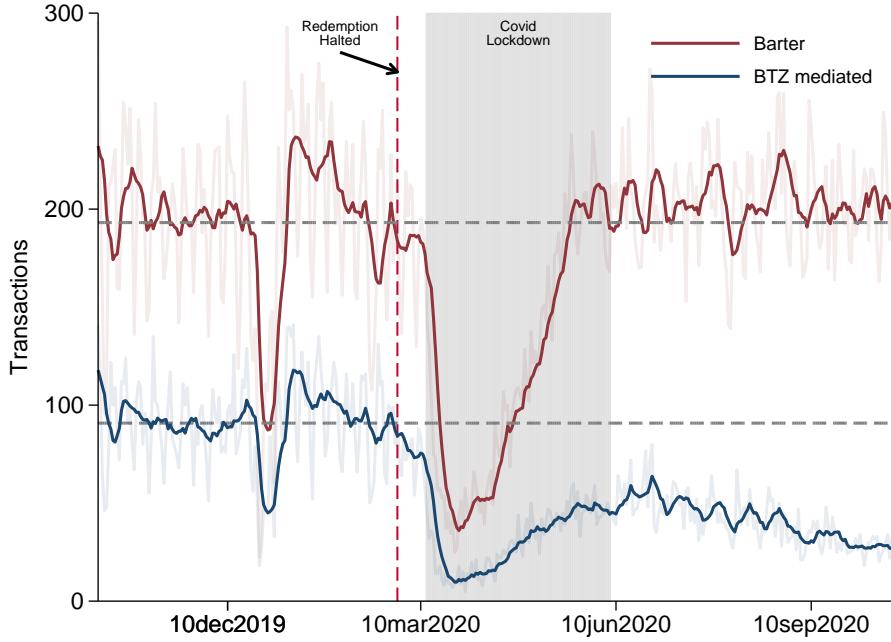


Figure shows the daily trend in the number of peer-to-peer transactions as measured by user reviews, decomposed by whether a token transfer occurred between the same user pair within 7 days. Gray bars indicate the period within covid lockdown. The dark lines show the 7-day moving average, while the light lines show the daily trend. The red dashed line indicates February 28, the day of full cessation of Shop Local program.

### 6.3 Barter and Token-mediated Transactions

Having shown that the redemption halt led to no change in the token price and another large reduction in token acceptance, I next document the trends in transaction volume.

**Token-mediated transactions.** After redemption was halted, token-mediated trade did not immediately decline. This mild response may have been because the halting of redemption was expected to be temporary. The Covid pandemic arrived in Toronto two weeks later, and led trade on the platform to sharply decline. As Covid restrictions lifted in May 2020, there was a return of token-mediated exchange. This occurred even though redemption did not resume. In June, token-mediated exchange was back to roughly two-third of the level prior to the full halting of redemption. This return of token-mediated exchange was not to persist. By July it had already begun to decline again and by the end of 2020 it was less than one-third of the pre-halt level. This gradual decline

Table 3: Percentage change in activity, before and after redemption halt, by user subgroup

	All users (1)	Regular users (2)	Exclude entrants (3)	Exclude leavers (4)
(a) Token acceptance	-57%	-57%	-56%	-56%
(b) Token-mediated transactions	-58%	-57%	-61%	-55%
(c) Barter transactions	5%	5%	-7%	10%
(d) Offer messages	-14%	-13%	-22%	-10%
(e) Transactions per offer message	-1%	-3%	-5%	-2%
Number of users	215271	10790	9074	8134
Pre-event transactions	284	239	178	223

Notes: Tables display the percentage change in weekly (a) the share of new items with a posted BTZ price (b) btz-mediated transactions (c) barter transactions (d) offer messages and (e) transactions per offer message during the 4 months after the halted redemption, compared to the 4 months before. The week spanning Christmas Eve and the period under covid lockdown are excluded from calculation. Regular users are defined as those who have at least 10 transactions during the entire sample period, with a maximum of 70% of transactions concentrated in one month, and have been active users for at least 6 months. The following column includes only users whose first message on the platform was sent more than one year before the event. The final column includes only users whose last message on the platform was sent more than one year after the event.

in token-mediated transactions is consistent with a secular decline in token acceptance throughout this period.<sup>25</sup>

**Barter transactions.** Unlike token-mediated transactions, however, barter transaction volume returned to the same of the level prior to the full halting of redemption, when Covid restrictions lifted in May 2020. This result is striking, since barter volume sharply fell after the initial reduction in redeemability, as documented in Section 5.

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<sup>25</sup>As of June 2021, there was still a steady stream of new items being posted on the platform, but it was exceedingly rare for items to still be posted with a BTZ price. Once while using the app, I encountered a user who was willing to accept BTZ in exchange for a used book. But upon further inquiry, I learned that this was because he had hoped to give the item to someone who could use it, since "BTZ right now has \$0 value."

## 6.4 Margins of Response

To understand the underlying mechanisms, I now investigate the margins of responses, including user entry and exit, new item supply, and offer messages sent. In Table 3, I report the percentage change between pre-halt levels and the level after Covid restriction were lifted.

**User entry.** The number of new users, as well as new regular users, did not appear to significantly drop despite the halt in redemption. This result contrasts with the enormous drop in new users after the first reduction in redeemability. A plausible explanation for this difference is that the final redemption halt was not widely reported, so no reputation to the platform was caused.

**Offers sent and transactions per offer.** The number of offer messages sent on the platform fell by 14% immediately after redeemability reduction. However, transactions per offer message sent did not fall. This finding contrasts with the reduction in transactions per offer after the first reduction in redeemability.

**Goods supply.** The number of new items posted on the platform did not significantly change. This findings also contrasts with the sharp decline in goods supplied after the first reduction in redeemability. This finding once again suggest that the final halt in redemption had little effect on the conduct of barter exchange in the platform.

## 7 Conclusion

This paper presents novel evidence on money and barter from the field by documenting the rise and fall of a redeemable digital currency in a Toronto-based barter economy. Using high-frequency transactions-level data, I analyze how unexpected monetary events affected token prices, token acceptance, the number of barter and token-mediated transactions, and many other dimensions of user activity in the barter economy.

There are five main results. First, token prices did not change despite a large monetary expansion and subsequent reductions in redemption opportunity. Second, monetary expansion led to an increase in token-mediated transactions but not barter transactions. Third, the increase in

transaction volume is primarily driven by later entrants to the platform, and is mostly explained by increased offer message sent rather than transactions per offer message sent. Fourth, reduced redeemability immediately reduced token acceptance and persistently reduced token-mediated transaction volume. Fifth, the first instance of reduced redeemability lead to reduced entry to the platform and reduced barter transactions, but the second instance had no effect on entry or barter.

Many popular classes of monetary models are rejected by these findings. Models where money functions purely as a unit of account (e.g., Calvo 1983; Woodford 2004; Doepke and Schneider 2017) cannot explain the evidence, since they feature no role for redemption and do not distinguish between barter and money-mediated transactions. For example, Doepke and Schneider (2017) show that using a dominant unit of account can lower exposure to relative price risk in long-term contracting. However, this role of money as a unit of account plays no role in the Bunz exchange economy, where long-term contracts are not observed.

Models with crude representations of transaction frictions, such as money-in-the-utility or cash-in-advance models, also have difficulty explaining our findings. When prices are sticky, these models predict that monetary expansion increases consumption. However, they do not distinguish between barter and monetized transactions, nor they feature any role for redemption.

Models of money in competitive but incomplete markets offer stronger microfoundations but fare no better in explaining our findings. These models emphasize the role of money either as an inter-generational store of value (Samuelson 1958; Tirole 1985), in overcoming spatial separation (Townsend 1980), in overcoming limited commitment (Kiyotaki and Moore 2002), or in overcoming private information (Banerjee and Maskin 1996). Each of these models features a double-coincidence problem. Therefore, with rigid nominal prices, monetary expansion increases consumption in these models. However, their assumption of Walrasian sub-markets does not fit the Bunz setting, where users engage in frictional bilateral exchange. Furthermore, for most of these models, there is no obvious way to incorporate redemption.<sup>26</sup> They also have no predictions about the number and nature of transactions.

New monetarist models that feature efficient bargaining and Walrasian price determination (e.g., Shi 1997; Lagos and Wright 2005; Rocheteau and Wright 2005; Menzio, Shi and Sun 2013

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<sup>26</sup>Two exceptions are Townsend and Wallace (1987) and Kiyotaki and Moore (2002), who model circulating private debt in Walrasian wherein redemption is assumed.

also cannot explain the evidence. These models typically feature transfers within families or a periodic centralized market, as well as divisible goods, so that money holdings are degenerate, prices are flexible, and monetary expansion causes inflation and does not affect the number of transactions. However, these predictions are rejected by the data. There is no centralized exchange in the Bunz economy. Furthermore, the BTZ token is redeemable at an inflexible exchange rate for a small set of indivisible goods, and as shown above, the posted BTZ price remains anchored, while the number of transactions does not. The lack of inflation and changes in acceptability in data instead suggest significant price coordination frictions that are absent from these models.

[Williamson and Wright \(1994\)](#) show that bilateral uncertainty concerning the quality of commodities can generate a useful role for money in a search-and-matching model even without the problem of double coincidence.<sup>27</sup> However, this channel is unlikely to drive our main results for two reasons. First, the existence of a reputation system reduces the need to overcome private information. Second, bilateral uncertainty was likely limited even before the digital token was introduced, since standardized commodities, such as branded beers and transit tokens, were used as means of payment in a large fraction of transactions.

The findings are instead most consistent with an extended [Kiyotaki-Wright \(1993\)](#) model wherein the possibility of redemption eliminates non-monetary equilibria. In this class of models, money functions as medium of exchange and monetary equilibria exhibit real indeterminacy due to price adjustment frictions. Therefore, monetary expansion can persistently increase the number of transactions and a reduction in redemption can significantly reduce money acceptance and transaction volume (see also [Green and Zhou 1998](#); [Kamiya and Shimizu 2011](#)).

To explain the observed patterns, it is necessary to further extend the basic [Kiyotaki-Wright \(1993\)](#) model to incorporate user heterogeneity and partial acceptance, endogenous entry, endogenous search effort, endogenous supply of goods, as well as endogenous redemption decisions, as discussed in Section 3. The [Kiyotaki-Wright \(1993\)](#) model also assumes that money is *indivisible*. Although a model of indivisible money suffices to illustrate how money supply and redeemability affect the number of transactions when prices are rigid, as is the case in the Bunz economy, it comes at some expense of realism. Devising and analyzing a more realistic model with divisible

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<sup>27</sup>This model generates similar predictions as the model above, but additionally predicts that the quality of goods should improve with monetary expansion.

and redeemable money as well as partial acceptability and price rigidity is left for future work.

Even an extended [Kiyotaki-Wright \(1993\)](#) model, however, has difficulty explaining some aspects of our findings. The effect of reduced redemption was not the mirror image of its monetary expansion. While monetary expansion increased token-mediated trade without increasing barter, the first reduction in redeemability reduced both barter and token-mediated trade. This finding suggests the presence of relational contracts underpinning the currency system. Therefore, mistrust of the platform and reputational damage unleashed by redemption reduction had broader negative effects on the Bunz economy beyond harming monetized exchange. This finding adds to recent literature emphasizing the importance of trust in the proper operation of monetary systems ([Graeber 2011](#); [Schnabel and Shin 2018](#); [Borio 2019](#)).

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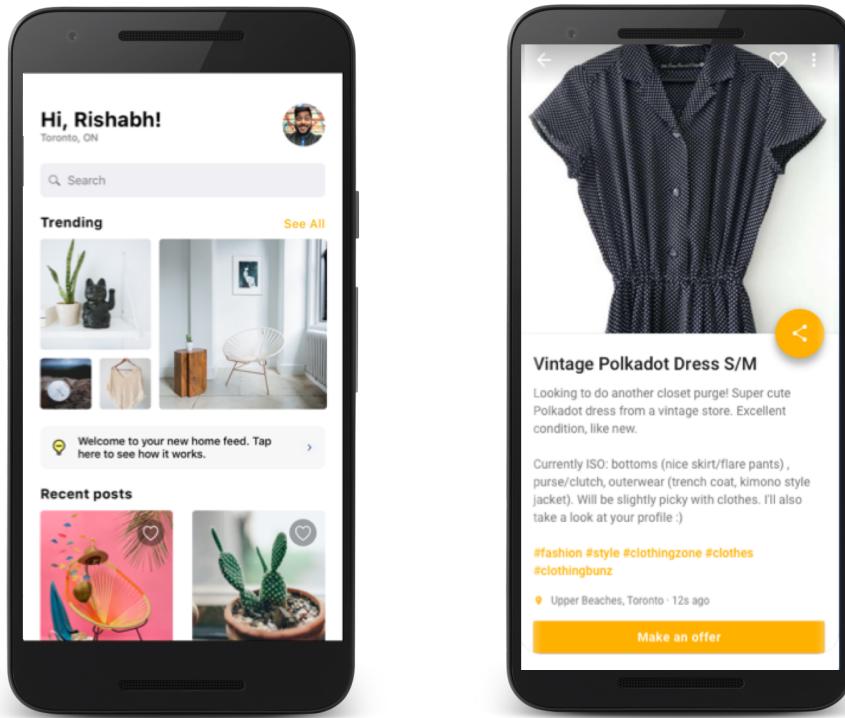
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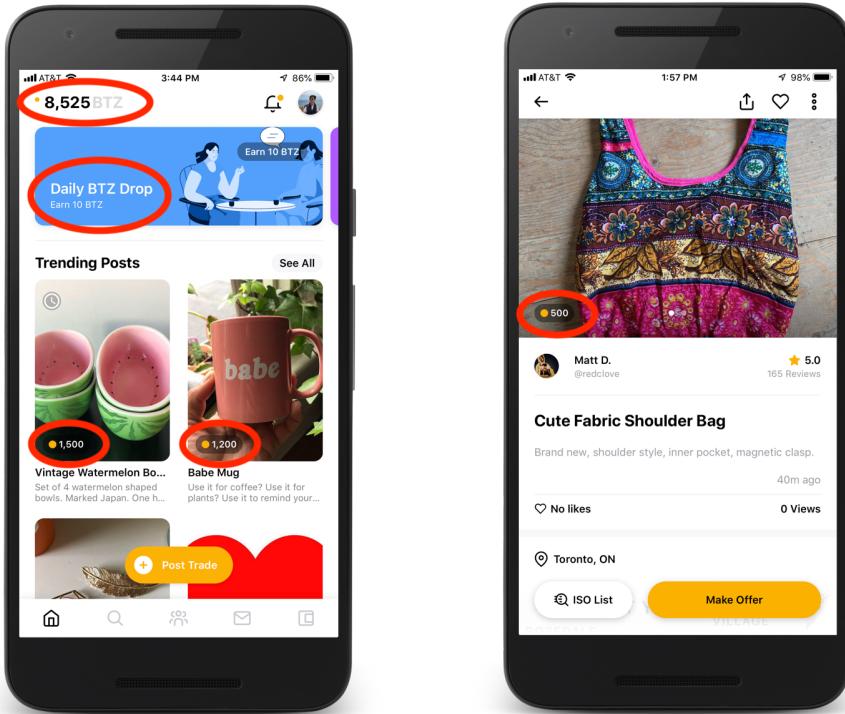
## A Additional Tables and Figures

Figure A1: App interface before BTZ introduction



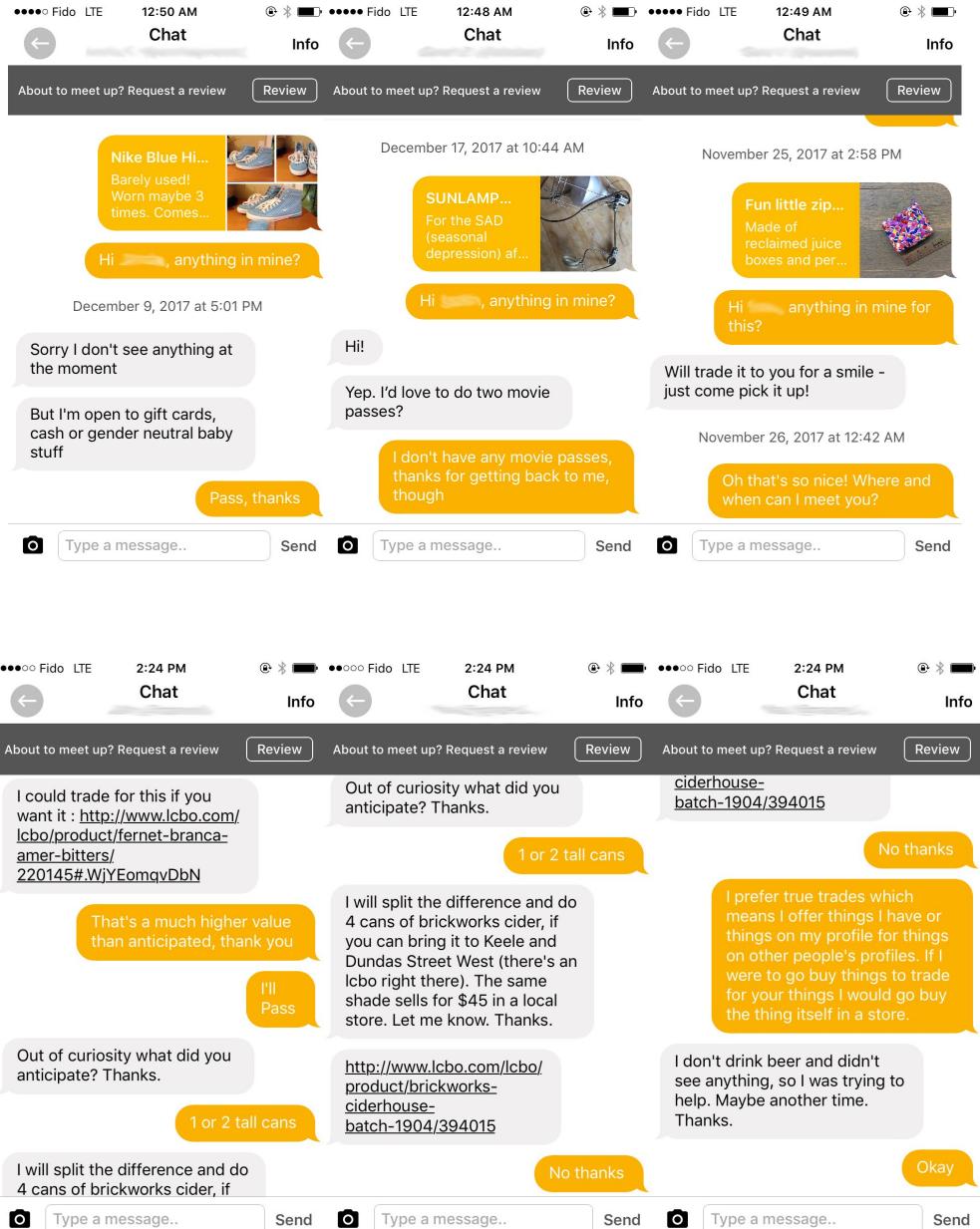
Source: Figure is from an official blog post by Bunz, published on September 1, 2017, available at <https://blog.bunz.com/back-to-bunz-basics-dbcef3810c8e>.

Figure A2: App interface after BTZ introduction



Source: Figure is taken by the author on June 18, 2019, with red circles added. These images are taken from a blog post from Bunz. More information about the app's early days is available at: <https://rishabh.ca/work/bunz>

Figure A3: Examples of in-app interactions



Source: Article from a weekly local free newspaper providing tips for Bunz traders, published on December 28, 2017 (Kaur 2017).

Figure A4: Illustration of token and goods flow in the Bunz economy

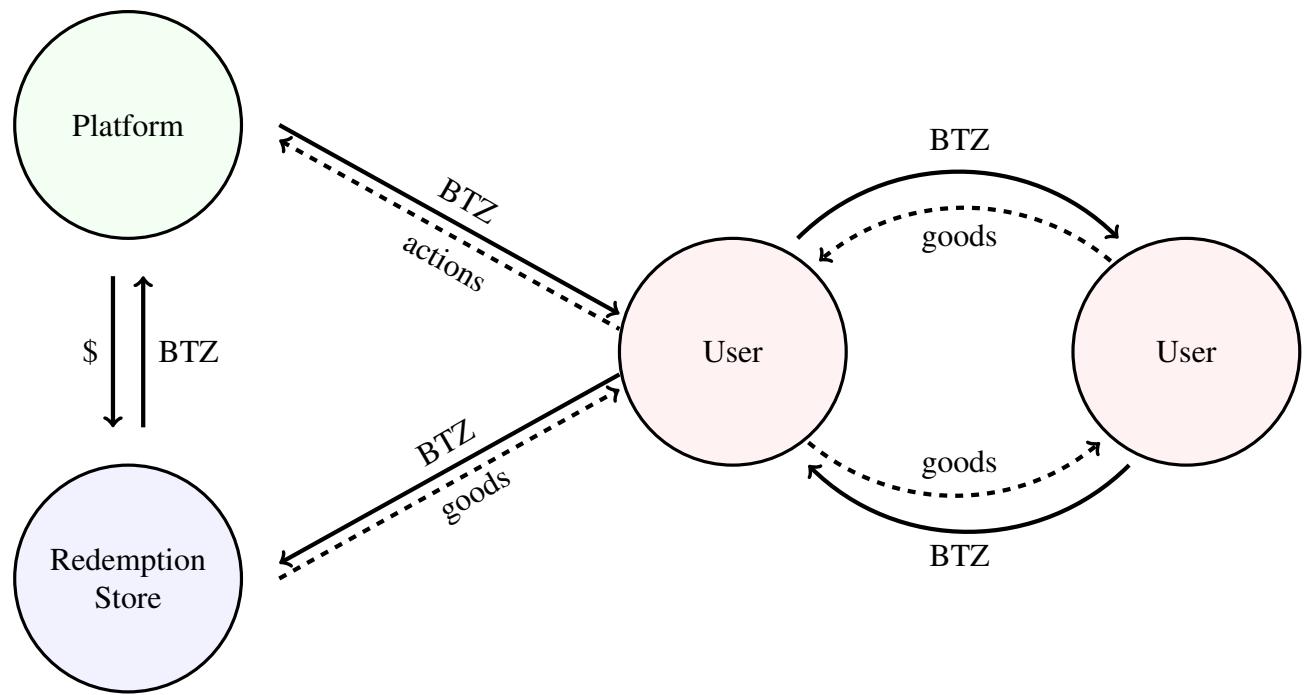
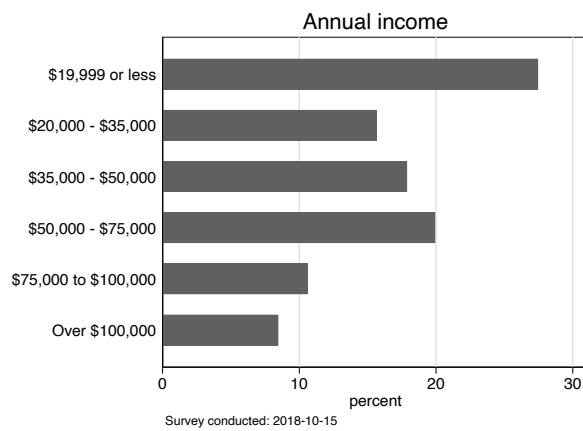
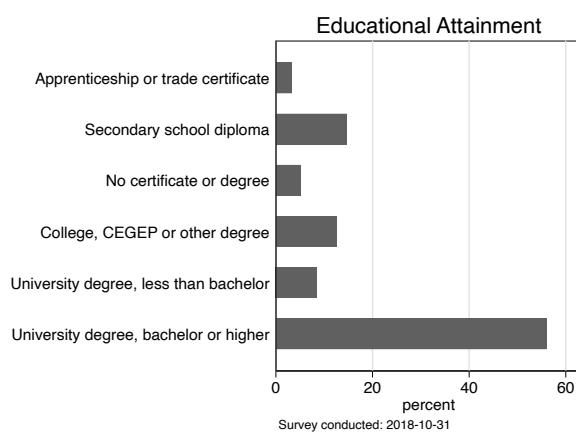
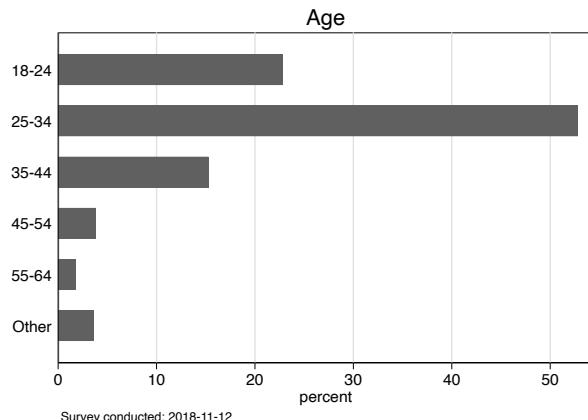
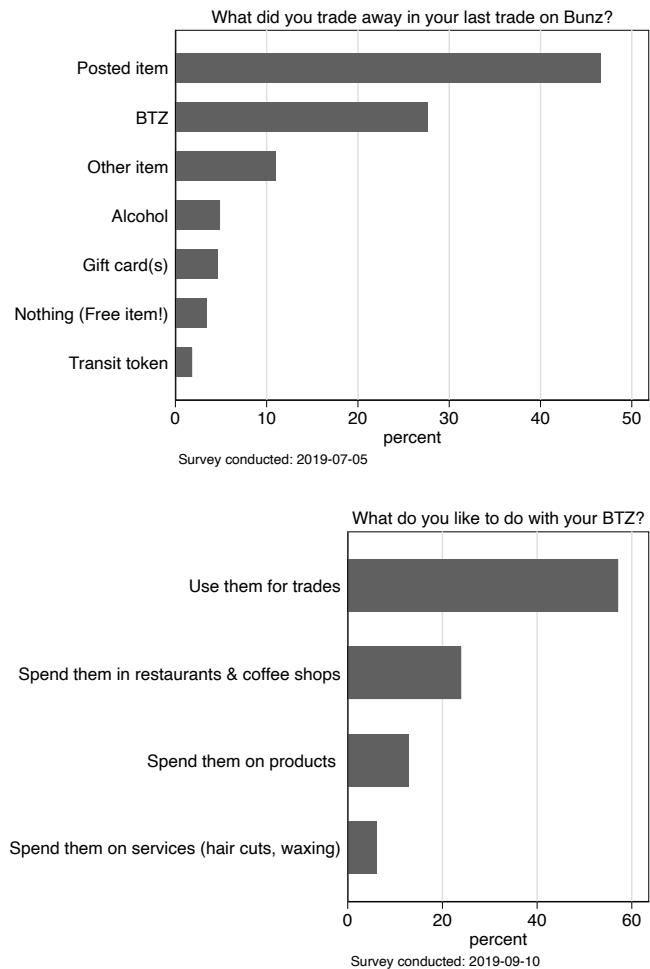


Figure A5: User demographics: Survey responses



Source: User response from BTZ drop survey.

Figure A6: BTZ usage: Survey responses



Source: User response from BTZ drop survey. Users who report having never traded are excluded from Panel (a)..

Table A1: Summary statistics, item posted, by category

Category	Items (% of total) (1)	Share with BTZ price (2)	BTZ price (CAD)		
			p10 (3)	p50 (4)	p90 (5)
Clothing (uncategorized)	11.0%	38.8%	3	10	40
Jewelry	9.9%	37.1%	2	9	40
Home	9.5%	33.3%	2	10	40
Women's clothing	9.4%	39.7%	4	10	40
Grocery	5.7%	33.2%	1.5	6.5	25
Beauty	4.2%	39.1%	2	9.5	32
Electronics	3.4%	34.7%	2	11	85
Books	3.3%	31.0%	1.5	5	20
Health	3.3%	35.8%	1.5	6	25
Footwear	3.0%	36.3%	4.5	15	60
Toys and baby	2.4%	36.7%	2	8.5	30
Art/handmade	2.1%	37.4%	2	10	50
Plants	1.9%	37.6%	2.5	8	25
Music	1.3%	34.6%	2	10	50
Men's clothing	0.8%	38.6%	4	15	60
Movies	0.6%	35.2%	1	5	25
Gift cards	0.6%	21.9%	7.5	28.8	100
Video games	0.6%	34.0%	4	15	90
Pets	0.5%	32.7%	2	8	35
Uncategorized	26.5%	31.9%	1.5	8	40
Total Items	1129440				

Notes: This table displays all items posted by users on the Bunz platform between September 1, 2018 and August 31, 2019. All BTZ numbers are denominated in the Canadian dollar (CAD) at the fixed exchange rate: 1 CAD = 100 BTZ.

Table A2: Total monthly activity, all and regular users

	All users (1)	Regular users (2)	Percentage (3)
Transactions	12202	10129	83%
Barter transactions	7525	6163	81.9%
Token-mediated transactions	4676	3966	84.8%
Items posted	95212	66728	70.1%
Token acceptance	.35	.38	
Offer messages sent	175521	134676	76.7%
Offer messages received	175655	115674	65.9%
<hr/>			
BTZ flows			
Issuance	150260	50908	33.9%
Redemption	72004	37354	51.9%
Transfer from peer	143955	102665	71.3%
Transfer to peer	143955	98035	68.1%
<hr/>			
BTZ volume per flow			
Issuance	.32	.24	
Redemption	17.18	21.77	
Transfer from peer	15.1	14.76	
Transfer to peer	15.1	15.5	
<hr/>			
Number of users	120737	9652	8%

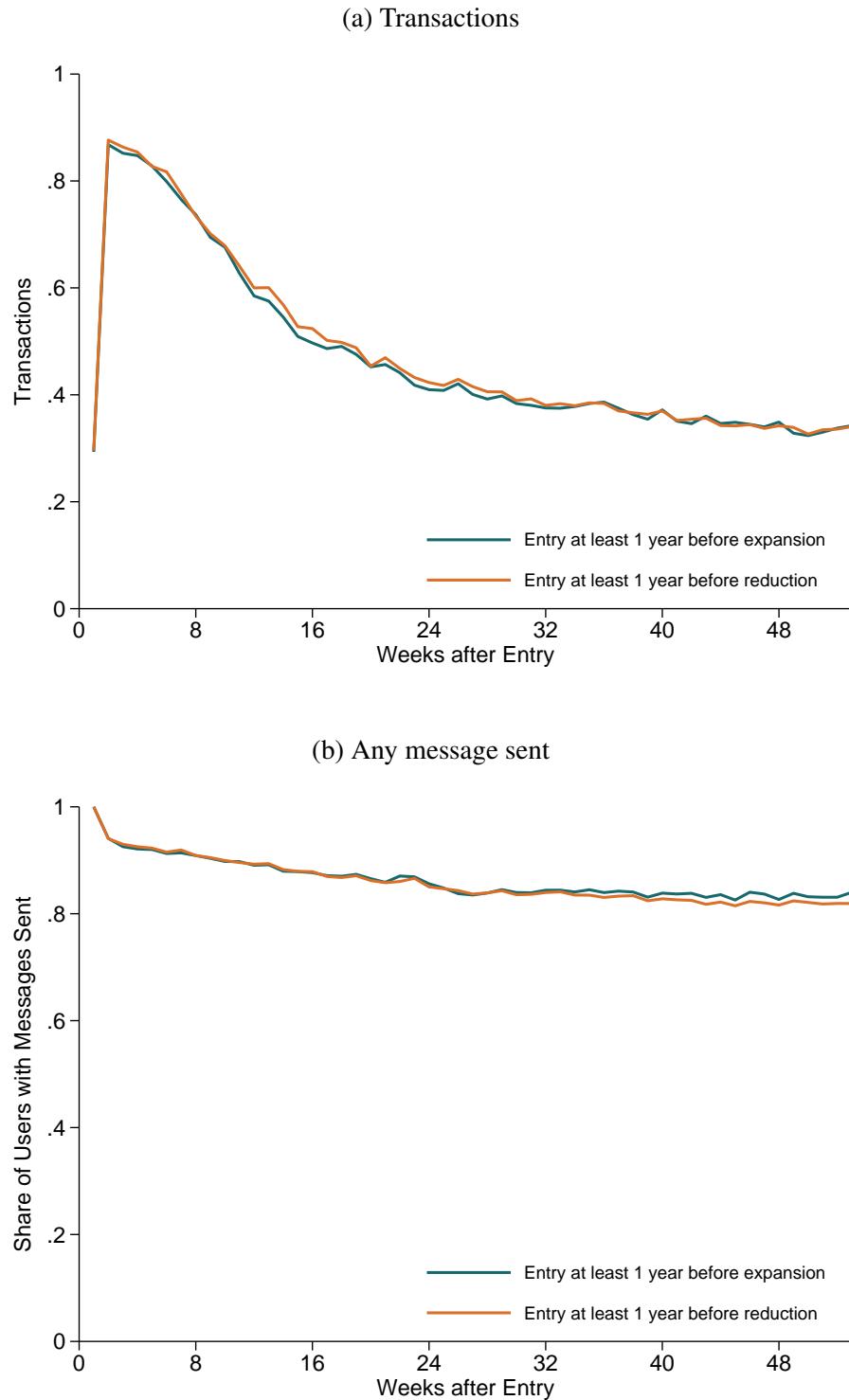
Notes: This table displays total monthly activity, averaged between September 2018 and August 2019, for all and regular users. All BTZ numbers are denominated in the Canadian dollar (CAD) at the fixed exchange rate: 1 CAD = 100 BTZ. Regular users are defined as those who have at least 10 transactions during the entire sample period, with a maximum of 70% of transactions concentrated in one month, and have been active users for at least 6 months.

Table A3: Summary statistics: regular users, decomposed by user life-time transaction volumes

	10-49 (1)	50-99 (2)	100-199 (3)	200+ (4)
Barter share of transactions	.61	.6	.6	.6
Token-mediated share of transactions	.39	.4	.4	.4
Items posted per transaction	7.09	6.24	5.92	5.08
Token acceptance	.37	.41	.43	.4
Offer messages sent per transaction	13.05	11.85	13.67	12.89
Offer messages received per transaction	12.2	10.55	9.59	7.25
Number of BTZ flows per transaction				
Issuance	5.84	4.27	3.41	2.2
Redemption	4.26	3.24	3.46	1.97
Transfer from peer	10.86	9.73	10.82	8.32
Transfer to peer	10.34	9.02	10.06	8.08
BTZ volume per flow				
Issuance	.23	.24	.25	.24
Redemption	20.78	22.07	29.51	21.13
Transfer from peer	14.51	14.34	15.97	15.59
Transfer to peer	15.73	14.73	16.64	15.09
Number of users	3686	1192	520	167

Notes: This table displays the average of different activity volumes between September 2018 and August 2019 for regular users separately grouped by their lifetime transactions as measured by total ratings received between 13jan2016 and 19nov2021. All BTZ numbers are denominated in the Canadian dollar (CAD) at the fixed exchange rate: 1 CAD = 100 BTZ. Regular users are defined as those who have at least 10 transactions during the entire sample period, with a maximum of 70% of transactions concentrated in one month, and have been active users for at least 6 months.

Figure A7: User activeness, by week after entry



Notes: Figure shows the weekly trend after entries for users who entered at least 1 year before expansion/reduction in (a) total transactions per week and (b) share of users with messages sent.

Figure A8: Illustration of state transitions in conceptual framework

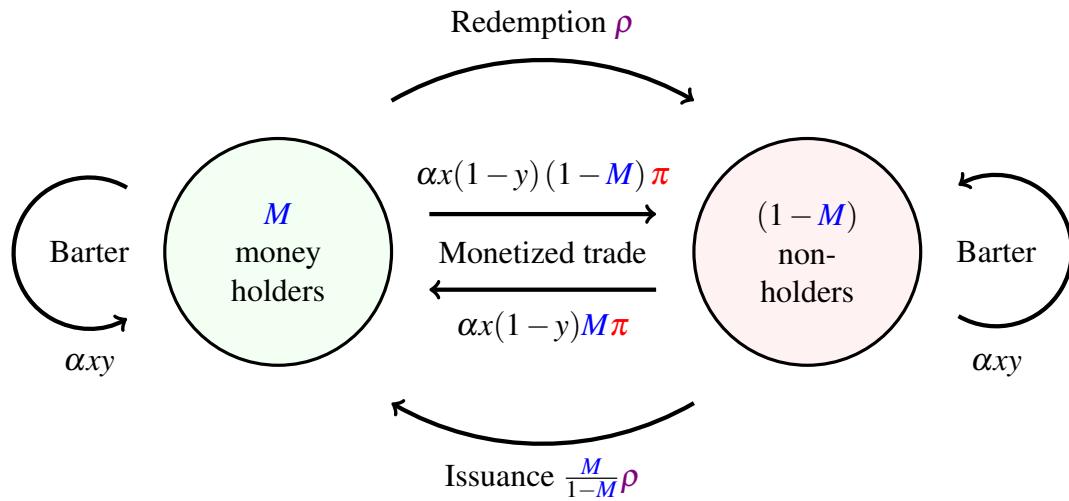
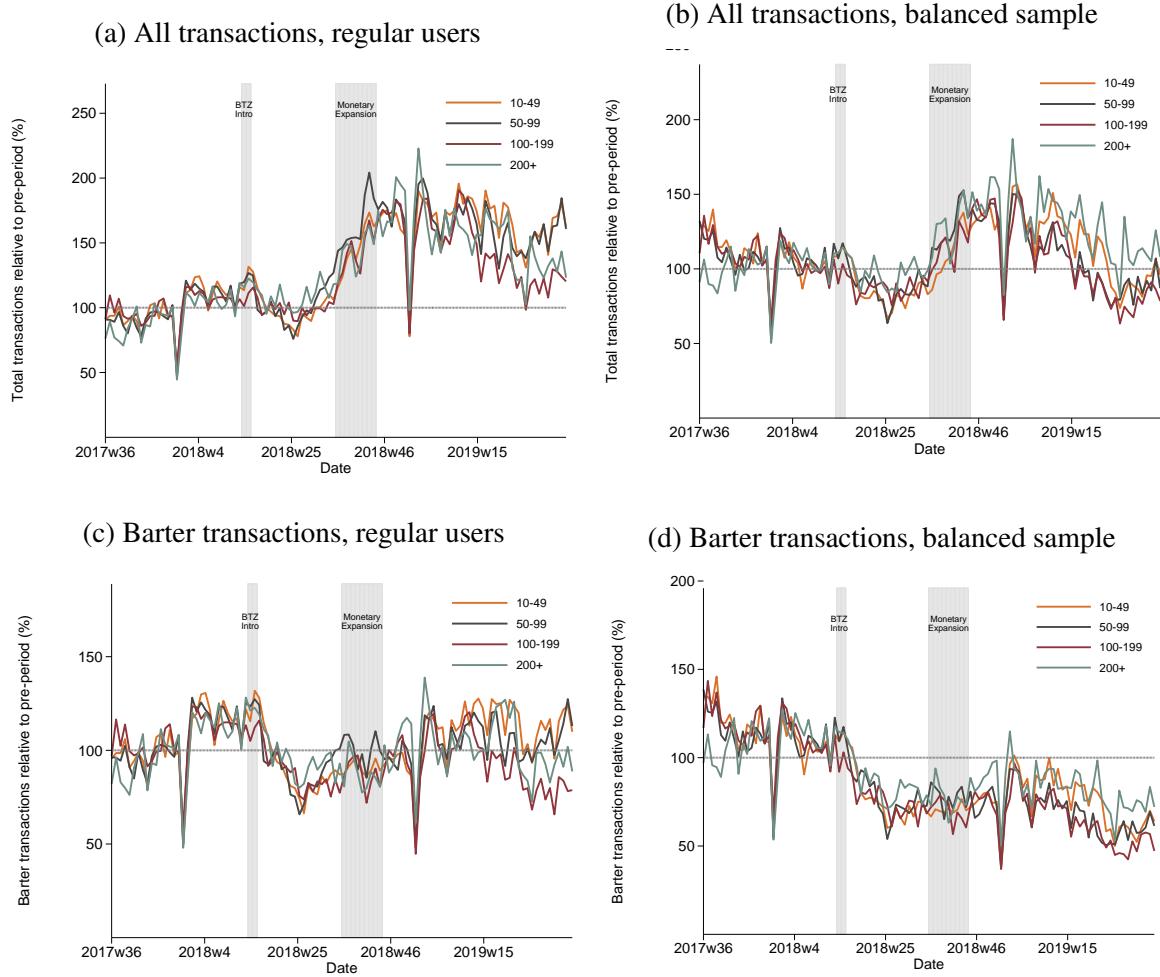
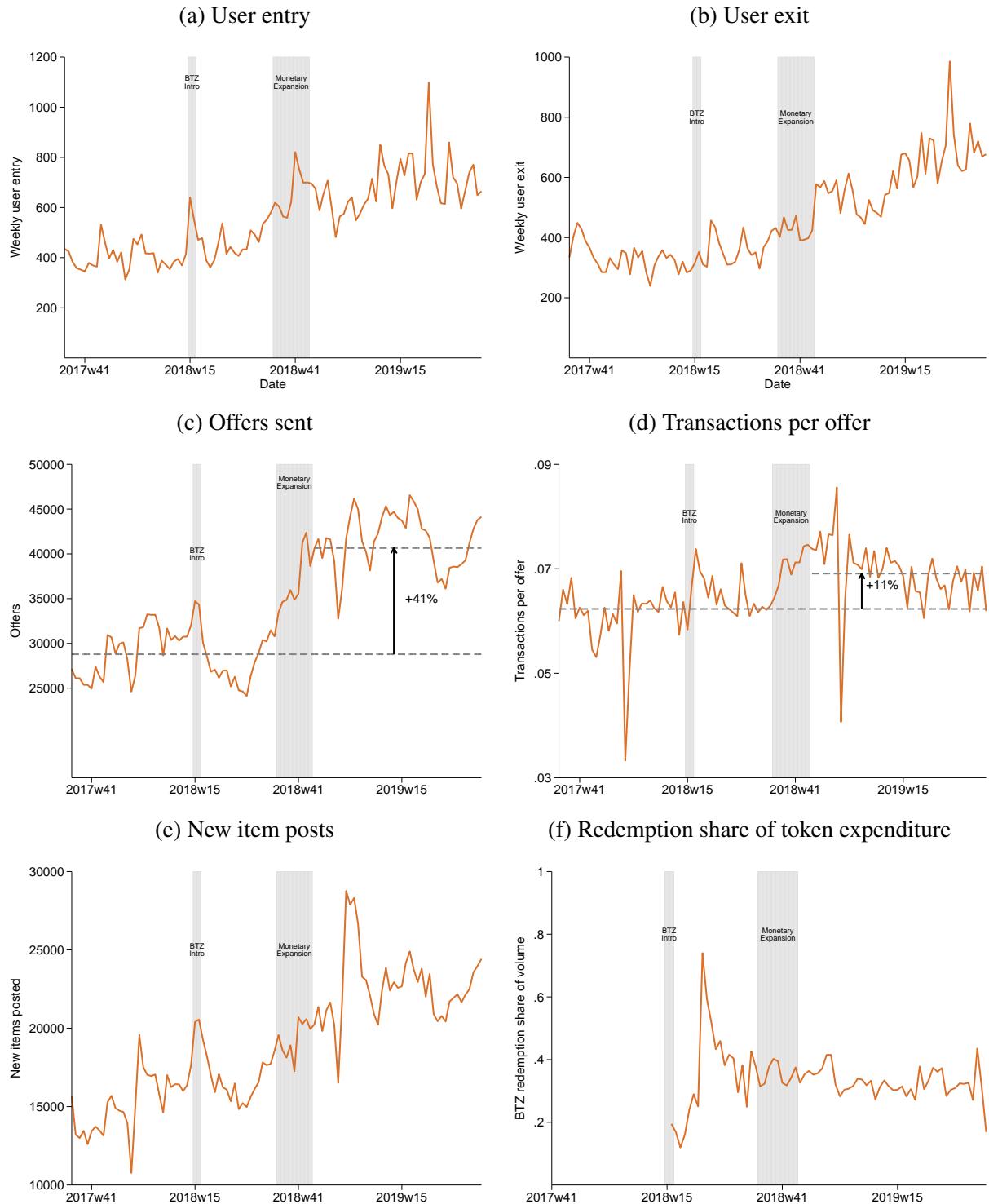


Figure A9: Barter and token-mediated transactions, before and after monetary expansion, by user lifetime transaction volume



Notes: This set of figures shows the effect of monetary expansion on total transactions and barter transactions of regular users and regular users whose first message on the platform was sent less than one year before the event and last message on the platform was sent less than one year after the event, separately for users grouped by their lifetime transactions as measured by total ratings received between 13jan2016 and 19nov2021. All values are normalized based on the average value during the year before the event. Regular users are defined as those who have at least 10 transactions during the entire sample period, with a maximum of 70% of transactions concentrated in one month, and have been active users for at least 6 months.

Figure A10: Margins of response, before and after monetary expansion



Notes: Figure shows the weekly trend in (a) the number of new entries counted by the first message sent by users (b) exits counted by one month after the last message sent by users (c) offers messages sent (d) transactions per offer message. (e) items posted on the platform (f) share of token expenditure used for redemption. Gray bars indicate the first and second wave of monetary expansion.

Figure A11: Letter to Shop Local Partners (September 9, 2019)

Dear Makers and Shop Local Businesses –

I send this email with a heavy heart, as we could not have become the platform we are without the love and support from each and every single one of you.

After a deep dive into our company priorities, Bunz will only be running the Shop Local Program revolving around food and coffee, as this is where our focus will be moving forward.

**Effective immediately, you will no longer be able to accept BTZ and convert them into CAD currency.**

We will be locking your wallets, and everyone will be paid up to September 10<sup>th</sup> inclusive, so please don't worry about any revenue that you brought in through the program as we will be settling your account with you and removing you from the application.

If you have any questions or concerns, please don't hesitate to reach out. I will be by within the week to come and collect the Bunz assets in your possession, so please do not throw them away!

Notes: Email from Bunz to Shop Local partners announcing immediate cessation of token redemption except for coffee shops and restaurants. Taken from item post by Alisa Yao on September 10, 2019.

Figure A12: Response to Scaling Back of Shop Local program



Brieanne K.  
@briebrie

5.0  
774 Reviews

## I'm Finding It Hard To Trade With Btz

I will go through anyone's profile that likes this post and hopefully we can set up a trade😊👉

305	95	5.0
Followers	Following	1,894 Reviews

**About Nathan N.** Joined November 2015

NOTE: I'm paused on BTZ for now, until we get some stability. (if I have a pending BTZ trade with you I'll honour that).

ISO: FUN! I trade a lot of used books :) Tokens and stamps are easiest for me to accept, but I'll listen to trade suggestions & FOOD/yumminess.

**About Alisa Yao** Comments(35) Likes(24)

---



Alisa Yao @alisayao 5.0 (98 reviews)

✗ NO LONGER ACCEPT BTZ. SEE POST BELOW ✗

Eco-friendly products for your zero-waste journey, made using local rescued materials. [www.alisayao.etsy.com](http://www.alisayao.etsy.com)

IN-PERSON (see my main acc @aymyao for ISO list)

- Oct 5-6 @ Eastside Flea (11-5)
- Oct 19 @ New West River Market (11-4)
- Coquitlam Town Cent... [Read more](#)

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507

27

5.0

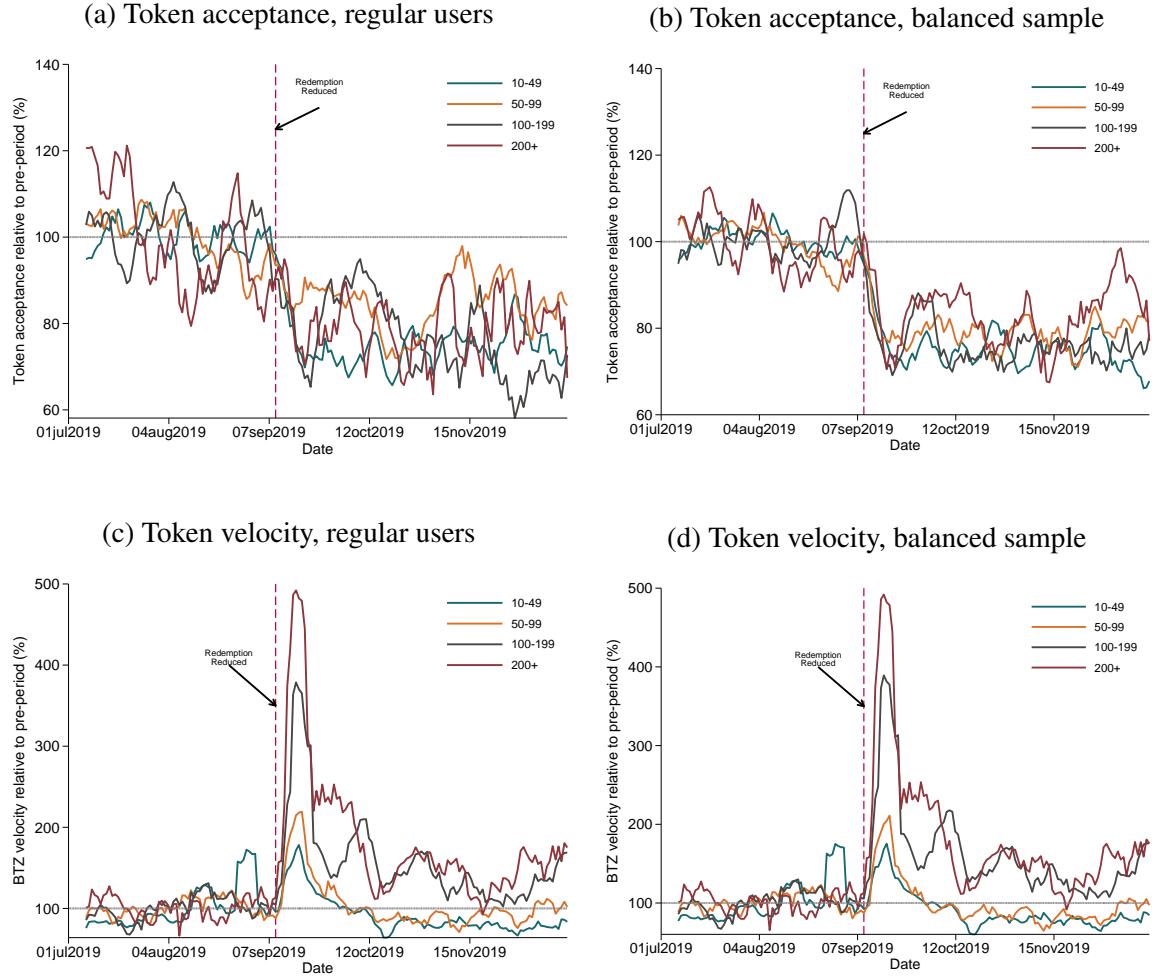
Followers Following 1,406 Reviews

**About Nathan C.** Joined June 2016

I don't accept BTZ anymore due to uncertainty. I believe BTZ & BUNZ will cease to exist shortly. Educate yourself on the risk.

Notes: Item posts and user profiles after partial cessation of Shop Local program on September 10, captured by author on September 23, 2019.

Figure A13: Token acceptance, before and after reduced redeemability, by user lifetime transaction volume



Notes: This set of figures shows the effect of reduced redeemability on share of items posted with btz price and BTZ redemption plus peer transfer divided by the total BTZ holdings of regular users and regular users whose first message on the platform was sent less than 5 months before the event and last message on the platform was sent less than 5 months after the event, separately for users grouped by their lifetime transactions as measured by total ratings received between 13jan2016 and 19nov2021. All values are normalized based on the average value of the 2 months before the event. Regular users are defined as those who have at least 10 transactions during the entire sample period, with a maximum of 70% of transactions concentrated in one month, and have been active users for at least 6 months.

Figure A14: Transactions, before and after reduced redeemability, by user lifetime transaction volume

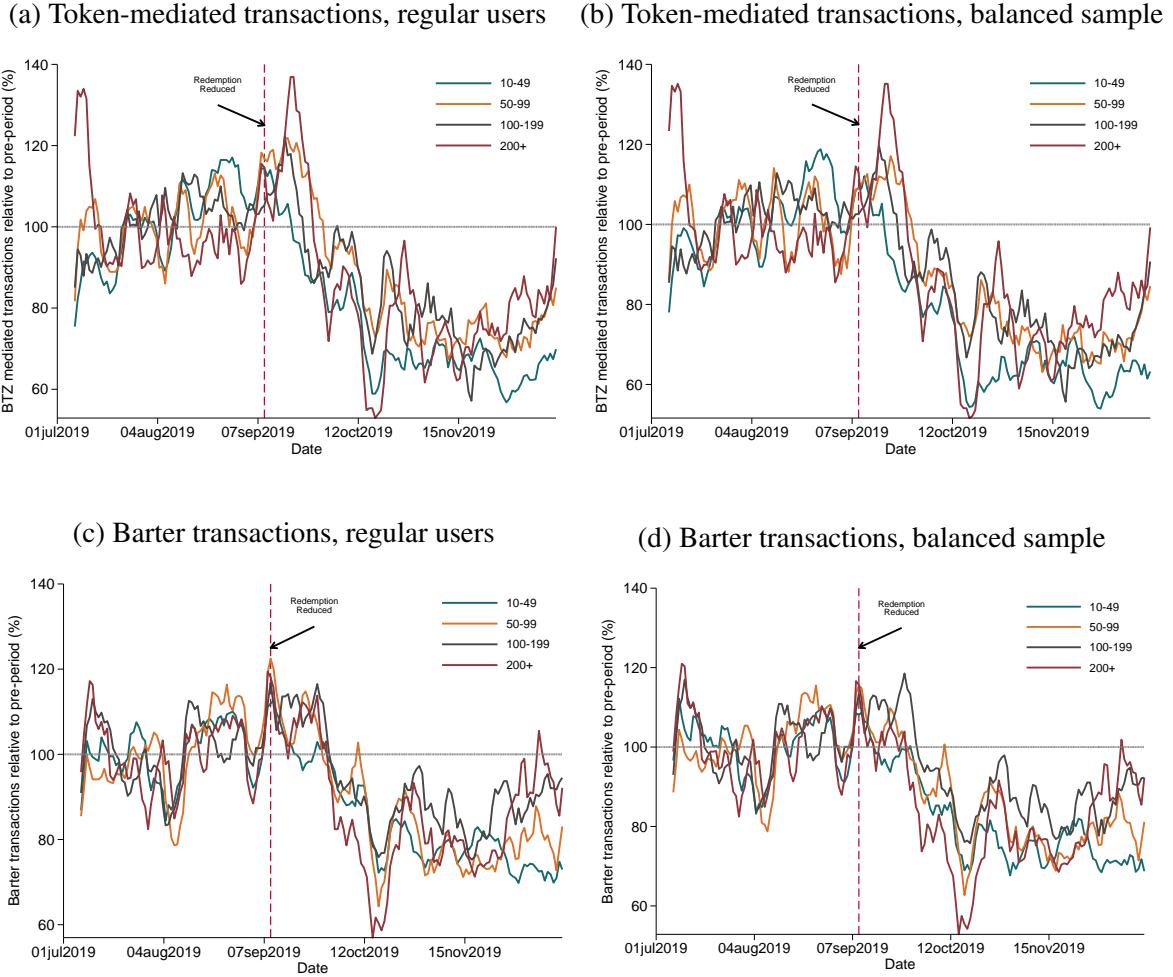
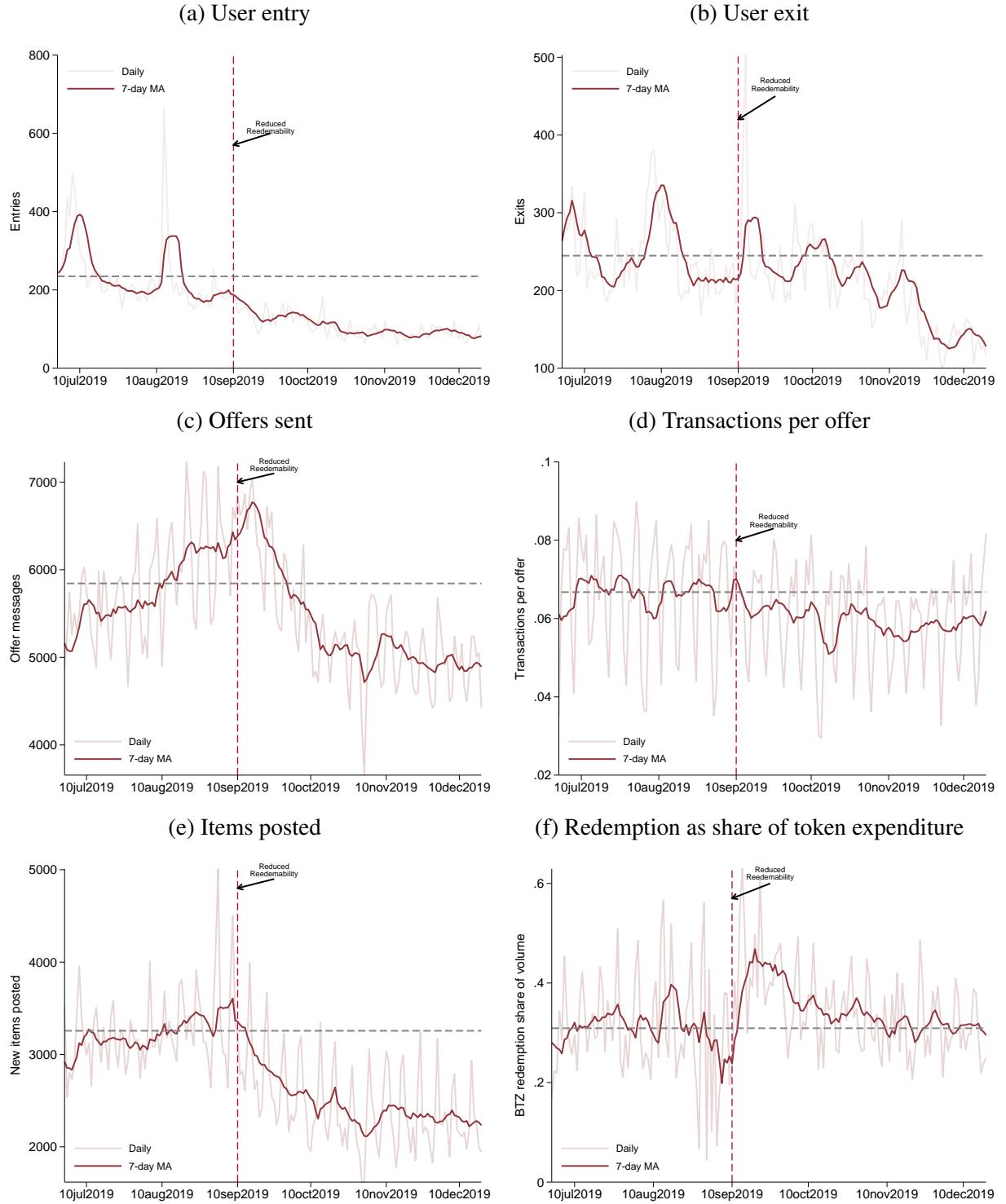


Figure A15: Margins of response, before and after reduced redeemability



Notes: Figure shows the trend in (a) entries counted by the first message sent by users (b) exits counted by one month after the last message sent by users the offer messages (c) offer messages (d) transactions per offer message (e) new items posted in the app (f) share of token expenditure used for redemption. The dark lines show the 7-day moving average, while the light lines show the daily trend. The red dashed line indicates February 28, the day of final cessation of Shop Local program.

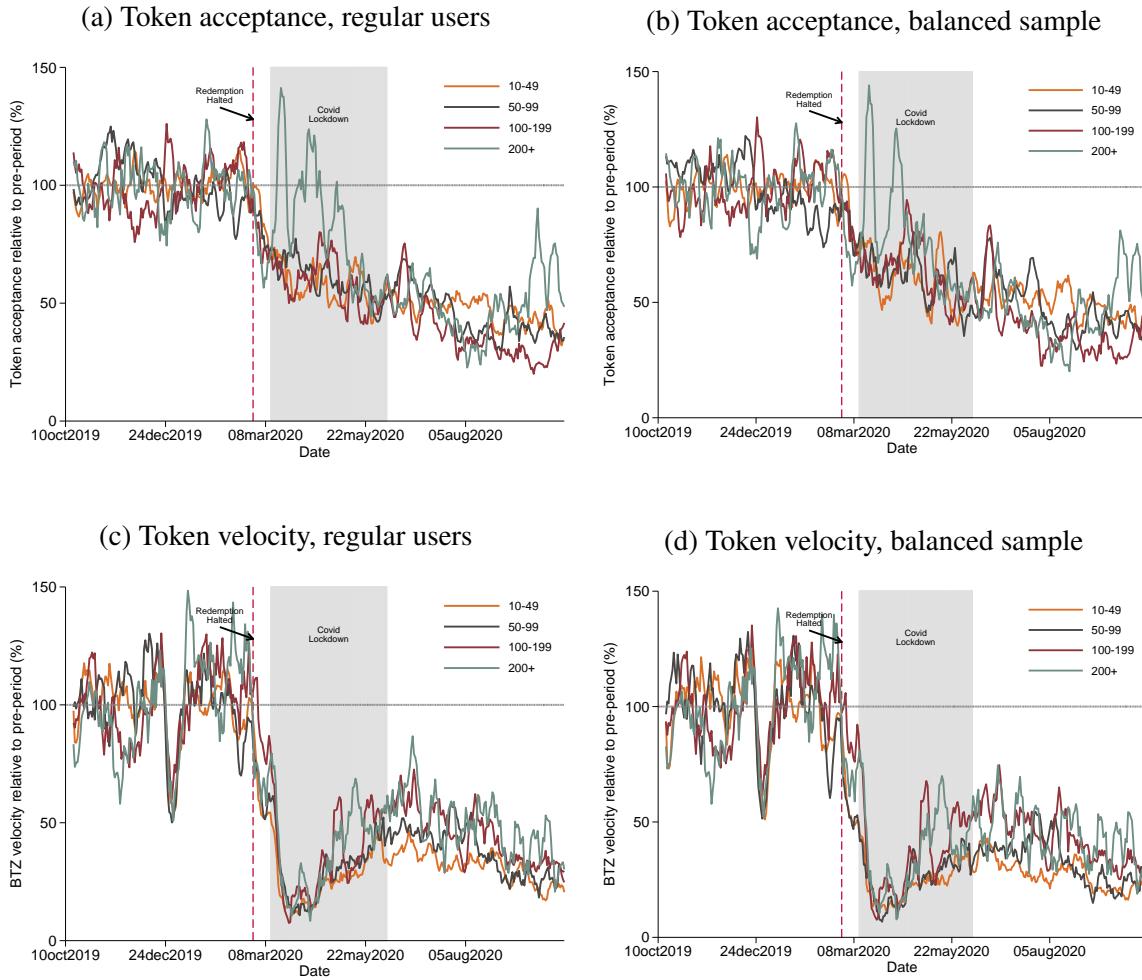
Figure A16: Bunz announcement (February 28, 2020)

## **BTZ Shop Local Redemption - Gaming Update**

Please note that as of today, we will be temporarily pausing the Shop Local Program. An internal audit and review has been conducted of the BTZ rewards program and the Shop Local program, and despite many people using the program properly, several critical issues were flagged around the gaming of BTZ rewards. Our engineering team will be implementing additional checks and controls, which we will communicate out once those controls are in place. Any shops that participate in our Shop Local program will be paid up in full for any amounts owed up to the pause, and we will communicate with both the Shops and with the community once the protective changes are in place and the pause is lifted. We apologize for the short notice, and we appreciate your patience while we work. -Bunz

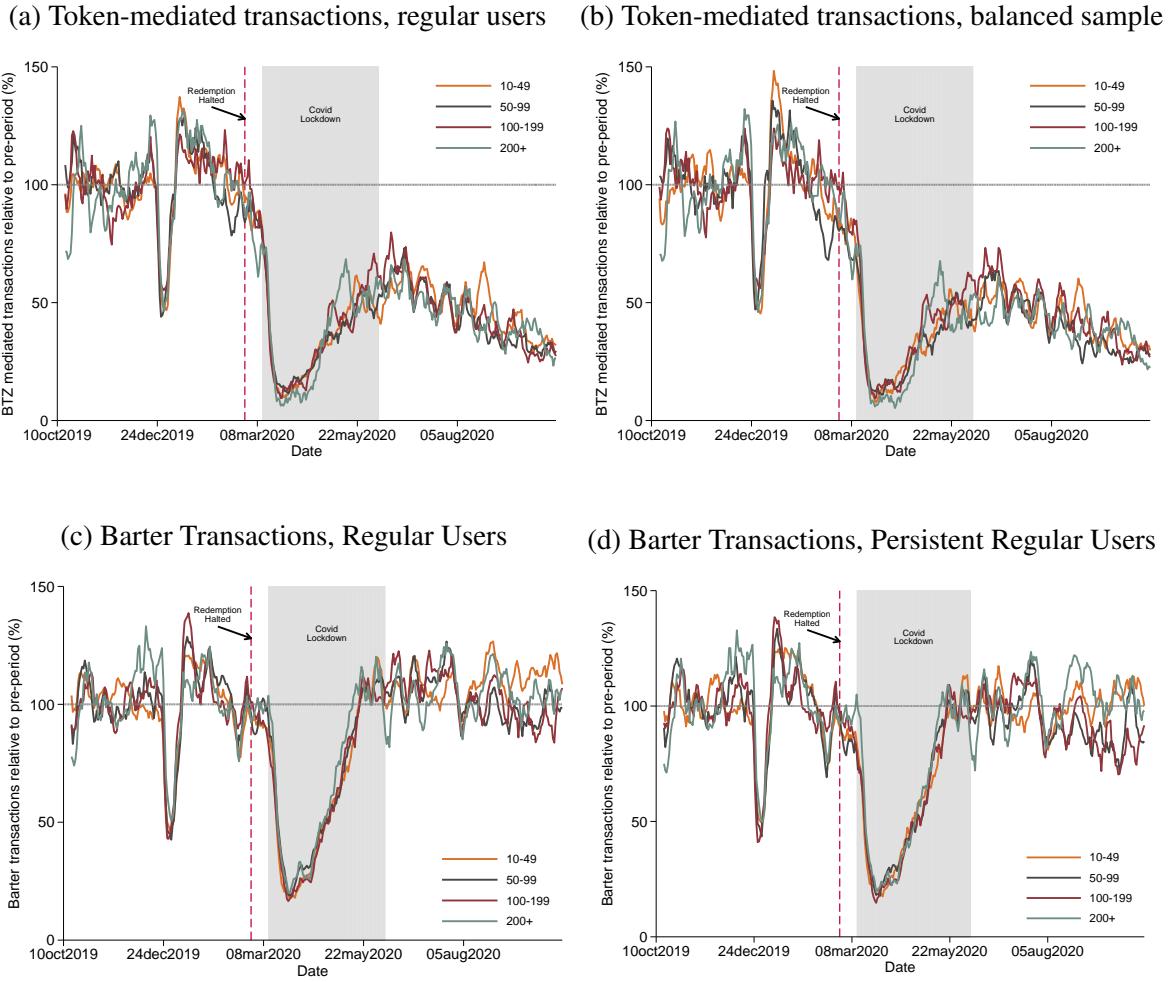
Notes: Public Announcement by Bunz HQ in the Bunz website and app on February 28, 2020.

Figure A17: Token acceptance and velocity, before and after redemption halt, by user lifetime transaction volume



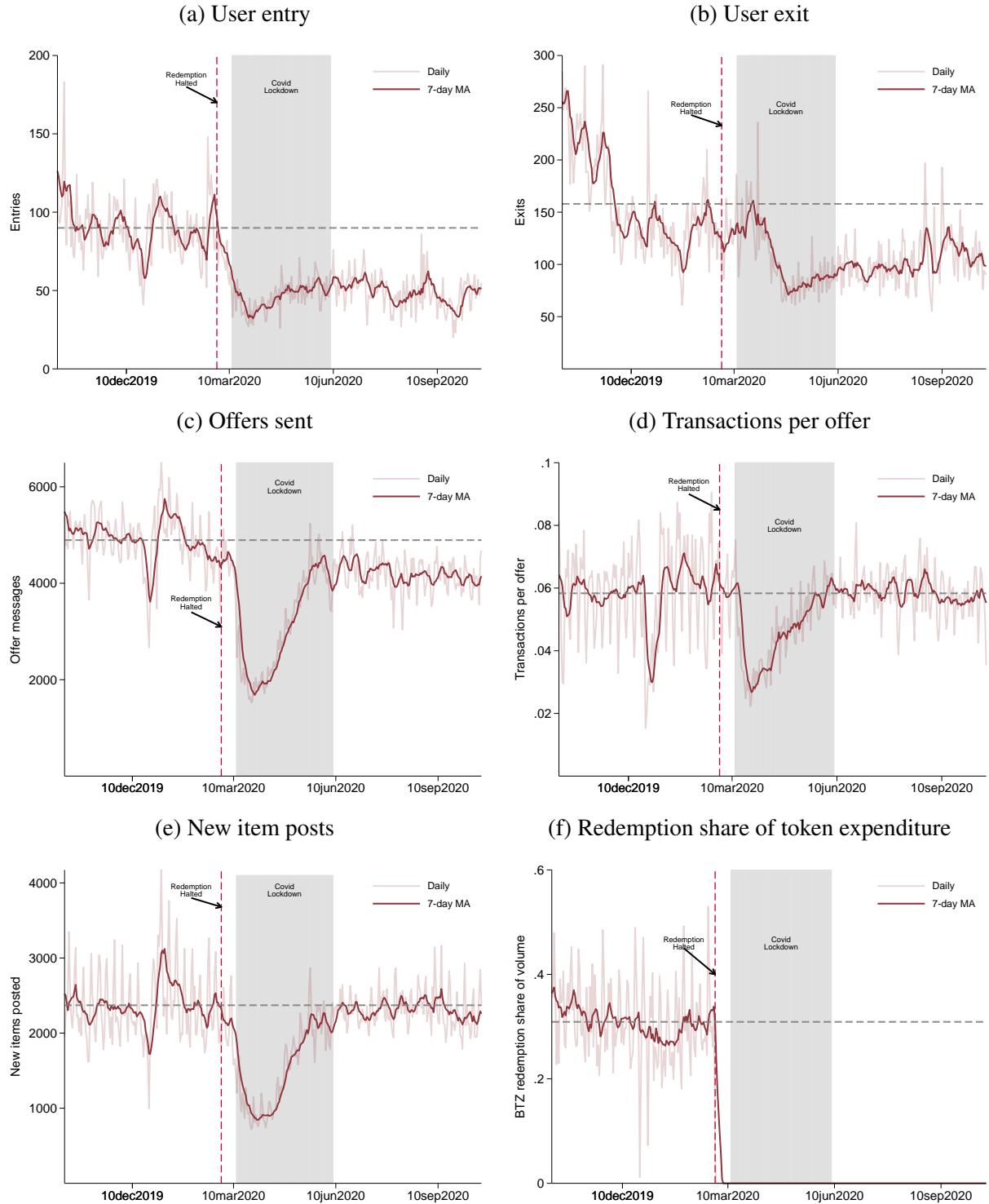
Notes: This set of figures shows the effect of halted redemption on share of items posted with btz price and BTZ redemption plus peer transfer divided by the total BTZ holdings of regular users and regular users whose first message on the platform was sent less than one year before the event and last message on the platform was sent less than one year after the event, separately for users grouped by their lifetime transactions as measured by total ratings received between 13jan2016 and 19nov2021. All values are normalized based on the average value of the 4 months before the event. Regular users are defined as those who have at least 10 transactions during the entire sample period, with a maximum of 70% of transactions concentrated in one month, and have been active users for at least 6 months.

Figure A18: Transactions, before and after redemption halt, by user lifetime transaction volume



Notes: This set of figures shows the effect of halted redemption on btz-mediated transactions, barter transactions of regular users and regular users whose first message on the platform was sent less than one year before the event and last message on the platform was sent less than one year after the event, separately for users grouped by their lifetime transactions as measured by total ratings received between 13jan2016 and 19nov2021. All values are normalized based on the average value of the 4 months before the event. Regular users are defined as those who have at least 10 transactions during the entire sample period, with a maximum of 70% of transactions concentrated in one month, and have been active users for at least 6 months.

Figure A19: Margins of response, before and after redemption halt



Notes: Figure shows the trend in (a) entries counted by the first message sent by users (b) exits counted by one month after the last message sent by users the offer messages (c) offer messages (d) transactions per offer message (e) new items posted in the app (f) share of token expenditure used for redemption. The dark lines show the 7-day moving average, while the light lines show the daily trend. The red dashed line indicates February 28, the day of final cessation of Shop Local program.

## B Additional Documents from the Field

### B.1 Bunz FAQ (April 6, 2016)

## BUNZ TRADING ZONE : FAQ

Updated 4/29/16

### **WHAT IS THE BUNZ TRADING ZONE:**

It's a cashless trading zone, inhabited by a community of barterers.  
"I'll trade you my bag of sour keys for your bar of soap."

### **What is Bunz for?**

To get what you want for what you have and connect with your community.

### **Do you have rules?**

We only have one BIG RULE: NO CASH IN THE ZONE.  
What we do have are guidelines/etiquette, some of which are learned through trades, many are in the Community Guidelines (which you should read!) and some are below in the answers.

### **How do I Bunz?**

Posts take two forms:

- 1) Either you have something to get rid of, which you describe and/or post a photo of, or make a service offer, and then you post what you'd like (ideally) in return.
- 2) You post something you're looking for (ISO = "In Search Of", or "I'm Seeking Out") and either suggest what you may have to offer in exchange or say "Name your trade".
- 3) **The BEST AND MOST EFFICIENT WAY TO BUNZ IS THROUGH THE APP.** We built it for that purpose alone! It's available on iOS, Android and on the web at [www.bunz.com](http://www.bunz.com) use invite code 777 777

An **ISO** can literally be anything, but something important to keep in mind about **VALUE**:

-Something that someone is getting rid of might still be valuable to them, either in cash or emotional value. It's not wrong to want equal dollar value for something, but then be explicit about that in your post. Please also consider that material goods depreciate in value, quickly.

People are looking for deals, so give them! You'll get them in return, pinky swear. PAY IT FORWARD, BUNZ!! On the flip side, you might try to lowball a trade, like offering 2 tokens for an iPhone. Not likely to go through, but you can always try.

So, the solution for both is: be realistic. Nobody is going to give you a PS4 for your stained + broken chair, so get creative and offer combos! You need a vacuum? Offer tokens AND beer AND cheese!

Either way, we really like a concept floated by our community called **#TRUETRADES:**

The #truetrades principle is simple: it's when the person looking to get rid of something is willing to take something you already have around (as opposed to buying things just to trade with) - on principal of paying things forward and being a good bun. You'll sometimes see posts tagged this way, and that's what it means.

**Where can I trade?**

As long as you and the other person agree on a place, you can trade anywhere in the city. Many Bunz will include the neighbourhoods they live / work in somewhere in their posts so that others get a sense of how far they will be traveling for the exchange. If you do set up a trade with someone on the other side of town, we recommend picking a midway point that works for both of you. TTC Stations are a great, safe place to meet.

Many people are more than happy to do trades from their homes, but for those who may not be comfortable giving out their address, we have been partnering up with local coffee shops and bars around Toronto to create actual [Bunz Trading Zones!](#) These places are all run by Bunz and will have your back! There's 7 now but there will be dozens by the fall, stay tuned as our listings grow, and check out the [Bunz blog](#) for featured zones:

**What are common trade 'currencies', if we can't use cash?**

The most common currencies in the zone is booze, TTC tokens, houseplants and consumables.

**What's a consumable?**

Things you consume - food mostly, but may include things like toiletries.

**I lost my bike or pet! Can I post it here?**

Sure. But if you get it back, please update the thread and celebrate your reunion with the group.

**Someone broke my heart! Can I post ISO good vibes and pictures of cats?**

No, please don't. It clogs up the feed and there's Bunz Helping Zone for things like that.

**A bun flaked on me like a day-old croissant! I want to yell about it!**

Well, the trading zone isn't the best place for that. It happens. People forget, things come up, people miscommunicate, etc.

It helps to BE FIRM with times and places and make sure you're on the same page. It happens to everyone, and it's rarely malicious flakey-ness. In the [app](#), we have the 'review' feature which helps keeps people accountable to each other.

**Hey, where'd my post go?**

Probably deleted because it didn't have a place in the zone. Please read the Community Standards document to see where you may have gone wrong. Maybe explore the BUNZ MULTIVERSE and you can find a better home for your post.

**Is there a list of groups in the BUNZ MULTIVERSE?**

YEP: [HERE!](#) There are also many 'secret' groups which you can learn about by just engaging with the community - there's a zone for everything!

**Can I make a new Bunz group for whatever I want?**

Short answer: We kindly ask you **not to**. There's over 100 Bunz groups, and chances are that one exists for what you want - ask about it in BTZ, or in Helping Zone. If you think a niche or geographic area is being underserved, please message an admin!

**How can I make my BunzLyfe EVEN BETTER?**

Get social with us! Come to events, meet-ups and trade parties. Follow us on Twitter @[bunztradingzone](#) / Instagram @[bunztradingzone](#) / Snapchat @bunztradingzone

**Bottom line: trade culture is fun, exciting and addictive.**

**Be the best Bunz you can be! Trade right, and your life will improve, 100% guaranteed.**

## B.2 Bunz blog post after reducing redemption (September 10, 2019)

Bunz,

As you may have noticed, yesterday we had to make the very difficult decision to reduce the merchants and makers who accept BTZ to just coffee and food. We are sorry for any inconvenience and disappointment this may have caused and want to keep you informed as to why we had to make this decision.

Trying new ideas is really hard. There are very few examples of companies that have attempted to share their revenue with its community like Bunz. We are still learning and adjusting the platform as we learn more about how it's used. This requires us to make hard choices at times and this, unfortunately, was one of them. This change to the program is not an ideal outcome and we are sorry for any difficulty this may cause to individuals, merchants, and the community. As a start up trying to do things differently, this was a necessary change we had to make on short notice for sustainability reasons.

In addition to this, we made another difficult decision today that allows us to sustain Bunz and BTZ going forward. This was having to say goodbye to 15 members of our team. This decision was equally difficult because a number of us have been working on Bunz since day one. I'm sad to see them go, but also know they have great things ahead of them.

The reality we face is that it's expensive to build and maintain a platform that hundreds of thousands of people use every day. It gets more expensive when you try to ensure those people see material benefits from using it. Reducing the merchant list was necessary to continue Bunz and BTZ for the community. We believe that these changes put us in the best position possible to allow you continue to use BTZ day-to-day.

Having said all this, we've still achieved something amazing over the last 14 months — since first launching BTZ. Our community of users and local businesses have earned and spent over \$1.4 million because of this program. This is something we can all be proud of.

As a result of these decisions, we are able to continue to make Bunz and BTZ a community-focused platform in a more sustainable way. We admire our community for caring so much — you are the reason why Bunz exists and the reason we get up every day to try and change who benefits from platforms.

To the merchants and makers we've had to part ways with, we appreciate everything we achieved together through the Shop Local program and we wish you nothing but success.

Thank you for your understanding.

Sascha + Bunz HQ

## B.3 Palz statement after reducing redemption (September 11, 2019)

Hey everyone,

Former Bunz Admins here. We wanted to reach out to our community(ies) and talk a little bit about what happened today.

Here's a background:

- Yesterday, September 11th, Bunz HQ announced that its BTZ (in-app currency) would no longer be accepted by vendors or makers that are not coffee shops, restaurants, or bars.
  - This means that small businesses that relied on BTZ to bring in new business, or even vendors who started facilitating their goods and services through the Bunz app and by accepting BTZ as a form of currency, are now out of luck.
  - These vendors and makers were not informed about these changes within the appropriate time frame which, as per their contracts, was to be informed of any changes within two weeks.
  - As a result, makers specifically have now been shut out of the previous Bunz app/BTZ system of trade and had no time to inform consumers of this change. They haven't only lost potential customers and clients, but have also lost income streams that are crucial to the survival of small businesses in Toronto.
- On top of changes to BTZ, Bunz announced that they have fired 15 of their staff. We estimate that this is approximately three-quarters of people whose livelihood depended on the Bunz brand.

Here's what we have to say about it:

- Makers, innovators, artists, creatives, activists, advocates, and regular, everyday people are the backbone of what was once the Bunz community. We all came together several years ago as people who believed in the value of the little things. The value of a half-eaten pizza, an old cassette tape, a joint, a tall boy, a jar of spaghetti. Most of us didn't have much money, and none of us had the means to create apps, or profit off of our relationships with one another.
- Monetizing our communities completely contradicts the barter system that birthed the Bunz lifestyle, as well as the anti-capitalist practices that have shaped our collective communities.
- Today, we would like to reclaim our communities. We would like to bring Bunz back to what it once was. We want our groups to remember why they exist. We do not want to profit. We do not want your app sign-ups. We do not want you to buy into an online currency that will let you down.
- By returning Bunz to its original form, as a pushback against the absolute exhaustion—financial, emotional, and physical—that goes hand in hand with living in cities that are dynamic, fast-paced, expensive, and ever-changing.
- We fundamentally love our communities. As admins of Bunz, and the people who have spearheaded the growth of our communities, and of the app alongside you all, we have a vested interest in your wellbeing. Only your wellbeing. No app sign-ups, no growth, no "buy-

in," only genuine human connections and a commitment to kindness, compassion, and community-building.

With all that said and done, we want to introduce *Palz*, a collective comprised of former Bunz admins who believe in something bigger than profit.

Our groups will stay the same, our values will stay the same with a commitment to hearing from you, a commitment to existing outside of the scope of trademarks, corporations, advertisements, and the monetization of human connections. We hope that this new chapter can sustain our community's health, growth, and compassion.

With Love,  
Your Palz

## B.4 Interviews with a frequent user

**First interview: May 28, 2019**

*On May 28, 2019, the Bunz staff introduced me to a self-described "power user," who specialized in trading vintage books and had completed more than a thousand trades on the platform. Because of his deep engagement with the app, he had many insights about the mechanics of trade on the app. His observations therefore provide useful context for understanding the quantitative results in this paper. For this reason, I provide a partial transcript of the interview, which is reconstructed from handwritten notes and reorganized for clarity.*

**Author:** How did you learn about Bunz?

**User:** I learned about it from Reddit. I've been on Bunz for four years now. I started when Bunz was still entirely on Facebook. I started trading because my friends had to give away their book collections, so I had two libraries to get rid of.

**Author:** How is the app different from the Facebook groups?

**User:** The Facebook groups are more chatty. The app provides a more durable posting. I can optimize for search visibility and time my posts. When app was new, about half of the trades in the community happened on Facebook, so sometimes I would post on both. Now 90% of trades happen on the app. I don't post on Facebook for transactions anymore. I post on Facebook only for discussion.

**Author:** What do you trade on Bunz? Do you face competition on the platform?

**User:** I focus on vintage books. Books that don't have ISBN codes, hence cannot be fulfilled by Amazon (FBA). I source books from garage sales, library sales, Craigslist, and other platforms. I don't really have any competition on the platform. I'm the only "predator" bookseller on Bunz platform. My real competition is mass market book sellers like Amazon. I cannot make that much money on Bunz because of competition from FBA.

**Author:** Why you do trade on Bunz?

**User:** Here are my options: Bunz, doUser, or sell. I enjoy trading on Bunz, much more so than Craigslist. I can have conversations with the people I trade with. There is a feeling of community.

**Author:** How often do you trade?

**User:** I complete on average 2 trades per day. This is much more than most users, for sure. The value of trade is \$3-25 per transaction. This is on the low end for users. Each day, I post 3 or 4 sets of books. There are many subcommunities on Bunz trading different things. The clothing subcommunity is totally different from books, for example.

**Author:** Do you have repeat customers?

**User:** Yea sometimes, up to 4-5 transactions. Sometimes I'd message them to market products.

**Author:** Do you prefer certain currencies?

**User:** BTZ and tokens are preferred. BTZ are useful, but it is like a hot potato. I also take cash or food. Sometimes, I'll take books to use as currency at a later date or sell them to used book store. I put hints into postings as to what is wanted (BTZ and token). I take BTZ for probably a third to a half of my transactions. The main thing is I want something that holds value. Gift cards are not personally useful for me, and I don't want to flip it for a loss. For BTZ, there is default risk. You don't want to accumulate it, so pass it around like a hot potato. The problem with BTZ is there's no exchange anywhere.

**Author:** Who pays in BTZ?

**User:** Two types: New users. They get a free book from opening a new Bunz wallet. Also heavy users who accumulate and then use BTZ.

**Author:** What do you do with your BTZ?

**User:** If I've accumulated BTZ, I mostly spend it down by eating at local merchants.

**Author:** How do trades happen?

**User:** About half of the time, the first message I get from an interested buyer is "I'll give you X tokens or X BTZ." The other half of the time, the first message I get is "I'm interested." I'll respond with "What can you offer?" I'll scan their profiles, but 90% of the time I'll steer towards BTZ or token. There are important breakpoints in conversation, where a buyer might drop out, such as when arranging a location. I don't typically negotiate much, since books are pretty low value.

**Author:** Do you choose whom to trade with / care about buyer reviews or reputation?

**User:** Reviews are not a super informative signal of buyer reliability. Many people will not review informatively. Number of reviews is more likely to be a reliable signal. For users with <20 reviews, I'll take a different approach. I'm less flexible and won't travel to trade. The main issue is flakiness and ghosting.

**Author:** Do you ever receive delayed payments or payments in advance?

**User:** Majority of time, trades are simultaneous. Occasionally, I may get advanced payment as deposit or because cellular data is wonky. Occasionally, I get deferred payment. Sometimes it's a new user who can't remember PIN, or bad cell data; sometimes it's repeat user who is low on cash but can deliver BTZ later (pre-arranged before meeting). I'm usually nice and forgiving to new users because I want to be a good representative for the platform. Bunz's "Have fun" ethos is important to me. Building a good platform requires building a good culture: If everyone on the platform is nice, eventually you will be nice as well. I'm not sure you can replicate this culture anywhere else. Cool people were participating on Bunz at its start. That matters a lot.

**Author:** Has the introduction of BTZ changed the platform over time?

**User:** The original demographic was impoverished art students. Trades that are unequal in value were part of the appeal of Bunz. The lack of double coincidence of wants was a real thing. People can get lucky with a deep discount occasionally. This feels like magic. The introduction of BTZ cut

down on this “magic.” It’s not as fun anymore. Over time, people on the platform care much more about monetary value of items. They moved more towards a Craigslist view of the world. After introduction of BTZ, frictions are lower, so margins are lower, but I make this up with volume.

### **Second interview: October 18, 2019**

*About five weeks after the currency crisis, I spoke with User to hear his perspective. Below is a transcript of the interview, which is reconstructed from handwritten notes and reorganized for clarity.*

**Author:** Tell me what happened.

**User:** It was about a month ago now. It was like a very little miniature demonstration of what a crisis of confidence in a currency looks like. It was like Venezuela trying to impose capital controls on spending. You could almost predict what would happen.

From the users’ perspective, there was a reduction of the scope of the Shop Local program. The change was that you can now only redeem at restaurants instead of the full set of merchants. This was seen as a serious reduction in the utility of BTZ. Coupled with the layoffs, this change put into people’s minds the question of the viability of the whole operation. This is something, apparently, many people had not considered. A large majority of users had never thought about the underlying financials and economics of what’s going on.

A lot of the outrage is understandable but also manufactured. A lot of people had balances of BTZ, and were saving up for some service. For example, tattoos. Some lady saved up a hundred dollars for wedding gifts but could no longer buy those items. The CEO had commented that they would commit to a 30 days notice, but they did not do so. People discovered at the shops. The merchants just got this notice that their relationship was terminated. Not ideal management. But they needed to close the gate before everyone went running for the exit.

What’s interesting is they have continued to operate restaurants. There still was a rush to the exit. I’ve been eating like a king. At some point, these BTZ may become valueless. So people are driven to spend.

Things have kind of stabilized now. BTZ are still being accepted at the reduced number of merchant. There were interesting effects on liquidity of BTZ. Lots of people stopped accepting BTZ. But at the same time there’s a weird little force in the other direction. If you were to accept BTZ, then transactions are temporarily really fluid.

**Author:** How were you personally affected?

**User:** I’ve managed my BTZ very well, so it wasn’t so bad. I held only about a hundred dollars of BTZ at the time. Others may be in a different economic strata too. For a period of time, I stopped taking BTZ. Took a trip away for two weeks. I’ve turned on the tap again now. Started about a week ago. Balance is low enough that I don’t care about the risk. It is a fortuitous coincidence: I

always spent my BTZ mostly by eating. So I'm still able to cash out in the same way. And actually, trading is easier now, since people really want to get rid of their BTZ.

**Author:** Has the nominal BTZ price of books gone up?

**User:** Yes! Absolutely. There is a premium. People are just making up whatever premium for the risk. I'll add on 10-15%. What's the actual risk premium is quite unclear. No one knows what the risk is.

**Author:** At what price of BTZ did trade after the announcement?

**User:** Immediately someone decided to profit off of this situation. They tried to sell TTC tokens at a rate of 10 to 1. The reaction to that post was very interesting. Lots of people reacted negatively to it, saying he was profiteering from the situation. But this is hypocritical because they themselves are no longer taking BTZ. They would say: Capitalism is terrible. And they piled on this guy. Somehow he crossed a social norm.

There is premium for taking BTZ, but market consensus regarding the exchange rate has not occurred. There's no public record of trades. You cannot look up a price. So the valuation of BTZ is opaque. You can see the posted prices, so you don't know what the final trades are.

**Author:** Did your personal transaction volume change?

**User:** Things were somewhat unchanged for me, since I sell books. For larger value items, liquidity is more impaired. For trading with someone who might have been willing to take BTZ before, you would now have to use a different currency. Some people are still taking BTZ, but the premia are all over the place. Some even at face value. But immediately, 50% of sellers stopped taking BTZ.

**Author:** Have people left the platform?

**User:** Yes. The noisiest departures were for ideological reasons. This is related to the historical genesis of the Bunz community, which has a communist/hippie mindset, utopian ideals. So the Facebook groups decided to disassociate with Bunz. Renamed themselves to PALZ. Whether this will affect the trading on the app, I don't know.

**Author:** Were most people on the app aware of what happened to the Shop Local program?

**User:** It was widely known because there are people who stopped taking BTZ. You see this on people's profiles and in the messages. It's unfortunate, because the currency was operating smoothly. Adoption was pretty decent. Currency was circulating before it "leaked" out through people like me. The problem in fact is more that people could not get BTZ readily. Even if someone wanted a thousand dollars of BTZ, they could not get it. There was a liquidity crunch in the other direction.

**Author:** Have sentiments shifted in the month after the initial shock?

**User:** Things have settled down. More people accepting BTZ and risk premia is now lower. All the outraged people have just left. The only people left are the pragmatic people and newbies who don't know better. They think platform still works, so I'll post my armchair here. People have

short memories. But overall confidence in the currency is still low because no one knows whether they can continue to operate the shop local program. Nobody knows what their runway is. For sure, trade volume has decreased.

It could also be good for the platform to get rid of the ideologues. A lot of emotions flying around. They have a certain mental model for how the company should behave, but the company sort of had to do what they had to do. They chose not to shut down. Bunz is still perfectly usable in terms of functionality. Shop Local still operates. It's effectively like going back to launch time. They started out at just a handful of coffee shops. But the perception has now changed. Lots of cynical people knew this was going to happen.

**Author:** Do you know how the Shop local merchants were affected?

**User:** Merchants were redeemed up to some date. Everybody was made whole. They didn't receive their 30 days notice. If accepting BTZ had been part of your sales/marketing, e.g. 10% more sales due to accepting BTZ, then suddenly there's a revenue decrease. Negative is future cash flow is shut off. Negative reputation effects of that.

Some restaurants stopped accepting BTZ as well. Over the course of history, restaurants and stores have joined and left, but this was never a problem. There was a lot of confusion in terms of what was happening. IQ foods was still taking BTZ, but they temporarily froze on taking BTZ. But presumably this uncertainty was resolved and they began to take BTZ again.

**Author:** Is the pressure of money flowing out through redemption still the same?

**User:** It is definitely harder to spend a thousand dollars at once if the valve is coffee.

**Author:** Do you know what Bunz HQ's plans for the future are?

**User:** Listing BTZ on an exchange seemed like a long-term intention, like they would eventually allow the currency to float. But it ended up working more like corporate loyalty points. People are still using it because its convenient to do so. But this much more limited now. Rumors are the pause was driven by a failure to find financing. They could take the code and re-brand, try to launch elsewhere. There is no news, so nobody knows where the company is.