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Economics of Tradable Digital Tokens on Platforms: Evidence from a Policy Change

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As digital platforms rise to dominance across industries, effective platform governance to orchestrate users' value creation activities has become increasingly crucial (Tiwana et al. 2010). Recently, a new governance mechanism has emerged where platforms devolve some decision rights to users, which arises in response to pressure from platform participants or external competition (Chen et al. 2022). We study the delegation of decision rights in the context of platform-specific digital tokens, which have exploded in popularity over recent years. Platform digital tokens serve as the medium of exchange to facilitate peer-to-peer transactions, involving smaller frictions than any other payment mechanism for in-platform purchases (Rogoff and You 2023). Traditional platform digital tokens operate under central accounting systems, allowing the platform to control their feature design and supply policy (Gans and Halaburda 2015). Most centralized tokens have significant limitations on tradability, and may not even be transferable (Halaburda and Sarvary 2016). This sharply contrasts with crypto tokens issued on blockchains, which are tradable with high liquidity in secondary markets. As users demand more rights to dispose of their tokens and seek usage outside the platform, some platforms start to ease tradability restrictions on their centralized tokens. The question of whether and to what extent the platform should allow token tradability poses a governance challenge for platform, which remains under-explored in the extant literature.

Our study aims to address this question by empirically investigating the impact of allowing users to trade tokens at a market-determined exchange rate on token value stability and user participation on the platform. To achieve this objective, we obtain a comprehensive dataset from a prominent U.S.-based peer-to-peer product auction platform that allows users to list items that others bid for using platform-specific tokens, referred to as *credits* hereafter. Before December 2015, users acquired credits through various means such as selling items, purchasing credits from the platform at a fixed exchange rate, and completing surveys or watching video advertisements. However, the platform did not permit direct trading of credits among users or conversion back to dollars. Responding to user demand for a way to use their accumulated credits and to help regular sellers cash out their earnings, the platform implemented a policy change in December 2015 that enabled peer-to-peer trading of credits on an in-platform exchange, with the exchange rate set by the sellers. This exogenous policy change presents a natural experiment to analyze the transition from non-tradable tokens to tradable tokens. To identify the impact of this policy change, we adopt an interrupted time-series quasi-experimental design that uses the regression discontinuity in time (RDiT) analysis to identify the short-term effects and fixed-effects (FE) analysis to identify the long-term effects.

Our findings reveal that enabling free trading of tokens leads to a sharp decline in token price, and this depreciation continues to worsen over time. The token depreciation is associated with stagflation on the platform, with an overall increase in prices and a decline in the size of transactions. Regression analysis presents consistent findings in both the short and long term: sellers sell fewer items, reduce the variety of product categories offered, and receive fewer bids for items sold, indicating both immediate and lasting effects on user participation in both the demand and supply sides. Heterogeneous effect analysis on product categories shows that sellers list more items that are easier to determine the monetary value and deliver digitally indicating a more risk-averse selling strategy. Additionally, we find that sellers with a larger token balance prior to the policy change reduce their sales more and even exit the market. The results are robust across different model

specifications.

We investigate the potential mechanisms underlying the negative impact of token tradability on platform outcomes. Our results suggest that some strategic sellers who had a large token balance tended to overbid for gift cards to cash out before the policy change. Subsequently, upon enabling token tradability, these sellers rapidly attempt to dump their tokens cheaply and exit the market. This results in a negative externality that distorts the exchange rate and leads to a sharp decline in the nominal value of tokens. This sudden nominal decline is associated with a behavioral bias in other sellers known as *money illusion*, where users rely on the salient nominal exchange rate rather than the real purchasing power when making decisions. Despite the smooth transition in token purchasing power around the policy implementation, the sharp observable drop in the nominal exchange rate triggers an immediate sense of loss in their token balance. This reduces their listing enthusiasm and lowers their participation. As the platform lacks any intervention to stabilize token prices, users lose confidence in the fundamental value of tokens and attempt to dispose of them, further fueling a downward spiral of token depreciation and declining user participation. We validate *money illusion* by conducting a subsample analysis on sellers with more information.

Our research contributes both theoretically and practically to platform governance and management of digital tokens. Firstly, our work enriches the literature on platform governance and specifically supplier management (Tiwana et al. 2010, Chen et al. 2022) by exploring the effects of allowing token tradability at a market-determined exchange rate. We document both the intended and unintended consequences of a platform governance policy on the delegation of decision rights to users. Our analyses demonstrate that offering unsupervised freedom may disproportionately benefit a subgroup of participants and lead to negative externalities that damage the platform ecosystem. This adds to a burgeoning strand of literature on documenting the unintended consequences of policy changes (Foerderer et al. 2021). Additionally, we contribute to the understanding of token tradability (Gans and Halaburda 2015, Halaburda and Sarvary 2016, Rogoff and You 2023) by being among the earliest to provide empirical evidence of its impact on token value stability and user participation on the platform. Our findings reveal that in an uncapped supply regime, which is the case for most digital tokens on traditional centralized platforms, allowing tradability at a market-determined exchange rate would result in drastic value instability and adversely impact user participation. Restricting tradability is crucial in maintaining the stability of the nominal exchange rate, which is important for users' decision-making. Finally, our study adds to the literature on token value determination and token supply (Cong et al. 2022). We show that failing to take action to stabilize token prices can lead to a negative spiral of token depreciation and declining user participation, destroying the fundamental value of platform digital tokens. This finding has implications not only for traditional centralized platforms but also for blockchain-based platforms with discretion in dynamic allocation and supply of crypto tokens, especially those with uncapped supply and therefore similar challenges with token depreciation. Platform managers may need to regulate user behaviors by setting trading limits or buying back tokens to stabilize exchange rates and maintain market confidence.

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