Liquidity Shocks in Video Game Cosmetics Markets*

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Abstract

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1 Introduction

In May 2025, the market capitalization for digital cosmetics in the video game Counter Strike reached an all time high of $5 billion (CITE PRICE EMPIRE OR NEWS SOURCE). The market for cosmetics in Counter-Strike is immense and player-driven. As of August 2025, the game averages about 1 million concurrent players, playing the game at any given moment. Third parties also estimate that about 2-3 million trades are made between users every week (tradeTF CITE) and around 32 million new Counter Strike cosmetics are generated every month via player payments to the developer to open "cases" which function as virtual slot machines (CITE CSGO CASE TRACKER).

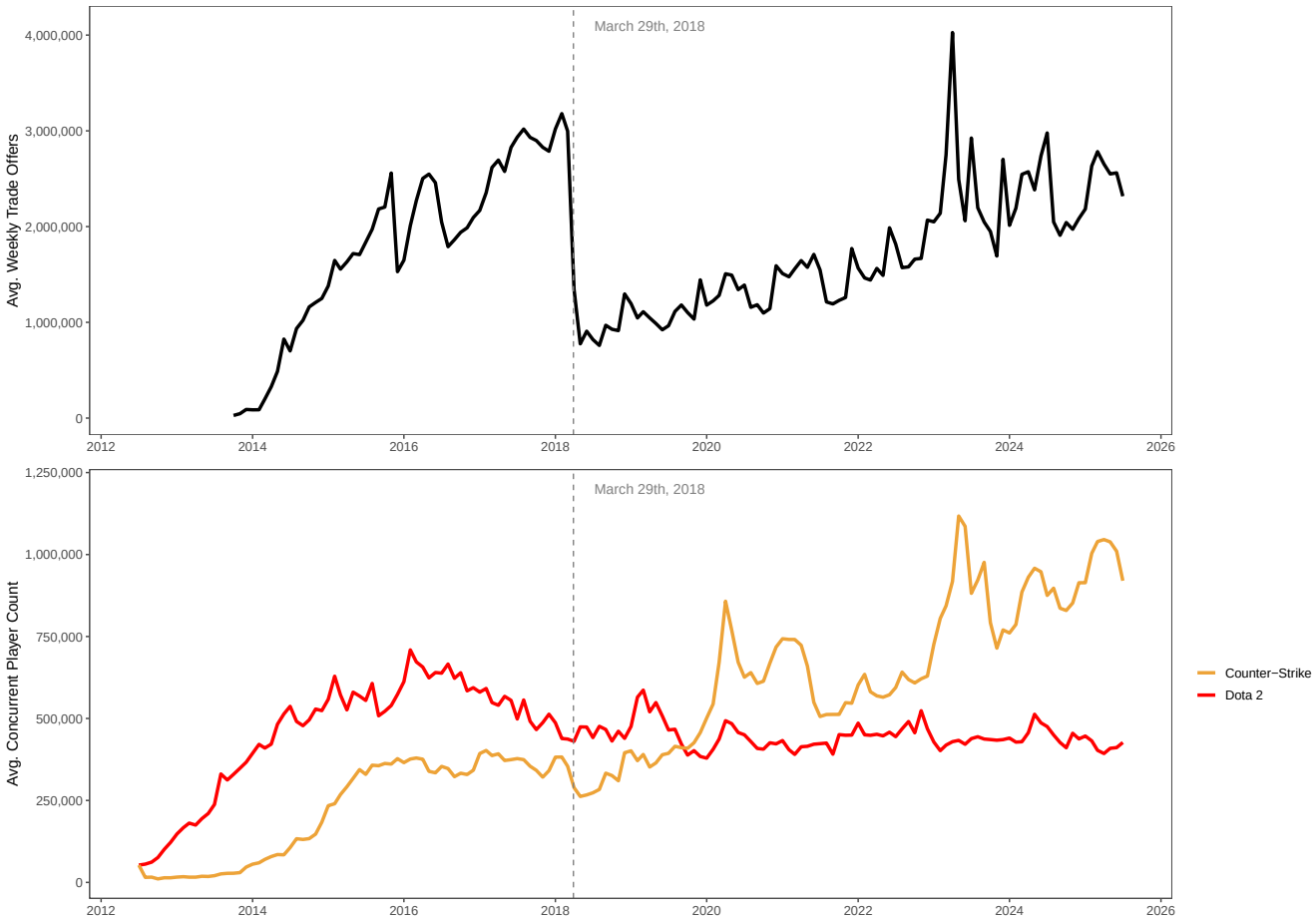
The developer Valve fostered this market in combination with their expansive digital PC game distributor, Steam. In addition to purchasing PC games on Steam, users can list their in-game items, also called "skins," on Steam's community marketplace, where other users can purchase them using real currency. This marketplace serves as a valuable source of high frequency data for emerging digital markets and exchanges controlled by a central figure. Using these data we can study the effects of various policy changes and leverage their relative exogeneity to parse out their effects. In this paper, I leverage an exogenous liquidity shock in the form of a 7-day trade restriction imposed on all Counter-Strike items to examine the change in market participants' behavior. After constructing a quality adjusted price, I use an event study difference-in-differences (DID) approach to estimate the effect on both quantity and price of Counter-Strike skins sold on the Steam Community Market. I find a persistent positive effect on selling prices and negative effect on quantity sold for one year after the imposition of the 7-day trade ban.

2 Institutional Details

Skins in Counter-Strike hold significant monetary value despite being purely cosmetic items that only change the appearance of a user's weapons in game. These skins are created via opening crates that are randomly placed in users' Steam inventories after a completed match. Users pay $2.50 to buy a key from the developer in order to essentially take a spin of a virtual slot machine where the most likely outcome is receiving a skin worth a couple of cents, but there is an extremely slim chance (the rarest items having a 0.26% chance) of unboxing something worth hundreds or thousands of dollars. These skins have monetary value after being opened because they can be listed for sale on the Steam Community Market. Other

Steam users can purchase these skins using real cash or their Steam account balances which in-turn transfers that amount to the seller's Steam account balance (minus a 15% fee that goes to Valve). Steam account balance is largely equivalent to cash in hand as the consumers of Counter-Strike skins tend to also use their Steam account balances to buy PC video games on Steam. Additionally, prices listed on unsanctioned third party exchanges are typically close or equal to the listed prices on the Steam Community Market.

Figure 1: Monthly Averages of Weekly Trade Offers and Player Counts



Note: Steam trade offer data includes trade offers for all Steam items and is estimated from the difference in trade offer ID between trades. Top chart is sourced from Trade.TF and bottom figure is sourced from Steam Charts.

To rein in scamming, phishing, speculation, third party gambling sites, and eSports skin betting, Valve instituted a 7-day trade ban for all Counter-Strike items on March 29th, 2018. This acted as an exogenous liquidity shock by restricting the trade and sale of all

newly acquired Counter-Strike items for 7 days. This policy continues to be in effect, such that anytime a user acquires a new Counter-Strike skin via unboxing, trade, or purchase from the Steam Community Market, this item cannot be traded or sold for 7 days. This policy change also affected third party exchanges as items are listed and exchanged on these sites via users trading with automated bot accounts on Steam.

Crucially however, other games that had items listed on the Steam Community Market were unaffected at the time. This enabled me to use a DID approach to estimate the treatment effect of this overnight policy change using items from the game Dota 2 as an untreated group. Dota 2 is the only game with a comparably large skin market that behaves similarly to Counter-Strike. Dota 2 is another game developed by Valve, thus the items in Dota 2 are also purely cosmetic with no gameplay effects and they are unlocked in a similar fashion by paying to acquire "treasures" that act like slot machines. Dota 2 and Counter-Strike also have similarly sized player bases and skin markets. hows the monthly averages for weekly trade offers on Steam and concurrent player counts for Counter-Strike and Dota 2.

3 Data

The estimate the treatment effect of this exogenous shock, I leveraged a novel dataset of item sales on the Steam Community Market. These data are pulled from Steam's Web API via webscraping and provide daily median sale price and volume sold for items listed on the Steam Community Market. Because the number of unique items is large, and some items are infrequently sold on the Steam Community Market, I take a subset of items from Dota 2 and Counter-Strike that is broadly representative of the market as a whole. Table 1 shows the charactistics of the subset of items I use in my regressions.

Table 1: Counter-Strike and Dota 2 Items Summary

	Counter-Strike	Dota 2	Total
Observations	552	1359	1911
Unique Items	23	57	80
Oldest Origin Date	2013-12-18	2012-07-12	2012-07-12
Newest Origin Date	2016-02-18	2016-10-05	2016-10-05
Median Sale Price	$4.29	$3.84	$4.25

Note: Median Price, and Grade Rarity are averages weighted by volume sold with standard deviation in parentheses below. Counter-Strike items have greater variation in quality that is represented as separate listings on the Steam Community Market. For example: "AK-47 | Redline (Field-Tested)" and "AK-47 | Redline (Well-Worn)" have separate listings.