

Baseline Price Rigidity and Promotional Adjustment in Digital Distribution Platforms: Empirical Evidence from the Steam-Epic Rivalry

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Abstract

This paper asks why Epic Games Store's 18-percentage-point commission advantage over Steam did not produce durable pass-through into Steam's current list prices, and how identity-bound ecosystem assets sustain this rigidity. Using a monthly panel of 547,518 Steam RPG title observations from January 2020 to March 2026, the study combines matched-sample staggered PSM-DID, lifecycle controls, price-margin decomposition, event-study evidence, and a 1,000-iteration permutation placebo test. Three results stand out. First, Steam's current list price does not respond significantly once lifecycle dynamics are modeled ($\beta = 0.0238$, $SE = 0.0194$, $p = 0.2205$), while the effective transaction price declines significantly ($\beta = -0.1194$, $SE = 0.0215$). Second, this decline operates through the promotional margin: discount depth increases by 6.46 percentage points ($SE = 0.0081$), and promotion probability increases by 5.12 percentage points ($SE = 0.0113$). Third, achievement-based lock-in emerges as the primary mechanism sustaining list-price rigidity: the achievement interaction is positive and significant ($\beta = 0.0269$, $p = 0.0016$), whereas workshop and playtime dimensions are not. These findings imply that lowering platform commission fees is insufficient to discipline an incumbent whose pricing power rests on non-portable identity assets rather than cost structure alone.

Keywords

digital distribution platforms, price rigidity, promotional adjustment, fee pass-through, achievement-based lock-in

1. Introduction

The digital PC game market has recently transitioned from Steam's unipolar dominance toward multi-platform coexistence, featuring storefronts including the Epic Games Store (EGS), GOG, and the EA App. According to standard price theory, market prices should converge as search costs decline and price transparency increases. Yet following Epic's market entry with a commission rate reduced from 30% to 12%, game prices on Steam have exhibited no pronounced decline — a phenomenon that deviates substantially from theoretical expectations.

This paper addresses a more precise question: why did Epic's low-commission strategy fail to generate durable pass-through into Steam's baseline prices, and why did competitive pressure instead manifest primarily as an adjustment in discount tactics? We argue that inter-platform competition operates not merely through

pricing, but more fundamentally through identity-bound ecosystem depth and the switching costs it generates — a mechanism that insulates list prices from commission-based entry even when promotional behavior responds.

December 2018 marked an important competitive turning point in the digital distribution market. Epic Games launched its proprietary storefront and drastically cut the platform commission rate, disrupting the market's prolonged equilibrium. Despite Epic's aggressive exclusivity deals and free game giveaways, Steam largely retained its pricing architecture, supported by a deep community ecosystem and entrenched player switching costs.

This study addresses three core research questions. First, does Steam's baseline list price exhibit rigidity in the face of Epic's commission-based entry, and does competitive pressure redirect to the promotional margin instead? Second, does achievement-based lock-in — specifically non-transferable achievement histories rather than more portable asset dimensions — explain why this list-price rigidity persists? Third, what does this pass-through failure imply for the conditions under which commission-based competition can constitute effective competitive discipline?

The remainder of the paper is organized as follows. Section 2 reviews the relevant literature and develops the hypotheses. Section 3 describes the data, variables, and matched staggered PSM-DID design. Section 4 presents descriptive fixed-effects evidence on Steam price-premium patterns. Section 5 develops the main causal argument by combining matched-sample PSM-DID, lifecycle attenuation, and price-margin separation. Section 6 reports diagnostic and robustness tests. Section 7 discusses implications, and Section 8 concludes.

2. Literature Review and Theoretical Hypotheses

2.1 Prior Research and Core Hypotheses

Research on digital distribution platforms has largely examined the allocation of bargaining power within two-sided markets — specifically, how platforms leverage control over consumer traffic to extract pricing power from content developers [1,2]. Complementary work on network externalities and switching costs demonstrates that platform-specific assets, such as achievement systems and community-generated content, can significantly reduce consumer price sensitivity and erect durable exit barriers [3,4].

However, the precise mechanisms by which these forces sustain price rigidity even in the face of strong competitive entry remain underexplored through large-scale micro-empirical analysis. This study also speaks to recent platform and ecosystem strategy research that treats platform competition as an ecosystem-level process rather than a simple price rivalry [5-8]. Prior ecosystem theory clarifies how interdependence among complements, users, and platform sponsors creates ecosystem-level constraints on firm strategy [5-7]. A systematic review of 333 platform-competition articles further emphasizes network effects, complementor strategy, and ecosystem orchestration as recurring mechanisms in platform competition [8]. In the gaming context, social product features on Steam can shape diffusion outcomes, reinforcing the relevance of non-price platform assets [9].

Based on these gaps, this paper proposes the following hypotheses:

H1 (Directional price premium hypothesis): Compared with multi-platform games, Steam-exclusive RPG games have a directional price premium, but this premium is statistically insignificant after controlling for strict fixed effects.

H2 (Achievement-based lock-in hypothesis): Non-transferable achievement histories, functioning as identity-bound sunk assets, should strengthen Steam's list-price rigidity more reliably than more portable or lifecycle-sensitive platform asset dimensions such as workshop activity or playtime records.

H3 (Limited list-price pass-through hypothesis): Cost-based competitive entry, as represented by Epic's commission reduction and game-level entry into EGS, is unlikely to generate durable pass-through into Steam's current list-price measure once lifecycle dynamics and ecosystem lock-in are accounted for. In this paper, durable pass-through is defined operationally as a statistically significant negative DID coefficient for `ln_current_list_price` after lifecycle controls, title fixed effects, time fixed effects, and clustered inference.

Competitive effects may still appear through the effective transaction price, discount depth, or promotion probability without constituting durable list-price pass-through.

Note on H3: The empirical design therefore does not treat any post-entry price decline as self-evident proof of effective competition. Instead, the matched DID estimate is interpreted jointly with lifecycle controls, event-study timing, price-margin decomposition, and placebo evidence.

From an identity-economics perspective, platform-specific achievements, historical play records, and community traces can operate as psychological sunk assets rather than purely functional metadata. This interpretation extends identity-economics and switching-cost logic [3,10]: players and developers may both treat these platform-bound histories as value-bearing assets, muting the transmission of competitive price signals.

2.2 Digital Antitrust Context

The policy relevance of this question is clear in formal digital-antitrust scholarship. Existing work argues that network effects, data concentration, and platform intermediation can entrench incumbents in ways that strain conventional competition tools [11]. Related expert analysis similarly frames large digital platforms as gatekeeping intermediaries for which ex ante obligations may be needed when standard ex post enforcement struggles to restore contestability [12].

Commission-fee research provides a closer bridge to the pass-through question. Platform-commission models explicitly link commission revenues and pass-through to seller prices [13]. Recent work on Epic Games' entry into the PC game market documents heterogeneous complementor reactions, which supports the present paper's focus on margin-specific responses rather than a uniform competitive effect [14].

2.3 Quantitative Research on Social Assets and Non-Price Competition

Recent ecosystem-oriented competition research also emphasizes that platform power can arise at the level of the wider ecosystem rather than a single narrowly defined product market. Complementor dependence and customer lock-in create bottlenecks that matter for competition analysis [15]. This perspective motivates the present paper's decision to examine achievements, workshop participation, and playtime not simply as engagement metrics, but as candidate mechanisms behind price rigidity.

Steam-specific empirical studies further motivate the paper's price-margin decomposition. Prior Steam-based empirical work uses Steam price histories to identify sales events when studying game reviews, while related promotion research directly examines promotions and endogenous consumer reviews on Steam [16,17]. These studies support treating promotional pricing as a distinct empirical margin rather than as a mechanical proxy for durable list-price pass-through. Research on Steam meta-gaming and achievements further supports the interpretation that platform-bound achievements can act as non-transferable identity assets rather than ordinary engagement metrics [18].

3. Research Design and Model Construction

3.1 Data Sources and Sample Processing

The dataset was obtained via a custom automated scraping pipeline, covering comprehensive dynamic panel data from the Steam platform from January 2020 to March 2026. Three screening criteria were applied to ensure sample homogeneity and mitigate endogeneity. First, the sample is restricted to games tagged RPG on Steam, yielding 547,518 observations; this genre restriction controls for heterogeneous social attribute intensities across game categories and aligns with the strong community interaction features central to the theoretical framework. Second, observations where the current price equals zero (Free-to-Play) are excluded. Third, games with fewer than six months of continuous pricing records are excluded to ensure sufficient temporal coverage for panel estimation.

Cross-platform availability data were scraped from the public game libraries of the Epic Games Store and GOG. The key baseline comparison variable is `Steam_Exclusive_dummy`, which equals 1 if a title is available only on Steam and 0 if the title is listed on Steam and at least one competing platform. This coding makes the coefficient

directly interpretable as the Steam-exclusivity price premium. In the causal specification, a separate staggered Epic-entry treatment indicator is used for titles that enter EGS during the January 2020–March 2026 observation window.

3.2 Variable Definition

The price-margin analysis separates four pricing outcomes: $\ln_current_list_price$, the logarithm of the current list-price measure; $\ln_price$, the logarithm of the observed effective price; $real_discount_rate$, the realized discount depth; and $is_discounted$, an indicator for whether a title is in a promotional period. The variable $real_discount_rate$ is measured on a 0–1 scale, so a coefficient of 0.0646 corresponds to a 6.46-percentage-point change in discount depth; $is_discounted$ is a binary indicator, so a coefficient of 0.0512 corresponds to a 5.12-percentage-point change in promotion probability.

The baseline exclusivity variable, $Steam_Exclusive_dummy$, is a binary indicator equal to 1 for Steam-exclusive titles and 0 for comparable multi-platform titles. The Social Asset Index (SAI) is a baseline composite moderator constructed from three observed platform-specific sub-dimensions: log achievement counts ($\ln_achievements$), log workshop activity ($\ln_workshop$), and log average playtime ($\ln_playtime$). The baseline index is specified as:

$$SAI = 0.5 \times \ln_achievements + 0.3 \times \ln_workshop + 0.2 \times \ln_playtime \quad (1)$$

This weighting scheme is used as an exploratory composite baseline rather than a structural estimate; the primary mechanism variable in the causal analysis is the achievement interaction term directly ($SteamOnly \times \ln_achievements$), not the composite SAI. Robustness checks re-estimate achievement-heavy alternative weights and a PCA-based index to verify sensitivity. The manual and PCA indices are highly correlated ($r = 0.9458$), but the moderation result is strongest under achievement-heavy weights and becomes statistically weak under PCA aggregation, confirming that the mechanism is achievement-dominated.

The observable covariates used in matching and ancillary regressions are $\ln(Total\ Reviews)$, $Review\ Score$, Is_Indie , and $Is_Multiplayer$. In the two-way fixed-effects price-premium regressions, time-invariant game characteristics are absorbed by entity effects and are therefore not separately identified.

3.3 Model Specification

To control for time-invariant game heterogeneity and common time shocks, the core fixed-effects specification is:

$$\ln_price_{it} = \alpha + \beta_1 SteamOnly_{it} + \beta_2 (SteamOnly \times SAI)_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (2)$$

For causal identification, we employ a staggered PSM-DID framework treating a game's entry into EGS during the observation window as the relevant competitive shock. The treatment group comprises games entering EGS between January 2020 and March 2026, while the control group consists of comparable games that remain outside EGS during the same observation window. Matching is performed on $\ln(Total\ Reviews)$, $Review\ Score$, Is_Indie , and $Is_Multiplayer$.

4. Descriptive Evidence on STEAM Price-Premium Patterns

4.1 Descriptive Fixed-Effects Evidence

Table 1 presents descriptive fixed-effects evidence on the Steam price-premium pattern. Because only 493 of 11,028 games (4.47%) change platform status over the sample period, within-title variation is limited and the estimates should be read as directional rather than precisely identified. The point estimate on $SteamOnly$ is positive (0.0539), consistent with a directional price-premium pattern, but clustered inference renders it statistically imprecise. The composite interaction $SteamOnly \times SAI$ is similarly positive but not stable enough under alternative weighting to support a strong standalone claim.

Once the social-asset composite is unpacked, the picture becomes clearer: the achievement interaction is positive and statistically significant ($\beta = 0.0269$, $p = 0.0016$), whereas the workshop and playtime components are not. The best-supported interpretation is therefore not that every form of social asset reinforces price rigidity equally, but that non-transferable achievement histories are the main identity-based mechanism in this sample.

Table 1: Baseline fixed-effects estimates: Steam price premium and social-asset mechanisms

Variable	Coefficient	Std. Error	p-value
SteamOnly	0.0539	0.0401	0.1784
SteamOnly $\times$ SAI	0.0073	0.0047	0.1159
SteamOnly $\times$ Achievement	0.0269***	0.0085	0.0016
Entity FE	Yes	—	—
Time FE	Yes	—	—
Observations	547,518	—	—
R-squared	0.0009	—	—

Note: Clustered standard errors are reported. Time-invariant game characteristics are absorbed by entity fixed effects. The low within-model R-squared is expected: only 493 of 11,028 games (4.47%) change SteamOnly status over time.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

5. Baseline Price Rigidity and Promotional-Margin Adjustment

5.1 Main Causal Specification: Matched-Sample PSM-DID

The main causal specification is the matched-sample staggered PSM-DID. This design is preferred over the full-sample DID for a specific reason: the full-sample estimate cannot be cleanly separated from lifecycle dynamics (Section 6.1), whereas matching on observables and adding nonlinear lifecycle controls allows us to isolate the pass-through channel more credibly.

Table 2 reports the matched-sample DID coefficient of -0.0576^{***} (SE = 0.0183), indicating a surface-level price decline of approximately 5.8% among matched treated games following EGS entry. This is the starting point of the analysis, not the conclusion.

The empirical interpretation proceeds in three steps. First, the matched DID estimate provides the reduced-form surface pattern: treated games experience an observed post-entry price decline. Second, lifecycle adjustment and multi-outcome decomposition show why this surface decline should not be interpreted as durable list-price pass-through. As reported in Table 3, once an explicit lifecycle control is included, the current list-price coefficient is small and statistically insignificant ($\beta = 0.0238$, SE = 0.0194, $p = 0.2205$), whereas the effective price declines significantly ($\beta = -0.1194$, SE = 0.0215). Third, the same decomposition identifies the operative margin of competition: discount depth rises significantly by 6.46 percentage points and promotion probability rises significantly by 5.12 percentage points.

Taken together, Table 2 and Table 3 establish the paper's central empirical finding: staggered EGS entry is associated with surface-level price movement, but the durable list-price channel is weak. Competition appears most clearly through discount depth and promotion probability rather than through current list-price pass-through.

Table 2: PSM-DID estimates: Epic entry and Steam baseline prices

Explanatory variable	Coefficient (β)	Std. Error	t-value
Treat $\times$ Post (DID)	-0.0576^{***}	0.0183	-3.14
Matched games	1,460	—	—
Observations	77,235	—	—

Note: Clustered standard errors are reported. The DID estimate should be interpreted together with lifecycle controls, placebo evidence, and the price-margin decomposition. *** $p < 0.01$.

Table 3: Lifecycle-controlled price-margin decomposition

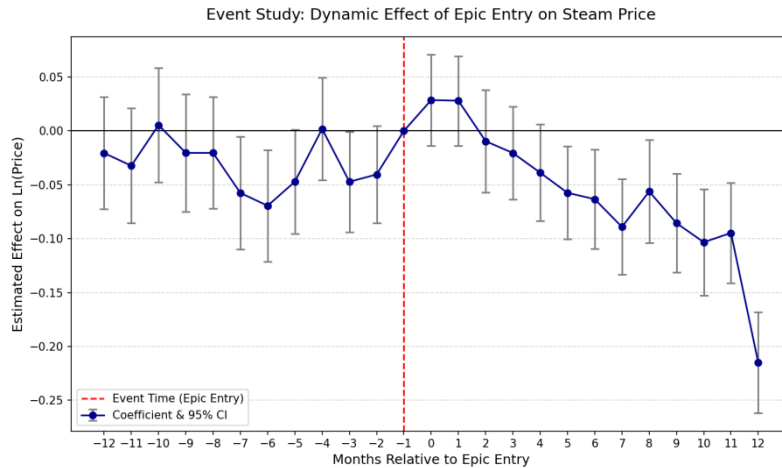
Dependent variable	DID coeff. (clustered SE)	p-value	Interpretation
Current list price (ln_current_list_price)	0.0238 (0.0194)	0.2205	No significant list-price response
Effective price (ln_price)	-0.1194^{***} (0.0215)	< 0.001	Effective price declines significantly
Discount depth (real_discount_rate)	0.0646^{***} (0.0081)	< 0.001	Discount depth increases significantly
Promotion frequency (is_discounted)	0.0512^{***} (0.0113)	< 0.001	Promotion probability increases significantly

Note: All four specifications use 308,255 observations, title fixed effects, month fixed effects, game-level clustered standard errors, and age_sq as a lifecycle control. real_discount_rate is on a 0–1 scale; is_discounted is a binary indicator. *** $p < 0.01$.

5.2 Dynamic Effects and Parallel Trend Verification

Figure 1 reports the matched-sample event-study estimates around EGS entry. The evidence is broadly consistent with a post-entry decline, but it does not support an overly strong parallel-trends claim. Most pre-entry coefficients remain moderate, yet months -7 and -6 are statistically negative. Because these two leads cluster immediately before eventual Epic listing rather than appearing throughout the entire pre-period, they are most plausibly interpreted as anticipation or selection effects tied to pre-launch contracting and pricing preparation. Accordingly, the event study is treated as supportive but not dispositive, and the paper's identification argument relies more heavily on matching, lifecycle controls, and placebo analysis.

Figure 1: Dynamic effects of EGS entry on Steam prices



Post-entry coefficients become more negative over time and reach approximately -0.21 by month 12. Consistent with the anticipation reading, an anticipation-adjusted DID that advances treatment by six months yields only -0.0310 ($p = 0.1165$), which is smaller in magnitude and statistically insignificant.

5.3 Heterogeneity Analysis: AAA Publishers Vs. Independent Studios

Subgroup regressions show larger price responses for non-indie/AAA titles (-0.1273 , $p < 0.0001$) than for indie titles (-0.0718 , $p = 0.0084$). The direction is consistent with the view that larger publishers adjust multi-platform pricing more aggressively, but these differences should still be interpreted alongside the lifecycle and placebo evidence rather than as proof of differential pass-through alone.

Table 4: Heterogeneity regression results based on publisher size

Variable	Model (3): AAA / Non-Indie	Model (4): Indie
Treat $\times$ Post (DID)	-0.1273^{***}	-0.0718^{***}
Std. Error	(0.0224)	(0.0273)
p-value	< 0.0001	0.0084
Observations (N)	199,821	347,697
R-squared	0.0015	0.0002

Note: Clustered standard errors are reported. *** $p < 0.01$.

6. Robustness Tests

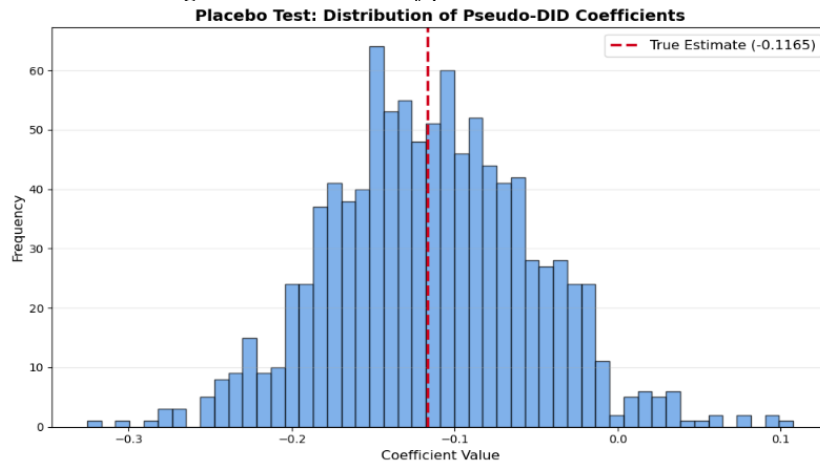
6.1 Monte Carlo Permutation Placebo Test and Lifecycle Decomposition

The full-sample permutation placebo test serves a specific diagnostic role in this paper: it explains why the full-sample raw DID is not used as the primary identification strategy, and why the matched-sample design with lifecycle controls is necessary. We conducted a 1,000-iteration permutation test that randomly reassigned treatment status at the game level while preserving the original post-period structure.

As shown in Figure 2, the resulting pseudo-effect distribution is centered at -0.1181 , with the actual full-sample DID estimate (-0.1165) located at the 52.6th percentile of that distribution. This result is not a failure

of the paper's identification strategy — it is precisely the diagnostic that motivates using the matched-sample PSM-DID with lifecycle controls as the primary specification. The raw full-sample DID is indistinguishable from lifecycle-driven price trajectories that arise even under random reassignment, which is why we do not treat it as causal evidence.

Figure 2: Distribution of placebo DID estimates



The implication is not that Epic had zero influence, but that the full-sample raw DID cannot be interpreted as clean evidence of current list-price pass-through. The lifecycle-controlled price-margin regressions show that Epic's influence is transmitted through effective prices, discount depth, and promotion frequency rather than the current list-price measure.

6.2 Sample Sensitivity Analysis

Within the matched panel, no titles exit before the sample endpoint, so a delisting-based exclusion is unnecessary in the retained dataset. First, excluding the top 1% most price-volatile titles (cutoff = 1.0848; 15 titles and 954 observations removed) yields DID = -0.0613 ($p = 0.0009$). Second, restricting the sample to non-indie publishers yields DID = -0.0742 ($p = 0.0013$). The direction and significance of the result therefore remain intact under these alternative sample restrictions.

6.3 Robustness of Social Asset Sub-Dimensions

Decomposing the social-asset mechanism yields a clearer and more defensible pattern. The achievement interaction is positive and statistically significant ($\beta = 0.0269$, $p = 0.0016$), while the workshop and playtime interactions are economically small and statistically insignificant.

Weight-sensitivity tests reinforce this interpretation. Achievement-heavy composite weights remain positive and significant, the effect becomes only marginal under more balanced weights, and the PCA-based interaction is statistically weak ($p = 0.2927$) despite a high correlation between the manual and PCA indices ($r = 0.9458$). The mechanism evidence should therefore be framed as achievement-dominated rather than as a uniformly robust composite-SAI result.

6.4 Controlling for Concurrent Policy Interference

The observation window spans January 2020 to March 2026 and includes substantial publisher-level strategic adjustment. To absorb time-varying publisher-specific pricing shocks, the analysis re-estimates the matched-sample specification with AppID fixed effects and Publisher $\times$ Month fixed effects. Under this stronger control, the DID coefficient becomes -0.0222 ($p = 0.3490$), suggesting that once publisher-specific monthly pricing strategies are absorbed, the remaining effect on Steam prices is economically small and statistically indistinguishable from zero.

7. Discussion

7.1 The Anchoring Effect of Social Assets on Price Rigidity

The evidence points to a specific version of social-asset lock-in rather than a blanket story about every platform metric. Achievement histories appear to act as the strongest identity anchors in this sample, while more portable or lifecycle-sensitive dimensions do not reliably reinforce price rigidity. This result refines the general switching-cost argument [3,4] by showing which platform-bound assets matter most: not all accumulated data are equally capable of muting competitive price signals.

From an identity-economics perspective [10], achievements function as non-transferable records of self-investment in a platform-specific identity. Unlike workshop uploads or playtime logs — which may be partially observable or replicable across platforms — achievement histories are structurally locked to Steam's backend and carry symbolic as well as functional value. This distinction explains why the achievement interaction produces a robust and statistically significant moderation effect while the composite SAI yields weaker and less stable results. The finding extends Steam-specific work on meta-gaming and achievement systems [18] by linking these assets directly to pricing rigidity, rather than to engagement or platform participation alone.

7.2 Promotional Adjustment as the Margin of Competition

A key insight from the price-margin decomposition is that competition did not disappear; it shifted margins. Table 3 shows that the current list-price measure does not respond significantly to EGS entry, while effective prices fall through both deeper discounts and a higher probability of promotion. The competitive response therefore operates through the intensive promotional margin (discount depth) and the extensive promotional margin (promotion incidence), rather than through durable current list-price pass-through.

This result is consistent with recent Steam promotion research showing that sales events and consumer-review dynamics are important strategic margins for developers [17], and complements research on complementor reactions to EGS entry, which emphasizes heterogeneity rather than uniform migration away from Steam [14]. The present study adds a price-margin interpretation: developers can respond to cross-platform competition without abandoning Steam's list-price architecture, by adjusting temporary discounts that preserve long-run reference prices.

7.3 Contributions and Implications for Platform Competition Theory

The central empirical lesson is not that all competition failed, but that commission competition translated mostly into promotional adjustment rather than durable list-price change. Relative to platform-commission models that focus on seller prices and fee pass-through [13], this paper shows that pass-through can be fragmented across price margins: a reduction in platform fees may influence effective transaction prices while leaving list prices sticky.

Relative to ecosystem strategy research [5-7,15], the paper provides micro-level evidence that non-portable identity assets can limit the transmission of cost-based platform competition. Platforms that succeed in embedding users within identity-bound ecosystems gain pricing insulation that goes beyond conventional network effects. Relative to platform-promotion studies [19], the results show that selective promotion and discounting are not only marketing tools but also a strategic adjustment channel under inter-platform rivalry. The disappearance of the residual DID effect after absorbing Publisher $\times$ Month fixed effects further suggests that observed price movements are closely tied to publisher-level promotional strategies rather than to a durable platform-wide shift in Steam's baseline pricing architecture.

7.4 Policy Implications

The policy implication is that commission reduction alone may be too narrow as a remedy for entrenched platform power. If users and developers remain locked into non-portable achievement histories, community traces, and accumulated platform identity, lower fees on a rival platform may not generate durable list-price competition. Regulators concerned with platform contestability should therefore consider measures that improve portability and interoperability of identity-bound assets, specifically:

(1) Standardized and portable achievement record formats that allow users to carry verified play histories across platforms; (2) Open APIs or data export rights covering user libraries, playtime logs, and social graph data; (3) Cross-platform promotional parity obligations to prevent incumbents from selectively conditioning discount access on exclusivity; and (4) Interoperability requirements for platform-specific community features such as workshop content and review histories. Such measures would target the lock-in mechanism more directly than fee regulation alone, and are consistent with emerging digital-markets regulation that emphasizes contestability and data portability alongside price-based remedies [11,12].

8. Conclusion

Using monthly panel data from January 2020 to March 2026, this paper reframes the Steam-Epic rivalry as a study of price rigidity rather than price pass-through. The central question is not whether Epic's entry reduced Steam prices, but why cost-based entry failed to shift the baseline price architecture while still reshaping promotional behavior. Three conclusions follow.

First, Steam's current list-price architecture exhibits strong rigidity in the face of Epic's commission-based entry. The current list-price coefficient is small and statistically insignificant in lifecycle-controlled regressions, while the full-sample placebo diagnostic indicates that raw observed price declines are not cleanly separable from lifecycle-driven trajectories.

Second, achievement-based lock-in is the primary mechanism sustaining this rigidity. Non-transferable achievement histories function as identity-bound sunk assets that mute competitive price signals; workshop and playtime dimensions do not replicate this pattern, and PCA-based aggregation confirms the mechanism is achievement-dominated rather than uniformly composite.

Third, Epic's competitive pressure manifested primarily as promotional adjustment rather than durable list-price change. The lifecycle-controlled decomposition shows no significant current list-price response, but it does show a significant effective-price decline, a 6.46-percentage-point increase in discount depth, and a 5.12-percentage-point increase in promotion probability.

The paper's central contribution is an explanation of why commission-based entry fails to generate list-price pass-through when the incumbent controls identity-bound ecosystem assets. For competition policy, the implication is direct: lowering platform fees is an insufficient remedy when price rigidity is sustained by non-portable achievement histories and ecosystem lock-in. Effective competitive discipline may require portability mandates for platform-specific assets rather than — or in addition to — fee regulation.

References

- [1] Armstrong, M. (2006). Competition in two-sided markets. *The RAND Journal of Economics*, 37(3), 668–691.
- [2] Rochet, J.-C., & Tirole, J. (2003). Platform competition in two-sided markets. *Journal of the European Economic Association*, 1(4), 990–1029.
- [3] Farrell, J., & Klemperer, P. (2007). Coordination and lock-in: Competition with switching costs and network effects. *Handbook of Industrial Organization*, 3, 1967–2072.
- [4] Klemperer, P. (1995). Competition when consumers have switching costs. *The Review of Economic Studies*, 62(4), 515–539.
- [5] Adner, R. (2017). Ecosystem as structure: An actionable construct for strategy. *Journal of Management*, 43(1), 39–58.
- [6] Kretschmer, T., Leiponen, A., Schilling, M., & Vasudeva, G. (2022). Platform ecosystems as meta-organizations: Implications for platform strategies. *Strategic Management Journal*, 43(3), 405–424. <https://doi.org/10.1002/smj.3250>
- [7] Jacobides, M. G., Cennamo, C., & Gawer, A. (2018). Towards a theory of ecosystems. *Strategic Management Journal*, 39(8), 2255–2276.

- [8] Rietveld, J., & Schilling, M. A. (2021). Platform competition: A systematic and interdisciplinary review of the literature. *Journal of Management*, 47(6), 1528–1563.
- [9] Rietveld, J., & Ploog, J. N. (2022). On top of the game? The double-edged sword of incorporating social features into freemium products. *Strategic Management Journal*, 43(6), 1182–1207.
- [10] Akerlof, G. A., & Kranton, R. E. (2000). Economics and identity. *The Quarterly Journal of Economics*, 115(3), 715–753.
- [11] Fletcher, A., Crémer, J., Heidhues, P., Kimmelman, G., Monti, G., Podszun, R., Schnitzer, M., Scott Morton, F. M., & de Streel, A. (2024). The effective use of economics in the EU Digital Markets Act. *Journal of Competition Law & Economics*, 20(1–2), 1–19.
- [12] Cabral, L. M. B., Haucap, J., Parker, G., Petropoulos, G., Valletti, T. M., & Van Alstyne, M. W. (2021). The EU Digital Markets Act: A report from a panel of economic experts. Publications Office of the European Union.
- [13] Etro, F. (2023). Platform competition with free entry of sellers. *International Journal of Industrial Organization*, 89, 102903.
- [14] Loh, J., & Elsas-Nicolle, A. (2026). Platform competition and strategic trade-offs for complementors: Heterogeneous reactions to the entry of a new platform. *Strategic Management Journal*, 47(6), 1671–1729.
- [15] Jacobides, M. G., & Lianos, I. (2021). Ecosystems and competition law in theory and practice. *Industrial and Corporate Change*, 30(5), 1199–1229.
- [16] Lin, D., Bezemer, C.-P., Zou, Y., & Hassan, A. E. (2019). An empirical study of game reviews on the Steam platform. *Empirical Software Engineering*, 24(1), 170–207.
- [17] Cao, J., & Wang, X. (2024). Endogenous consumer reviews and promotion incentives: Evidence from an online game platform. Working paper, National University of Singapore.
- [18] Rizani, M. N., Khalid, M. N. A., & Iida, H. (2023). Application of meta-gaming concept to the publishing platform: Analysis of the Steam games platform. *Information*, 14(2), 110.
- [19] Rietveld, J., Schilling, M. A., & Bellavitis, C. (2019). Platform strategy: Managing ecosystem value through selective promotion of complements. *Organization Science*, 30(6), 1232–1251.

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Conflicts of Interest

The authors declare no conflict of interest.

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Data and Code Availability Statement

The large-scale dynamic panel dataset (547,518 observations) was collected from public Steam-facing interfaces via a custom automated pipeline. All preprocessing steps, matching routines, lifecycle-control regressions, sample-sensitivity checks, placebo results, weighting-sensitivity outputs, and the lifecycle-controlled price-margin decomposition are archived in a reproducible replication package. The codebase used to generate the results reported here is available from the corresponding author upon reasonable request.

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