

PRODUCT COMPOSITION IN VERTICALLY INTEGRATED MARKETS

IO SUMMER MEETINGS 2025

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MOTIVATION

- Consumer welfare depends on prices but also on product offerings.
 - Through variety (# of products).
 - Or product composition (e.g, quality).
- Thus, accounting for endogenous product decisions is relevant.
 - Analysis of mergers ([Fan, 2013](#); [Mazzeo et al., 2018](#)).
 - Responses to bailouts ([Wollmann, 2018](#)).
 - Collusion on product offerings ([Sullivan, 2020](#)).
 - Market structure in general ([Fan & Yang, 2020](#)).
 - Vertical integration/Exclusivity agreements ([Lee, 2013](#)).

RESEARCH QUESTION

- Research on vertical integration (VI) has focused on different aspects.
 - Double marginalization and foreclosure of rivals (Crawford et al., 2018).
 - Access to *existing* products and indirect network effects (Lee, 2013).
- However, in certain industries we could expect effects on the distribution of
 1. Horizontal characteristics.
 2. Quality.
- This project attempts to understand effect of VI on both.
 - In the market for (digital) PC videogames.

OVERVIEW OF THE PRODUCTION PROCESS

- Game developers create games.
 - But (usually) need a publisher.
 - To handle marketing, distribution, funding and others. ([Gil & Warzynski, 2015](#))
- Finally, games are sold on stores.
 - Today, mostly digital (89.5% in 2022).
- Currently, these engage in complex vertical relationships. [Diagram](#)

WHY COULD VI IMPACT QUALITY?

- Publishers fundamentally provide three services to developers
 1. Financing.
 2. Quality assurance.
 3. Marketing/advertising.
- The first two can improve quality directly.
 - Financing allows developers to invest more in the game.
 - Quality assurance can help avoid bugs and improve user experience.
- Marketing can improve the *perceived* quality.

HOW CAN VI IMPACT HORIZONTAL DIFFERENTIATION?

- Choice of which developer(s) to acquire is *endogenous*.
- If products are substitutable: VI \Rightarrow better profitability \Rightarrow foreclosure.
 - This could affect products far away in characteristics space.
- However, publishers might also want to diversify their offerings.
 - To avoid risk and to reach different audiences.
 - This could lead to more products in the market.

NEXT STEPS

- Collect data.
 - Game data and historical prices can be obtained directly from Steam.
 - Sales data can be purchased from VG Insights.
- Think thoroughly about a model and relevant counterfactuals.

THANK YOU!

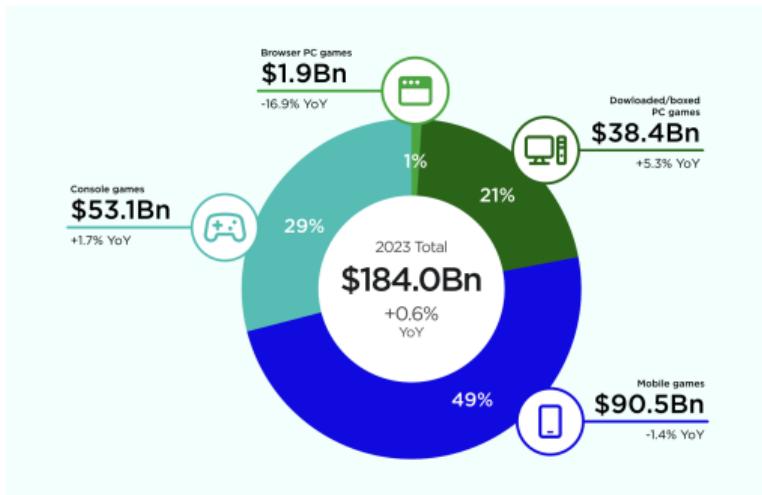
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THE VIDEOGAME INDUSTRY IS SIZABLE



Company	Revenues
1. Tencent	\$7,442M
2. Sony	\$3,410M
3. Apple	\$3,652M
4. Microsoft	\$3,284M
5. NetEase	\$2,814M
6. Google	\$2,418M
7. Electronic Arts	\$1,914M
8. Activision Blizzard	\$2,093M
9. Nintendo	\$1,260M
10. Take-Two Interactive	\$1,129M

Figure: Source: Newzoo (2023)

RECENT TRENDS IN VERTICAL INTEGRATION

- Important trend in acquisitions by large companies.
- Since 2020, Microsoft spent more than \$80bn in acquisitions.
 - \$7.5bn in 2020 for Zenimax.
 - \$75.4bn in 2023 for Activision-Blizzard(-King).
- Sony has also acquired 11 developers since 2021.
 - Biggest acquisition was Bungie for \$3.7bn.

WHY THE MARKET FOR PC VIDEOGAMES

- PC is multipurpose so (lifetime) value is not just due to games.
 - Alleviates demand system complexity.
- Publishers and developers are not hardware manufacturers.
 - No concern about platform incentives.
- Also... it is the data that I can get (for now!).

DATA

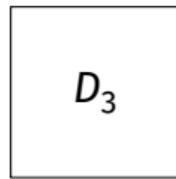
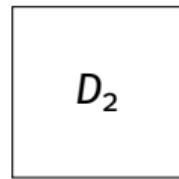
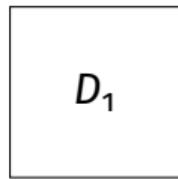
- Data from PC games sold on Steam.
 - Biggest digital distribution platform (~\$9bn in sales vs ~\$1bn on Epic Store).
- Publicly available data.
 - Game characteristics (e.g., genre, historical prices, release date).
 - Developer and publisher information.
- Can also obtain developer ownership from multiple sources.

DATA

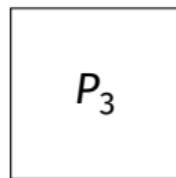
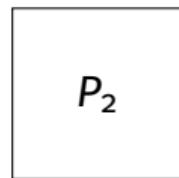
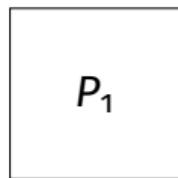
- VG Insights also has rich (proprietary) data on games sold on Steam.
- Daily data on sales and prices for each game since 2014.
- Also breakdown of total sales by region.
 - For a subset of games.

COMPLEX VERTICAL MARKET

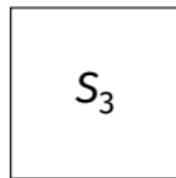
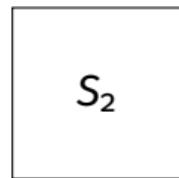
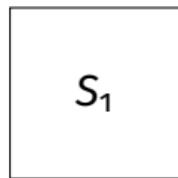
[BACK TO INDUSTRY](#)



Developers



Publishers

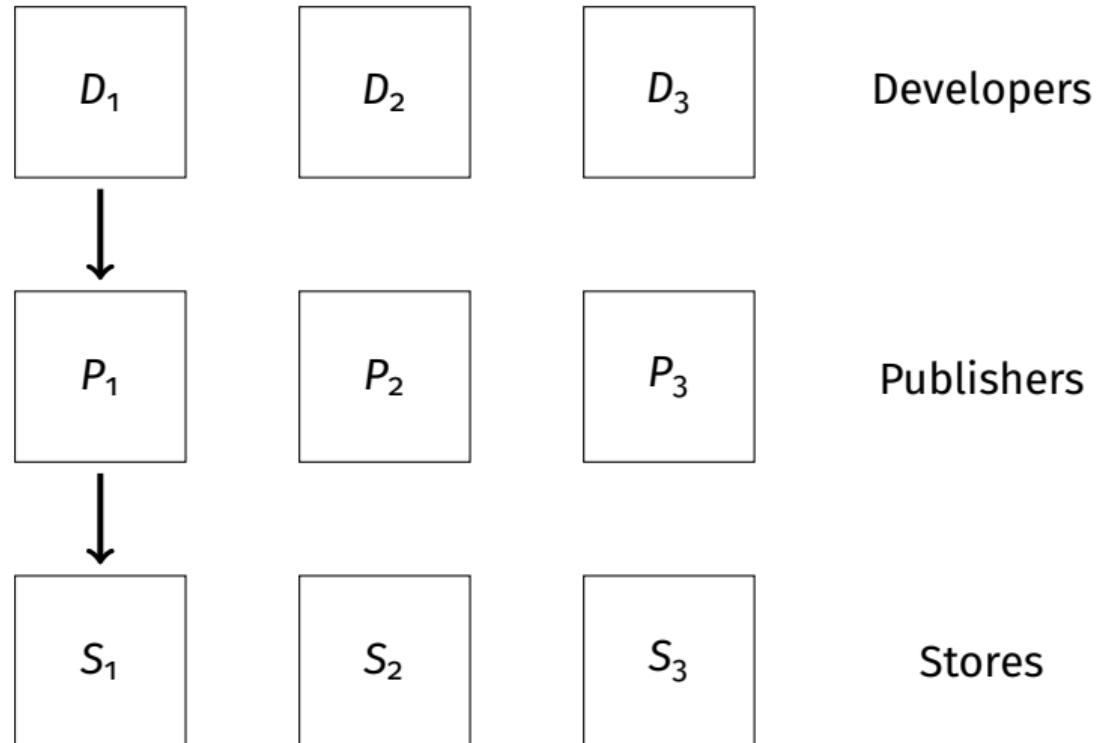


Stores

COMPLEX VERTICAL MARKET

[BACK TO INDUSTRY](#)

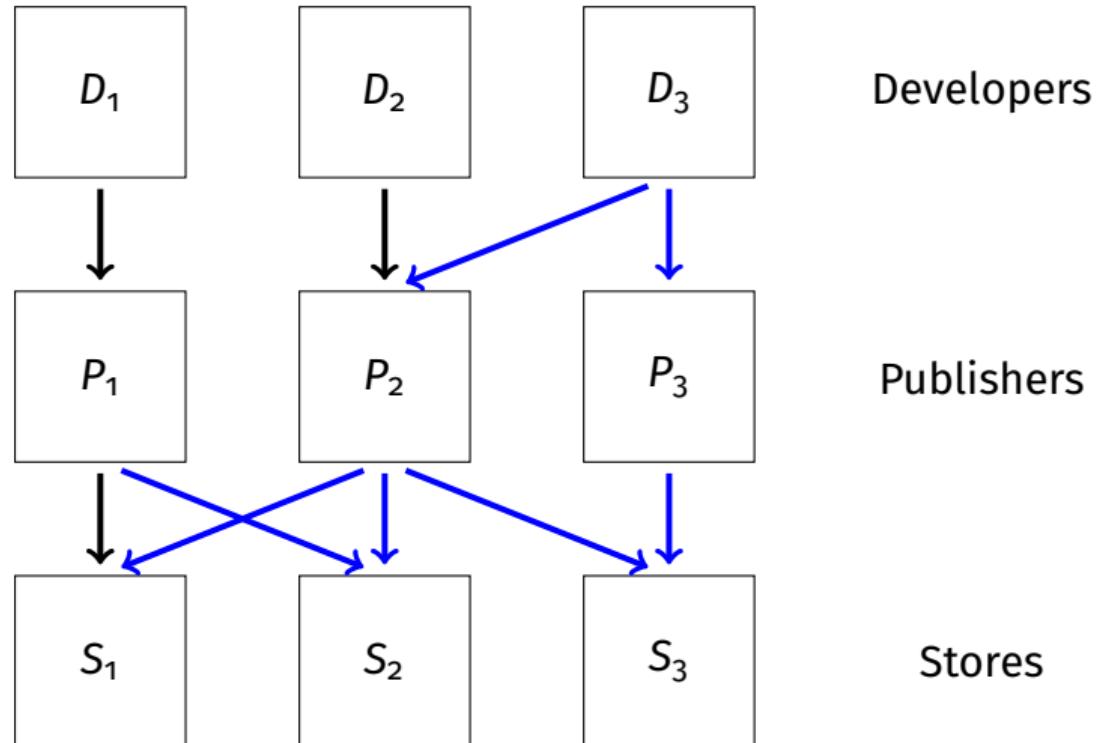
→ Integrated



COMPLEX VERTICAL MARKET

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- Integrated
- Not integrated



REVENUE BREAKDOWN BY REGION

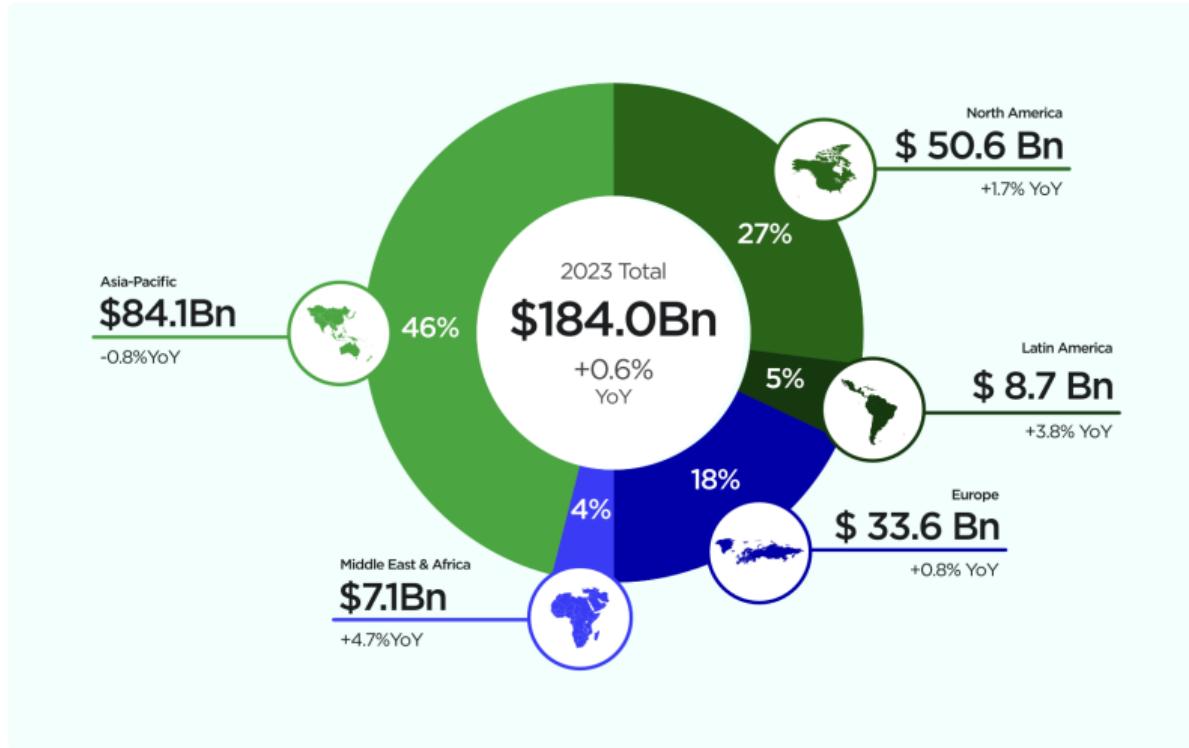


Figure: Source: Newzoo (2023)

PEOPLE ARE PLAYING MORE

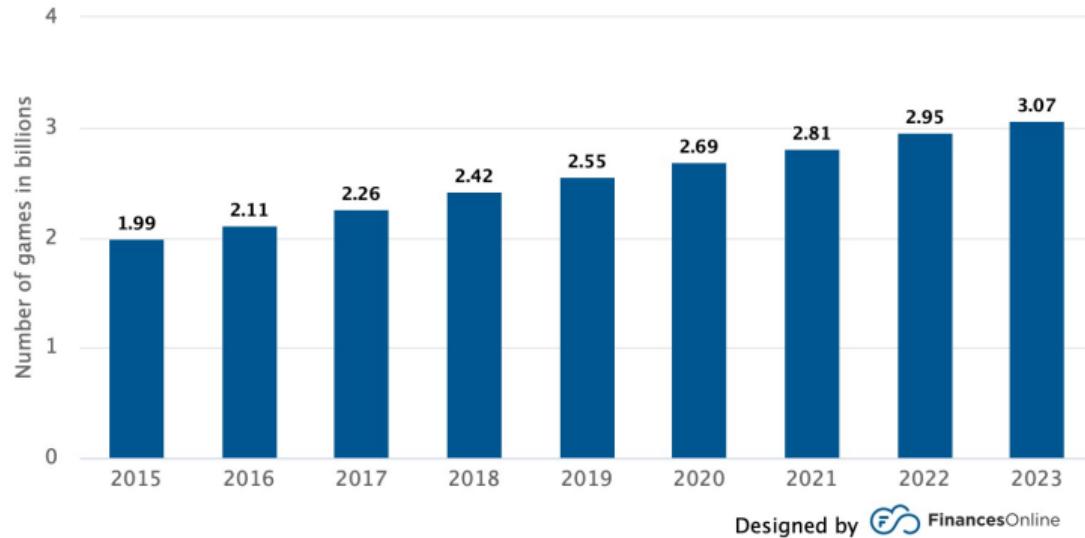


Figure: Source: Newzoo (2020)

IMPORTANT MOVE TOWARDS SERVICES

- For EA alone, \$1.7B in revenue from transactions in live service games in 2023Q3.
- 95% of studios working on or planning to release a live service (Griffin, 2023).
- Important concerns about addiction and gambling.
 - This has led to a number of lawsuits recently.

SOME VIDEOGAMES ARE COMPARABLE TO FILMS

- High-budget (AAA) games have similar budgets and production times as films.
 - But success may vary.

Table: Budgets and revenues of AAA games and high grossing films.

Title	Year	Budget	Revenue	Revenue/Budget
Horizon Forbidden West	2022	212M	588M	2.77
Avatar: The Way of Water	2022	350-460M	2.3B	5.00-6.57
The Last of Us Part II	2020	220M	700M	3.18
Avengers: Endgame	2019	356-400M	2.8B	7.00-7.87

A QUOTE FROM A VP OF KING

[BACK TO DEVELOPERS](#)

“In the mature phase (...) [t]he focus for the company is most likely on serving the existing loyal audience, rather than attracting a new one. (...) If you've made it this far, you most likely have a very deep understanding of the audience you are serving with your successful game(s), what makes them tick and what will make them open their wallets.”

- Kim Nordstrom, VP at King.