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RESEARCH ARTICLE

WHY TRADITIONAL ECONOMIC MODELS OF MARKET STRUCTURE DO NOT APPLY TO DIGITAL BUSINESS PLATFORMS

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ABSTRACT

This paper analyses why traditional market models, such as perfect competition, monopolistic competition, oligopoly, and duopoly, are not suitable for the dynamics of digital business platforms. While these models were developed for traditional physical goods and services markets, digital platforms introduce unique characteristics like network effects, low marginal costs, multi-homing, and data-driven competition that alter the competitive landscape. The study reveals that digital platforms often lead to winner-takes-all outcomes, lower barriers to entry, and rapid innovation, which challenges conventional economic theories. Additionally, the rise of multi-homing and the dynamic nature of digital markets make it difficult for firms to maintain stable monopolies or oligopolies. The research underscores the need for more nuanced models to understand platform competition and calls for the development of adaptive regulatory frameworks to address the complexities of digital business environments. These findings contribute to ongoing discussions on digital governance and the need for policy approaches that balance innovation with protecting competition and consumer rights.

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INTRODUCTION

The rise of digital business platforms has fundamentally reshaped how markets operate, creating a challenge for applying traditional market structures. Traditional economic models, such as perfect competition, oligopoly, and monopoly, have long been used to analyze market behavior and firm strategies, assuming stable conditions and predictable interactions between suppliers and consumers. However, digital business platforms—from e-commerce giants like Amazon to ride-sharing services like Uber—function in ways often at odds with these established market structures. Unlike traditional markets, typically characterized by tangible products and limited consumer interaction, digital platforms thrive on network effects, scalability, and the integration of data-driven decision-making, leading to different competitive dynamics (Hagiu, 2014; Rochet & Tirole, 2003). One of the key factors distinguishing digital platforms from traditional markets is the concept of multi-sided markets, where a platform serves as an intermediary between two or more distinct user groups, such as buyers and sellers or drivers and passengers. In these markets, the platform's value increases as more users from each side join, leading to what is known as a "network effect" (Eisenmann, Parker, & Van Alstyne, 2006). This creates an environment where market outcomes are often skewed toward a few dominant players. This makes the competitive landscape vastly different from traditional models that assume multiple firms can coexist with relatively equal market power (Evans & Schmalensee, 2008).

Moreover, the low or near-zero marginal costs associated with digital platforms allow for rapid scalability and minimal competitive friction, further diverging from traditional competition theories that assume firms face significant barriers to expansion (Shapiro & Varian, 1999). These characteristics highlight the need for new theoretical frameworks to understand the nature of competition in the digital age. As digital platforms continue to grow in importance, economists and business scholars have increasingly turned to platform theory and the economics of two-sided markets to provide more accurate insights into how digital businesses operate (Cusumano, Gawer, & Yoffie, 2019). Understanding why traditional market structures do not adequately apply to digital platforms is critical for policymakers, businesses, and academics seeking to navigate and regulate the complexities of the digital economy.

REVIEW OF LITERATURE

Applying traditional market structures to digital business platforms has been a subject of significant academic debate in recent years. Traditional market structures, such as perfect competition, monopolistic competition, oligopoly, and monopoly, assume conditions such as fixed product offerings, limited information asymmetry, and stable entry and exit barriers. However, these conditions are often unmet in digital business platforms operating in a dynamic and rapidly evolving environment. One key difference is the nature of network effects, which are pervasive in digital platforms. Unlike traditional markets, where firms are largely independent in their pricing and product offerings, digital platforms (e.g., Uber, Airbnb, or Facebook) rely on large user bases to provide value, and the value increases as more users join. This creates a "winner-takes-all" or "winner-takes-most" dynamic, which contradicts the

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assumption of perfect competition where numerous firms exist without anyone dominating the market (Eisenmann, Parker, & Van Alstyne, 2006). Such platforms often exhibit increasing returns to scale, where the cost of adding additional users or suppliers is minimal, leading to substantial concentration and the potential for monopolistic tendencies. Furthermore, digital business platforms are characterized by low or zero marginal costs for transaction processing, which also distinguishes them from traditional market structures. In traditional models, firms incur significant marginal costs as they expand production or service delivery, but digital platforms typically experience minimal cost increases as the platform scales. This leads to a reduction in the relevance of price as a competitive factor, unlike in traditional markets where price competition is a central mechanism (Shapiro & Varian, 1999). Moreover, the digital economy is inherently global and often has very low barriers to entry, especially in comparison to traditional industries where capital investment and regulatory compliance may be substantial. Digital platforms like Amazon and eBay can scale globally with relatively modest upfront costs, making it difficult to apply traditional oligopolistic or monopolistic models based on geographical or financial constraints (Boudreau & Hagiu, 2009). These platforms also generate vast amounts of data, which can be used for hyper-targeted marketing and personalized pricing, further complicating the application of traditional market structures based on uniform consumer behavior. In conclusion, traditional market structures fail to fully account for the complexities and characteristics of digital business platforms. The concepts of network effects, increasing returns to scale, low marginal costs, and the digital nature of competition necessitate new frameworks for understanding competition and market behavior in the digital economy. As such, scholars continue to explore alternative models, such as platform theory and multi-sided markets, to better capture the dynamics of digital business platforms (Evans, 2003).

Analysis: The traditional models of market structures — perfect competition, monopoly, oligopoly, monopolistic competition, and duopoly — were developed in traditional physical goods and services markets. However, these models are not fully applicable to the dynamics of digital business platforms due to the digital economy's distinct features and competitive dynamics. Below is an analysis of why these traditional market structures are not suitable for digital platforms:

1. Perfect Competition

- **Traditional Assumptions:** Perfect competition assumes many buyers and sellers, homogeneous products, no barriers to entry or exit, and perfect information.
- **In Digital Platforms:**
 - **Network Effects:** Digital platforms often exhibit network effects, where the value of the service increases as more users join. This dynamic leads to a situation where dominant platforms, like Facebook or Amazon, accrue disproportionate market share due to their large user bases, making perfect competition difficult (Shapiro & Varian, 1998).
 - **Barriers to Entry:** Despite the relatively low costs of launching a digital platform, significant barriers to scaling up and attracting a critical mass of users (e.g., marketing, technology investment) make perfect competition unlikely (Binns, 2020).
 - **Product Differentiation:** Many digital platforms offer differentiated services. For instance, platforms like Spotify, Apple Music, Airbnb, and Booking.com offer unique value propositions, thus deviating from the assumption of homogeneous products (Zengler, 2021).

2. Monopoly

- **Traditional Assumptions:** A monopoly occurs when a single firm dominates the market with no close substitutes and can control pricing.
- **In Digital Platforms:**

- **Multi-Homing:** In the digital economy, users often engage with multiple platforms simultaneously. For example, consumers use both Google and Microsoft products, or ride-sharing users may use both Uber and Lyft. This behavior reduces the ability of a single firm to control the market entirely (Rochet & Tirole, 2003).
- **Disruptive Innovation:** The digital space is subject to rapid innovation and disruption. New entrants can challenge monopolies, as seen with platforms like TikTok disrupting Facebook's dominance in social media. This disrupts the idea of a stable monopoly (Christensen, 1997).

3. Oligopoly

- **Traditional Assumptions:** Oligopoly refers to a market where a few firms dominate, and their actions are interdependent, leading to strategic behavior like price-fixing or collusion.
- **In Digital Platforms:**
 - **Dynamic Competition:** The digital market is highly dynamic, with many new entrants capable of scaling quickly and disrupting existing players. For instance, TikTok quickly gained significant market share against established social platforms like Facebook and Instagram, challenging the concept of a stable oligopoly (Van Alstyne, Parker, & Choudary, 2016).
 - **Non-price Competition:** Digital platforms often compete on aspects other than price, such as user experience, data analytics, and service innovation. These factors complicate the strategic behavior assumed in traditional oligopoly models, where price competition is central (Evans & Schmalensee, 2016).

4. Monopolistic Competition

- **Traditional Assumptions:** In monopolistic competition, many firms sell differentiated products, and each firm has some market power but faces competition. There are low barriers to entry, and firms focus on product differentiation.
- **In Digital Platforms:**
 - **Overlapping Services:** Many digital platforms offer differentiated services, but users often multi-home, meaning they engage with multiple platforms simultaneously. For example, users may use both Netflix and Hulu or multiple e-commerce platforms (e.g., Amazon and eBay). This undermines the assumption of significant market power based on product differentiation alone (Binns, 2020).
 - **High User Acquisition Costs:** The cost of acquiring and retaining users on digital platforms is significant, and these costs are often tied to factors like technology, marketing, and network effects rather than just product differentiation (Zengler, 2021).

5. Duopoly

- **Traditional Assumptions:** A duopoly occurs when two firms dominate a market, often leading to competitive or strategic behaviors, including collusion.
- **In Digital Platforms:**
 - **Platform Ecosystems:** In many digital markets, even if two firms dominate (e.g., Google and Apple in mobile operating systems), consumers frequently operate across multiple platforms. For example, users might use Android for their phone but Apple for their laptop. This reduces the influence of a duopoly (Rochet & Tirole, 2003).
 - **Innovation and Mergers:** Digital platforms often experience rapid technological advancements and innovation, which can disrupt duopolies. Additionally, firms might merge or collaborate (e.g., Apple and Google collaborating on certain technologies), challenging the strict competition assumed in duopoly models (Evans & Schmalensee, 2016).

Key Factors Unique to Digital Business Platforms

1. **Network Effects:** Digital platforms often benefit from increasing returns to scale, where the value of the service increases with more users. This can lead to winner-takes-all or winner-takes-most outcomes, which are not captured by traditional models (Shapiro & Varian, 1998).
2. **Data-Driven Competition:** Digital platforms rely heavily on data to personalize services and improve user experience, creating a competitive advantage not present in traditional markets (Van Alstyne et al., 2016).
3. **Multi-Homing:** Users of digital platforms frequently engage with multiple services, such as using various social media platforms or shopping across e-commerce sites. This behavior weakens market dominance and prevents the establishment of stable monopolies or oligopolies (Rochet & Tirole, 2003).
4. **Low Marginal Costs:** Once a digital platform is developed, the cost of adding users is often negligible, which allows platforms to scale rapidly and achieve market dominance with minimal incremental costs (Evans & Schmalensee, 2016).

CONCLUSION

Traditional economic models of market structures (perfect competition, monopoly, oligopoly, monopolistic competition, and duopoly) do not entirely apply to digital business platforms' unique dynamics. The inherent features of digital platforms, such as network effects, low marginal costs, rapid innovation, multi-homing, and data-driven business models, create market dynamics that differ significantly from traditional markets. As a result, understanding digital platform competition requires more nuanced models that incorporate these unique factors. The rise of digital platforms requires rethinking traditional market structures and regulatory frameworks. Traditional economic models, such as perfect competition, monopoly, and oligopoly, fail to capture the dynamics of the digital economy, characterized by network effects, low marginal costs, and multisided markets. To address these challenges, new economic models are needed that account for the unique features of digital platforms, such as the role of user interactions and rapid innovation (Rochet & Tirole, 2003; Van Alstyne, Parker, & Choudary, 2016). Regulatory frameworks must evolve to ensure fair competition, consumer protection, and labor rights, especially for gig workers. International coordination is essential to tackle global challenges like data privacy and monopolistic practices (Binns, 2020; Evans & Schmalensee, 2016).

Policymakers must also enhance their technological literacy to craft effective regulations that support innovation while safeguarding stakeholders (Shapiro & Varian, 1998). Furthermore, promoting fair competition through transparency and interoperability can prevent market dominance by a few platforms, fostering a more inclusive digital economy. By developing adaptive economic models and regulatory approaches, ensuring labor protections, and encouraging fair competition, we can create a digital economy that supports innovation, protects consumers and workers, and promotes sustainable growth.

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