

How should Competition and Consumer Protection rules evolve in the age of Artificial Intelligence?

Abstract

This essay explores the need for competition and consumer protection rules to evolve in the age of rapid and unprecedented AI growth.

Section 1 establishes the context of the novel challenges posed by AI, highlighting an urgency for relevant regulations to be reformed. It emphasises the delicate balancing act required to ensure that these changes, while effectively addressing unorthodox challenges, do not unduly hinder innovation. Topics of algorithmic collusion, merger and acquisition (M&A) activities, self-preferencing and price discrimination are key areas we have identified for further discussion to formulate improved legal frameworks.

Section 2 explores how competition rules should evolve to better cope with the demands of the AI age. This includes refinements to better regulate algorithmic collusion and M&A enabled by AI – actions that often go unnoticed because technology has allowed such behaviour to be carried out in subtle and inconspicuous manners. In particular, we urge for the broadening of definitions of certain legal terms, as well as the importance of establishing regulatory bodies specifically targeted towards anticompetitive AI behaviour.

Section 3 analyses the role of consumer protection laws in safeguarding public interest. Practices such as self-preferencing and personalised pricing have long been present, and are only going to evolve further and quicker, and possibly in more harmful ways with the aid of AI and algorithms. This can exacerbate existing issues of information asymmetry. Additionally, data concerns regarding consumers have been identified as an overlapping issue across both sectors.

As such, Section 3 seeks to suggest redresses and modifications to current consumer protection laws to better capture the swift-changing market dynamics empowered by AI. This includes the redefinition of relevant terms, as well as the introduction of explicit provisions for data privacy in protection laws.

(286 words)

1. Introduction

The transformational growth of artificial intelligence (“AI”) has demanded adjustments to antitrust laws to stay relevant. While Singapore’s adherence to free market economics and principles has aided in its quest to foster innovation, even market purists recognise that the ideals of a free market have to be tempered to achieve broader societal goals. Hence, dealing with the idiosyncratic challenges posed by AI requires a deliberate calibration of rules to safeguard the interests of firms and consumers without unnecessarily stifling development.

Cognisant of the need to identify the prevalent challenges and potential benefits to be reaped in the age of AI, this paper seeks to identify gaps within the current antitrust structure. Namely, examining algorithmic collusion, merger and acquisition activities, self-preferencing and price discrimination.

2. Competition Concerns in the AI Economy

2.1. Algorithmic Collusion

With the growing integration of AI in the economic sphere, market dynamics and competition have inadvertently been fundamentally altered. The usage of AI in markets introduces potential risks of anti-competitive behaviour from an antitrust standpoint, specifically, algorithmic collusion (Bird & Bird, 2024). Facilitating this risk is the increase in transparency, swiftness of business decisions, and the instantaneous manner in which firms can respond to rivals' actions (Hawkes, 2021). Spurred by the rapid dissemination of information and the real-time nature of AI-driven decision making processes, they have compounded opportunities for both explicit and tacit collusion to be effortlessly sustained (University of Oslo, 2022).

There are four such scenarios where algorithmic collusion may arise (Ezrachi and Stucke, 2017):

<i>Messenger</i>	AI executes human directives and enables established collusion through conventional methods stemming from human interaction.
<i>Hub and Spoke</i>	Rivals form vertical arrangements with an AI software developer (the "hub"), aiding in the coordination of anti-competitive horizontal agreements among counterparties ("spokes"). This arrangement arises from the algorithm provided by the developer, rather than direct communication

	among competitors.
<i>Predictable Agent</i>	Firms unilaterally employ their individual pricing algorithms. Yet, these algorithms respond to each other's prices, performing as "predictable agents". This raises the risks of conscious parallelism or tacit collusion.
<i>Digital Eye</i>	The threat of highly advanced self-learning AI independently making profit-maximising decisions. Though human interference is absent from this process, it still results in collusion.

Such scenarios are already occurring and have been subjected to crackdowns by anti-competition agencies. For example, in 2023, the Italian Competition Authority launched an ex-officio investigation regarding the usage of pricing algorithms in passenger air transport (Bird & Bird, 2023). Thus, there has been a metamorphosis of anti-competitive conduct from the "smoke-filled rooms" of the past, to a dynamic environment in which complex algorithms are able to manipulate business strategies without the need for firms to enter any overt agreement (University of Oslo, 2022).

To better address these novel challenges, current antitrust laws have to evolve in two ways:

a. Broadening the term “collusion” under competition law due to the potential of AI enabling competition restricting practices through lawful means

Given the blurring delineation between acts of unlawful explicit collusions and the nuanced legality¹ surrounding practices that form tacit collusion, there has been an increasing risk of AI augmenting the risk of tacit collusion in non-oligopolistic markets (Ibid.).

For instance, Section 34 of Singapore’s Competition Act necessitates the evidence of “agreements, decisions and concerted practices” to classify as an act of violation. Such a definition does not encapsulate all situations that could potentially lead to anti-competitive effects. This trend is particularly pronounced in industries where AI is heavily utilised for pricing strategies and market analysis (Calvano, E., Calzolari, G., Denicolò, V., & Pastorello, S., 2020). Profit-maximising algorithms can inadvertently lead to parallel pricing behaviour among competitors (HBR, 2021), replicating the effects of collusion without any explicit communication between firms.

Simply put, the legal loophole created runs the risk of not being addressed by current antitrust laws. Additionally, the opacity of AI decision-making processes can render it challenging for regulators to discern between intentional collusion

¹ Despite its socially undesirable nature (resulting in anti-competitive effects that can manifest through higher prices), tacit collusion is not automatically illegal. It can occur organically in a market due to economic conditions and market dynamics.

and algorithmic convergence (Skrine, 2024), further complicating efforts to maintain fair competition.

To remedy this problem, there is an urgent need to redefine the term collusion. Though the deliberately broad angle in which this term is currently construed enables the prohibition of explicit coordination, it fails to address subtler forms of tacit understanding or algorithmic collusion. Expanding the scope of its normative definition to include implicit coordination and algorithm-driven market behaviour would better enable regulators to have the necessary tools to address anti-competitive conduct.

b. *Adjust existing concepts of antitrust liability due to the autonomous nature of AI (Molski, 2024)*

As technology inches closer to the development of independent AI systems, this calls into question the matter of liability surrounding the undertaking of AI attributes. The reduction of human dependence by AI-driven processes necessitates a shift in a legal system that is centred around the basis of human agency and accountability.

Taking into account the unique characteristics of AI systems (such as their autonomy, decision-making algorithms, and capacity for learning and adaptation), legal frameworks should be redefined. This ensures that legal

standards remain relevant and effective in governing the actions and consequences of increasingly autonomous technologies.

2.2. Mergers and Acquisitions (M&A)

The usage of M&A in the emerging AI sector is a potential weapon in diminishing competition within markets (Bird & Bird, 2024). Horizontal transactions in which established firms acquire budding competitors could result in “killer acquisitions²” that threatens competition (MayerBrown, 2024). With rising numbers of cloud service providers developing proprietary AI models and making substantial investments³, there are mounting concerns over the entrenchment of market power and the potential of excluding downstream competitors (Skadden, 2024).

Foreclosing competition through the usage of vertical transactions to cut off other firms’ access to key inputs (Bird & Bird, 2024) is also a potential harm. Given the foundational role of data in the creation of Generative AI (GenAI) (Weforum, 2023), such acts would raise the barriers to entry, hindering the establishment of an equalised playing field for entrants to compete effectively.

Since traditional methods of evaluating mergers rely on static market definitions, it fails to encompass the dynamic forces shaping long-term competition in emerging AI

² Firms acquire nascent competitors only to discontinue the target's innovation projects, thereby pre-empting the emergence of future competition (OECD, 2021).

³ Google, Microsoft and Amazon boosted investment by half over three years to a combined quarterly total of \$32bn (Financial Times, 2024).

industries (Frontier Economics, 2023). As such, conventional instruments lack the necessary nimbleness to assess mergers of firms in fast-paced markets.

A suggestion could be the introduction of ex-ante regulation tailored to the AI sector to proactively address concerns. Through implementing pre-approval requirements, thresholds⁴ can be set for the notification of M&A. Acquisitions should also be examined to stop smaller buyouts that may aid firms in accumulating market power. This could also entail establishing specialised regulatory bodies with technical expertise in AI technologies. Market dynamics can be better monitored. Hence, mitigating the risk of market consolidation through preemptively addressing potential threats to competition.

⁴ Based on market share, revenue or transaction value

3. Consumer Concerns in the Age of AI

In the AI age, companies' control over data may create barriers to entry that prevent fair competition from fully flourishing. While technological advancements have made consumer spending and information gathering more convenient, they can also harm consumers by facilitating unprecedented modes of anti-competitive conduct (Mintz, 2023).

In this section, we identify two areas that are prominent causes of concern for consumers: self-preferencing and personalised pricing. Both forms of anti-competitive conduct rely on the operation of powerful algorithms, which in turn rely on the collection and processing of massive collections of data. Thus, data collection is an issue of primary importance regarding computationally-driven anti-competitive conduct (Mintz, 2023).

3.1. Self-Preferencing

Dominant platforms utilise algorithms to preference their own products and bury those of their competitors, a practice known as self-preferencing. This was the abuse of dominance underlying the European Commission's (EC) case involving Google Shopping. The EC found that Google abused its dominance in general search services in each of the 13 European Economic Area markets, by positioning and displaying its own products on its general search engine results page more favourably than rivals.⁵

This raises two detriments:

⁵ First, the EC found that web pages of rival CSSs could only appear as text-based results in Google's SERP, and their SERP ranking was prone to demotion by Google's algorithm. Second, the EC found that

a. Reduced consumer choice

According to the Commission, Google's self-preferencing reduced consumer choice by excluding competing comparison shopping sites (OECD, 2021). By prioritising its own products in search results and recommendations, Google controlled the information flow to consumers. While consumers see personalised suggestions, they do not know the extent to which these recommendations are influenced by the firm's self-interest rather than objective relevance. They are thus exposed to a biased subset of available products, constraining choice and leading to skewed purchasing decisions.

In the long term, this would weaken competitors' sales, forcing them out of the market and result in greater monopolisation of the incumbent firm. Consequently, consumers may suffer from reduced choices and higher prices. This underscores the need for greater regulatory intervention to ensure fair competition.

Thus, Singapore should impose specific rules on online platforms acting as gatekeepers.⁶ For instance, regulatory bodies can impose structural remedies such as functional separation⁷ to remove self-preferencing incentives. Similarly, the EU has also suggested the need to consider asymmetric measures for

Google's own CSS was prominently positioned at the top of the SERP, displayed in richer format and was not subject to demotion by its own algorithm (OECD, 2021).

⁶ Gatekeepers are large digital platforms providing any of a predefined set of digital services ('core platform services'), such as online search engines, app stores, and messenger services.

⁷ Functional separation means organisational separation of business units supplying upstream and downstream services together with associated controls to ensure that the units operate in practice on an "arm's length" basis.

particular dominant firms, including with respect to the design and operation of their algorithms (OECD, 2021).

b. Concerns over data privacy

Mass data collection is both a precondition for the creation of algorithms that enable such forms of anticompetitive conduct, and a negative impact of the continued operation of these algorithms. The more companies rely on algorithms, the more they will be incentivised to track consumers to collect data, raising privacy concerns (Mintz, 2023).

3.2. Personalised Pricing

Personalised pricing occurs when businesses can accurately determine and price what each customer will pay for a specific product or service (Investopedia, 2023). Today, personalised pricing is often enabled by algorithms, which are opaque to consumers and regulators (The Straits Times, 2024). As of 2022, around 40% of firms that have adopted AI for personalisation use it to set real-time prices and promotions, by collecting information including consumers' browsing history, social media activity, or even their distance from a competitor's store (Toulouse School of Economics, 2022). Although personalised pricing can attract more customers by offering lower prices to those with lower valuations for the product, these consumers benefit little as they have little willingness to pay in the first place. Simultaneously, those who are willing to pay more are charged higher prices. This reduces the consumer surplus overall.

New forms of AI are on the rise, making it much easier for businesses to carry out accurate personalised pricing. Reinforcement learning – the ability for AI to learn through trial and error – is powering personalisation programmes at scale, helping retailers experiment with new promotion strategies while exploring proven ones via an automated approach (The Edge, 2024). GenAI, too, is enabling rapid content generation within personalised campaigns and services. A survey conducted by Boston Consulting Group showed that 67% of chief marketing officers are exploring GenAI for personalisation.

However, with new forms of AI, firms' ability to collect data surreptitiously⁸ and evade authority attention has grown significantly. As such, consumers are often unaware of the vast amounts of information they are giving up to enterprises with potentially malicious intents. When more consumers share their data, companies may raise prices for those who choose not to reveal theirs, leading to a new problem where consumers who stay anonymous face higher prices and suffer unfairly.

Unfortunately, such concerns over the potential misuse of data and data breaches are currently not explicitly addressed in Singapore's competition and consumer protection rules. Hence, there is potential to integrate data protection principles within both the Competition Act 2003 and the Consumer Protection (Fair Trading) Act (CPFTA) 2004 to better address issues arising from the misuse of consumer data in competitive practices, especially in an age of unprecedented AI growth.

⁸ Today, personalised prices are often concealed as personalised discounts sent by email or smartphone apps.

4. Solutions to Address Data Concerns Regarding Consumers

Given the central role of data collection in the operation of algorithmic self-preferencing and price personalisation, reforms should be introduced to data privacy rules to mitigate potential issues of misuse and exploitation. To address these challenges, current regulations should evolve in two ways:

a. *Introducing explicit provisions on data protection in the CPFTA*

A new section could be introduced that directly addresses the protection and rights that consumers have over personal data. Consumers should be licensed to retract or delete their data at any point in time and the firm should not continue to use, store or share the data once the request has been made. The section should also clearly prohibit the misuse of consumer data for unfair practices, including deceptive personalised pricing.

Additionally, a new dedicated digital platform regulator could be established to make our current antitrust enforcers more robust (Mintz, 2023). When collecting information, the firm must make explicit about the type of information collected and permission should be granted from the consumer.

b. *Amending the definition of abuse of dominant position in the Competition Act to include the control and misuse of consumer data*

The definition of a firm's abuse of dominant position in Section 47 of the Competition Act should be expanded to include that of data-driven market power,

since the possession of vast amounts of consumer data can enable firms to engage in anti-competitive behaviour. This acknowledges the role of possessing data in enhancing a firm's market position, making it explicit that the possession of private data for strategies that exploit consumer vulnerabilities or promote anti-competitive behaviour are outlawed.

5. Conclusion

The integration of AI into various economic sectors necessitates significant updates to Singapore's antitrust and consumer protection laws. While AI has revolutionised various aspects of commerce, it also introduces unique challenges that current legal frameworks may be inadequate in addressing. The issues of algorithmic collusion, M&A facilitated by AI, self-preferencing, and personalised pricing demand a re-evaluation of existing regulations to ensure that seemingly innocuous yet harmful actions by firms do not go unchecked.

Drawing from international precedents, Singapore can incorporate explicit provisions for data privacy in its legal frameworks and redefine certain terms to better encompass rapidly-evolving market dynamics in this digital epoch. These reforms can reduce legal ambiguities and better mitigate the risks associated with AI-driven market behaviour.

By adjusting existing concepts to fully encapsulate the scope of AI and establishing specialised regulatory bodies, Singapore can create a more comprehensive regulatory environment. Ultimately, robust regulatory measures are essential to prevent the exploitation of consumer data and maintain a competitive, transparent market.

(2496 words)

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