Abstract

Although the advent of the digital economy has accorded significant benefits, through providing new goods and services, increasing consumer choice and allowing for greater internal economies of scale, in other ways it also poses a significant threat to competition and consumer welfare. As a result of greater ease of scalability and the presence of the network effect in online platforms, large firms benefit disproportionately in such markets, reducing market contestability. These trends have also given rise to the zero-price business model, for which traditional competition law tools have difficulty in identifying anti-competitive behaviour through measuring market share. Algorithmic pricing has also been utilised by firms to engage in unfair price discrimination that has been difficult to detect, and greater asymmetric information in the digital economy has allowed for new avenues of consumer exploitation. Given these changes that have occurred rapidly in the past decade, current frameworks have a limited ability to effectively regulate the market. To address these limitations, we propose to create new data collection methods to better identify anti-competitive practices, legal frameworks to address new concerns brought about the digital economy, as well as greater global cooperation in addressing related challenges, given that markets are becoming more internationalised. In enacting such measures, since the ease of scalability has increased the marginal benefit of anti-competitive behaviour, and its adverse impacts can manifest in many different facets, we propose that the government intervenes more heavily to exact a higher marginal cost, and also on a broader scale to target the various facets in which the digital economy poses a challenge to competition and consumer welfare.

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1 Introduction

With an influx of digital technology entering the modern economy, legislative tools governing the digital economy seem to have lagged behind. The digital economy refers to a hyperconnected economy of people, organisations and machines, facilitated by the web and use of digital technology[1]. Its rise in the absence of mature regulation has increased competition and benefited consumers through cost reduction due to scalability of services. At the same time, the dominance of large firms have been exacerbated due to the presence of network effects, while small firms find it harder to penetrate into the economy. Moreover, information asymmetry and the ease of acquiring consumer data through consumer's digital history have made it easier for firms to exploit consumers through price discrimination and subscription traps. Against such a backdrop, how can the government intervene without hindering the welfare enhancing effects brought by a growing digital economy? This essay aims to summarise the impact of a digital economy on current competition and consumer protection laws and propose possible policy suggestions to reconcile the benefits and harms posed by a growing digital economy.

[1] Mundula, Luigi, and Sabrina Auci. "Institutional Entrepreneurship, Trust, and Regulatory Capture in the Digital Economy." *Handbook of Research on Entrepreneurship and Marketing for Global Reach in the Digital Economy Advances in Business Strategy and Competitive Advantage*, 2019, pp. 58–79., doi:10.4018/978-1-5225-6307-5.ch003.

2. The Context of a Digital Economy

2.1 Benefits of a Digital Economy

The influx of digital technology has brought many benefits to consumers. Digital platforms have reduced consumer search costs[2], allowed for increased cross-product comparisons and the birth of new services. The penetration of digital platforms into traditional industries have allowed many services to be recreated, the most significant being the rise of sharing economy practices[3]. With a key feature of online platforms being the ease of scalability[4], such services can be easily extended to millions of consumers at low cost. This has increased its attractiveness and resulted in the widespread use of digital technologies in many industries today[5].

2.2 Scalability of Online Platforms

In the digital economy, markets using online platforms see a high market concentration. While initial start up cost is high, expanding the reach to one additional consumer is at low marginal cost[6]. With the returns to scale high, only large firms can price their goods

[2]Brynjolfsson, E., & Kahin, B. (2002). *Understanding the digital economy: data, tools, and research*. Cambridge, MA: The MIT Press.

[3] Jakosuo, Katri. (2019). Digitalisation And Platform Economy – Disruption In Service Sector. 75-85. 10.15405/epsbs.2019.01.02.7.

[4] Foda, K., & Patel, N. (2018, June 29). Competition challenges in the digital economy. Retrieved May 16, 2020, from https://www.brookings.edu/blog/up-front/2018/06/28/competition-challenges-in-the-digital-economy/

[5] Digital Transformation - Reports - World Economic Forum. (n.d.). Retrieved May 16, 2020, from http://reports.weforum.org/digital-transformation/

[6] Buytaert, D. (2014, September 5). The End of Ownership: The Zero-Marginal-Cost Economy. Retrieved May 17, 2020, from https://thenextweb.com/entrepreneur/2014/09/06/end-ownership-zero-marginal-cost-economy/

attractively, acting as a barrier to entry for new firms. This could be detrimental to the contestability of the market.

Such economies of scale also allows the phenomenon of free online services to become a common reality. Ideally, consumers will be the biggest winners, with almost free access to digital services. The reality is that many such platform providers earn revenue from advertising and selling consumer data.[7] In some other cases, big firms exploit their market power in one market to dominate another.[8]

While previous models use price to measure the valuation of a good or service to a consumer, the change in business models where consumers pay nothing and producers do not gain revenue directly from consumers, such a tool to measure consumer welfare may prove ineffective[9]. In addition, as firms increasingly adopt a "zero-price" business model[10], it is even harder to identify anti-competitive behaviours by observing prices online.

[7] Foda, K., & Patel, N. (2018, June 29). Competition challenges in the digital economy. Retrieved May 17, 2020, from https://www.brookings.edu/blog/up-front/2018/06/28/competition-challenges-in-the-digital-economy/

[8] Rey, J. D. (2020, January 22). 6 reasons smaller companies want to break up Big Tech. Retrieved May 17, 2020, from https://www.vox.com/recode/2020/1/22/21070898/big-tech-antitrust-amazon-apple-google-facebook-house-hearing-congress-break-up

[9] Competition Policy in a Globalized, Digitalized Economy. (n.d.). Retrieved May 17, 2020, from https://www.weforum.org/whitepapers/competition-policy-in-a-globalized-digitalized-economy

[10] Quality considerations in the zero-price economy. (n.d.). Retrieved May 17, 2020, from http://www.oecd.org/daf/competition/quality-considerations-in-the-zero-price-economy.htm

2.3 Use of Algorithmic Pricing

AI is becoming more commonly used in pricing of goods in a digital economy. Firms are experimenting with dynamic algorithm pricing, by utilising data to better target consumers taste and preferences, and competitors pricing strategies to maximise overall profits. However, experts see a complex scenario where profit maximising algorithms reach a collusive outcome even without prior agreements between firms[11]. This could spell a larger challenge for policymakers to draw the line between smart pricing and collusive outcomes, especially given the lack of transparency[12] in price setting algorithms.

While the use of algorithms allows for faster and more accurate price adjustments,[13] a more sinister side of smart pricing tactics reveals that consumer data and preferences are exploited to personalise pricing to benefit firms[14]. Existing literature highlights the process of data mining to segment high-value from low-value consumers allowing firms to maximise the difference between consumer acquisition cost and lifetime value[15]. This results in asymmetric information, where consumers unaware of the price discrimination are exploited by firms.

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[11] Hao, K. (2020, April 2). Pricing algorithms can learn to collude with each other to raise prices. Retrieved May 16, 2020, from https://www.technologyreview.com/2019/02/12/137471/pricing-algorithms-can-learn-to-collude-with-each-other-to-raise-prices/

[12] Executive Office of the President. 2015. *Big data and differential pricing*. https://obamawhitehouse.archives.gov/sites/default/files/whitehouse_files/docs/Big_Data_Report_Nonembargo_v2.pdf.

[13] Oxera. (2020, January 16). When algorithms set prices: winners and losers. Retrieved May 16, 2020, from https://www.oxera.com/agenda/when-algorithms-set-prices-winners-and-losers/

[14] Executive Office of the President. 2015. *Big data and differential pricing*. https://obamawhitehouse.archives.gov/sites/default/files/whitehouse_files/docs/Big_Data_Report_Nonembargo_v2.pdf.

[15] Danna, A., and O.H. Gandy Jr. 2002. All that glitters is not gold: Digging beneath the surface of data mining. *Journal of Business Ethics* 40 (4): 373–386.

2.4 Network Effects of E-Commerce

The “network effect” refers to a phenomenon whereby a product or service gains additional value as more people use it. It is exhibited by online platforms such as ride-hailing and retail services, where sellers gain from more customers on the platform and customers gain from more sellers. Past a critical inflection point, growth of such platforms tend to follow an exponential rather than linear trajectory[16], and compounded with the aforementioned low marginal cost relative to fixed cost, firms can reap extensive economies of scale.

This poses an issue to competition by serving as a barrier to entry, making it difficult for rivals to lure buyers and sellers away once the platforms have attained a critical mass[17]. By creating a highly concentrated market structure, there is a risk of breeding inefficiency, as well as consumers facing higher prices and lesser options. For example, Grab, which now owns an estimated 80% of the online ride-hailing market[18], has been reported to be causing passenger discomfort due to alleged price gouging[19].

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[16] Hagiu, A., & Rothman, S. (2016). Network Effects Aren’t Enough. Retrieved 28 May 2020, from https://hbr.org/2016/04/network-effects-arent-enough

[17] Ibid. 19.

[18] Aravindan, A. (2018, September 24). Singapore fines Grab and Uber, imposes measures to open up market. Retrieved 28 May 2020, from https://www.reuters.com/article/us-uber-grab-singapore/singapore-fines-grab-and-uber-imposes-measures-to-open-up-market-idUSKCN1M406J

[19] Grab monopoly causing passenger discomfort. (2019). Retrieved 28 May 2020, from https://theaseanpost.com/article/grab-monopoly-causing-passenger-discomfort

A factor that counters the non-competitive effects of the network effect is the ability of consumers to make use of multiple platforms providing similar goods and services simultaneously, termed as “multi-homing”[20], which places competitive pressure on incumbents with large market share. However, this can be impeded through introduction of barriers to switching, such as contractual subscriptions and loyalty rewards, or lack of information on alternatives[21].

[20]Lee, E., & Poh, L. (2019). E-commerce and Competition Law: How Does Competition Assessment Change with E-commerce? In C. Lee & E. Lee (Eds.), E-Commerce, Competition and ASEAN Economic Integration (pp. 48). ISEAS–Yusof Ishak Institute.
[21] Ibid. 23, 48.

2.5 Asymmetric Information

The E-commerce environment also results in greater information asymmetry. Firstly, consumers are unable to physically evaluate the quality of products[22]. Secondly, the complex nature of digital products and services widen the information gap between sellers and buyers.

This gives rise to trends that threaten consumer welfare, such as counterfeit products, and in recent years, “subscription traps” where consumers are unwittingly locked into a subscription contract after making an online transaction. These trends hurt consumers as they wind up paying for goods and services they do not value. Such was the case in November 2019 where Fashion Interaction allegedly charged customers monthly membership fees without their knowledge or consent[23].

[22] Mavlanova, T., Benbunan-Fich, R., & Koufaris, M. (2012). Signaling theory and information asymmetry in online commerce.

[23] Heng, M. (2019). Competition watchdog seeks court order to stop e-commerce website from using 'subscription trap'. Retrieved 28 May 2020, from https://www.straitstimes.com/singapore/competition-watchdog-seeks-court-order-to-stop-e-commerce-website-from-using-subscription

3. Current Policies and Limitations

3.1 Price Fixing

Current policy measures employed by the Competition and Consumer Commission of Singapore(CCCS), specifies that price fixing is prohibited in markets. Price fixing involves competitors agreeing to fix, control or maintain the prices of goods or services.

Such policies are less relevant when targeted at firms providing online services like platforms, as they enjoy the benefits of scale and provide services to an additional consumer at zero marginal cost, and can thus provide free services.

The rise of algorithmic pricing has also made it difficult to distinguish deliberate price-fixing by e-commerce sellers, with cases where producers unknowingly involve themselves in price setting cartels by using pricing algorithms.

3.2 Anti-Competitive Mergers

Section 54 of the Competition Act punishes anti-competitive mergers that lead to a substantial lessening of competition. Such mergers can be identified through factors like the merged entity having a market share of 40% or more. Currently, the CCCS can impose substantial financial penalties and, mitigate or eliminate the adverse effects arising from the merger[24].

[24] Mergers | CCCS. (2019). Retrieved 28 May 2020, from https://www.cccs.gov.sg/anti-competitive-behaviour/mergers

E-commerce may threaten the ability of CCCS to deal with such mergers. Firstly, specific to firms with an online “zero-price” business model, identification of an anti-competitive merger may be impeded by the difficulty of measuring market share.

Secondly, referring to online platforms in general, the network effects allowing firms to enjoy an exponential growth trajectory raises the marginal benefit of non-competitive mergers, in terms of larger profits gained. This could outweigh the marginal cost of financial penalties, and call for a shift in modus operandi of CCCS from fines to more interventionist measures to block the mergers in itself.

For example, the merger of Grab and Uber deemed non-competitive by CCCS was not reversed through the fine, reducing competition in the ride-hailing market and alleged price hikes following the deal[25]. Such mergers hurt consumer welfare, and could be better prevented by more stringent measures.

3.3 Consumer Protection Fair Trading Act

Under the CPFTA, unfair practices that hurt consumer welfare such as misleading consumers by making false claims or omitting crucial information are prohibited[26].

[25] Ibid. 21.

[26] CASE - Consumer Guides | CPFTA & Lemon Law. Retrieved 28 May 2020, from https://www.case.org.sg/consumer_guides_cpfta.aspx

As mentioned earlier, firms may opt for digital tools such as algorithmic pricing, and it may be increasingly difficult for policymakers to assess whether consumers are manipulated by firms given opaque decision making processes by AI. Also, the ease to which firms can use online platforms to market their goods have drastically increased the number of e-transactions[27], making it more difficult for policymakers to sieve through vast amounts of data to investigate potential breaches of legislation.

Consumer complaint-led investigations may become less effective as the huge information gap faced by consumers could result in a scenario where consumers are unaware that they are victims of unfair marketing and pricing tools[28]. In addition, complicated processes involved in submission of complaints and the occurrence of administrative fees and membership fees under CASE's online platform to lodge a complaint[29] may act as a deterring factor for victims, undermining the effectiveness of such a policy.

3.4 The Lemon Law

Under the CPFTA, the Lemon Law protects consumers against goods that do not conform to contract or are not of satisfactory quality at the time of delivery by obligating business to repair, replace, reduce the price or provide a refund for a defective product.

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[27] eCommerce - Singapore | Statista Market Forecast. (2020). Retrieved 28 May 2020, from https://www.statista.com/outlook/243/124/ecommerce/singapore

[28] Ibid. 26.

[29] CASE - Complaint & Resolution | Lodge a Complaint. Retrieved 28 May 2020, from https://www.case.org.sg/complaint_lodgeacomplaint.aspx

However, it does not apply to consumer-to-consumer (C2C) transactions[30]. Given that the C2C business model is gaining popularity with the digital economy[31], the Lemon Law could thus fail to protect an increasing large number of consumers. Popular C2C platforms like Shopee, Lazada and Carousell have grown exponentially but have also seen a number of scams.[32] This is evidence of weak consumer protection by individual platforms, and could be an additional area of application of the Lemon Law.

[30] Ibid. 29.

[31] Schroeder, B. (2019). Entrepreneurs, Forget B2C and B2B. Build a C2C Ecommerce Platform And Disrupt Or Grow An Industry. Retrieved 28 May 2020, from https://www.forbes.com/sites/bernhardschroeder/2019/04/29/entrepreneurs-forget-b2c-and-b2b-build-a-c2c-ecommerce-platform-and-disrupt-or-grow-an-industry/#6346bfc0518e

[32] Wong, C. (2020). Retrieved 28 May 2020, from https://www.straitstimes.com/singapore/courts-crime/scam-victims-lost-413-million-in-first-quarter-of-2020-e-commerce-and-loan

4. Future Improvements

4.1 Rethinking of Competition Law Tools

The changes brought about by the digital economy calls for changes in traditional tools to measure market share, market power and weigh pro-competitive and anti-competitive effects. For zero-price business models, since market share and market power can no longer be accurately measured through sales revenue, there is a need for a new established framework to assess the above. Some alternative indicators include the total number of buyers and sellers, number of downloads and daily usage statistics. Market power may possibly be assessed qualitatively through surveys that find out consumer perception on the availability of substitutes.

4.2 Global Cooperation

The disruptions brought about by e-commerce to competition and consumer protection laws is significant and requires considerable amendments to existing laws, or even establishment of new standards and frameworks for zero-price business models mentioned above. Such changes can be quickened through cooperation on the international level. Furthermore, with the rise of cross-border e-commerce[33] protection of competition and consumer welfare may have to take on an international dimension, through the creation of an international enforcing body for competition and consumer

[33] Saleh, K. (2020). Cross Border Shopping – Statistics and Trends. Retrieved 28 May 2020, from https://www.invespcro.com/blog/cross-border-shopping/

protection to effectively combat the threats brought by the interconnected digital economy.

4.3 Self Regulation

While previous laws may be effective in restricting anti-competitive practices in traditional industries, changing business models have alluded to decreased relevance of top-down regulation. Given the informational disadvantage regulatory bodies face, effective long-term regulation will require continuous input from stakeholders . A move away from traditional antitrust laws to “participative antitrust”, involving industry players in the formation of industry-specific regulations, may be more effective in regulating anti-competitive behaviour. This could manifest in the form of discussions between firms and relevant authorities, where firms can provide critical insight as to how competition regulation can be better adapted to industry changes.

4.4 Prevent Exploitation of Consumers

The digital economy has enabled sellers online to exploit information asymmetry in new ways. In order to protect consumers more comprehensively, the scope of “unfair practices” under the CPFTA could be expanded. For example, currently the exploitation of consumers ’status quo bias, where consumers have a preference for current state of affairs, is not considered in the list[34]. However, firms have been using such biases to their advantage, as in the case of “subscription traps” where firms utilise information asymmetry and consumers ’status quo bias, by making subscriptions automatic opt-in rather than opt-out.

[34] Ibid. 29.

Furthermore, the increase in the amount of e-transactions make investigations by authorities more difficult, calling for increased consumer empowerment against unfair practices. To protect consumers against non-competitive price increases by e-commerce companies, greater information on the availability of substitutes could be provided, reducing the market power of incumbent firms. This could take the form of a price comparison app, with a similar system to the Price Kaki[35] application by CASE to compare prices of groceries and hawker food, but with an extended scope to include e-commerce industries like online ride-hailing and retail.

Consumers can also be empowered to report unfair practices through the creation of a more efficient reporting system. The aforementioned complicated process in lodging a complaint with CASE[36] can discourage consumers from doing so. Given the sheer volume of e-commerce transactions and potential breaches of laws, a more efficient reporting system for consumers with less fees, or free-of-charge, could greatly increase the capacity of authorities to identify and investigate unfair practices.

[35]Mahmud, A. (2019, September 10). CASE launches new app to compare prices of groceries, household items and hawker food. Retrieved May 28, 2020, from https://www.channelnewsasia.com/news/singapore/price-kaki-app-case-compare-groceries-household-hawker-11890418

[36] Ibid. 32.

4.5 Greater Laws on Algorithm Pricing

The rise of algorithmic pricing has resulted in the aforementioned unfair practices, necessitating greater intervention. However, fundamentally, prices still play a crucial role in resource allocation. Surge pricing tactics allow for greater efficiency, since higher prices effectively remove the shortage for the goods during high demand. Therefore, there needs to be a careful balance between intervention and allowing for a Laissez-faire market place.

Firstly, relevant government agencies should evaluate the value-add by such algorithmic pricing tools to consumer welfare. While surge pricing could allow greater consumer utility by eliminating shortages, practices like price discrimination which exploits consumer information has a largely negative impact on consumer welfare, and hence we suggest a ban on price discrimination that does not add to consumer welfare. Furthermore, even as surge pricing aims to promote allocative efficiency, there should be restrictions implemented to ensure a balance with equity for consumers. We suggest the implementation of a mandatory price ceiling function with surge pricing algorithms to prevent exorbitantly high prices.

Next, government agencies should also consider difficulty in regulating algorithmic pricing through laws. Present day advancement of algorithms has progressed to a state where it is difficult to determine the decision process of algorithms. An opaque decision making process by firms could make regulation around price setting more difficult. We

recommend measures taken to prohibit the use of pricing algorithms which derive at conclusions that cannot be deciphered by experts.

5 Conclusion on the Optimal Level of Intervention

In general, the current principle that calls for government intervention when firms engage in anti-competitive behaviour that results in net welfare loss, and not when firms are in a dominant position continues to serve well. However, the issues that come with e-commerce, namely the scalability of online platforms, algorithmic pricing, the barrier of network effects and increased information asymmetry has widened the scope for government intervention. Furthermore, network effects have increased the marginal benefit of anti-competitive behaviour, rendering current policies that serve as marginal cost of their actions ineffective.

As such, while government intervention should still be implemented on the same basic prerequisites, intervention on a broader level to target the various specific problem areas of e-commerce, as well as on a larger scale to serve as an effective disincentive for firms will be required to preserve competition and protect consumer welfare amidst the rise of e-commerce.

(Word count: 2500)

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