Dangers of the Digital Economy: Government Intervention in the Digital Age

Abstract

Government intervention is needed in order for markets to operate efficiently and optimally. Yet, the role of the government is not to supplant market mechanisms, but to support its optimal operation, by correcting and preventing market failures.

Government intervention must be targeted, specific and constantly revised as economic and technological conditions change. One important change Singapore is facing is the rapid development of the digital economy. Though the digital economy presents opportunities for Singapore, we must also beware of the challenges, such as the new forms of market failure, that the digital economy can bring us. In this essay, we will examine if our current government interventions are sufficient to address these new forms of market failure, and hence, protect consumers and competition, thereby creating an optimal and efficient environment for digital markets to flourish.

In Section 1, we will lay out a cost-benefit framework to evaluate the optimal extent of government intervention. We will be applying

this framework throughout the essay.

In Section 2, we will assess the prevalence of market dominance and information asymmetry in the big data economy, and its detrimental effects on consumer privacy and welfare. We will argue that current data protection laws under the Personal Data Protection Act can be further tightened to correct consumers' inherent cognitive biases, hence necessitating greater intervention.

In Section 3, we will assess the effects pre-emptive acquisitions have on potential levels of competition in digital markets. We will argue that current merger laws are unable to sufficiently protect potential competition against the anti-competitive threat of pre-emptive acquisitions. Hence, greater intervention is needed.

Finally, in the conclusion, we will draw general lessons from the two case studies we presented, and advocate for a future-proof approach towards government intervention.

(288 words)

Contents

1 Introduction and Background

While free markets were traditionally seen as self-correcting mechanisms that will achieve economic efficiency when left on their own, this is rarely the case in reality (Tan & Ng, 2016). Most markets possess inherent imperfections such as high barriers to entry, market dominance, or externalities that prevent them from achieving economic efficiency on their own (Wu & Ramesh, 2014). Consequently, government intervention that corrects these market failures and enables markets to achieve economic efficiency is not only beneficial, but also necessary.

However, government intervention will also incur additional costs. Governments possess inherent imperfections such as imperfect information, principal agent problems, and inefficient administrative costs (Wu & Ramesh, 2014). Government interventions may also distort market forces further, solving one market failure at the cost of exacerbating another. For instance, overly burdensome anti-trust regulations may reduce market incentives to innovate, leading to a dynamically inefficient outcome (Cremer et al., 2019).

As government intervention involves both costs and benefits, the optimal level of government intervention is neither exclusively free market nor exclusively interventionist (Menon, 2010). Rather, the optimal level of government intervention should be determined using a cost benefit analysis, which assesses if a given intervention would maximise societal welfare. Such a cost benefit analysis should be applied not only to determine the optimal extent of government intervention, but also to determine the optimal

nature of intervention.

We will now apply such a cost benefit analysis to evaluate Singapore's current state of government intervention in the digital economy. We chose to focus on the digital economy for two main reasons: Firstly, as the digital economy is significantly different from most traditional markets in its competition dynamics and business models (Competition and Consumer Commission of Singapore, 2018), it is unsurprising that the digital economy presents new forms of market failure. Such differences behoves us to examine if current government interventions need to be adapted in nature or extent. Secondly, the digital economy is deeply intertwined with innovation, both as an economic objective of dynamic efficiency, and as a policy objective, since the government seeks to bring Singapore towards being a SmartNation. We will thus examine if current government interventions are sufficient in protecting consumers and competition in the digital economy, by curbing anti-competitive behaviour and preventing market failures.

2 Protecting consumers in digital markets

In the field of consumer policy, the digital economy necessitates government intervention in order to balance the protection of consumer privacy with the need for digital innovation. Crucially, big data presents both opportunities and costs, in a trade-off that is not sufficiently managed by our current data protection laws.

2.1 Big data and consumer privacy

Due to its unprecedented volume, variety, velocity and value, big data drives producers to innovate and compete in dynamic markets, and is what propels the digital economy forward (Competition and Consumer Commission of Singapore, 2017).

However, the collection and analysis of personal data represents a violation of consumer privacy (Wolfgang, 2016). Consumers bear the costs of these violations of privacy, insofar as privacy has its inherent value.

From an economic perspective, consumers derive utility from privacy both as a final good (i.e. privacy in and of itself), and as an intermediate good (i.e. privacy as a means to an end that allows them to enjoy other benefits, such as a greater sense of security) (Wolfgang, 2016). Nonetheless, the amount of utility one derives from privacy varies from person to person, and depends on their specific context, cultural influences and personal beliefs (Alessandro Acquisti, 2013).

Ideally, an allocatively efficient society would consume privacy up to, and only up to the point where the additional opportunity costs of privacy, in the form of forgone innovation, equals the additional benefit gained by consumers from privacy. Crucially, innovation is considered the opportunity cost of greater privacy, due to the extreme importance of consumer data to Research & Development in the digital economy.

Yet, due to market failures, such an ideal cannot be reached without government intervention in the big data economy.

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2.2 Causes of market failure

There are two main causes of market failure in digital markets in relation to consumer privacy.

2.2.1 Market dominance

Firstly, due to the presence of substantial network effects and barriers-to-entry, big tech companies such as Google and Facebook have significant market power (Haucap & Heimeshoff, 2013). This market power allows dominant digital firms to set an allocatively inefficient price for their products. In the case of most digital services, the 'price' consumers pay for utilising them comes in the form of a sacrifice of their privacy (European Data Protection Supervisor, 2014). Thus, dominant digital firms charge their users an inefficiently high 'price', in privacy terms, for the use of their products. With few to no closely substitutable services to turn to, consumers have little choice but to continue to utilise these services and comply with their abusive data collection practices (Wolfgang, 2016).

2.2.2 Irrational privacy preferences and imperfect information

Secondly, consumers often have irrational privacy preferences. This irrationality is exposed by the privacy paradox, which highlights the inconsistency between consumers' stated concerns over internet privacy, and their actual more privacy-indifferent online behaviour (Norberg et al., 2007). Such a discrepancy is explained partly by users' inherent cognitive biases such as the endowment effect and status quo bias. This is worsened by

firms' intransparent practices, resulting in severe information asymmetry (Acquisti et al., 2016). For example, common practices such as vaguely-worded and lengthy privacy policies increase consumers' perceived costs of reading through them, while inconspicuous privacy settings cause them to implicitly "agree" to conditions they never noticed. Often, even sophisticated consumers, who take into account firms' future use of their personal data when using online services, are unaware of the extent of such practices by firms, and thus unable to make optimal decisions regarding their online actions (Wolfgang, 2016).

2.3   Impacts of market failure

Without sufficient government intervention, market power and information asymmetry allow dominant incumbents to set high and allocatively inefficient prices in privacy terms, resulting in underconsumption of privacy, and hence a loss of societal welfare.

However, these allocatively inefficient outcomes may be balanced by other positive market outcomes. Information gathered on users' behaviours and preferences allow firms to provide them with more targeted and higher quality services (Competition and Consumer Commission of Singapore, 2017). The sharing of data can also reduce market friction and facilitate transactions (Acquisti et al., 2016). Most crucially, big data is an important ingredient of digital innovation, especially in the field of Artificial Intelligence.

2.4 Evaluation of current interventions: Where are we now?

The Personal Data Protection Act requires consent as the critical basis of data collection under the consent obligation, as well as transparency of data usage under the notification and openness obligations, and reasonableness of usage under the purpose limitation obligation (Competition and Consumer Commission of Singapore, 2017). This is to ensure that firms do not engage in intransparent or exploitative practices in their data collection. Additionally, the PDPA implements dynamic and iterative consent where consumers are kept updated and in active charge of the firms' usage of their data, especially if the firm meshes and shares their data with other firms (Personal Data Protection Commission, 2018). As a result, consumers are better informed of how their privacy may be violated, thus reducing information asymmetry.

PDPA also acknowledges the challenges big data presents for the requirement of consent. For one, its large volume makes obtaining consent often impractical and undesirable. For another, the usage of pre-disclosed big data often ends up being unanticipated. Nonetheless, the Personal Data Protection Committee's current regulatory framework for parallel bases of consent provides for certain exceptions, with the burden on the firms to prove their extenuating circumstances, as well as their accountability in protecting individuals' data (Competition and Consumer Commission of Singapore, 2017).

2.4.1 Insufficiency of current interventions

However, while the current PDPA is sufficient in reducing information asymmetry, it still does not adequately address the underlying issue of consumers' irrational privacy preferences, in that consumers are still susceptible to their own inherent biases and privacy-indifferent behaviour. This limits the benefits of current intervention.

Greater government intervention comes at the potential opportunity cost of lesser innovation, which would consequently have an adverse long term impact on the economy, as well as consumers in the form of lower quality services.

Yet we argue that the benefits of greater intervention not only outweigh the costs but are necessary in this case, as it further corrects market failure and ensures greater societal welfare. The very nature of data collection is also a monotonically increasing one, where firms are incentivised to collect as much data as possible to gain a competitive edge over others. Such practices will inevitably become more invasive over time. Hence, if left under regulated, it sets a dangerous precedent for consumers' privacy in the long run. Moreover it is not necessarily the case that innovation will be harmed, as privacy is increasingly seen as an enabler of innovation, where consumer trust is central in driving businesses built on consumer data analytics (Bachlechner et al., 2019).

2.4.2   Recommendations

As such, further government intervention is necessary to prevent consumers from making suboptimal decisions. In fact, consumer policies could leverage on cognitive biases to achieve optimal market outcomes (Luth, 2010). For example, mandatory privacy-friendly default solutions and opt-in instead of opt-out automatic site settings could serve to nudge consumers towards greater data protection. Enforcing firms to set greater and a wider variety of privacy options would also help to ensure greater privacy protection of individuals.

3   Protecting competition in digital markets

As we have seen, one major cause of market failure with regards to privacy is the market power that dominant digital firms hold. Thus, government interventions to protect consumers must be complemented with government interventions to protect competition.

In the realm of competition policy, the digital economy threatens the competition landscape in new and challenging ways.

3.1   Nature of competition in digital markets

In digital markets, a startup firm can be a potential competitive threat even if its product does not yet occupy the same market as the dominant firm's product. This form of potential competition is a significant source of competitive pressure in digital markets.

Due to the presence of consumption and production synergies, digital firms are incentivised to build up a product ecosystem across many different markets that better serves their user base. A startup firm with a successful product in one market is thus incentivised to expand and build up its product ecosystem to include products in markets which the dominant firm also serves (Bourreau & de Streele, 2019). This new product ecosystem will then become a competitive threat to the dominant firm's ecosystem in the future. Crucially, the competition between the two firms does not occur in any one market, but across the different markets which their respective ecosystems serve.

3.2 Pre-emptive acquisitions

One strategy employed by dominant digital firms to counteract potential competitive threats is to pre-emptively acquire the startup firms (Cremer et al., 2019). This is done before the startups can develop a full-fledged rival product ecosystem, or even while they are still in the process of creating their initial innovative product. Often, the startup does not occupy the same markets as the dominant firm yet, and the acquisition would be classified as a conglomerate acquisition.

Pre-emptive acquisitions eliminate future challengers the dominant firm may face, thus reducing potential competitive pressure. Such an anti-competitive outcome can in turn worsen allocative inefficiency.

Furthermore, pre-emptive acquisitions may lessen innovation, and hence worsen dynamic efficiency. This is because the acquiring firm has

fewer incentives to continue the acquired firm's innovation projects, especially if those projects cannot be integrated into the acquiring firm's existing product ecosystem, or if those projects will cannibalise its own products (Shapiro, 2011).

3.3 Evaluation of current interventions: Where are we now?

Current guidelines on Section 54 of the Competition Act (Competition and Consumer Commission of Singapore, 2012) indicate that the CCCS evaluates mergers based on their competition effects in a pre-defined market. As conglomerate mergers are non-horizontal and occur across markets, they are not usually considered as leading to a significant lessening of competition in either market.

Furthermore, impacts on potential competition are difficult to measure or identify *ex ante*. It is difficult to prove, in legal terms, the counterfactual that the acquired firm's product would have developed into a product ecosystem that poses a tangible competitive threat (Competition and Consumer Commission of Singapore, 2018). This is especially due to the dynamic and volatile nature of innovation in digital markets (Coyle, 2019).

Both of these considerations justify the currently low level of intervention in digital conglomerate mergers in Singapore.

3.3.1   Insufficiency of current interventions

However, we argue that the benefits of greater intervention is likely to outweigh the costs. The benefits of greater intervention lie in the reduced likelihood of false negatives—acquisitions lessening potential competition that were nevertheless cleared. Conversely, the costs of greater intervention are incurred by the increased likelihood of false positives—acquisitions that would not have lessened potential competition but were nevertheless denied.

Even if only a minority of the conglomerate mergers that are cleared at current levels of intervention turn out to be false negatives, these false negatives will have significant consequences for competition levels in the future. Crucially, many argue that the consequences of false negatives are difficult to reverse *ex post*, especially if the acquiring firm has discontinued the acquired firm's products (Cremer et al., 2019).

In contrast, false positives are unlikely to incur significant or irreversible costs. At most, some may argue that false positives slow down innovation, if the acquisition of the startup by the larger incumbent would have allowed the incumbent to fund the startup's innovation projects with its greater financial resources (Shapiro, 2011). Yet, we have already seen that the acquiring firm has less incentives to continue the innovation projects of the acquired firm.

Thus, while we may not want to presume firms to be guilty until proven innocent, the relative costs of false positives versus false negatives suggests that tolerating some false positives in exchange for less false

negatives will lead to a significant economic payoff. This seems to motivate greater intervention.

3.3.2 Recommendations

We suggest two recommendations that can complement a decision for greater intervention in digital conglomerate mergers.

Firstly, the CCCS should inquire into the motivations firms have in selecting their target for a conglomerate acquisition. If the CCCS has reason to believe that the acquiring firm views the acquired firm as a future competitive threat, the CCCS should be more critical of the acquisition, even if it is a conglomerate acquisition.

Secondly, the CCCS may consult members of the digital industry to verify if the acquired firm's product is more or less likely to become a future competitive threat. Given the volatile and fast paced nature of innovation and changes in consumer tastes and preferences in digital markets, market players often have better information than market observers.

4 Conclusion

Optimal government intervention corrects market failures at minimal additional costs. However, in an uncertain and dynamic economy such as the digital economy, future costs and benefits can be difficult to ascertain. Thus, an *ex-ante*, preventive approach may be preferred to an *ex-post*, curative approach. After all, government interventions based on hindsight

alone would always be one step behind the market failures they are chasing, causing problems such as the invasiveness of data collection and dominance over potential competitors to become further entrenched. Perhaps then, the question to ask is not, "Where are we now?", but rather, "Where would we be tomorrow?".

2450 words

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