COMPETITION POLICY IN THE GLOBAL CONNECTED ECONOMY: A PROMISING RESEARCH AGENDA

Beatriz Kira*

ABSTRACT

The size and power of internet companies have been considered threats to healthy markets and democratic values. Competition policy is often pointed out as one of the possible solutions to constrain these companies. However, they have particularities which distinguish them from traditional brick-and-mortar companies and defy conventional competition analysis. First, internet platforms are multi-sided markets that simultaneously serve two or more groups of users. Secondly, the collection and processing of large amounts of users' personal data are central to their business models. This article discusses how digital markets give rise to particular competition issues, and in which ways competition law and enforcement should be updated in order to cope with the dynamics of online platforms, revealing a new and challenging research agenda.

* I would like to thank Diogo R. Coutinho, Greg Taylor, and Thomas Crook for helpful comments in previous versions of this paper. I am grateful to the reviewers and the editors for their assistance. Any errors and omissions are exclusively my own.

I. INTRODUCTION

The pervasiveness of the internet has deeply changed social, political, and economic relations of our time, with consequences for different aspects of everyday life. Harvesting the benefits of being first movers in digital markets, technology companies – many of them founded only a few decades ago – are now among the largest in the world. In August 2018, Apple became the first public company to be worth US$1 trillion in market capitalisation, the collective value of all its shares of stock. At that time, the second most valuable company in the world was Amazon, with a market value of US$884.01 billion, followed by Google, worth US$854.86 billion, and Microsoft, at US$827.53 billion.[1]

The size and the concentration of power in the hands of a few internet companies are increasingly becoming the subject of political, legal, and economic concerns. Worldwide, governments, academics, and civil society have been calling for greater scrutiny of internet platforms. Competition policy[2] is often pointed to as one possible solution to constrain technology companies, challenging academics across a large spectrum of disciplines to develop analytical and regulatory tools to frame markets that are in constant and rapid evolution. Complex competition issues and controversies involving digital economies are emerging rapidly. Yet the interplay between competition policy and international regulation of online platforms is still a relatively unexplored area of research.

[1] Sean Gallagher, 'That's trillion with a T—Apple hits market value of $1 trillion', Ars Technica (2 August 2018) <https://arstechnica.com/information-technology/2018/08/thats-trillion-with-a-t-apple-hits-market-value-of-1-trillion/>

[2] In this article, competition policy is understood as the combination of antitrust legislation, both in areas of cartel and abuse of dominant positions prohibitions and merger and acquisition control, and its enforcement by competition authorities.

A growing body of literature claims that many concepts and tools derived from models of traditional businesses do not generally apply to internet companies,[3] as digital platforms have complex business models and arrangements, which distinguish them from traditional markets.[4] Furthermore, antitrust complaints and inquiries also struggle to cope with the rapid pace of innovation and transformation of the technology sector,[5] which enables constant transformation of companies' business models and turns players in the digital market into something of a moving target.

This article aims to contribute to this on-going debate by discussing some of the limitations of traditional antitrust analysis when it comes to multinational multi-sided internet platforms. The aim is to unveil the ways in which, if at all, competition law should be adapted to cope with new challenges posed by global digital markets. In other words, if it is true that web-based businesses require building distinct competition frameworks, which variables of analysis should be considered? Which issues should be addressed internationally and what is the role of international organisations in that process?

In answering these questions, this article seeks to build on the relevant literature on internet regulation, competition law, and international law. I argue that due to the characteristics of internet companies, national frameworks alone are insufficient and inefficient to tame tech giants. In particular, I argue that international cooperation and coordination mechanisms for the global governance of competition policy are required in order to cope with the challenges of multi-sided multinational

[3] David S Evans and Richard Schmalensee, 'The Antitrust Analysis of Multi-Sided Platform Businesses' NBER Working Papers 18783, National Bureau of Economic Research, Inc.

[4] David S Evans, 'Antitrust Issues Raised by the Emerging Global Internet Economy (Part II)' (2005) 102(4) Northwestern University Law Review 285.

[5] ibid; William H Page and John E Lopatka, The Microsoft Case Antitrust, High Technology, and Consumer Welfare (University of Chicago Press 2009).

internet companies. In order to build that argument, this article is structured as follows.

Section 1 discusses important working definitions and lays out the basis for the discussion that follows. Section 2 presents some of the features of internet companies and introduces an emerging debate about the relationship between privacy and competition policy in the context of digital platforms. Section 3 discusses how competition law and antitrust analysis should be updated and adapted accordingly to the challenges presented in the previous section. It proposes policy solutions to address the problems discussed. Finally, the conclusion summarises the article and discusses some of its limitations, proposing topics for a promising research agenda.

II. LEVELLING THE DIGITAL PLAYING FIELD: COMPETITION POLICY IN THE DIGITAL ERA

This subsection presents some important working definitions. First, it discusses what multi-sided internet platforms are and how to identify them. Second, it defines competition policy, its goals and scope, and discusses two misconceptions that are often associated with debates about the relationship between competition policy and regulation.

A. MULTI-SIDED MULTINATIONAL INTERNET PLATFORMS: HITTING MOVING TARGETS

From a distance, it might be difficult to pinpoint the common characteristics that link together different technology companies, which offer a plethora of distinct goods and services. Social media platforms have features and uses that are very different from the ones offered by search engines, which in turn are clearly distinct from those of an operating system. Upon closer examination, however, it is possible

to identify some shared features among the companies that are the object of this article, which justify the adoption of the joint analytical framework proposed here.

First, these companies own and control key internet platforms. Platforms markets, however, are not a new idea. Some of them date from thousands of years ago. In Athens around 300 BCE, merchants, shipowners, and lenders would gather near the docks to connect with each other in order to assemble a trading voyage.[6] But only in this century was the first economic model of multi-sided platforms developed by Jean-Charles Rochet and Jean Tirole, focusing on how the relative prices charged on two sides of a platform coordinated demand.[7] More recently, Evans and Schmalensee provided a more updated definition of a multi-sided platform, defining it as a platform that "has (a) two or more groups of customers; (b) who need each other in some way; (c) but who cannot capture the value from their mutual attraction on their own; and (d) rely on the catalyst to facilitate value-creating interactions between them".[8]

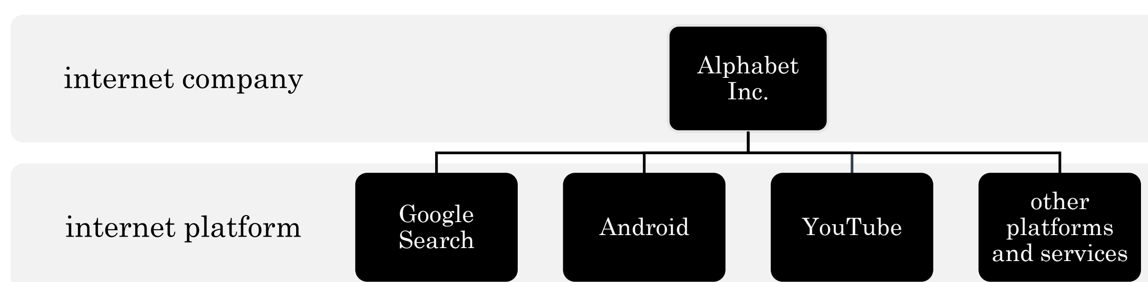
Platforms exist both in the online and the offline world. There are many traditional industries in which multi-sided platforms play important roles, including payments, financial exchanges, and shopping centres. Even though many of the competition issues discussed in the following sections also apply to brick and mortar platforms, the analysis here will focus on digital multi-sided markets. Having the Internet as their medium, these platforms offer connections and access to users,[9] and create value that could not be obtained without their intermediation and coordination.[10] For example, Alphabet Inc. is the holding company which ultimately

[6] David S Evans and Richard Schmalensee, Matchmakers: The New Economics of Multisided Platforms (Harvard Business Review Press 2016).
[7] Jean-Charles Rochet and Jean Tirole, 'Platform Competition in Two-Sided Markets' (2003) 1 Journal of the European Economic Association, 990.
[8] Evans and Schmalensee (n 3).
[9] ibid.
[10] David S Evans and Michael Noel, 'Defining Antitrust Markets When Firms Operate Two-Sided Platforms' [2005] Colum. Bus. L. Rev. 667.

controls many widely used internet platforms: The search engine Google Search, the operating system Android, and the video platform YouTube, among others. In this article, I will use platforms and multi-sided markets as synonyms. When qualifying such markets and companies, internet, digital, and online will be employed interchangeably.

FIGURE II(A)

Simplified corporate organisation of Alphabet Inc.



Source: The author.

A second common feature is that the internet platforms controlled by these companies collect and process users' personal data. Such data have a central role in the business models of these companies. Internet companies extract wealth from the collection and processing of users' personal data, in many different ways. Data collected and processed are used by the platform to enable or improve the provision of the goods and services offered by it. The ability to collect, store, and analyse data on individuals at great speed and scale in the digital environment has made it possible to deeply understand the habits, preferences, and personal features of consumers.

Thus, it is possible to tailor the offer of products and services according to the specific interest of users.[11]

Technology companies that fall within the definition proposed above defy conventional antitrust analysis. Many of the concepts and analytical frameworks which were tailored for the analogical world demand adaptations in order to frame Internet platforms. As these companies rely on users' data to thrive in the market, they give rise to privacy issues which are closely related to competition issues. They compete for data in attempts to expand their user bases and leverage users' data to gain or maintain a dominant position in the market, which requires competition policy to make room for privacy and data protection considerations, as will be discussed in section IV.

B. COMPETITION POLICY AND REGULATION: CHALLENGING MISCONCEPTIONS

Considered together, the two characteristics described in the previous subsection, i.e. control over key multi-sided platforms and reliance on the collection and processing of user data, make the application of competition law to internet companies more challenging and necessitate the adoption of a different set of economic tools for the antitrust analysis of internet platforms, as discussed in the next subsection.

In view of the above, recent studies have discussed ways in which competition policy should be adapted to build models that are better suited to explain the behaviour of economic agents, and also to inform competition law enforcement and

[11] Ian Brown and Christopher T Marsden, Regulating Code: Good Governance and Better Regulation in the Information Age (MIT Press 2013).

policy-making.[12] Many debates around antitrust concerns in online markets, however, are narrowly focused on the question of whether competition policy is enough to address the new challenges, or whether some kind of regulation is necessary. This dichotomy is misleading and underlined by two intertwined misconceptions which need to be clarified.

The first misconception involves a lack of clarity regarding what differentiates competition policy from regulation. While there are areas in which the two fields overlap, they present relevant distinctions in aims and scope. Competition policy comprises the set of policies and laws which ensure that competition in the marketplace is not restricted in such a way as to reduce economic welfare.[13] The study of regulation, in turn, is informed by debates from a range of disciplines.[14]

In the context of this paper, regulation is understood as 'the intentional use of authority to affect behaviour of a different party according to set standards, involving instruments of information-gathering and behaviour modification'.[15] In contrast, competition law is understood as one of the institutions intentionally seeking to shape the behaviour of agents operating in the market.[16] Regulation is a set of rules and standards with sectorial and long-run application, whereas competition policy

[12] Ariel Ezrachi and Maurice Stucke, Virtual Competition (Oxford University Press 2016); Maurice Stucke and Allen Grunes, Big Data and Competition Policy (Oxford University Press 2016).

[13] Massimo Motta, *Competition Policy: Theory and Practice* (Cambridge University Press 2004). Although the traditional study of competition policy is either focused on conducts – anticompetitive behaviour by agents in a given market – or in structures – how mergers and acquisitions might affect the structure and the competitiveness of a given market – the main argument of this article holds true for both groups. For that reason, the categories of competition policy usually employed to differentiate the analysis of market structure from the analysis of and anticompetitive behaviour are not examined in depth.

[14] Robert Baldwin, Martin Cave and Martin Lodge, *The Oxford Handbook of Regulation* (Oxford University Press 2010).

[15] J Black, 'Decentring Regulation: Understanding the Role of Regulation and Self-Regulation in a "Post-Regulatory" World' (2001) 54 Current Legal Problems 103.

[16] Roger Brownsword, Eloise Scotford and Karen Yeung, 'Law, Regulation, and Technology: The Field, Frame, and Focal Questions' in *The Oxford Handbook of Law, Regulation and Technology* (Oxford University Press 2016).

provides case-by-case responses to anticompetitive and abusive practices.[17] While regulation is typically prescriptive and *ex ante,* competition policy is usually reactive and *ex post*.

Competition policy seeks to ensure that markets continue to function well and prevent attempts by firms to undermine the competitive process, but is only useful if the status quo is healthy competition. Regulation, in its turn, is focused on delivering good outcomes in markets that are fundamentally not well-functioning. Thus, it is useful (and most important) even when the market is structurally incapable of functioning well.[18]

TABLE II(B)

Comparison between competition policy and regulation

	Competition policy	**Regulation**
Definition	Body of policies and laws which ensure that competition in the marketplace is not restricted in such a way as to reduce economic welfare[19]	Intentional use of authority to affect behaviour of a different party according to set standards.[20]
Nature	Reactive and *ex post*[21]	Prescriptive and *ex ante*

17 Cento Veljanovski, 'Economic Approaches to Regulation' in The Oxford Handbook of Regulation (Oxford University Press 2010).
18 Greg Taylor, 'Competition (Antitrust) Policy' (The Economics of the Internet, Oxford Internet Institute, 7 March 2018).
19 Massimo Motta, *Competition Policy: Theory and Practice* (Cambridge University Press 2004).
20 Black (n 15).
21 Nonetheless, it is worth noting that there are situations in which competition policy also applies *ex ante*. In particular, many competition authorities require the file of premerger notification and

Intervention	Case-by-case	Geographical or sectorial
Context of application	Competitive markets	Both competitive and dysfunctional markets

Source: The author.

The second misconception underlying the debates about competition policy and regulation is a reflection of the first. The lack of clarity regarding what defines these two fields create the impression that these are exclusionary alternatives, which cannot be applied simultaneously. There are indeed many situations in which legitimate public policy objectives justify the exclusion of competition analysis.[22] States may legitimately favour other enforcement or regulatory tools over competition law when dealing with distinct industries or markets;[23] for example, in the case of regulated sectors, such as energy, oil, or even telecommunication. According to Ezrachi, these 'bypasses' reflect social and political preferences,[24] but they can also be reflections of limitations of competition policy to deal with the particularities of these markets.[25]

subject mergers and acquisitions to an *ex ante* review processes, depending on particularities of the companies (e.g. market share or gross annual sales) and the sector in which they operate. For example, the European Commission requires notification of concentrations based either in the combined aggregate worldwide turnover of the undertakings, the aggregate Community-wide turnover of the undertakings, or the combined aggregate turnover in each Member States, articles 2 and 3 of the Council Regulation (EC) No 139/2004 of 20 January 2004.

22 Ariel Ezrachi, 'Sponge' (2016) 5(1) Journal of Antitrust Enforcement 49.

23 ibid.

24 ibid.

25 Many regulated markets (telecommunication, transport, infrastructure, etc.) are also natural monopolies, i.e. they have a natural tendency to be non-competitive. In these markets, a single firm can supply a good or service to the entire market at a smaller cost than could two or more firms: N Gregory Mankiw, *Principles of Economics* (7th edn, Cengage Learning 2015). As competition policy is unlikely to work in that context, governments often choose to control the behaviour of natural monopolies through regulation. This is true especially in the case of markets that offer essential facilities, like water and electricity.

In other cases, however, competition instruments and regulatory instruments are complementary; they work together to produce markets that work well. In many circumstances, competition policy enforcement and the development of sector regulation are even under the competency of the same body[26], an arrangement that helps to ensure that competition policy objectives are considered in developing sectorial regulation. Frequently, the behaviour of a company can simultaneously be anticompetitive and violate regulatory provisions, which demands integrated intervention.

The problem with the two misconceptions outlined in this subsection is that they are misleading. They can lead to flawed analysis and generally ignore the importance of a coordinated and integrated approach when it comes to facing the challenges of technological progress. Some of these challenges are discussed in the next section.

III. COMPETITION ANALYSIS OF INTERNET COMPANIES: TOOLS AND CHALLENGES

The previous section presented some the characteristics of internet companies, arguing they are multi-sided platforms whose business models depend on the collection and processing of user data. This section discusses how these two features make more challenging the application of the traditional antitrust analytical framework. First, it discusses how some concepts and tools demand adaptation in order to frame multi-sided platforms. Second, it discusses how the collection and processing of user data bring privacy consideration into the realm of competition policy.

[26] Veljanovski (n 17).

A. WHEN NETWORKS COMPETE: APPLYING COMPETITION POLICY TO MULTI-SIDED PLATFORMS

Multi-sided platforms have been challenging antitrust analysis and economics concepts for many years. Many of the tools used to analyse single-sided firms do not apply directly to multi-sided platforms, which serve different interdependent customer groups. These mismatches, which are described in more detail in the following paragraphs, have led economists and legal scholars to propose adaptations to traditional competition policy in order to make the models better suited for multi-sided markets.[27]

The first challenging characteristic of multi-sided markets lies in the fact they are subject to stronger network effects, both direct and indirect, which allows a given platform to quickly grow to a large scale after it has reached a critical point – known as a 'tipping point'. Direct network effects, also called demand-side economies of scale, focus on one side of the market and exist when the demand for one good depends on how many other people purchase it, among the same group of users. For example, the larger the number of WhatsApp users, the greater the benefits each user can gather. Indirect network effects, in turn, are related to multiple sides of the market and are present when the number of agents engaged in one side of the market affects the value of the platform to agents operating on the other side.[28] Mobile operating systems, like the Apple iOS or the Google Android, are good examples of multi-sided platform with strong indirect network effects. The bigger the number of mobile users adopting it, the more developers write apps for that system, which in turn attracts more users to the platform. In many cases, network effects can be beneficial to users, providing them access to a wider network of other users and

[27] Evans and Schmalensee (n 3).

[28] Hal R Varian, Joseph Farrell and Carl Shapiro, *The Economics of Information Technology: An Introduction* (Cambridge University Press 2004).

suppliers. However, network effects can often harm consumers by making it harder for more efficient entrants to displace an incumbent, as new players would have difficulty gathering a sufficiently large critical mass to enter the market.[29]

Closely related to network effects, are switching costs, which are another characteristic of online platforms. Switching costs arise "when consumers value forms of compatibility that require otherwise separate purchases to be made from the same firm",[30] i.e. when users are looking for compatibility between their current purchase and a previous one, creating economies of scope between these different purchases. In this context, the benefits of swapping to a different provider must be high enough to persuade customers to pay those costs. Multi-sided markets are characterised by large switching costs for users on one end. When switching costs are too high, there is a tendency that consumers will be locked-in with the dominant firm, and only significant benefits can convince them to change to a different seller.[31] Markets with high switching costs revolve around exclusion and foreclosure, in which more efficient rivals could be prevented from entering or forced to leave the industry, thus harming competition. Platform markets are, therefore, typically served by only a few competing platforms.[32]

Another challenging aspect of multi-sided platforms are their particular pricing dynamics. Armstrong argues that in markets in which two or more groups of agents interact via intermediaries, three main factors determine the structure of prices offered to the two groups: (i) the relative size of the externalities members of one group exert on members of the other group, (ii) whether users are charged fixed fees

[29] David S Evans, 'How Catalysts Ignite: The Economics of Platform-Based Start-Ups' in Annabelle Gawer (ed), *Platforms, Markets and Innovation* (Edward Elgar Publishing 2009).

[30] Joseph Farrell and Paul Klemperer, 'Coordination and Lock-In: Competition with Switching Costs and Network Effects' (January 2007) 3 Handbook of Industrial Organization.

[31] Motta (n 19).

[32] Thomas Eisenmann, Geoffrey Parker and Marshall Van Alstyne, 'Platform Envelopment' (2011) 32 Strategic Management Journal 1270.

or per-transaction charges, and (iii) whether groups are single-home or multi-home. In order to attract more users, platforms often subsidise agents in the group that are most price-sensitive or more likely to multi-home, i.e. more likely to sign up to several platforms.[33] The prices for these groups of users are usually below marginal cost of production or even zero and are compensated by the profits made on the other side of the market.[34]

Defining the relevant market is, therefore, important to establish the sources of demand-side and supply-side constraints that should be taken into consideration when assessing the market power of any given company.[35] As the focus of competition policy is generally on preventing firms from acquiring or abusing a position of dominance to exercise market power, market definition is highly relevant to antitrust analysis. There are many proxy measures of market power, such as market share or price-cost margins. When it comes to traditional companies, a method traditionally used for identifying the relevant market is the SSNIP (small, but significant non-transitory increase in price).[36]

Evans and Schmalensee, however, argue that for traditional one-sided companies, there is no single reliable method for assessing the relevant market, and that the analysis should consider multiple sources of evidence.[37] The SSNIP test, for

[33] Diane Coyle, 'Practical competition policy implications of digital platforms' (2018) Bennett Institute for Public Policy working paper no: 01/2018.

[34] Evans and Schmalensee (n 3).

[35] John E Kwoka and Lawrence J White, *The Antitrust Revolution: Economics, Competition, and Policy* (6th edn, Oxford University Press 2014).

[36] It is also called "hypothetical monopolist" test, as it departs from a hypothetical situation in which the smallest unit that might plausibly be the relevant market is controlled by one company. In this context, one should ask whether this one firm could profitably increase its price above the current level. If the answer is yes, there is a market. If the answer is no, the scope of the market should be broadened and the question asked again; Howard H Chang, David S Evans and Richard Schmalensee, 'Market Definition: Assessment of the Relevant Market in Competition Matters' (2011) Report Prepared for the Federal Competition Commission of Mexico; Taylor (n 18).

[37] Evans and Schmalensee (n 3).

example, is not very reliable if the market is already uncompetitive, and the analysis should only be conducted at competitive prices. Therefore, applying the SSNIP test to multi-sided platforms can lead to an imprecise definition of the relevant market, with consequences for the assessment of market power. In particular, when it comes to multi-sided platforms that serve more than one group of users, the definition of the market on one side should be defined in relation to the relevant market on the other side. When the economics of the business is centred in linking users and providing connections, one side cannot be considered in isolation.

A recent and high-profile antitrust case involving an internet platform illustrates how failing to address the multiple sides of online platforms can lead to misguided definitions of the relevant markets. *Google Search (Shopping) v European Commission (EC)* started in 2010, when the EC decided to open formal proceedings to investigate whether Google Inc. had abused a dominant market position in online search provision by lowering the ranking of unpaid search results of competing price comparisons websites, and by according preferential placement to the results of its own shopping service. In 2017, the European Commission reached its final decision and ruled that Google has abused its market dominance as a search engine by giving an illegal advantage to another Google product, e.g. its comparison shopping service.[38] Two relevant markets were identified in the final decision: (a) general internet search, and (b) comparison shopping market. The shopping tool and the search engine, however, are only two of the many intertwined services offered within Google's platform, which also include Google News, Google Maps, and Google Books, for example. Documents from the case show that the Commission failed to engage in discussions about what it means for consumers to regard two goods as substitutes, and what it means for two firms to be competing in that market. By focusing on a

[38] European Commission. Summary of Commission decision of 27 June 2017 relating to a proceeding under Article 102 of the Treaty on the Functioning of the European Union and Article 54 of the EEA Agreement (Case AT.39740 — Google Search (Shopping)).

very restricted part of the market, the EC decision failed to acknowledge all the other groups of users served by the broader constellation of Google's services that orbit around its main star: Google Search engine.

As the digital economy increasingly becomes the economy itself, cases such as *Google Search (Shopping)*, which challenge the application of traditional antitrust tools will become increasingly common. This will require competition authorities to reflect on how to further adapt the antitrust toolkit when looking at online platforms.

B. THE INTERFACE BETWEEN COMPETITION POLICY AND DATA PROTECTION

Another set of challenges arise when it comes to assessing the competitiveness in data-driven markets, which also requires the refining of analytical models and tools. As data becomes the main asset of digital markets, access to users' data is a determinant of which companies succeed in these markets. Thus, the variety and velocity of capturing and harnessing data are relevant sources of market power.[39] In that regard, internet companies compete fiercely for users' data and have few incentives to be transparent about their privacy policies, or to change them in ways that would in fact enhance data protection. On the contrary, the greater the pervasiveness of its data collection and processing techniques, the greater the chances a company will survive in data-driven markets. In this context, privacy outcomes might become a relevant means to assess competition.

Large amounts of data about user's preferences and characteristics are also crucial in informing the creation of content that is better tailored to people's interests and the development of more efficient products and services. Information harvested

[39] Maurice Stucke, 'Should We Be Concerned about Data-Opolies?' (2018) 2(2) Georgetown Law Technology Review 275.

by internet companies can thus contribute to reductions in the cost of production and improvement in quality in such markets.[40] In contrast, precisely because collection and processing of data is a determinant of which companies can compete and thrive in digital markets, good privacy outcomes can often lead to a decrease in competition. When lack of data prevents companies from building a critical database, or from offering goods and services at a competitive level, they might not survive, leading to less competitive markets.

In digital markets, anticompetitive practices also take the shape of undue use or unrestricted collection of user data. Assessing the relevant market in order to identify market power often requires identifying how and how much data a platform owns and processes. One challenge, however, is that while prices can be objectively measured and compared across firms, the same does not hold true when comparing privacy outcomes. Therefore, in order for competition policy to be able to address privacy issues, it would be necessary to reflect upon the extent to which privacy and data protection should be a part of competition law and enforcement and to develop a new benchmark against which competition in data driven markets protection could be assessed. Privacy and data protection regulation provide useful concepts and models to address some of these issues, but it is still unclear how competition authorities will enforce such overlapping regimes.

[40] Jens Prüfer and C Schottmuller, 'Competing with Big Data' (2017) CentER Discussion Paper 2017-007, Tilbury: Center for Economic Research

IV. COMPETITION POLICY AT CROSSROADS: HOW TO TAME TECH GIANTS?

Technological disruption in the context of multi-sided international markets has been caused by three intertwined factors. First, from an infrastructure perspective, more and more economic and social transactions now take place aided by information and communication technologies, which generates significant amounts of data. Second, due to further technological developments in the telecommunications infrastructure, it has become easier, faster, and less expensive to store and transmit information. Third, in terms of coding, powerful algorithms make it possible to process and analyse novel big data sets.[41]

Law, in general, and competition policy, in particular, have been struggling to cope with such transformations, which blur the contours of legal and regulatory action.[42] In this context, traditional competition policy alone often lacks the tools to deal with the particularities of internet-based platforms. As a result, legal scholars, policy makers, and competition authorities are required to reflect on how to ensure competition policy is constantly updated and to craft innovative remedies. Ezrachi and Stucke argue that product differentiation, and data portability should be included in the checklist of competition authorities worldwide.[43] Prüfer and Schottmüller showed that requiring rival companies to share their (anonymised) data about users' preferences eliminates the mechanism causing data-driven markets to tip.[44] They also demonstrated that data sharing does not affect a dominant firm's incentives to innovate, even in a dynamic model.

[41] ibid.
[42] Brownsword, Eloise and Yeung (n 16).
[43] Ezrachi and Stucke (n 12).
[44] Prüfer and Schottmüller (n 40).

These discussions reveal that, in order to tame tech giants, the adequacy of the regulatory environment in an age of rapid technological change and innovation should be considered in the context of a wider policy environment. I argue here that it is now necessary to advance towards both an international and integrated regulatory approach.

First, the new framework demands auditing the means employed by regulators for their consistency with international and liberal-democratic values, such as privacy and data protection.[45] As antitrust concerns increasingly overlap with the protection of other rights, only an integrated and coordinated approach to both competition policy and regulation can properly address the challenges of our time. An intervention in this sense implies a larger burden for the competition authority.[46]

Second, any answer to this question today needs to account for a plethora of international interests and values beyond the boundaries of national states. The alternatives presented by the global governance of competition policy are explored in the following subsection.

A. GLOBAL GOVERNANCE OF COMPETITION: SOLUTIONS FROM INTERNATIONAL LAW-MAKING AND ENFORCEMENT

In light of the issues mentioned in the previous section, are national approaches sufficient to deal with tech giants in the context of the global economy? This section reviews recent discussions about the internationalisation of competition policy and the whole played by international organisations, focusing on the challenges of the digital economy.

[45] Brownsword, Eloise and Yeung (n 16).
[46] Taylor (n 18).

The adoption of national competition regulations and policies by some countries, e.g. restrictions on mergers, even when legally justified, might have aggregated detrimental outcomes for consumers when other nations adopt different strategies. More specifically, while some jurisdictions might be concerned with regulating and limiting the size and power of internet platforms, more centralised regimes are banning foreign companies from the market and fostering the development of big national companies. These companies, protected by more favourable regulatory environments, seize competitive advantages which reduce incentives to innovate and to provide better products at lower prices.

In this regard, China is considered the biggest source of the problem. The operation of Chinese state-owned enterprises and the Great Firewall of China, which prevents foreign internet companies from operating in the country, lead to great imbalances in the international digital economy. These restrictions to the free flow of data and digital goods, however, have not been addressed by multilateral trade law, and the question remains whether international organisations such as the World Trade Organisation (WTO) have the mechanisms to solve the deadlock. As argued by Steinberg, "where views on appropriate rules, the nature of sovereignty, and the role of international law are so divergent, and where resolution of the issues imputes the political-economic structures of great powers, negative liberalization is doomed to failure".[47]

Thus, despite the observed tendency towards harmonisation and convergence of competition regimes around the world and the increase in cooperation between competition authorities worldwide through international networks such as the International Competition Network (ICN),[48] there are still many issues arising from

[47] Richard Steinberg, 'The Impending Dejudicialization of the WTO Dispute Settlement System' [2018] Proceedings of the 112th Annual Meeting of the American Society of International Law, 4.

[48] Ezrachi (n 22).

differences in competition policy across jurisdictions. Mavroidis and Neven observe how competition policy has been used strategically to favour domestic companies, and describe the asymmetric consequences that competition policy decisions taken across different jurisdictions might have.[49] The problems are especially pressing in the context of the digital economy, as the internet is a worldwide network and most of the online platforms operate across many different countries.

There are two main arguments supporting the internationalisation of competition law as a solution to the challenges of the digital world. First, there are aspects of digital markets which are already regulated by international treaties and agreements. In that sense, competition policy might benefit from integrating other intersecting international regulatory frameworks. For example, the right to privacy is recognised as a fundamental right by the Universal Declaration of Human Rights (article 12) and the European Convention on Human Rights (article 8). The European Court of Human Rights (ECHR) has also defined the concept of privacy through its judgments.[50] More recently, the EU adopted the GDPR, a detailed and comprehensive regulation, which unifies data protection law across the EU and establishes a series of detailed rules about the processing of individuals' personal data. In particular, the GPDR establishes the extraterritorial effect of its provisions, so that data from European citizens processed anywhere in the world should abide by its

[49] Petros C Mavroidis and Damien J Neven, '*Politique de la concurrence et gouvernance globale: ça se discute*' (2016) *LV Reflets et perspectives de la vie économique* 33.

[50] For example, in *Axel Springer AG v. Germany* (Application n. 39954/08, 7 February 2012), the ECHR decided that the concept of 'private life' is a broad term covers personal information which individuals can legitimately expect should not be published without their consent. In *Von Hannover v. Germany* (No. 2) (Applications n. 40660/08 and 60641/08, 7 February 2012) the court acknowledged that the scope of private life protections even interactions that take place in a public context. Also, in *Rotaru v. Romania* the court held that private data systematically collected and stored in a file held by agents of the State, falls within the scope of 'private life' (Application n. 28341/95, 4 May 2000).

rules. This might be especially relevant to govern data-based competition across different nations.

Second, the borderless nature of the internet requires some kind of international governance of competition policy. This demands closer integration and cooperation between competition authorities and regulators around the world. New challenges posed by digital markets make it even more relevant for enhanced cooperation between competition authorities across the globe. Similar investigations and procedures involving digital companies are being conducted in different jurisdictions, and authorities could benefit from working more closely together, sharing experiences and best practices in order to build up expertise and appropriate resources. This requires strengthening international mechanisms to evaluate, compare, and question competition policy implemented by different jurisdictions. Silveira, for example, discusses tools to enhance the coordination and cooperation among competition authorities regarding transnational merger control.[51] According to the author, while economic stakes are increasingly becoming international, the legal regulatory mechanisms remain confined to a national or regional scale, which creates the risk of contradictory or inconsistent decisions made by different competition authorities. This is especially true in the context of internet platforms, which operate in multiple countries, subjected to different frameworks. Similarly, Mavroidis and Neven propose a model of international governance of competition policy, with the inclusion of competition clauses in bilateral and multilateral trade agreements and the use of dispute-resolution mechanisms to enforce competition across different jurisdictions.[52] In that sense, possible solutions can be found within international organisations, in particular the WTO.

[51] Paulo Burnier da Silveira, *Le contrôle des concentrations transnationales* (L'Harmattan 2013).
[52] Mavroidis and Neven (n 49).

VI. CONCLUSION

This article reveals that there is no silver bullet to solve all the challenges for competition and international law posed by multinational multi-sided internet platforms. As Judge Colleen Kollar-Kotelly observed when analysing *United States v. Microsoft Corp*, crafting a remedy for an innovative market might be similar to "trying to shoe a galloping horse".[53] Nonetheless, this article identifies some clues about the way forward.

First, competition policy should match the evidence, not the slogans.[54] Antitrust analysis of multi-sided multinational platforms requires careful consideration of the business reality and a clear and accurate understanding of the markets in which they operate. In that sense, it is paramount that competition authorities faced with digital market cases increasingly turn to experts or to market participants in order to build knowledge about the specificity of the cases and the markets.

Second, the discussion here indicates that successful competition policy requires an institutional framework that is flexible enough to foster technological innovation, allow for experimentation, and enable review, but at the same time stable enough to protect competition goals. If, on the one hand, certain regulatory arrangements can lead to market stiffening and decreased competition, on the other hand, the appropriate mix of state intervention and market forces can foster a flexible environment, open to innovation and future technologies.

Finally, the article reveals that international law might need reform in order to face an increasingly digital and interconnected world. Difficult questions remain regarding the institutional capacity of WTO to deal with such issues. Some scholars have identified the advance of populist discontent with global liberalism and what

[53] Page and Lopatka (n 5) 20.
[54] Evans and Schmalensee (n 3).

they call a 'crisis' related to the dispute settlement within the WTO system.[55] Also, the importance of the digital goods and ICT industry to global trade has expanded on what Hale, Held and Young call "deep integration" issues.[56]

Recent trends, however, might point to a light in the end of the tunnel. Representatives of the G20, some of the biggest economies in the world, gathered in November 2018 in a summit in Buenos Aires, Argentina, and agreed to commit to reforming the WTO. On that occasion, the leaders agreed on the importance of reducing trade barriers in order to strengthen the international economy. Such barriers might include differences in the treatment of internet platforms across the globe. Thus, there might be a window of opportunity to reform the system and to address the pressing issues brought by the digital economy.

In sum, this article argues that multi-sided multinational internet companies demand the revision of national and international competition frameworks and requires international law and international organisations to play a more active role in the global governance of competition policy. From an academic perspective, this article contributes to an emerging literature on competition policy with a focus on the technology industry. Additionally, from a policy perspective, the article discusses enforcement practice and the quality of decisions taken by competition authorities. Effective assessment of the effects of different competition policy arrangements, such as the one I attempted here, could demonstrate more convincingly the benefits of competition law and enforcement in terms of better functioning markets, increase in well-being of consumers, and incentives for companies to engage in innovative activities.[57]

[55] Steinberg (n 47).

[56] Thomas Hale, David Held and Kevin Young, *Gridlock: Why Global Cooperation Is Failing When We Need It Most* (Polity Press 2013).

[57] Fabienne Ilzkovitz and Adriaan Dierx, *Ex-Post Economic Evaluation of Competition Policy Enforcement: A Review of the Literature.* (European Commission, Directorate-General for Competition 2015)

This article also opens the floor to a promising research agenda. The studies in the field indicate that different institutional designs and policy options have different effects in competition, and that specific characteristics of the broader economic and political context of each country implementing the policy can lead to different outcomes.[58] Therefore, a comparative legal analysis of competition policy in different jurisdictions worldwide could bring interesting insights to the discussion. This could be done through the analysis of, on the one hand, the legal framework in place and, on the other hand, how competition rules were enforced by competition authorities in these countries, especially when dealing with technology companies. This could help gathering empirical evidences about policymaking and enforcement processes, both nationally and internationally.

Identifying the institutional arrangements of competition policy in different jurisdictions is a challenging enterprise. In this context, it would be necessary to understand the economic roles performed by norms, processes, and legal institutions in the design and implementation of competition policy in distinct political and economic contexts. It would also be necessary to explore alternative institutional and normative designs and whether or not they are fit for the purpose of addressing the challenges posed by new technologies.

Furthermore, due to the specific characteristics of the business models employed by companies, in digital markets competition concerns increasingly overlap with the protection of other rights, such as the right to privacy. This article has identified some intersections between competition law and data protection laws and regulations. It did not, however, provide concrete proposals for a new framework. This would require careful consideration of the different interests at stake and a more

<http://bookshop.europa.eu/uri?target=EUB:NOTICE:KD0215397:EN:HTML> accessed 28 November 2017.

58 Armin Schmutzler, 'Is Competition Good for Innovation? A Simple Approach to an Unresolved Question' (2010) 5(6) Foundations and Trends in Microeconomics 355.

in-depth discussion of positive and negative aspects of each of the alternative institutional arrangements that could be pursued, which has been beyond the scope of this article. Likewise, broader social questions such as the possible implications of the digital economy for democracy and plurality online were not addressed here, but these remain interesting topics for a challenging research agenda.