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Dimensions of Inequality: The IFS Deaton Review
Firms

Competition and industrial policy in the 21st century

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ABSTRACT

Large fixed costs and (direct and indirect) network externalities generate barriers to entry and high markups for winners in the digital industry. The potential for high prices, low innovation and abuses of dominant position as well as the contribution to rising inequality raise the question of how countries should regulate the industry. The tech giants' dominance does not confront us with an unpalatable choice between laissez-faire and populist interventions. The commentary explains economic stakes, considers desirable adaptations of regulation in the digital age and draws some conclusions for policy reform.

Key words: regulation; divestiture; antitrust; industrial policy; contestability; mergers; data

1. Introduction

In the good old days, the field of industrial organization was taught in three stages. The part on the regulation of public utilities showed how network industries (telecoms, electricity, gas, railroads, postal services ...) gave rise to natural monopolies and analysed how incentive regulation, clever pricing structures and the opening of competition in potentially competitive segments could improve social welfare. A second part concerned competition policy, applying to all industries. And a third part focused on consumer protection. The fourth leg, industrial policy, was perceived as a source of shame for the family and accordingly was rarely invoked.

The technological evolution (the increased prominence of digital platforms) and many heretofore neglected topics (e.g. concerning agreements among firms that may otherwise compete) then challenged the economists' research. These developments blurred the lines between regulation and antitrust. In particular, digital platforms resemble public utilities, with vengeance (high investment costs and/or network externalities, zero marginal cost). And various factors, among them the recent geopolitical tensions, restored the popularity of industrial policy in the political arena.

The initial enthusiasm for the ongoing technological revolution has recently given way to a global 'techlash' for two reasons. The first reason, the rising concern about the increasing dominance of the Big Tech companies, follows conventional lines of competition policy. Secondly, the dominance of tech giants is widely regarded as one of a number of drivers of the increase in top income inequality, a topic that will not be covered in this commentary (for empirical evidence that correlations between measures of innovation and top income inequality at least partly reflect a causality from innovation to top income shares, see Aghion et al., 2019).

Accordingly, many academics[1] and policymakers call for taming these large platforms, breaking them up, regulating them as public utilities, using a tougher antitrust enforcement or engaging in industrial-policy programs in big data and artificial intelligence (AI). This commentary investigates the merits of the various arguments.[2]

Economists' standard view on what has been happening is that the industries in which Big Tech companies operate are subject to substantial economies of scale or scope, a winner-take-all scenario, and widespread market power. Incumbent social media platforms can shield themselves from competition thanks to direct network externalities: our concurrent joining of Facebook or Twitter allows us to interact through these platforms, making it hard for a newcomer starting from no installed user base to contest the incumbent's dominant position in the market. Incumbent platforms in other markets benefit instead from indirect network effects: Your using a search engine, a GPS navigation app or a delivery service improves their quality and therefore benefits me. Competition in the market may also be limited by the existence of large fixed costs, which act as a barrier to entry. For example, designing a first-rate algorithm, web crawling and indexing (all of which are necessary for a search engine to be effective, especially if it aims at satisfactorily responding to uncommon queries) are onerous.

Barriers to entry due to fixed costs and direct or indirect network externalities generate large markups for winners and a

[1] See for instance books by Philippon (2019) or Posner and Weyl (2018), with a scope much broader than just tech, and the reports cited in footnote 2.

[2] There have been several recent reports on the evolution of regulation of the digital economy. Particularly prominent ones include the European Commission's report (Crémer et al., 2019) for Europe, the Furman report (Coyle et al., 2019) and the subsequent CMA interim report for the UK, and the Stigler report (Scott Morton et al., 2019) for the USA. These reports, despite some differences, exhibit a fair amount of convergence.

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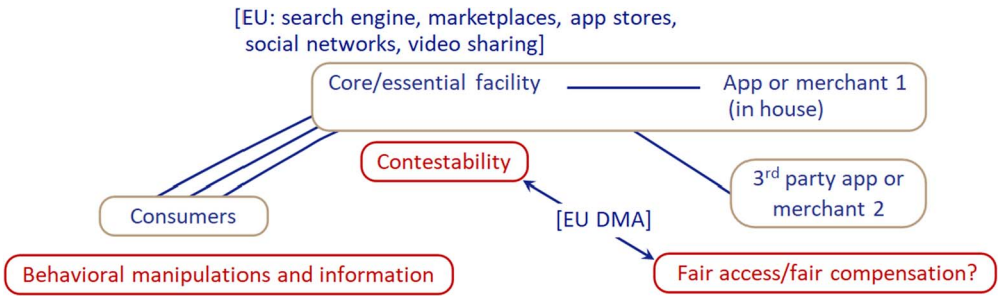

Figure 1: Scope of policy intervention in two-sided platforms.

concomitant willingness to lose money for a long time to buy some prospect of a future monopoly position. Firms accordingly need deep pockets, as is observed directly and suggested indirectly. For instance, Amazon lost money for a long time and Uber engaged in expensive recruiting of drivers through bonuses; moreover, firms like Airbnb, Reddit and Deliveroo that have never turned any profit have nonetheless reached phenomenal market caps.

Monopolies always raise concerns about high prices, low innovation and—if the monopoly position may be challenged—possible abuses of dominant position against potential rivals. Tech giants are no exception.

The possibility of consumer harm through high prices is often questioned by platforms on the ground that many services are available for free to consumers. This argument however ignores levies on the other sides of the market. Advertisers pay hefty fees for advertising on the platforms; these fees raise their cost of doing business, and part of the increase in cost is passed through to consumers. Fees paid by the merchants who distribute their goods and services through platforms are similarly passed through to the consumer. While merchants would want to avoid or at least reduce these fees, platforms often limit competition with alternative sale channels (competing platforms or merchants' own websites) by preventing merchants from advertising alternative routes for trading and by imposing 'price parity' clauses. The 'no-consumer-harm' argument also ignores the possibility that a zero consumer price may still be too high, as data are extremely valuable to platforms for purposes unrelated to the activity that generated the data collection in the first place (see Section 3 for a discussion).

Excessive prices are not the only issue with monopolies. As was recognized long ago, a monopoly's management enjoys an 'easy life' and may not keep its costs under control, as it is not spurred by competition. Monopolies may fail to introduce new products, as they are loath to cannibalize their existing products, and may even fail to adopt minor innovations. An interesting example is provided by the taxi monopolies across the world. The very useful 'innovations' introduced by ride-hailing platforms such as Uber, Didi or Lyft (geolocation, traceability, preregistered credit card, electronic receipt, mutual rating …) were neither new nor rocket science. Yet, they had not been taken on board by traditional taxi monopolies, resulting in suboptimal service. Interestingly, in some cities, the very same taxi monopolists reacted to Uber's entry by implementing similar innovations. This example illustrates the virtues of competition.

Yet high profits might be the cost to pay for the existence itself of the very valuable services. The consumer must in some way pay for the industry's investment costs. So, a better posed question is, 'Are platform profits in line with investment costs, or do platforms enjoy "supranormal profits" or "ex-ante rents"?'

Whether the high profits made by Big Tech platforms really constitute supranormal profits is debated; identifying supranormal returns requires data not only on profits currently made by a dominant firm but also on the losses it incurred during the shakeout period leading to monopolization, and on the probability of emerging as the winner of the contest; this is problematic as we have little data that would shed light on the latter two variables.

However, even if there were no supranormal profits, this would not mean that there is no scope for policy intervention. Firms might be playing dirty tricks in the marketplace, spend money on killer acquisitions or hire lobbyists and lawyers to acquire or preserve their dominant position. Contestability does not rule out social waste.

This commentary considers desirable adaptations of regulation to the digital age. It is organized as follows: Section 2 analyses the merits of alternative institutions and policies to regulate the tech sector. Section 3 discusses data-related issues. Section 4 comments on the resurgence of industrial policy and on trade-related issues. Finally, Section 5 focuses on institutional innovation, and Section 6 concludes.

2. Contestability and fairness

2.1 Motivation

To discuss policy proposals, it is useful to use the simplified description of the platform model in Fig. 1 and relate it to the proposals made in the European Union (EU) Digital Market Act (DMA), a regulation by the European Commission that entered into force in November 2022.[3]

This figure depicts a platform that controls the merchants', apps' and advertisers' access to consumers; implicitly, the latter do not 'multihome' to multiple platforms, at least in their usage, and so they are 'unique customers' of the platform.[4]

The 'core segment' that stands in between consumers and business users (merchants, apps, advertisers) may e.g. be a search engine, a digital marketplace, an app store, a social network or a video-sharing platform according to the DMA. Entry in this core segment often faces important barriers; in this respect, the notion of core segment is closely related to those of 'essential facility', 'natural monopoly' or 'bottleneck', which are familiar from traditional antitrust theory and practice on the regulation of utilities such as railways or electricity providers. Therefore, perhaps a bit loosely, we will employ these terms interchangeably

[3] The American Innovation and Choice Act (passed in the House Judiciary Committee on January 20, 2022) and the Open App Markets Act (advanced by the Senate Judiciary Committee on February 3, 2022) largely emulate the DMA.

[4] For some of the concerns expressed in this commentary, the platform may not be dominant in the standard sense: It might be serving a relatively small fraction of consumers, on whose access it has acquired a monopoly. Nonetheless, most of the antitrust concerns relate to dominant platforms such as Google search or Amazon marketplace.

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with 'platform' or 'gatekeeping platform'. The merchants, apps or advertising segments are usually called 'potentially competitive segments' or 'non-natural monopoly segments'.

As indicated in Fig. 1, the DMA focuses on two concerns:

- *Contestability*. Can a more efficient entrant enter the core market?
- *Fairness*. Do users (consumers, business) receive a fair share of their contribution to the ecosystem? Do they have equal access to core services?

Non-market-power-related pieces of legislation (in the EU, the Regulation on platform-to-business relations—P2B—the Artificial Intelligence Act, the Digital Services Act) focus instead on user protection issues related to transparency, content curation or the exploitation of our behavioural weaknesses. They will not be discussed in this commentary.

2.1.1 *Contestability of digital platforms*

The DMA lists a number of practices that may prevent a rival platform from competing with the incumbent. The first concern is the so-called 'applications barriers to entry': If the incumbent platform bundles some apps with its core service, competing apps may exit (or fail to enter) and so a new platform may be deprived of independent apps (see e.g. Katz and Rogerson (2008) for a discussion). Accordingly, the DMA prohibits tying between core services and other services.

Similar anticompetitive effects can be induced by exclusivity requirements by the dominant platform (see Armstrong and White 2007). Banning these agreements, as required by the DMA, also promotes platform competition by facilitating multihoming. To understand why, consider the following (fictitious) Uber/Lyft example. Uber and Lyft are two ride-hailing platforms, with Uber currently the most successful one. Both sides of the markets (i.e. passengers and drivers) can multihome on both platforms and many platform users do. Suppose that Uber were to demand exclusivity from the drivers, requiring that they do not offer their services on Lyft if they are on the Uber platform. Then drivers would most likely select Uber as it has a larger installed base of passengers and therefore offers more access to rides/passengers; previously multihoming passengers in turn would desert Lyft and single home on Uber. Uber's imposing exclusivity on one side of the market would thus reinforce Uber's dominant position on both sides.

A variant of the no-exclusivity requirement is the DMA request that business users must be able to indicate other channels of interaction to their users, a phenomenon called 'disintermediation'. The DMA also wants to encourage multihoming by banning 'most-favoured-nation' (or 'price parity') clauses, which, as we will see in Section 5, incentivize single homing.

The DMA likewise wants to facilitate consumer switching between platforms. In the case of social networks, this in general requires (static and dynamic) data portability. Consumers do not want to have to post the same content, update their contact lists, etc. multiple times. But absent portability, they have to do so if they want to multihome on multiple social networks or to try another social network. Such smooth switching is facilitated by interoperability.[5]

Finally, the DMA wants to prevent dominant platforms from combining data from different services or obtained from third parties. This demand is motivated by the fact that large platforms like Google or Facebook have much more data than the rival platforms, making the platform market hard to contest. However, this prescription looks controversial given that data silos imply a loss in the quality of service.

2.1.2 *Fair gatekeeping*

Platforms compete in various degrees in the markets they operate. Some platforms such as Airbnb, Booking and Uber are pure players: They do not own apartments, hotels and driver fleets, which they might be tempted to recommend first. At the opposite end of the spectrum are closed ecosystems; while platforms are rarely fully vertically integrated, Apple has long adopted a business model that is somewhat close. Indeed, its insistence on doing all hardware and software made it lose its lead over Windows, which adopted a more open approach. Apple itself became more open over time, even though it still produces both the iOS software and the iPhones and iPads. In practice, many platforms are hybrid; they operate markets and also compete in those markets against their own clients, as depicted in Fig. 1. Hybrid platforms (or pure player platforms, which enter 'sweet deals' with specific business users) raise the issue of the level playing field in potentially competitive segments.

(a) The DMA view on fairness

The DMA's list of violations of fairness includes (a) self-preferencing, (b) the use of nonpublic data obtained from third-party business users to offer or improve the platform's own products, (c) restrictions on uninstalling preinstalled software applications and (d) bundling (conditioning access or preferred status on the purchase of other products).

The regulator designates gatekeeping platforms[6] on the basis of nine specified core platform services, as well as some mechanical market share measures,[7] and imposes a number of obligations on these platforms. Specifically, the DMA defines 22 obligations (eight of which are self-enforcing, and the rest may be further specified by the European regulator). Designated platforms can appeal regarding their status. There is a heavy emphasis on self-execution: The platform must harness users and trusted flaggers to act as whistleblowers, and further employ algorithms to monitor its compliance with the law. The platform must further self-report to the regulator on its effort to abide by the law.

The enforcement will be performed by the EU regulator, with a private enforcement in national courts, which raises the issue of uncoordinated indirect regulation by the Member States.[8] Penalties can be large (up to 10% of worldwide turnover).

(b) Grounds for concern: on the validity of 'the rich-ecosystem argument'

Should we be worried about unfair access conditions? According to the Chicago School of antitrust, a rich ecosystem benefits consumers in two ways, product variety and enhanced competition among business users, and allows the platform to raise its consumer price to extract the associated increase in consumer surplus. Therefore, a platform would be shooting itself in the foot if it foreclosed access to a superior rival in a segment that

[5] It is not clear how interoperability will be governed. Who will design the Application Programming Interfaces? The dominant platform? A standard-setting organization? The regulator?

[6] On September 6, 2023, the European Commission designated six gatekeepers—Alphabet, Amazon, Apple, ByteDance (TikTok), Meta, and Microsoft.

[7] For example, 45 million users (merely registered or actually active? If the latter, how does one define 'active'?) and 10 000 business users. One issue of course is that, as we later note, the gatekeeper need not be large to raise a subset of the concerns; it suffices that it controls access to unique customers.

[8] The European Commission can put in a brief, though.

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complements the platform, thereby making its ecosystem less attractive. The argument is well taken, but there are several reasons why it often does not apply in the digital world.

The first reason why the rich-ecosystem argument may not hold is the already mentioned application barrier to entry argument. Even if the platform would not benefit from foreclosing a rival app, absent any threat of entry in its core segment, such foreclosure may deter entry into the core segment if it induces a shortage of independent apps.

The second reason is that the platform may not want to raise the price of its core service. Indeed, a free access to the core service (search engine, marketplace, etc.) is commonplace in the digital economy. The free-of-charge property suggests that the platform would like to subsidize (charge a negative price), rather than charge for, the core service. The optimality of the negative price comes from a negative marginal cost: A user's activity generates advertising, merchant fees and data that are highly valuable for the platform. However, negative prices are unfeasible because of arbitrage: They would attract fake consumers (say, bots) who would not buy on the platform, nor be receptive to advertising, and supply meaningless data.

A third reason why the rich-ecosystem argument may fail is linked to another non-negative price constraint, this time in the app markets. The rivals' inability to compete with negative prices implies supranormal profits for the winner apps.[9] The latter not only enjoy the fruits of their competitive advantage, but also when access charges are low or nonexistent, they also reap the benefits of customer relationships (again, advertising, commissions and data). The rival apps cannot compete the latter away through low prices as these are constrained to be non-negative. The platform accordingly makes little money when providing access to third-party suppliers and, when it also provides a competing app internally, may want to engage 'non-price foreclosure' vis-à-vis the dominant external app, i.e. in a variety of practices that may handicap the rival offerings: degradation of interoperability, delisting or listing in a very unfavourable position, etc.

2.1.3 *What is not in the DMA*

Platforms raise a number of regulatory issues that are not covered under the contestability and fairness tropisms of the DMA. Since this commentary is about market power, we only briefly mention the associated issues.

A set of issues relates to content. A second European piece of legislation, the Digital Services Act, which will apply from 17 February 2024 onward, defines the curating duties of platforms. Here again the focus is on large platforms, but even more than for the market power issues addressed by the DMA, it is not clear that large platforms should be the unique focus.[10]

Regulators are worried about platform dissemination of illegal content (such as child pornography or the disclosure of plans of a nuclear plant), of hate speech or incitement to terrorism, of fake news ('Masks are useless, vaccines are dangerous, the Earth is flat, climate change is not related to human activity, etc.'), of conspiracy theories, of slander and of petitions by false scientists. The reason why regulation is warranted is that platforms have weak incentives to eliminate these, as sensational content increases user engagement and, accordingly, ad revenues.

There is also a concern about platforms' (a) peddling, likely involuntarily, defective products (Amazon bears no responsibility on the products sold on its platform), (b) exploiting our cognitive weaknesses and biases (through confusing choices, a false sense of urgency or the promotion of digital addiction) and (c) recommending products that do not serve the consumer's interests, simply because they bring higher merchant fees (for third-party products) or higher markups (for in-house ones).

Current regulation is mostly self-regulation. Platforms issue guidelines against hate speech, harassment, sexual content, misinformation, slurs about disability, etc. In 1996, Section 230 of the US Communications Decency Act foresaw no liability for defective products, illegal content, defective goods or fake news. The purpose at the time was to jumpstart the consumer Internet revolution, but it is widely recognized today that the system is somewhat broken along these dimensions.

Despite this verdict, there will be a debate regarding sanctions and enforcement. For one thing, platforms, unlike courts, do not levy fines. They can delete posts, temporarily freeze accounts, suspend users or add a tag ('disputed'). Such sanctions may not be powerful enough[11]: Finally, there is the issue of the legitimacy of platforms in defining what content should be curated and how, although people recognize that they likely are the most cost-effective actors to implement the curation.

2.2 How should one regulate tech companies?

(a) Does public utility regulation apply to tech companies?

Shortly after the enactment of Sections 1 and 2 of the Sherman Act in 1890, which created modern antitrust enforcement, the USA also laid the groundwork for the regulation of public utilities (private companies in a monopoly position serving network industries such as telecoms, electricity or railroads). Regulatory agencies were set up to collect information about cost and revenue of these natural monopolies and to guarantee a fair rate of return on their investments (technically, their 'rate base').

The regulatory apparatus was completed, already in the early 20th century, by a judicial review of the regulatory process and decisions. Its aim was to protect investors in those utilities from an expropriation of their investment through low regulated prices, and consumers from regulatory capture, abusive tariffs and, later on, from a lack of competition in non-natural monopoly segments.[12]

In the late 20th century emerged a growing discontent about the poor quality and high cost of public services run by (public or private) incumbent monopolies regulated by the government. Cost-of-service regulation was increasingly replaced by 'incentive regulation' (price caps, fixed price contracts and more generally performance-based regulation), with the aim of strengthening regulated firms' incentives for cost reduction.[13]

[9] See Bisceglia and Tirole (2023) for an investigation of the impact of these two non-negative-price constraints and for the regulation of access charges.

[10] Indeed, it could be argued that large platforms have more reputational capital to lose if consumers are hurt. And the possibility of eyeballs (who cannot be presumed to always search for accurate news) and producers of dubious content migrating toward smaller platforms suggests a comprehensive focus anyway.

[11] Jiménez-Duran (2021) shows that content moderation may not moderate users on Twitter.

[12] Indeed, the AT&T 1984 divestiture, which aimed at facilitating competition in potentially competitive services such as long-distance and international calls, was initiated by the US Department of Justice (DoJ) rather than by the regulatory authority, the Federal Communications Commission (FCC), and the application of the consent decree between AT&T and the FCC was supervised by Judge Harold Greene.

[13] In fact, there was a much broader reform, of which the introduction of mechanisms for sharing efficiency gains between customers (or taxpayers) and the operator was the first leg. The other reforms were as follows: 1. the privatization of operators in Europe; 2. the possibility for natural monopolies to rebalance their tariffs (raising prices on market segments with inelastic demand to cover network's fixed costs, lowering prices on elastic-demand

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Despite this substantial improvement, there is still a sense in which profits are kept roughly in line with costs, for several related reasons.[14] First, profits that are completely disconnected from costs are not 'time-consistent': The public uproar triggered by 'abnormal profits' makes it difficult for regulators to abide by their initial incentive scheme, and this is particularly the case if regulators are not in a position to resist politicians' demands.[15] One of the promoters of price caps, economist Stephen Littlechild, had to give in to requests to renegotiate price caps for electricity companies before their term, when he was Britain's Director General of Electricity Supply in the 1990s. Second, very powerful incentive schemes tend to leave large rents to the regulated firm when it has relevant private information about its costs or demand vis-à-vis the regulator. Third, the high profit stakes that exist under incentive regulation create serious concerns about regulatory capture.

Today's tech industries exhibit natural monopoly characteristics much like those of the network industries of the 20th century: network effects, high fixed (entry and investment) costs and low (or even negative) marginal costs, hence the occasional suggestion to apply public utility regulation to the tech sector. Yet, cost-of-service and incentive regulations are hard to implement in the tech sector for two reasons.

First, digital firms are not monitored by the regulator over their lifecycle, making it difficult to measure their 'investment cost' (the analog of the rate base for public utilities) and therefore to grant them a 'reasonable rate of return', which incidentally would require also to factor in a (unobserved) probability of success.[16]

Second, and another novelty relative to traditional network industries [17], tech giants are global firms, operating with inputs that are shared across countries (intellectual property, data, servers, supply chain, logistics). The absence of a supranational regulator raises the question of who would oversee the granting of a proper rate of return and the allocation of contributions to this rate of return across jurisdictions, given that coordinating regulators and preventing transfer pricing optimization[18] are hardly feasible.

(b) Structural policies and breakups

An alternative approach to full-scale regulation consists in insulating a 'natural monopoly' (or 'bottleneck' or 'essential facility') segment, which became popular in the late 20th century. This segment remains regulated and is constrained to provide a fair and nondiscriminatory access to competitors in complementary segments that do not exhibit natural monopoly characteristics and therefore can sustain competition. This was the rationale for the 1984 AT&T divestiture: The 'Baby Bells' were put in charge of the local loops, which at the time were perceived as being hard to duplicate, while competition was enabled for long-distance and international calls. Similarly, in power markets, the high-voltage grid is a natural monopoly, while competition in generation developed in many countries. In the rail industry, the tracks and stations are obvious essential facilities, while operating companies can compete for passengers and freight.

The breakup paradigm is intellectually appealing. Yet, when it comes to its practical implementation in the tech sector, novel important difficulties emerge.

While the technology and market segments of electricity, railroads and (up to the 1980s) telecoms had not changed much since the early 20th century, digital markets are fast moving. Rapidly morphing technologies and demands make it difficult to identify a stable essential facility. This is important because divestitures take a while to perform, and the cost of implementing them would not be worth its while if the location of the essential facility kept migrating.

The second challenge is how to break up the incumbent without destroying the benefits of network externalities. Breaking a social network into two or three social networks may not raise consumer welfare: Either consumers will be split into separate communities, preventing them from reaping the benefits of network externalities, or, separated from their friends, they will rejoin on one of the broken-up sites, recreating the monopoly. Relatedly, a breakup might deteriorate industry performance. This can happen when the essential facility is data, as data are much more powerful when different data sets obtained as a byproduct from multiple activities are combined.

Finally, dominant firms may strategically intertwine different services to make it difficult for authorities to 'unscramble the eggs';[19] in this respect, it may well be easier to prevent a merger than to undo it (we will return to this later).

These obstacles need not be daunting but entail the need of a detailed plan, with a clear description of the associated costs and a comparison with alternative ways of reducing market power.

(c) Competition policy

Absent clear plans for regulation or breakups, competition policy (which deals with abuses of dominant position and cartelization, including through its merger review process) and consumer protection (including data privacy) may remain the main games in town, although perhaps not in their current form (as we discuss next when we cover light-touch regulation). Indeed, competition policy is imperfect, for two main reasons.

First, it is slow. A fine on an incumbent for anticompetitive behaviour may serve as a deterrent for future such behaviour, but it does not really help the entrant that went belly up in between.

Second, it is mostly backward looking;[20] as such, it may expose incumbents and their competitors to legal uncertainty: In the rapidly evolving digital arena, many novel issues arise, and incumbent firms may not be able to avail themselves of clear guidelines on what they can and cannot do. Competitors may be uncertain how the possibility of obtaining redresses if they are barred from entering. This suggests a more prospective approach adapted to the speed of digital markets, based on a code of competitive conduct. Competition policy in the digital age must achieve speedy and offer decisive resolution, and it must be agile to react to new

segments); 3. the opening to competition of activities that do not have natural monopoly characteristics (by granting licenses to new entrants and regulating the conditions of their access to the incumbent operator's essential infrastructures); 4. the independence of regulatory authorities.

[14] Developed by Laffont and Tirole (1993).

[15] Interestingly, high prices seem to be politically better tolerated if (a) the industry is not run by a regulated monopolist, and relatedly (b) if people believe that the firms 'deserve' their rewards. In the pharmaceutical industry, high prices, while always unpopular, seem to be less contentious for new drugs than for off-patent ones, which seems consistent with this conjecture. But we know little about the formation of public opinion's beliefs in the matter.

[16] The same issue arises for innovative drugs.

[17] Developing countries offer exceptions to this rule; as public utilities there may be subsidiaries of foreign suppliers.

[18] As is familiar from tax optimization, accounting tricks are bound to exploit differences in regulatory treatments across jurisdictions.

[19] For example, Mark Zuckerberg, Facebook's chief executive, announced in January 2019 that he planned to integrate the social networks' messaging services—WhatsApp, Instagram and Facebook Messenger—unifying their technical infrastructure.

[20] An exception is merger policy, which is a reason to give it a bigger role in preventing further concentration.

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environments and benefit from learning by doing. We will return to these points in Section 5.

(d) Competition policy crossed with regulation, or 'light-touch regulation'

Several reports call for the creation of a specialized regulatory agency, called a 'Digital Markets Unit' (Furman report for the UK) or a 'Digital Authority' (Stigler report for the USA). This specialized authority will focus on the digital economy and oversee only the large incumbents; according to the Furman report, perhaps a dozen of companies would be given 'strategic market status (SMS)' and thereby be designated as falling under its authority.

The agency will then be a mix between a competition authority and a regulator. Like classic antitrust, it will not be in charge of setting a rate base and determining a fair rate of return; as we discussed, this form of regulation is almost infeasible in a free-entry world and with global firms. It will also refrain from regulating consumer prices, even in the flexible form of a price cap, though it may monitor access charges to business users so as to create a fair digital ecosystem.

The agency will borrow the 'sectoral'[21] focus of the regulatory paradigm. That is, large firms outside the digital sector will remain under the current regime. It accordingly will have to adopt an approach that is more forward looking than that of current competition authorities, in several ways. Moreover, like a regulator, it will collect data about dominant firms and build up industry-specific knowledge on how the sector works. Large firms will have to prenotify their acquisitions. In addition, the agency will define a code of conduct.[22] In this setting of rules for digital platforms, it will be similar in spirit to the EU regulation of platform-to-business relations ('P2B regulation', which entered into force in July 2019). The P2B regulation instituted a transparency requirement meant to limit platforms' self-preferencing in favour of their private label brands and to thereby promote fair competition among merchants.

Yet, all these tools will not be effective unless the agency is endowed with enforcement power. The CMA[23] interim report suggests a few directions for such a reform: The authority would have the 'ability to suspend decisions of SMS firms pending the result of an investigation, including the imposition of interim measures, to block decisions of SMS firms at the end of an investigation, and to appoint a monitoring trustee to monitor and oversee compliance by an SMS firm.'[24]

In sum, this 'light-touch' regulation approach is appealing, but it also has its limits. First, it does not cover abuses in which smaller firms are also involved (like the most-favoured-nation clauses that we will later review); these presumably will still be handled by the competition authority.

Second, it will have to avoid regulatory capture, which is one of the reasons why multi-industry regulators and competition authorities were created in the past. This raises the issue of where the new agency should be located. It could be part of the Competition Authority, part of another agency such as the telecom regulator[25] or a stand-alone entity. Making it part of the Competition Authority would reduce a bit the risk of capture and would also avoid the lengthy debates about which companies are really digital, which might arise if the unit is located within a sectoral regulator. One thing is clear, though: turf wars must be avoided.

2.3 Why is contestability important?

An alternative to competition *in* the market is competition *for* the market, namely 'dynamic competition'. Because network externalities and/or fixed costs imply that a monopoly is more efficient than multiple non-interoperable firms, a substitute to having multiple competing platforms may be to discipline the incumbent platform through the threat of entry, relying on their incentives to keep their monopoly rents. This is indeed the line taken in the public discourse by some of the tech giants.

There is a grain of truth in this argument. Theoretically, monopolies may serve the consumer interest as long as (a) incumbents preserve their position by setting low prices and being innovative (which benefit consumers) and not through dirty tricks (which do not), and (b) more efficient and innovative firms (firms that improve the attractiveness of the ecosystem) are able to enter the market and overtake the incumbents' position. The market is then said to be 'contestable'. If so, *potential* competition keeps incumbents on their toes: They have to innovate to avoid being replaced, and to charge low prices so as to take advantage of network externalities and thereby deter entry.[26]

The important caveat to the contestability argument is that, for 'competition for the market' to operate, efficient rivals must (a) be able to enter and (b) enter when able to. They may not.[27]

(a) Preserve multihoming and limiting exclusivity requirements

Suppose, first, that the entrant challenges the incumbent directly in its core, monopolized market. The challenge for the entrant in this frontal attack is to overcome its scale handicap: It initially has few consumers and apps. As we have discussed, interoperability and multihoming are needed to facilitate entry in the core market.

User multihoming is also key to reducing 'applications barriers to entry' in the platform business. The incumbent may make the entrant's life miserable by demanding exclusivity from third-party providers or apps. We earlier mentioned the fictitious example of ride-hailing platforms. Similarly, most large apps' multihoming in the mobile operating system market[28] is essential for keeping more than one platform alive.

(b) Prevent 'defensive acquisitions' and 'entry for buyout'

We noted earlier that, for contestability to operate, it does not suffice that efficient entrants be able to enter. It must also be the case that they do enter. If instead they enter with the prospect of selling out to the incumbent ('entry for buyout') (Rasmusen 1988), little value is created for the consumer. Rather, the entrant makes money out of the threat to compete with the incumbent and 'ransoms' the latter. Overall, development costs make the entry

[21] Of course, firms such as Google or Amazon operate in many industries (health, mobility, telecommunications, retail and e-commerce, advertising, search …). Conversely, firms in most industries have developed a digital strategy.

[22] Adherence to the code of conduct will not be voluntary, though. Rather, it will resemble a law written up by the regulator and, like a law, will be stated in broad terms (such as 'non-procompetitive self-preferencing is prohibited') rather in detailed, specific ones.

[23] Competition and Market Authority, the antitrust enforcer in the UK.

[24] This approach is consistent with US antitrust tradition, which puts relatively more emphasis on remedies than on fines, relative to the European Union.

[25] The Stigler report (2019, pp. 18) suggests locating the agency within the Federal Trade Commission: 'We envision—at least initially—to have the Digital Authority as a subdivision of the FTC, an across-industry authority with a better-than-average record of avoiding capture. Most importantly, the Digital Authority will have to be very transparent in all its activities.'

[26] See Fudenberg and Tirole (2000).

[27] What follows focuses on the incumbent's conduct. Switching costs and behavioural biases favouring known brands may also protect the incumbents and must be addressed through specific instruments.

[28] Bresnahan et al. (2015) show that the most popular apps end up on mobile platforms iOS (Apple) and Android, preventing tipping in favour of one of them.

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for buyout a socially negative-sum game.[29] A potential, second form of social cost is that innovation may be incentivized away from new functionalities and toward me-too innovations.[30]

Concerns about a potential suppression of competition for instance surfaced when Facebook purchased Instagram and WhatsApp, two social networks. Observers were worried that the most likely rivals to Facebook would not compete with it. There is also evidence that the new product itself may be suppressed in 'killer acquisitions'; some empirical work following pharma projects pre- and postacquisition finds evidence of such killer acquisitions (Cunningham et al. 2021). In other cases, 'reverse killer acquisitions' take place: the acquirer absorbs the target's skills and capabilities to replace its own; innovation by the acquirer, rather than by the target, is being foregone as a result of it buying a business it could have built internally instead.[31]

Incumbents react to such claims in several ways. First, they rightly point out that fully conclusive evidence that a merger is anticompetitive is difficult to obtain: It is hard to prove that the acquired companies *will* compete with the incumbent in the but-for world without the merger. Indeed, it is a feature of early acquisitions that empirical evidence is lacking: The competition, if any, has not yet taken place at the time of the merger. Relatedly, the trajectory of the entrants' projects, including whether they would end up developing complementary or substitutable products to the incumbents', is often unpredictable.

Second, incumbents note that there are many more acquisitions than initial public offerings (IPOs). They argue that restraints on acquisitions would impose costs, by limiting the set of potential buyers. Given the difficulties and uncertainties associated with an IPO, a prohibition of early acquisitions by dominant firms would restrict VCs' and start-uppers' exit possibilities. This argument however does not seem that strong: If Instagram and WhatsApp had been prohibited from selling out to Facebook, many other acquirers, including tech giants without a strong social network, could have acquired them.

Third, another efficiency defense is also sometimes brought forth: The incumbent firm is really acquiring talent when purchasing the start-up ('acqui-hiring'). True enough. But again, this talent could be equally purchased by other tech companies searching for talent but not owning directly competing products. Moreover, Kim (2023) finds evidence that the lack of the target's workers choice concerning the acquisition instigates organizational mismatch, thereby elevating turnover rates among acquired workers relative to regular hires, which weakens the rationale for acqui-hiring.

Why are such early mergers not challenged? The answer is 2-fold. First, most mergers are below the radar of competition authorities, as most jurisdictions have turnover thresholds over which the mergers should be notified, allowing the competition authority to review them.[32] Forcing large tech companies to notify acquisitions, as is mandated by the DMA, is a first step. The second issue can be found in the current burden of proof, which under judicial review largely lies with the competition authority.[33] This burden of proof provides incumbents with a strong incentive to perform preemptive acquisitions, as no empirical evidence can be brought against such mergers. This suggests shifting the burden of proof to the dominant firm if the merger occurs early in the acquired entity's life. The acquirer would be asked to explain (e.g. provide tech trends and technological evidence) why the merger is procompetitive. This alternative approach is appealing, if only because it is not easy to find an alternative modus operandi.

Of course, acquisitions by incumbents need not be anticompetitive, i.e. suppress competition or dampen innovation.[34] But it makes sense to force large incumbents to notify their acquisitions and to assign the burden of proof upon them when there is a suspicion that the acquired entity might become a competitor in the absence of merger.

Finally, following the astronomical sums paid by Facebook for WhatsApp and Instagram, many have wondered whether one could not use the acquisition prices as signals that the merger is anticompetitive.[35] The starting point for this argument is well taken: Because competition destroys profit, an incumbent is willing to pay more for suppressing it than a third-party investor is willing to pay for an entrant that will compete with the incumbent.

There are serious practical obstacles concerning the use by competition authorities of acquisition prices as screening devices, though. A high absolute acquisition price may be due to a high level of innovation; therefore, one should look at the relative price that the incumbent and third-party acquirers are willing to pay for the entrant. However, to assess this relative price, there must exist observable bids, but in practice, acquisitions are often the object of opaque negotiations. And even if the incumbent and the entrant are on a trajectory to be substitutes[36] and there are observable bids, the differential between the bids of the incumbent and of the third-party investors may be small for multiple reasons, even though the difference in willingness to pay is large. For instance, in an ascending auction, the winning bid is by definition the second highest bid. Neither can we assume that bids will remain invariant when the regulatory framework makes use of acquisition prices (e.g. the incumbent can arrange accomplice bids that lie just below its own). Moreover, the threat of investigation may make the entrant less greedy when negotiating with the incumbent, which may even facilitate the acquisition.

[29] For caveats in settings with uncertain returns from investments and private information, see Mason and Weeds (2013) and Bisceglia et al. (2024).

[30] See Letina et al. (2020), Motta and Shelegia (2021), and Gilbert and Katz (2022), among others.

[31] See e.g. Caffarra et al. (2020).

[32] In the EU, there are two alternative ways to reach turnover thresholds. The first alternative requires (i) a combined worldwide turnover of all the merging firms over €5000 million and (ii) an EU-wide turnover for each of at least two of the firms over €250 million. The second alternative requires (i) a worldwide turnover of all the merging firms over €2500 million, (ii) a combined turnover of all the merging firms over €100 million in each of at least three Member States, (iii) a turnover of over €25 million for each of at least two of the firms in each of the three Member States included under ii and (iv) EU-wide turnover of each of at least two firms of more than €100 million.

[33] This discussion oversimplifies reality. Competition practitioners distinguish between burden of proof and standard of proof. Typically, in antitrust, the plaintiff or the authority must show that the conduct or the merger has an anticompetitive effect. Only if they succeed does the burden of proof shift to the defendant or merging parties to demonstrate procompetitive effects of the behaviour or merger (efficiency defense). In that sense, the current burden of proof favours the defendant (the merging parties). The standard of proof is more about what constitutes convincing evidence or reasonable likelihood. Of course, the effects of the allocation of burden of proof hinge strongly on the associated standard of proof.

[34] Suppose for example that the new product is as attractive as the incumbent's product, but along different dimensions. Its development will be hard to fund through the financial market, as the absence of global comparative advantage will have the entrant compete head to head with the incumbent. By contrast, the incumbent may be interested in acquiring the product and combine the entrant's superior functionality into its own, delivering a better overall product, which raises both profit and consumer welfare. See Motta and Peitz (2021) for other reasons why an acquisition by a powerful incumbent may still be welfare enhancing.

[35] A theoretical analysis is developed by Fumagalli et al. (2022).

[36] If complements, then price differentials might reflect the higher or lower degree of complementarity with the various buyers, the willingness to eliminate double marginalization, etc.

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(c) Secure fair access for complementors to facilitate entry into the core segment

It often makes more sense for an entrant to enter as a complementor first rather than to directly challenge the core business of the incumbent firm, which benefits from its installed user base in this core segment. Consider therefore a less direct attack on the monopoly's position, in which a firm, whose entry in an adjacent space[37] (as a complementor) by itself does not threaten the incumbent, may later expand its product line and grow into a substitute for the monopoly segment.[38]

That competition often comes from initial complementors has been alleged for a long time. In the browser case in the 1990s, Microsoft was accused of favouring its Internet Explorer browser over the Netscape one. Parties agreed that at the time Netscape was a complementor to Windows; so, there was no short-run incentive for Microsoft to eliminate Netscape, because a strong browser, regardless of the identity of its owner, made Windows more attractive (the Chicago School argument outlined in Section 2). Competition authorities (as well as Microsoft's CEO in an internal memo) however viewed Netscape as a potential competitor for Windows in the longer run, as it was alleged that Netscape apps, which were Unix-based so mainly open source, could have been delivered via the browser outside the Windows OS.[39]

Finally, we already mentioned the applications barriers to entry argument. A concern for the antitrust authority is the platform's desire to protect its core segment (the platform business) by depriving alternative platforms from the apps that they need to compete with the incumbent platform; put differently, by supplying key apps internally, or entering in exclusivity agreements with their suppliers, the incumbent platform makes an entering platform depend on its goodwill.

2.4 The importance of preserving fair gatekeeping

(a) Motivation

Independently of the contestability concerns just reviewed, authorities may be concerned about the fairness of access by third-party business users to the core segment.

Self-preferencing

It is commonplace for platforms to operate markets but also compete in them (as depicted in Fig. 1). Amazon marketplace serves Amazon Basics or Whole Foods as well as third-party products; Apple's app store supports both Apple's own apps and independent apps. Such dual presence as owner of and seller in the marketplace raises concerns about self-preferencing. The European Commission's Google Shopping case was based on the claim that the Google search engine favoured its own offerings. Regarding advertising intermediation services, there was a debate prior to the 2007 acquisition of DoubleClick's ad server by Google; the impact of Google's vertical integration in the intermediation services (running both ad servers, which serve publishers on one side and advertisers on the other, and the ad exchange standing in between) is still very much of a concern today.[40] In 2020, the European Commission launched an investigation into Amazon's Buy-Box, concerning the possible preferential treatment of Amazon's own retail offers and those of marketplace sellers that use Amazon's logistics and delivery services.[41]

Competition authorities are thus concerned about the dominant platform creating market power for in-house complementors. Unfair competition may take the form of a display preference for own services, a tie-in or loyalty rebates; alternatively, the platform may prey on a rival app to force it out of the market. In some cases, the dominant platform may legitimately want to avoid the double marginalization induced by the ad valorem fees under the agency model of business in rather noncompetitive complementary segments.

To be certain, the concern about self-preferencing is ancient (consider private labels in supermarkets). But there is a feeling that digital platforms have an unprecedented ability to (a) favour their own brands when making a recommendation to consumers and (b) cheaply gather substantial information about third-party products and selectively create copycats for the most successful ones. Such strategies are particularly harmful to rival brands as the latter may have no other means to reach the platforms' customers.

In 2018, India issued regulations for foreign e-commerce platforms; besides their protectionist bent, noteworthy is the prohibition of (a) exclusivity requirements (an e-commerce platform cannot prevent or discourage the merchant from selling goods on other platforms, which may be a reasonable requirement in the case of a dominant platform), and (b) sales by platforms of products from companies in which they have an equity interest. This second aspect of the Indian structural remedy is extreme; private labels may result from serendipitous innovations, and they also have the potential to eliminate double marginalization. One would want to design less intrusive/more flexible interventions. However, the remedy illustrates the overall concern about tech companies competing with their customers.

High access charges

The concept of 'fair access' is however broader than just the 'absence of self-preferencing'. Even a pure platform player, which does not compete in the market it creates (Airbnb, Booking, Uber), may charge merchant fees that are too high. Lately, there have been a number of debates about the levels of such fees, from the 3% demanded by many payment systems to the 30% standard commission on apps and in-app purchases of digital goods and services charged by Apple App Store, Google Play or Galaxy Store.[42] In August 2021, Apple removed Epic's Fortnite game from its app store because it circumvented Apple's 30% fee by offering an external payment option. A federal judge in California in September 2021 ruled that Apple must allow developers to route customers to third-party payment options and not force them to pay the app store's fees for in-app purchases. In the same year, in the EU, following up on a complaint by Spotify, the Commission informed Apple of its preliminary view that it abused its dominant position for the distribution of music streaming

[37] Because it is costly to enter multiple segments at a time, such entry most often concerns a single niche segment: Google entered in the search business, Amazon initially sold books online and Uber's strategy was to start by entering the taxi business.

[38] The standard references here are Choi and Stefanadis (2001) and Carlton and Waldman (2002).

[39] This reasoning was also at the heart of the European Commission's case against Microsoft in workgroup servers. The degradation of interoperability between the Windows OS and rival server OS (Unix, Linux, Novell …) was viewed as a way of inhibiting dynamic competition (e.g. reducing the risk of apps being delivered on the server side without needing Microsoft on the desktop). See Kühn and Van Reenen (2009).

[40] Google is alleged to have a last-look advantage over rival ad servers and therefore able to apply only a tiny margin when overbidding rivals for publisher impressions. The possibility of self-preferencing is analysed in detail by Geradin (2020).

[41] For empirical analyses of the fairness of Amazon's recommendation system, see Dubé (2022), Farronato et al. (2023) and Lee and Musolff (2023).

[42] Some of these platforms allow lower rates under certain conditions. For example, subscription commissions charged by Google Play and Apple App Store fall to 15% after 1 year.

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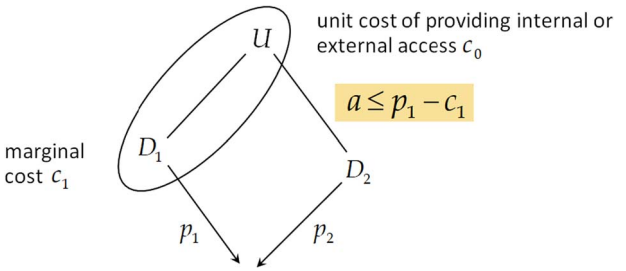

Figure 2: Using ECPR to price access.

apps through its app store. The Commission is concerned by the mandatory use of Apple's own in-app purchase mechanism imposed on music streaming app developers to distribute their apps via Apple App Store. In January 2022, the Competition Commission of India stated that the 30% commission Apple charges developers unfairly pushes up costs for both app makers and consumers, and also acts as a barrier to entry for new developers.

(b) The old debate on access to public utilities' bottlenecks

The debate on the terms and conditions of access to dominant platforms is reminiscent of that on the regulation of access in network industries in the 1990s. The latter considered an essential facility (the local loop in telecoms; the rails, signaling and stations for railroads; the transmission grid for electricity …) and the conditions of access of the competitors in a competitive complementary segment (long-distance calls; train operators; power generators …) to this essential facility.

The economic literature on the opening of competition in network industries reached five conclusions[43]:

1) The access to an essential infrastructure must be regulated as its owner has little incentive to let others compete in adjacent segments.
2) The so-called efficient-component-pricing rule (known as 'ECPR' or 'Baumol-Willig rule') balances the conflicting objectives of not providing the essential infrastructure owner with an incentive to engage in nonprice foreclosure (Nonprice foreclosure strategies in telecoms included refusals and delays in interconnection (staggering of upgrades to delay the introduction of a service offered by a competitor, claims of insufficient capacity), forcing rivals to purchase elements or functionalities they did not need, delays in providing number portability, etc.) and of not penalizing efficient competitors: It states that the access price be equal to the lost margin in the competitive segment. The notion of ECPR is illustrated in Fig. 2 in the context of a one-sided market, in which it was first enunciated. In this figure, an upstream firm U (the counterpart of the platform[44] in Fig. 1) can give access to its bottleneck segment (rails and stations, high-voltage transmission grid …), at the same unit cost (denoted by c_0), to both an internal downstream firm (D_1) and a third-party one (D_2). The internal supplier D_1 can produce at unit cost c_1 to serve the final consumers and charges price p_1 to them. ECPR states that the unit access charge a to be paid by the third-party downstream firm should not exceed the margin made by D_1 in the final segment: $a \leq p_1 - c_1$. It is a sort of Pigouvian rule, as it forces D_2 to internalize the lost markup when it takes a consumer away from D_1, with the idea that this markup contributes to the recovery of the implicit fixed cost of the bottleneck segment. Note that ECPR is only a partial rule: It does not say what the incumbent's access price, or equivalently, given the rule, final price, should be. Put differently, it only expresses coherence in the incumbent's price structure and does not address the price level issue.
3) An access markup does not always imply that competitors are disadvantaged in their competition with the incumbent: A higher access price raises the incumbent's opportunity cost of serving a consumer one-for-one if the final demand satisfied by the incumbent reduces one-for-one that for the entrant.
4) Marginal cost pricing of access is not the right social benchmark. First, it implies that the competitive segment does not contribute to the recovery for the fixed cost of the essential infrastructure.[45] Second, a low access price incentivizes foreclosure ('self-preferencing' in platform language) and therefore requires a heavy investment in regulatory capacity: The vertically integrated incumbent cannot make money by selling access and therefore must make its money on the competitive segment.
5) It is useful to think of intermediary services as enabling final services. In theory, the optimal access charge should be equal to the marginal cost of giving access plus a Ramsey markup that contributes to covering the essential infrastructure's fixed cost.

(c) The specificities of the digital world

Do the previous precepts apply to the digital world? That is, can we just relabel 'essential infrastructure owner' as 'platform', 'foreclosure' as 'self-preferencing' and design digital regulation around such principles? There are strong analogies, but also a number of differences. For one thing, as we already noted, there is no regulation of the overall rate of return in the case of platforms. While regulating access prices in a public utility context is complex, the lack of accounting data makes the same exercise even more arduous in the digital world. Antitrust has never been at ease with the setting of access prices.[46]

A second difference stems from the multisidedness of the digital markets. The literature here is very large and would require a full treatment of its own. Researchers have looked at the incentives that pure player or hybrid platforms face in their choice of merchant fees and at whether the hybrid platform model should be prohibited.[47]

A third difference with public utility regulation, stressed in Bisceglia-Tirole (2023), is that unit opportunity costs are often negative (a consumer brings in ancillary benefits through advertising, merchant fees and data). This often results in free-of-charge usage.[48] As we noted, the platform may not benefit from a better ecosystem if it does not want to raise the 'core' price to

[43] See Laffont and Tirole (1994, 1999).

[44] The difference between an upstream firm and a platform is that the platform has a commercial relationship with final consumers, while the upstream firm does not (consumers are served by the downstream suppliers).

[45] There is a good reason why the infrastructure is essential!

[46] A case in point is that of New Zealand, which abrogated the telecom regulator in the 1990s at a moment at which competition on long-distance and international calls was opened. The antitrust authority, which by default was put in charge of access pricing, felt little equipped for this new task.

[47] A nonexhaustive list of interesting recent papers on the topic includes Anderson and Bedre-Defolie (2021), Allain et al. (2016), Choi et al. (2023), Etro (2021, 2023), Gomes and Tirole (2018), Hagiu et al. (2022), Jeon and Rey (2022), Wang and Wright (2017) and Zennyo (2022).

[48] Some implications of the non-negative-price constraints have been drawn in various contexts; see e.g. Amelio and Jullien (2012), Choi and Jeon (2021), Gans (2022) and Gomes et al. (2023).

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the consumer in reaction to the improved offering (a zero price may be too high in the first place from the point of view of the platform). A second price constraint arises on the 'app' side, as competing sellers may enjoy undissipated rents. These two price constraints play out in different circumstances. The latter operates for low access fees, when the platform's opportunity cost in the app market is negative, and so a vertically integrated platform is tempted to engage in self-preferencing. The former arises when the access charge and therefore the app prices are high, making it necessary for the platform to stop charging for the core product in order to maintain the consumers on the platform.

In an environment characterized by the interplay between the core and the app zero-lower-bound constraints, a good rule is to make the socially optimal access fee a coincide with the ancillary benefit b associated with app distribution. By the same logic of the Baumol-Willig rule described above, this can be interpreted as a Pigouvian access charge because the third-party app 'steals' b from the in-house app when taking a consumer away from it, thereby setting $a=b$ makes the independent app internalize this externality. As the platform has always incentives to squeeze superior third-party sellers through higher access charges, a cap needs to be imposed by regulation.[49]

3. Data

Data raise multiple issues, including some related to the protection of privacy. Here, I will focus on competition-related issues on which our knowledge is still unfortunately quite patchy.

3.1 Who should own the data?

The current, ubiquitous business model of digital platforms is the so-called 'services-for-data' arrangement. We enjoy for free great e-mail, search, video, social network, maps and other services, which are paid for with the data we provide to the platform.[50] In turn, the platform makes money by selling targeted advertising, by collecting merchant fees or by using data to produce new services (data are needed for instance to feed recommendation algorithms or to develop autonomous cars, delivery drones, health care diagnostics and treatments). There is discontent with the services-for-data model, but no straightforward alternative to free services has yet emerged. There have been proposals nonetheless:

(i) *No or limited data collection.* The website can refrain from collecting data. Or there may be short-term data collection, e.g. one that allows only for contextual advertising, which is based on what the user is currently looking at or searching for (as is the case for DuckDuckGo's search engine). The issue then is whether the protection of privacy would not hamper functionalities, e.g. lead to poor recommendations. In any case, the lack of data collection, which is currently a major source of income for platforms, is likely to require content pricing for the services they offer. As is well known, a zero price on the consumer side hinges on the platform's ability to monetize the consumer's data or the advertisers.[51]

(ii) *Compensation of user through micropayments.* In this alternative, the platform would still own the data it collects but would pay users in cash rather than in kind. There are obstacles to payments in cash, though. First, as previously discussed, negative prices would expose the platform to gaming, i.e. are vulnerable to bots. The second issue concerns pricing: Users are unaware of the value (for the firm) and cost (for themselves) of their data, and how these are affected by the feasibility of portability and other considerations. For example, the platform can learn about me directly from me, or indirectly from people like me.[52] The solution of compensating users through micropayments requires a trusted intermediary to guarantee the quality of data to firms and to extract value for these data on behalf of consumers. Nowadays, there are some 'tracking apps' that let users sell their data for cash. For instance, UpVoice pays its users to monitor their Internet usage (particularly their social media feeds) and collects adverts anonymously. This however adds an extra layer into the system, which of course takes its cut.

(iii) *Data licensing and data trusts.* It is a common and reasonable view that data are the ultimate public goods and should be shared among potential users. Unless the law declares data to be an essential facility, though, forcing Google, Apple or Uber to share their data without compensation might amount to an expropriation of their investment and would likely be challenged in court.[53]

Some have therefore proposed that data be shared through a licensing system in which the data owners would be remunerated on a fair, reasonable and nondiscriminatory (FRAND) basis. The idea is the same as that underlying the treatment of essential patents in most standard setting processes. FRAND payments to data owners seem conceptually reasonable, but a host of practical questions arise, concerning the nature and format of data to be licensed in this manner or the price (or prices in the case of field-of-use pricing) fetched by the license. Anyone familiar with the complexity of the FRAND licensing system will identify the intricacies involved in designing such an approach.[54] The intricacies are compounded, as asymmetries of information about what is in the data set are even higher than in understanding what a patent license exactly delivers.

The third possibility would be to have data-using institutions create their own data trust. A data trust is a steward that manages people's data on their behalf and has fiduciary duties toward its clients. So far, most but not all existing data trusts have been initiated by authorities in regulated industries (mobility, energy).

(iv) *Consumer-centric data.* Finally, initiatives such as Tim Berners-Lee's Solid have consumers control their own data storage and access. The main idea is to decouple content from the application itself, so that users can have the freedom to

[49] Another Pigouvian principle underlying optimal access charge regulation is derived by Wang and Wright (2023), in an environment with positive marginal costs where the externality hinges on consumers' choice of channel to interact with merchants.

[50] Posner and Weyl (2018) note that the payment may be in the wrong 'currency' if the user does not enjoy the free services offered by the platform.

[51] For instance, after its ads-business has been severely hurt by Apple's ad-tracking changes on iOS and following the recent broader pullback in digital ad-spending, Meta created a new division with the aim of building paid products across Facebook, Instagram and WhatsApp.

[52] For a study of the consequences of such data disclosure externalities, see Choi et al. (2019). Internalities are studied by Liu et al. (2020).

[53] Data are notoriously hard to value. For a discussion of why this is so, see Coyle et al. (2020). For one thing, one must distinguish between potential profits for data users and social value. For another, profits hinge on forecasts about hard-to-predict future uses and privacy and competitive-access regulations; furthermore, markets for data may not be thick. On the consumer side, there have been so far widely diverging estimates of willingness to pay for privacy, and this willingness to pay probably is formed under very incomplete information about what is and will be done with the data, and about whether the same data can be obtained through multiple channels. Other contributions by economists include Acemoglu et al. (2022) and Bergemann et al. (2022).

[54] For a description of these intricacies and a proposal for reform, see Lerner and Tirole (2014, 2015).

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choose where their data reside and who is allowed to access them. The challenge will be to design a value proposition for consumers and data users alike.

The first use of an individual's data is targeted to the individual himself/herself. It is straightforward to envision users controlling which doctors and institutions they will provide their medical data to. Similarly, one presumes that some consumers will be willing to give their data for targeted advertising purposes against higher-quality recommendations and a lower price for services. For such uses, the issue is mainly one of information and transaction costs, although there may be externalities as well, that reduce social welfare (as when the individual communicates personal health information to obtain a better deal from insurers; the information unraveling then raises the cost of insurance for other consumers).

The second use of data is to create a pool of data that enables firms to create better algorithms; with some exceptions (say, rare diseases), the marginal value of an individual's data is near zero, but there is large value in the collective amassing of data for the purpose of analysis (as when the collection helps medical diagnostics or the drug approval process). That raises a pricing problem though, as the average value largely exceeds the marginal one.

3.2 Data as a barrier to entry?

A related debate stems from the concern that data acts, or might soon act, as a barrier to entry into new services. There is no question that Google and Facebook in particular have access to very large sets of data not available to their current and potential competitors, which gives them dominance in search advertising (Google) and display advertising (Facebook, and to a lower extent Google through YouTube). Platforms use social plugins to track users across the web (i.e. outside their own ecosystems[55]) and develop full browsing profiles of them. The platforms also use caching, which improves the external content's loading speed, but also forces external content providers (e.g. newspapers) to share data with the platforms. That deprives the content providers from access to unique data, that, subject to privacy regulation, they could monetize at higher prices. Finally, if privacy regulation is strengthened and consumers feel more engaged in monitoring websites' privacy policies (which amounts to the consumers' incurring a fixed cost of checking whether to grant consent), large platforms may have an advantage over smaller ones, as their consent forms apply over a much larger set of services or to more important ones; relatedly, privacy regulation may make it easier to share data internally (within a 'walled garden') than across firms. The question then is how critical is it to have access to massive data sets to supply targeted advertising or to develop new products and services.

Some authors argue that there are diminishing returns in the amount of data.[56] The underlying argument is the Law of Large Numbers. To predict the time that cars will take from A to B, a GPS navigation software app does not need thousands of cars. Others (e.g. Posner and Weyl, 2018) object to this argument on the grounds that, while the Law of Large Numbers indeed applies to a given use, new and more complex uses requiring larger amount of data emerge regularly, which invalidate the effect of the law. Alternatively, economies of scope rather than scale may be at work. There may be complementarities between sources of data; e.g. a search engine may have a better predictive performance when its algorithm combines information about the keyword as well as user characteristics (Schaefer and Sapi 2019).

Hagiu and Wright (2023) investigate when data create a barrier to entry. The value of the marginal data depends on the required accuracy of the forecast. When the accuracy is key (e.g. disease prediction systems, online search engines), firms with a data advantage may have a strong competitive advantage. For instance, Apple Maps has started competing with Google Maps in the USA, but not in countries where it has a smaller user base. Of course, how big is big enough is an empirical matter. Other determinants of data as a source of important competitive advantage are the absence of substitute data in the marketplace and the availability of unique data analytics capability. By contrast, data whose value is rapidly depreciating do not confer any lasting competitive advantage.

While the data-barrier-to-entry argument will surface in many contexts, it has so far focused on the large profits made by Google in search advertising (in response to the consumer's expression of interest) and by Facebook on display advertising (partly geared toward raising brand awareness). Google's extensive data collection (reinforced by its contracts with Apple and Android mobile phone manufacturers to set Google search as a default on the browser[57]) allows it to personalize advertising and generate much more revenue for the advertisers than any competitor. And Google can capture a sizeable 'ad tech tax'.[58] Accordingly, interventions such as forcing third-party access to Google's click and query data are being considered.[59]

As for Facebook, the main concern about social networks is that data may create a switching cost and deny users a costless migration to a new platform.[60] That is, user switching between platforms is difficult if data transfer is infeasible or time-consuming. To be certain, the General Data Protection Regulation (GDPR) creates data portability rights based on an open standard. However, it does not define a technical standard. Its portability requirement applies only to data that consumers provide directly. And it is not dynamic in that the user must port repeatedly to update content and contacts; the latter may have no consequence if the user has decided to switch to another platform, but this is not so if the user wants to multihome or is still uncertain about wanting to switch and just wants to try an alternative platform. In this respect, the 2019 Furman Review argues that content that should be portable in a dynamic fashion includes past purchases, music playlists and other entertainment consumptions and social network data (profile, contacts and shared contents). The higher the portability cost for the consumer, the less likely are users to coordinate to switch to a superior platform. 'Social graph APIs'[61] would further allow users to invite their friends to join the new platform and multihome; cross-posting ability would allow a user to stay on multiple social networks at low cost. As was the case for telecommunications or open banking standards, such interoperability standards probably could only be set by governments or neutral not-for-profit bodies.

[55] Google also shares data with mobile suppliers through Android, and platforms often share data with their third-party apps.

[56] See Bajari et al. (2019) and the references therein.

[57] Moreover, most Android phones come with Google Chrome set up as the default browser. With costless thinking and decision-making, the default would be irrelevant. Data on consumer behaviour however show a tendency toward 'default bias'. For instance, when Yahoo paid Mozilla for default status in Firefox 34, it saw a 20% increase in its share relative to users of Firefox 33.

[58] See CMA (2019, pp. 40, 52–53).

[59] For example, CMA (2019, pp. 228).

[60] For a model of users' 'migration' to a superior entrant platform, see Biglaiser et al. (2022).

[61] CMA (2019, pp. 99).

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4. Industrial policy

4.1 A virtuous process for industrial policy

Governments may apply two broad types of interventions to correct market failures: *Nontargeted policies* do not attempt to choose winners and losers. Rather, the government uses technology-neutral policies, such as carbon pricing or R&D tax credits. By contrast, *industrial policy* refers to policies that are targeted toward specific sectors, technologies and even companies.

It is easy to find arguments in favour of industrial policies. They may create cluster effects through infrastructure sharing, enable the informal sharing of information[62] (as when Steve Jobs and his developers learned about graphical user interface while visiting nearby Xerox Park) and promote joint learning by doing. As important, but less emphasized, is the existence of a labour market; most start-ups are bound to fail, and even if they do not, entrepreneurs and their collaborators look for new challenges; a cluster allows for a low-personal-cost job mobility.

State aid to industry is not just about creating clusters; it is also about avoiding losing industrial jobs. Indeed, it is allowed for EU disadvantaged areas. Criscuolo et al. (2019) examine a policy change increasing the weight of community unemployment and per-capita GDP in deciding on the eligibility of areas in which (mostly manufacturing) projects can access public subsidies.[63] They find a substantial impact of subsidies on employment and activity in the case of small firms (replicating thereby some studies concerning different interventions), and that these effects do not come at the detriment of employment and activity in neighbouring areas. There is no effect for large firms by contrast, which the authors interpret as stemming from large firms' higher ability to game the system by moving jobs across areas to benefit from public subsidies.

A different argument refers to public R&D and its spillovers. The idea is that fundamental and applied research by the public sector irrigates the private sector, and especially so through the cluster effects just described. Public research generates both *explicit knowledge*, a global public good transmitted and available worldwide through international conferences, scientific publications, open-source initiatives and expired patents and *tacit knowledge* embedded in the researchers.[64] This tacit knowledge combined with limited mobility (family and social graph, culture, language …) implies that the spillovers from public research benefit the country more than the rest of the world. The empirical question, though, is 'how much?'

We lack empirical evidence on the location of the beneficiaries of spillovers. On the anecdotal side, we know that many breakthrough technologies that emanated from the work of DARPA, the NIH and the NSF benefited Silicon Valley and the broader American industry more than the rest of the world.[65] On the other hand, the fundamental discoveries in deep learning made in the USA seem to benefit Chinese firms at least as much as American ones (Lee 2018).

Finally, industrial policy (which may well operate against competition) may occasionally serve to preserve competition. A case in point is Airbus, which created a credible competitor to Boeing.

With such solid arguments, why are most economists[66] wary of industrial policy? The standard quip here is 'The State picks winners, losers pick the State'. My own country is chock-full of bad experiences: Concorde, Bull, Thomson, Agence de l'Innovation Industrielle, 1984 contaminated blood, diesel subsidies …, a mix of hubris, capture, protectionism and just very poor information. Meetings discussing projects or industries to be selected as beneficiaries of the government's largesse can be frightening; participants, except advocates of their own industry, hold very little information. However, there is a concern that the evidence both for and against industrial policy is only anecdotal. But there are two good reasons for identifying best-practice approaches. First, a well-designed industrial policy offers the earlier-discussed benefits. Second, politicians are going to do industrial policy anyway, so it is incumbent on experts to give some advice on how to do it right.

In Tirole (2017), I make, and explain the rationale for, eight recommendations to be followed if one is to engage in industrial policy:

(1) Identify the market failure, so as to design the proper policy.
(2) Use independent high-level experts to select the projects and the recipients of public funds.
(3) Pay attention to the supply side (talents, infrastructure) and not only to the demand side.[67]
(4) Adopt a competitively neutral policy.
(5) Do not prejudge the solution, but rather define objectives.[68]
(6) Evaluate ex post, disseminate the results and include a 'sunset clause' in each program, forcing its closure in the event of a negative assessment.
(7) Involve the private sector in risk taking to avoid white elephants.
(8) Strengthen universities and bring them closer to the start-up world.

Such a code of conduct for industrial policy raises the question of how one ensures that authorities (say, the EU) obey these principles, all the more that some recommendations stress the need for independent decision-making in an era when populism and calls to reaffirm the primacy of politics in public decision-making are running high. At a minimum, there should be a clean description of these principles (an analog might be the Directive on public contracts) and the monitoring by an independent agency of compliance with this code.

4.2 International trade, dumping and state aid

Is industrial policy better justified when there is a (long-lasting) trade war and a failure of the WTO to straighten things out? When a foreign country exhibits a particularly close relationship between its firms and the government? If so, should we have any safeguards?

[62] As developed in AnnaLee Saxenian's celebrated 1994 book on Silicon Valley.

[63] Their focus is the Regional Selective Assistance program in the UK, which funds, in disadvantaged areas, projects that would not have occurred otherwise (additionality criterion).

[64] In between stands the knowledge gained by others in bilateral discussions, courses and conferences; this form of knowledge diffusion usually involves more local participants than foreign ones.

[65] See e.g. Moretti et al. (2023). The USA is an unexpected industrial policy role model, with Defense Advanced Research Projects Agency (DARPA), National Institute of Health (NIH) and National Science Foundation (NSF), which laid the foundations for many of today's biotech and information technologies.

[66] With notable exceptions, such as Mariana Mazzucato, Dani Rodrik or Joe Stiglitz.

[67] Regions and municipalities may want to start a cluster, in biotech, green technologies or AI, but not have the people who are going to make it happen. Clusters should avoid the 'Field of dreams' mindset (from the movie in which the main character, played by Kevin Costner, builds a baseball field in the middle of Iowa following a voice saying 'If you build it, he will come', where 'he' refers to a famous baseball player, Shoeless Joe Jackson; unfortunately, in reality, 'they' often do not come if they are not there).

[68] Think of COVID vaccines!

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In international matters, multilateralism is the economists' preferred approach to conflict resolution. Alas, the WTO has not always been very agile, not to mention that the concept of multilateralism is not flying high in these populist days.[69]

There is a widespread feeling that Europe shoots itself in the foot by being stricter in its application of WTO rules on state aid and dumping, as compared to China and the USA. The latter more eagerly engage in state aid (especially China), and in the case of the USA, they are more prone to using compensatory measures. First, Europe adds to the list of criteria identifying unfair competition the notion of interest of the Union; low import prices benefit importers and consumers, making it more difficult to identify harm and justify local industry subsidies. This notion of interest (combined with an intertemporal vision, which already lies within the mandate) intellectually does make sense but puts the EU at a disadvantage with regard to countries that content themselves with the minimal compliance with the WTO rules; my gut feeling is that a WTO change of rules, if feasible, would be more appropriate than a renunciation to the concept of EU interest.

Second, the European Commission needs approval by the European Council. The infringing countries can try to use 'divide and conquer' strategies to prevent the Council from going along with the Commission. Combe et al. (2019) propose to eliminate the veto of the European Council to make antidumping and anti-state-aid policies more effective and comparable with other countries; they further suggest that decision-making with respect to commercial practices takes place at DG Competition, which seems to make sense but would require to increase the number of case handlers, which is particularly small in the EU. They also propose to increase the presumption of prejudice for state subsidies that have not been notified to the WTO, and to align the WTO rules on services with those relative to merchandises.

5. Institutions

Finally, institutions must be strengthened to reflect the new economic environment. Here are the two remarks before we review possible changes: First, this strengthening, which may require new degrees of freedom for independent agencies, is not a foregone conclusion given the current mood regarding the primacy of politics. Second, what is needed is not a drastic change in antitrust law; indeed, the age-old statutes are worded in a broad enough manner that many of the behaviours we are concerned about are somehow already embodied in law. In contrast, the regulatory apparatus must be made more agile and in tune with evolving ecosystems and economic thinking in the digital age.

5.1 Independence

The independence of competition authorities is being questioned in some countries. Even proposals that stop short of calling for a return to old-style ministerial decision-making may put competition authorities on a tight leash by conferring on politicians the ability to overrule competition authorities' decisions.[70] Other proposals call for excluding certain industries or firms from the scope of competition policy.

We should remind ourselves of why we have independent agencies in the first place. The rise of independent agencies historically grew out of a discontent with the political process. Politics indeed are subject to capture and electioneering. Independent agencies also face the risk of capture, but they are immune to electioneering.[71] For instance, because politicians' eagerness to be reelected led to credit booms, central banks were made independent to tame inflation and, later, to avoid lax prudential supervision. Relatedly, independent regulatory authorities were set up to oversee the telecoms, electricity and other network industries in order to protect private investors in those utilities from an expropriation through low prices, or conversely to protect consumers from abusive tariffs (and, later on, from a lack of competition in non-natural monopoly segments). Political economy constraints can be tackled by designing institutions that resist political pressure, at least on a specific policy move.[72]

A corollary to independence is its greater acceptance of evidence-based public decision-making: Independent agencies are more often populated with high-expertise staff (e.g. PhDs and the like).[73] A related corollary is greater transparency as to the motives: Illustrations include the publication of minutes by Central Banks, public consultations by regulators, majority and dissenting opinions for Supreme Courts ....

Relatedly, there is a growing political demand to grant broader missions to competition authorities: stakeholder protection (employment, environment), industrial policy ....[74] An important concern with this proposal is that single-purpose agencies can develop a sense of mission,[75] but conglomerate agencies do not. Accordingly, well-managed agencies may resist being granted new tasks. In addition, professionals and narrow specialists are instrumental in creating this sense of mission (internally), intertemporal consistency and legal certainty (externally). As agency theory shows, clear missions and advocacy can create focus and accountability. They also reduce the likelihood of challenge to the agency's independence by preventing it from entering too much into the political terrain and engaging in mission creep.[76]

5.2 Improving processes

It is easy to point at the drawbacks of classic approaches: self-regulation (which is self-serving), competition policy (whose processes are too slow and is mostly 'backward looking') and utility regulation (mostly infeasible in the tech industry as we earlier argued).

We need more reactive antitrust that involves (but remains independent from) actors and establishes guidelines that are not cast in stone and evolve as the competitive landscape evolves and our knowledge progresses. Put differently, the regulations should

[69] Indeed, the WTO's appellate body lost its ability to arbitrate trade disputes, due to the Trump administration's blocking of new nominations, implying that losers of a trade dispute can appeal with the guarantee that no decision will be made.

[70] In 2019, France and Germany issued a joint manifesto to protect their industrial champions. They proposed a reform of EU competition law, which would for instance allow Member States to overturn merger decisions made by the European Commission.

[71] Political interference into agency decision-making may indirectly reintroduce electoral concerns; as I later emphasize, 'independence' is never absolute and is a matter of degree.

[72] Overall agency policy is another matter.

[73] There may be an issue with causality here. In Maskin and Tirole (2004), 'technical decisions'—on which the electorate is likely to be poorly informed about its own interests—is best left to independent agencies, while societal issues should be conferred to majority voting (with protection of the minority on specific issues).

[74] For instance, the EU Competition Commissioner's mandate now includes industrial policy objectives; while this dual mandate may avoid a turf war and no one knows how it will play out, the temporal proximity of this change in mandate with the Franco-German rejection of the Commission's Alstom-Siemens decision raises the concern that competition policy in Europe be weakened in the process.

[75] See Dewatripont et al. (1999) and Dewatripont and Tirole (1999) for some benefits of mission-oriented organizations.

[76] See Tirole (2023) for a broader discussion of 'socially responsible agencies'.

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be adaptive,[77] elicit industry and academia's information and minimize legal uncertainty. Again, new institutions may not be needed, but the existing toolkit could be used more systematically.

A case in point is business review letters,[78] insufficiently used in the USA and unused in Europe.

The flagship application of such letters is the US Department of Justice's 1997 business review letter dealing with patent pools. Patent pools exemplify practices that have the potential to both substantially improve industry efficiency and allow the industry to cartelize. Oversimplifying, patent pools are desirable when patents are complements (as they mitigate the Cournot complement problem arising under independent licensing) and reduce competition if they are substitutes (as they then allow cartelization); but it is hard to know whether patents are complements or substitutes, all the more that this pattern may depend on uses and prices, and also may evolve over time (see Shapiro 2000). No wonder that competition authorities tread carefully.

However, neither the broadly laissez-faire approach of pre-WW2 nor the quasi-prohibition of patent pools that followed the famous 1945 Supreme Court Hartford-Empire decision[79] is acceptable. In reaction to the developing patent thicket, the Department of Justice (DoJ), with the help of Berkeley economists, adopted in the 1990s a balanced viewpoint of saying that the *presumption* was that patent pools were legal provided they satisfied several (mostly information-light) conditions. These conditions were later refined as knowledge evolved[80] and were enshrined in guidelines in the USA, Europe and Japan, among other countries. This 'presumption' does not mean that the practice then meets a per se approval standard, but that the legal uncertainty has been much reduced.

Collective negotiations in mobile payments are another case in point. The issue is that wallet providers control NFC (Near-field communication) and can impose terms and conditions to card issuers. The latter have little bargaining power as platforms may develop a reputation for not negotiating, and cardholder multihoming further weakens card issuers' bargaining position. Accordingly, countries such as Canada and China have allowed collective negotiations. Yet, we may shudder at the thought that buyers of a service gang up to negotiate favourable terms from a supplier. Indeed, the hazard of an anticompetitive boycott had been identified early in the history of antitrust (in Section 1 of the 1890 Sherman Act (corresponding to article 101 in Europe)). Accordingly, such a process at the very least must be approved and supervised.

Yet another instrument is regulatory sandboxes, which are testing grounds for new business models that are not protected by current regulation or supervised by regulatory institutions. A notable example is the recent EU Artificial Intelligence Act, proposed by the European Commission in August 2021.[81] The draft AI Act envisages setting up coordinated AI sandboxes at the national level and establishes common rules to ensure uniform implementation of the sandboxes across the EU. Under the proposal, Small and Medium Enterprises (SMEs) and start-ups are given priority access to the regulatory sandboxes, but participation in a sandbox experiment does not exempt participants from liability.[82]

5.3 The production of guidelines

The industry more and more faces difficulties in knowing whether certain actions are licit or not. This is partly because technological innovation is rapid, partly because our knowledge is fragmented, and clear-cut rules are not always available.

There are two potential objections to the call for more guidance. First, and as we have already noted, guidelines exist and are used in various forms already: business review letters, block exemptions and various guidelines on vertical and horizontal agreements. The second is that competition authorities would be overwhelmed with requests for letters of comfort if it had to answer each and every of them; in this respect, the competition authority must be able to pick its fights.

Let me give two illustrations involving current practices that have potentially very detrimental consequences, but for which remedies must be found that do not introduce their own inefficiencies.

(a) Common ownership by institutional investors

There is currently much concern in the USA about the power of institutional investors (diversified mutual funds, asset managers …). Vanguard, Fidelity, Blackrock, State Street, Berkshire Hathaway and others have accumulated substantial holdings in oligopolies (airlines, banking …).[83] Because institutional investors are active in governance, the concern is that overlapping ownership, by leading to the internalization of externalities between firms, may induce partial cartelization.[84] They can to this effect engage in not-so-subtle pressure, threaten not to reappoint the manager, reject her nominations to top positions or stop managerial pet projects. They may refuse to tender shares to raiders who would increase competition. They may design managerial incentive packages oriented toward absolute performance evaluation rather than relative performance evaluation schemes that would make managers more aggressive competitors.[85]

There are good reasons for this common ownership development, though. Investors demand low-cost, diversified funds. Besides, there is evidence that investor activism, if not short-term oriented, can discipline management. So, the concern for not throwing the baby out with the bathwater must be addressed.

One thing is clear: There is no need for new laws. For instance, in the USA, the Sherman Act (1890) and Section 7 of the Clayton

[77] Traditional regulations get changed in a very slow, formal, notice-and-comment kind of way. They are not quickly adaptive the way a broad principle like 'don't engage in self-preferencing' could adapt to a new kind of platform.

[78] A business review letter allows 'persons concerned about the legality under the antitrust laws of proposed business conduct to ask the Department of Justice for a statement of its current enforcement intentions with respect to that conduct' (https://www.justice.gov/atr/what-business-review)

[79] Justice Hugo Black declared that 'The history of this country has perhaps never witnessed a more completely successful economic tyranny over any field of industry than that accomplished by these appellants.'

[80] In particular, Lerner and Tirole (2004) showed that independent licenses could be used by competition authorities as a screening device, because a pool is never affected by the possibility of independent licensing if and only if the pool is welfare enhancing.

[81] The European Parliament adopted its negotiating position on the AI Act on June 14, 2023. The aim is 'to boost AI technologies while ensuring EU citizens' safety.'

[82] See https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/733544/EPRS_BRI(2022)733544_EN.pdf.

[83] Backus et al. (2021) show that the dramatic rise in common ownership in the period 1980–2017 is driven primarily by the rise of indexing and diversification and, in the cross section, by investor concentration.

[84] This idea dates back to Reynolds and Snapp (1986) and Bresnahan and Salop (1986). More recently, however, López and Vives (2019) showed that the internalization of technological spillovers can also increase productivity, and Azar and Vives (2021) demonstrated how common ownership could have procompetitive effects in a multisector economy.

[85] There is mixed evidence on the competitive effects of common ownership. Azar et al. (2018) provide evidence of anticompetitive effects of common ownership in the US airline industry, which is reexamined by Dennis et al. (2022). Similarly, while Antón et al. (2023) document that managerial incentives are less performance sensitive in firms with more common ownership, Koch et al. (2021) and Lewellen and Lowry (2021) find little evidence that common ownership affects firm behaviour and product market competition.

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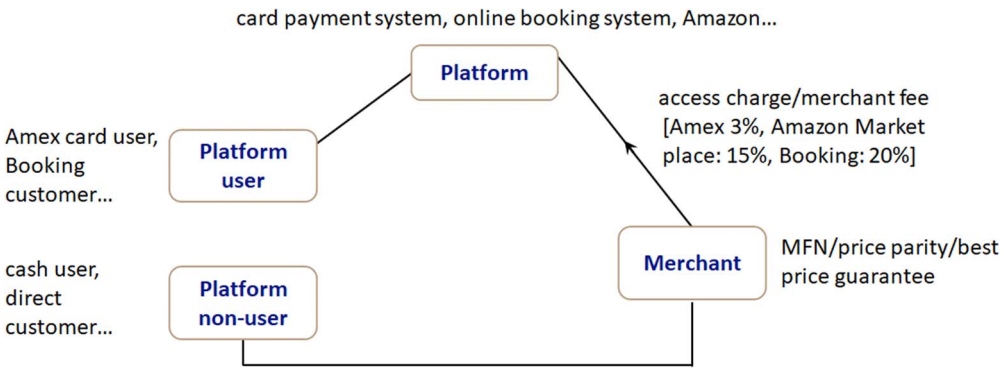

Figure 3: How MFNs allow platforms to tax their rivals.

Act (1914) long ago worried about such cartelization through cross shareholdings. These statutes define the spirit and objectives of the law, but they do not address the details of what is allowable and what is not, neither have they pondered about liability and enforcement (as an institutional investor's responsibility might depend on what portfolio other investors select).

But there is a clear need for guidance. Asking diversified investors to be passive investors would deprive many firms from the voice of outside investors.[86] An alternative would be to restrict diversification to operate only across but not within industries, limiting these large institutional investors' holdings to a single firm per industry for concentrated industries.[87] My point here is not to make specific recommendations but rather to insist on the need to develop guidelines that help institutional investors to know what they are entitled to do and to benefit from some legal certainty, at least in the short run. Such guidelines may be updated over time as new knowledge accrues about their consequences.

(b) Best-price guarantees (MFNs) and excessive merchant fees

Much work has been performed in the last two decades to understand the implications of 'most-favoured-nation (MFN)', 'best-price guarantee' or 'price parity' clauses in platform markets, illustrated in Fig. 3. These clauses offer the platforms' customers a guarantee that they will enjoy the lowest possible price when buying on the platform; this promise is backed contractually by the merchant's commitment not to offer the same product or service at a lower price either only on its own website ('narrow MFN') or on any other sale channel (including competing platforms, 'wide MFN'). Such practices are ubiquitous in the tech industry and have been banned partly or totally, or voluntarily abandoned by the platform, in several cases (involving Amazon or Booking.com) in the UK, Germany, France and other European countries.

The concern with MFNs is that they allow platforms to tax their competitors. A platform that signs up a wide range of merchants on the MFN clause can impose its fees, terms and conditions: Because the platform's customers have no incentive to look elsewhere (i.e. to multihome), the platform is the unique route for the merchant to reach these 'unique customers' (in the industrial organization jargon, the platform is a 'bottleneck' for the access to these customers). The platform can then demand hefty fees. These hefty fees however might not benefit the platform if they were passed through to the platform's customers, who would then find the platform less attractive.

The key point, though, is that under an MFN, this fee is passed through to all customers purchasing from the merchant, and not only to the platform's customers. In this sense, an MFN clause (especially a 'wide' one) enables a platform to levy a tax on its rivals.[88] The merchant would want to charge, say, Booking.com customers a higher price than other customers if distributing through Booking.com is costlier because of its high fees, but it cannot do so as it is bound to giving Booking.com customers the best available price; put differently, the merchant is stuck with a choice between paying the hefty fee and forgoing the platform's customers. In addition, this feature has nothing to do with the platform's customers being 'dominant'. For instance, if the platform has a 20% market share, 80% of the cost of the merchant fee is passed through to customers not using the platform. In contrast, users of a monopoly platform would bear the entire brunt of the platform's merchant fee.

Again, while policy intervention is warranted, one should remember that there are efficiency rationales for MFNs. First, one would not want the platform itself to be expropriated from its investment. The hazard here is that we use the service of Booking.com to find the hotel we like and then go directly to the hotel's website to enjoy a lower price (the so-called 'showrooming').[89] This may be an issue if search costs are low. A 'narrow MFN' in principle protects online travel agencies against such opportunistic behaviour by preventing the hotels from undercutting on their websites and possibly for walk-ins well.

Second, there is a potential 'reverse expropriation problem', this time when search costs are high. The merchant may apply a high surcharge for using the platform; this problem is known in the payment card industry as excessive surcharges. The customer may go through a low-cost airline's lengthy reservation process, coordinate with friends and family and in the last screen find out that there is a substantial surcharge for using a credit card. Such hold-ups do not exist under a 'no-surcharge rule' (Rochet and Tirole 2002), which is the payment card equivalent of an MFN.[90]

Regulating MFNs is not straightforward. Policy interventions in Europe so far have taken the form of a prohibition, either of narrow or of wide MFNs. Consider a prohibition. The OTA (Online travel agency) platform can recreate an implicit MFN

[86] Edmans et al. (2019) indeed show that common ownership can strengthen governance through both voice and exit.

[87] See e.g. Posner et al. (2017) for a proposal of such guidelines.

[88] This argument is formalized in Boik and Corts (2016) and Johnson (2017). Further inefficiencies generated by MFNs are pointed out in Edelman and Wright (2015). For caveats on narrow MFNs and wholesale price-parity clauses, see Johansen and Vergé (2017) and Bisceglia et al. (2021), respectively.

[89] For example, Wang-Wright (2020).

[90] For studies of optimal surcharging, see e.g. Gomes and Tirole (2018) and Bourguignon et al. (2019).

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by moving down in the recommendation list hotels that do charge lower prices on another platform or on their own websites (see Hunold et al. (2020) for empirical evidence). Because the algorithm that delivers recommendations is somewhat opaque (if only because ratings must be curated in order to be useful, say by deleting apparently self-serving ones, and because higher weights must be given to more accurate raters), it is difficult for a regulator to demonstrate algorithmic discrimination against hotels taking advantage of the price freedom associated with a prohibition of MFNs. A second (and legal!) strategy for bypassing a prohibition of MFNs has the platform develop a preferred merchant program, which is optional but gives display priority to those who agree on the MFN clause.

The alternative is to issue guidelines allowing merchants to know what admissible surcharges they can impose on consumers (see Section 2.4). This solution was adopted in the EU for payment cards. The EU uses some implementation of the 'tourist test', which caps the merchant fee at the merchant's 'convenience benefit' from using the card, which includes the reduced occurrence of robberies, the speed of payment at the point-of-sale and accounting benefits.[91] The logic is a Pigouvian one: Provided the card is accepted, the customer picks the method of payment (cash, check, digital payment ...), and so no externality is exerted if the merchant's convenience benefit is equal to the platform's merchant fee. The 'tourist test' terminology stems from the fact that when facing a one-shot customer and deciding whether to accept or turn down the card, the merchant would compare the fee and the convenience benefit; by contrast, with a repeat customer, the merchant would also be concerned with the customer not returning if she turns down the card and so her demand for the card service is less elastic.

Despite these difficulties, it seems worth doing something about MFNs considering their ubiquity and the gigantic amounts of money involved.

5.4 Agency coordination

International aspects

The first possible interagency coordination failure is the lack of international cooperation among competition authorities or sectoral regulators. As earlier emphasized, Big Tech companies are global players, so a coordinated response would be ideal. At the very least, the sharing of information across national agencies is called for. Less regulatory heterogeneity around the world would most often be desirable as well. Take privacy regulation or competition policy (for instance, even countries that were like-minded on the issue of MFNs, such as France, Germany and the UK, did not coordinate their regulatory response). Not much new on that front, it has long been recognized by industry and authorities alike that multinational firms incur costs of conforming with multiple, inconsistent regulations; imagine, say, that different authorities agree on breaking up a firm but demand the divestiture of different segments. Finally, there may be forms of hidden 'tax competition' among countries, as when a regulator or court designs remedies to bring investments and activity on its soil.

On the enforcement front, a global firm may react to an adverse decision by boycotting the country in question. For instance, in 2014, Google News withdrew from Spain when a new law forced aggregators to pay news publishers. This strategy proved effective: The shutdown had an important and immediate impact on the Spanish news market, such that publishers urged the government to negotiate a solution with Google, and some of them even announced that they would renounce any compensation payment for sharing content with news aggregators.[92] Second, there is the issue of extraterritoriality when domestic customers are served through websites located abroad. Finally, the monitoring of compliance by Big Tech companies exhibits some returns to scale, further stressing the need for international cooperation.

Jurisdictional overlap and externalities

All regulatory institutions face complex coordination issues. Cross-agency conflicts may result from ill-defined mandates; e.g. when a hotel's ranking on Booking.com depends on the commission paid by the merchant, the issue is more one of consumer protection (misleading representation of relative attractiveness) than one of competition, even though the case may be subject to a review by the competition authority.

The conflict may result alternatively from externalities among different forms of regulation. The regulation of competition interacts with data protection and labour market regulation, for instance.

That some labour practices selected by companies may be anticompetitive is well known (think of no-poaching or noncompete clauses).[93] But labour laws themselves have the potential to be anticompetitive; if making Uber drivers employees for worker protection purposes prevents them from multihoming, competing ride-hailing platforms will have a hard time keeping an installed base of drivers, and therefore of customers as well.

Data protection regulation may also interfere with competition in two ways. Data protection that makes it harder to resell data (which may have a legitimate privacy rationale) may strengthen the dominance of large data collectors.[94] Moreover, cumbersome privacy regulation augments the unit cost of small and medium companies relative to their bigger competitors, thereby potentially undermining contestability.

These externalities among public policies may not be internalized because of turf wars. And it is not straightforward to design institutions that promote coordination; one possibility is to create a special instance or process that will lead to the exchange of information; this is useful, but there is only so much we can expect from this. Competition and protection agencies already know that their policies interact yet may not act on this knowledge.

6. Concluding notes

Tech giants' dominance does not confront us with an unpalatable choice between laissez-faire and populist interventions. While the purpose of the commentary was to take stock of our knowledge in the matter and investigate the existing tradeoffs, a few conclusions emerge. The first is that public policies can be much improved within the confines of existing laws. Many current concerns indeed were anticipated by our legislative apparatus. But implantation lags the evolution of technology, business and

[91] See Rochet and Tirole (2011) for the theoretical derivation of the tourist test. A similar Pigovian principle for capping e-commerce platforms' fees under price parity is proposed by Gomes and Mantovani (2022).

[92] For an overview of the theoretical and empirical literature on news aggregators, see Jeon (2018).

[93] A no-poaching agreement is an illegal deal between competitors where they agree not to hire, recruit, or pursue each other's employees. Noncompete agreements are instead negotiated between an employer and its employees, and impose similar restrictions on what an employee can do after the employment. On the (anti-) competitive effects of these clauses, see e.g. Naidu et al. (2018).

[94] In the EU, the competition authority viewed the preparation of GDPR as a privacy issue.

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society. I argued that old-style regulation is impractical in an era of global firms, rapid technological progress and contestable markets; information is just lacking for a proper regulation. I also raised some reservations about divestitures, more on practical than on theoretical grounds; a fast-moving technology, the incumbents' habit of scrambling the eggs and (again) the global nature of tech companies makes it hard to identify a stable essential facility, split it from the rest of the company and regulate it. For sure, a clear and coherent plan must be drawn if policymaking is going to take this route. For the moment, preventing the eggs from being scrambled in the first place sounds like a simpler policy. However, it requires forcing the tech giants to notify their acquisitions and, for early acquisitions raising a suspicion that the acquired company might one day become a competitor, shifting the burden of proof toward the tech company.

Regarding the need for contestability, I stressed the competitive benefits of multihoming and the concomitant surveillance of exclusivity contracts imposed by dominant platforms. I also reviewed the other strategies that can help secure some contestability of those markets.

Competition authorities should remain wary of self-preferencing by these dominant platforms, although there is no silver bullet here. Firms that are both a marketplace/technological platform and merchants supplying this marketplace/apps cannot treat equally a rival offering that is inferior to its own. But self-preferencing to the detriment of equal or superior offerings has the potential to be anticompetitive, and economists should put more work on designing guidelines that would facilitate the authorities' dealing with such behaviours. The broader question of fairness also requires developing general rules for determining what a reasonable access charge might be and how to implement it in practice given that platforms have relevant information that is unavailable to the regulator.

Regarding data ownership, I discussed alternatives to the current 'services-for-data' arrangement: limited data collection, micropayments, data licensing and data trust, consumer-centric data and the implications of these for data as a barrier to entry. My view here is that, like in the case of GDPR-like privacy regulation, academic thinking lags the technological and business evolution. The same holds for industrial policy and state aid, whose popularity in Europe, China, the USA and several other parts of the world has grown in recent years. Economists do have some useful theoretical and empirical knowledge on these issues, but by and large have underinvested in the area.

Institutional change will be crucial to make competition policy more agile and effective. The balance between anticipating evolutions and reacting ex post should tilt more toward the former. This requires collecting information about dominant firms and their markets, designing codes of good conduct (and making more use of business review letters, provided that the antitrust authority can pick its fights), and the antitrust authority's being given the ability to impose interim measures. And, as discussed earlier, the process for merger reviews must be amended.

Finally, economists must develop knowledge that will percolate and guide antitrust practitioners. The antitrust world is often neither black nor white. We discussed corporate strategies, such as common ownership and best-price guarantees, that have perfectly acceptable rationales but can also be strongly anticompetitive. Structural approaches such as prohibition of behaviours run the risk of throwing the baby out with the bathwater. We therefore must strive toward designing rules that do not require too much regulatory information and enable more selective interventions.

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