

Competition Policy in Platform and Data-driven Markets: Long-term Efficiency & Exploitative Conducts

*Contribution to the Call:
“Shaping competition policy in the era of digitization”*

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The digital economy has brought forth “tech giants”, firms that are larger than any other firm before (e.g., in terms of market capitalization). In this context, the European Commission - DG Competition has appointed special advisors and invited submissions to address the question whether European competition policy, which provided a well-functioning framework in the past, requires modifications in order to continue to provide meaningful protection of competition and consumers in the digital age.

With this submission, we respond to that call for contributions. We focus on two main issues where we see a need for updating European competition policy. The first issue is that competition policy in the digital age should be given the authority to focus more on long-run dynamic efficiency concerns that may arise as consumers’ attention is increasingly concentrated to very few of these tech giants. In particular, many (potentially abusive) actions may be seen neutral from a static (consumer or total) welfare perspective, but enable tech giants to agglomerate even more wealth, which can eventually be a threat to competition and consumers’ freedom of choice. We elaborate on this point, and offer some recommendations, in Part A of our submission.

The second issue, which we address in Part B of our submission, concerns the role of access to data for a well-functioning digital market and for ensuring continued innovation and creation of surplus. Here, we highlight several research results that are, in our view, important to understanding the requirements and functioning of data-driven markets. We specifically point to research that highlights economies of scale and anti-competitive effects of data analytics and data sharing.

A) Competition issues in digitized platform markets

In the digital age, the most important scarce resource is consumers’ *attention*, and all content and service providers (CSPs) are competing for this resource in one way or another. This is also why platforms have taken on a special role in the Internet economy. The very purpose of platforms is to aggregate the attention of many end consumers by organizing products, services, content or other commercial or non-commercial offers in an effort to facilitate the search process (for products, services or information) of consumers. Examples are search engines, booking platforms, social media platforms or shopping platforms. Once a platform has aggregated enough attention, i.e., when it is considered to be “useful” by a large number of consumers,

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then it can monetize its role as “information gatekeeper” by selling third-parties access to the consumers’ attention (Easley, Guo & Krämer, 2018). Those third-parties can be advertisers, which are allowed to place advertisements while consumers are using the platform, but they can also be any other commercial entity whose products or services can be discovered and bought by consumers via the platform. In the following, we will denote these third-parties simply as *the other market side or as business users*.

Realizing that the competitive bottleneck in the digital economy is most often consumers’ attention, it is also evident, that platforms need to focus on maximizing their consumers’ surplus, in order to stay competitive. Clearly, given the scarcity of attention, consumers’ attention is very elastic. That is, if a given platform is not perceived as being sufficiently useful (e.g., because the information obtained via the platform is outdated or inaccurate, the products and services brokered by the platform are too expensive, or the variety of products, services or information that can be obtained via the platform is too limited), then consumers will re-optimize their allocation of attention, reducing the attention given to this platform, and increasing the attention given to other platforms (not necessarily in the same domain), or possibly even to completely other (offline) activities. In short: *The elasticity of consumers’ attention severely limits the rent that platforms can extract from consumers*. At the extreme, a platform could be replaced by a new platform that fulfills the same purpose, but leaves consumers with a higher consumer surplus.

Consequently, in the digital “attention” economy, it is less the *short-run (static) consumer surplus* that competition authorities need to be concerned about. This is not to say that consumer surplus is not important, or that there are no economic frictions (transaction costs), such as switching costs and behavioral biases, that may yet allow platforms to extract a certain degree of consumer surplus. But by and large, platforms’ interests are aligned with maximizing consumer surplus, because consumers’ continued attention is the foundation of their business models.

Platforms’ rent extraction rather occurs on the other market side, i.e., from the content, service and product providers, or advertisers, whose demand is less flexible, as they need to follow the (few) platforms that aggregate consumers’ attention. There, in particular in the context of platforms that broker access to business users (third-party content, service or product providers), one can ask whether the *total surplus* that is created by the economic exchange mediated via the platform is distributed fairly between the platform and these business users. In other words, as long as the platform receives consumers’ attention, it enjoys a position of economic strength vis-à-vis the affiliated business users that can potentially be abused.

In this context, three issues can be seen as problematic from a competition policy point of view with respect to the current European competition practice.

A.1 Distribution of (static) surplus between the platform and the business users

First, in platform markets abusive practices may not necessarily be harmful to consumers or immediate competitors, which could, in principle, be addressed by existing competition law. Rather, abusive conduct can also occur within the platform, specifically in the economic relationship between the platform and the business users. Here, competitive practices of particular concern are

- a) demanding an excessive fee for the intermediation of the platform,
- b) demanding unfair terms and conditions (e.g., with respect to access to data, liability, lead times for notifications)
- c) unjustified, discriminatory denial of access to the platform,
- d) discrimination of third-party business users in lieu of the platforms own content, services or products on the same platform.

All these practices may not affect consumer surplus or total surplus in the short run, i.e., in a static sense. For example, when a platform introduces a new service or product that is equivalent (in both quality and/or price) to a service or product that is already offered by a business user, and steers consumers' attention to its own, and away from the business user's (equivalent) offer, then neither static consumer nor static total surplus are affected. Similarly, the economic literature on paid prominence, which we survey in Krämer & Schnurr (2018), has found that consumer surplus is often maximized in the short run by a platform's presentation or placement of business users. At the same time, however, these practices lead (directly or indirectly) to a shift of surplus from the other market side, the business users, to the platform.

From a dynamic perspective, it may be seen as a particularly unfair and exploitative business practice that platforms initially grow and gain the attention of consumers with the help of the independent business users (who are therefore initially often given very favorable terms and low barriers to entry), but that the same business users are likely to be exploited in the long run. Here, *business user protection regimes, similar to those of consumer protection regimes, may be warranted by future policy.* In this sense, the Commissions' efforts to propose a "Regulation on promoting fairness and transparency for business users of online intermediation services" is an important first step. Although this proposed regulation does require platforms to be more transparent with respect to its actions in relation to the business users, it however does not limit the (potentially abusive) actions that it can take. This should be the role of competition policy.

In principle this development is not unprecedented, as similar arguments can be made, for example in the context of large grocery stores or offline retailers. However, the fundamental difference in the digital age is that platform business models generally scale very well, whereas traditional businesses are much more limited due to physical constraints. This also relates to significant differences in marginal costs between the operation of a traditional offline business (like a retail store) and the operation of a comparable online business, and even more so with respect to platforms that intermedate fully digital goods and services. Consequently, also the threshold at which fees may be considered "abusive" may differ greatly dependent on the context, and in particular between offline and online platforms. Therefore, *a case-by-case analysis seems to be warranted, which can only be achieved via competition policy.*

A.2 Long-run monopolization trajectory vs. short-run efficiency defense

The excessive appropriation of surplus from business users can have a number of effects that are worrisome from a dynamic welfare perspective, because it leads to an agglomeration of wealth of the platform that allows it to take over more and more of the economic activity that was formerly provided by the independent business users. This may stifle long-run innovation by these business users, if they correctly anticipate the trajectory of declining profits and future exploitation that can be expected from

platform participation. Furthermore, as the platform takes over more economic activity itself, also expanding in other lines of business, consumers may in the long run not have a viable economic choice to avoid the platform anymore. This would enable to platform, also in the short run, to appropriate consumer surplus, *at which point the argument that the platform does not negatively affect static consumer or total welfare breaks down.*

Platforms that aggregate much consumer attention also have a better ability to learn consumers' preferences, which allows them to organize content, products and services even better, and eventually to increase consumer surplus even more. It is also this knowledge about consumers' preferences, in addition to significant scale and scope economies (e.g., with respect to human capital and computing resources), which is critical in enabling platforms to successfully expand into other lines of business. The difficulty for competition policy here is, that every step of this development may be justified through short-run efficiency gains. In many cases, it will also not have an immediate impact on short-term competition, as expansion occurs into other "relevant markets" or even new markets. Yet, the long-run monopolization trajectory, which is entered through this short-run thinking is potentially worrisome, as laid out above.

A key question for competition policy in the digital age will therefore be at which point a justifiable short-run efficiency gain (e.g., achieved through a merger, which may not have an impact on competition in the same "relevant market") may be sacrificed in lieu of a long-run prevention of (possible) monopolization.

A.3 Relevant markets and the notion of market power

In this context, it is also noted that the legal concept of "relevant markets" may be too short-sighted, as ultimately the market in which digital firms compete is that for consumers' attention. Placing all firms in the same "market" would also bear many legal and practical problems, e.g., that it would be difficult to prove "dominance" of any given undertaking before the above described monopolization has already taken place to a large degree, i.e., before it is too late. Hence, some middle ground would need to be established. There is a large body of academic literature on this issue, to which we have also contributed (see Krämer & Wohlfarth, 2018), and which shall not be repeated here. At this point, we just wish to mention a novel aspect to this debate.

Realizing that the source of market power of platforms (often to be exercised on the business user side) stems from consumers' attention, *it is crucial to ask, how a platform's importance and essentiality for consumers' attention can be measured and operationalized.* An analysis on the bases of "market shares" or "share of usage" in a given "relevant market" is likely to fall short of this goal. Rather, *it seems important to also consider the process of consumers' behavior, i.e., the clickstream of consumers actions in an "attention session".* Where do consumers begin a web session? Which actors are involved in steering consumers' attention, and in which order? Actors that appear earlier in a clickstream have more "market power" to steer consumers' attention than actors that appear later. This *hierarchical concept of market power* seems to be crucial for a meaningful competition policy in the digital age.

B) Access to (personal) data: exclusionary and exploitative conducts

B.1 Replicability of data access: economies of scale and timeliness of data

If a firm has access to data resources that cannot be replicated by other firms, two competition issues may arise. The more prominently discussed aspect concerns possible *exclusionary conduct* of a firm with superior data access, whereby it hinders other firms to provide services that require this data as an input good.

In particular, *personal data is recognized as an important competitive resource* in digital markets and whether (new) competitors can easily replicate this input resource is debated controversially. Often, it is argued that data is in its nature non-rivalrous and non-excludable, and thus personal data is generally easy to replicate for competitors. However, the economic value of data depends largely on the *size and variety of an entire data set* as well as the *quality of the data*. Therefore, these specific aspects need to be taken into account, when competition authorities determine whether (the access to) personal data can in fact be replicated.

(I) Considering the size of a data set, there is a lively debate on whether *economies of scale* exist in the context of data collection and data analysis. In this context, we want to highlight several recent empirical studies that have investigated market concentration with regard to the collection of personal data in the World Wide Web and that have investigated the benefits from larger data sets when analyzing data.

- (a) With respect to *data collection across online CSPs*, Englehardt & Narayanan (2016) indicate considerable firm concentration for large-scale web tracking. According to the study only four companies were tracking consumers on more than 10% of the top one million websites of the World Wide Web. However, the most widely encountered company, Google, was active on more than 70% of the websites. This indicates that there are significant economies of scale for tracking consumers across online CSPs. Moreover, with respect to *on-site tracking* at a specific CSP, established online platforms with a large user base have an additional, inherent scale advantage as data can be collected as a by-product of consumers' usage at the platform.
- (b) With respect to the *analysis of data*, empirical studies suggest that in many (*big data analytics*) applications, (i) there is a minimum required scale, (ii) there are benefits from larger data sets, and (iii) these benefits are marginally decreasing as data sets become very large. More precisely, Junqué de Fortuny et al. (2013) and Martens et al. (2016) demonstrate that prediction accuracy increases for larger data sets of fine-grained user behavior data. Whereas benefits decrease marginally as prediction accuracy approaches the theoretical benchmark (cf. Li, Ling, Wang, 2016), the studies show this convergence is not yet reached in many popular application settings. Furthermore, for the online advertising industry, Lewis and Rao (2015) find that only very large amounts of data allow firms to measure, whether advertising campaigns are indeed successful.

To ultimately decide whether there exist economies of scale, it is necessary to contrast the above empirical results with the cost structure, which is required to provide these data-driven services. In general, it seems likely that there are considerable fixed costs for setting up the necessary hardware and software infrastructure. Established firms are likely to have an advantage in this regard relative to market entrants. As data is in

many cases collected as a by-product of consumers usage, marginal costs seem rather low. *Thus, empirical studies and general indications point to the presence of scale economies from data collection and data analysis.*

(II) The *quality of data* can be measured more specifically along the dimensions of (i) fitness for use, (ii) accuracy, (iii) completeness and (iv) timeliness. For the latter issue it is important *how fast data can be collected and whether information becomes outdated rather quickly*. On the one hand, advantages based on existing data sets may then only be transitory, because data becomes outdated quite fast (Krämer & Wohlfarth, 2018). For example, this is the case if data is analyzed to derive users' current preferences in online markets. In turn, this may require dominant firms to undertake costly investments and to innovate in order to keep control of the data source. On the other hand, the need to constantly update data may reinforce the advantage of firms, which are in a superior position to observe user behavior and collect user data, because replication based on alternative sources (e.g., through external data brokers) may require more time and may be more costly. Whereas entrants may find it feasible to replicate a data set once, which then allows it to compete with the incumbent firm, market entry may be less profitable if the entrant has a continued disadvantage to collect data. Therefore, competition authorities should not only assess whether a specific data set can in principle be replicated, but *whether (alternative) access to data sources can be secured, which allow firms to effectively compete with respect to the scale and the quality of the data used by a dominant firm.*

B.2 Voluntary data access as a basis for exploitative conducts by dominant platforms

The second issue, which has so far received less attention in the literature, concerns *exploitation* of firms that rely on the access to (personal) data resources, provided by dominant platforms. Usually, possible exploitative conducts are only discussed with respect to consumers, i.e., whether excessive data collection could be viewed as a harmful abuse of market power (cf. Monopolkommission, 2015, para. 326). However, in a game-theoretic analysis we show that *the superior access to data may be used by platforms to further extend their competitive advantage by the means of bilateral information sharing agreements* to the detriment of other firms and potential competitors (Krämer, Schnurr & Wohlfarth, 2018).

In principle, the study highlights that online *CSPs may have to accept terms and conditions from a firm with superior data access, because this promises short-term competitive advantages over competing CSPs*. If, in return, the access-providing firm asks for the transfer of data collected at the CSP, this can ultimately lead to an inferior competitive position of the CSP vis-à-vis the access provider. Most notably, the access provider may increase its advertising profits due to the bilateral information sharing agreement, whereas CSPs are worse off. In the long run this is likely to increase market concentration and could possibly reduce variety in the content and services market.

More specifically, we investigate how *social logins*, which allow social network providers and CSPs (e.g., websites and mobile applications) to share data, impact competition in the market for users and in the market for targeted advertising. Social logins are popular with a large share of internet users, because they allow them to authenticate with third-party CSPs through their social network account. The most prominent social login “Log in with Facebook” allows websites and mobile apps to

access users' public profile as well as to request extended profile properties such as recorded web activities. On the other hand, Facebook obtains comprehensive data on users' activities at the third-party outlet through the programming interfaces of the login service. We show that CSPs can be in a *prisoner's dilemma situation*, when deciding *whether to adopt the social login and exchange information with the social network*. This means that the CSPs adopt the social login, although this ultimately makes them worse off, whereas the social network benefits from adoption through higher profits. This situation is particularly likely (i) when the social login enables a large improvement in the user experience, and (ii) when special-interest CPs compete fiercely, either for (single-homing) users directly, or for targeted advertisements to multi-homing users, or both.

Whereas consumers generally benefit from the adoption of the information sharing mechanism in a static setting (not considering possible consumer harm due to increased privacy concerns), the exploitation of superior data resources may lead to more market concentration and thus to possible negative welfare effects in the long run (see A.2). This insight is not limited to social logins, but applies to other settings where online platforms offer a "free" service that improves the user experience in return for an increased reach of its data collection. For example, the Fulfillment by Amazon (FBA) service as well as Google's Accelerated Mobile Pages (AMP) project offer services for third parties, which benefit consumers, but also require CSPs to share their user data with (potential) competitors.

In conclusion, competition authorities should be aware of possible exploitative abuses in the context of data access arrangements. *In practice, the challenge is to delineate pro-competitive data sharing agreements from anti-competitive exploitative conduct. In general, it should be noted that the fact that third-party firms agree voluntarily to participate does not imply that a conduct cannot indeed be exploitative.*

B.3 Possible concerns of tacit collusion among few dominant firms

In a similar vein, voluntary data sharing should also raise concerns about the possibility of tacit collusion. This is especially the case if data sharing occurs among a closed group with a small number of potential competitors that already possesses considerable market power. More generally, potential competitive issues may already arise if few firms control the conditions of a possible data exchange (e.g., the scope and type of data that can be shared, the interfaces that can be used). In this vein, industry initiatives such as the Data Transfer Project³ may be met with reasonable scrutiny by competition authorities. On the other hand, it is noted that there are also pro-competitive effects from data sharing. Especially, smaller firms or entrants may need to cooperate, and to share data, in order to compete effectively with larger or more established firms.

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