

PERSONAL DATA AS A PRICE IN MARKET DEFINITION: A BRIEF ASSESSMENT



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Services offered by Google, Facebook, and their kin are not truly free: users contribute to the monetization of the platform. The question is not whether a market can be defined for zero-price services, but rather how this should be done. This short piece assesses whether personal data can be conceptualized as a price, to enable a substitution analysis for zero-price services. To do so, the piece focuses on the notion of price and its role in quantitative substitution analysis (when consumers react to price changes) in the context of personal data. It makes a reflection on the feasibility of conceptualizing personal data as a price. This would require answering two questions: first, is there a relationship of exchange between the user and the platform; second, can reactions to changes in personal data collection be used to assess substitution. The piece then briefly considers a revised SSNIP test with personal data.

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I. INTRODUCTION

Nowadays, all but the staunchest sceptics acknowledge that the services offered by Google, Facebook, and their kin are not truly free. As Vestager put it, “there ain’t no such thing as a free search.”² The users contribute to the monetization of the platform through the attention and/or data they provide. We have come a long way since a U.S. court, now rather famously, declared that antitrust law “does not concern itself with competition in the provision of free services.”³ If there is a relationship of an economic nature between the user of a platform and the platform provider, it should be possible, at least in principle, to define a market. The question, then, is not whether a market can be defined for zero-price services, but rather how this should be done. In this short piece, I assess whether personal data can be conceptualized as a price, to enable a substitution analysis for zero-price services.

II. PRICE, CONSIDERATION, AND SUBSTITUTION

What is a “price”? A “price” indicates that something is given up to receive something else – something equally or more valuable – in return. In principle, a buyer parts with a specific amount of money only because they value the product they receive in exchange the same or more than those euros or dollars. Similarly, the seller parts with the product because, to them, its value is the same or less than the amount of money the buyer is willing to pay. Through the price, the buyer and seller enter into a transaction based on mutual exchange. The price – the thing the buyer gives up – is a form of consideration.

Yet “money” is not the only thing which could fulfil this role. Any good (including coffee beans, stones, salt, cacao, tobacco, cattle...) could function as a medium of exchange if certain conditions are met. Two important conditions are the acceptability and value of the medium:⁴ the buyer consciously and intentionally provides a good as payment which the seller is willing to accept as such, and which both the seller and the buyer agree has value.⁵ When any kind of medium of exchange changes ownership like this, a price is paid. The regular establishment of this exchange relationship could be sufficient to indicate the existence of demand and supply, and thus of the existence of a market in a general sense, regardless of the exact form consideration takes and the exact medium which is exchanged.

Knowing there is a market is all good and well, of course, but in antitrust cases we also need to know exactly *how to delineate it*. Indeed, the term “market” has acquired a very particular meaning in competition law, referring to “the boundaries of competition between firms.”⁶ An anti-trust market is defined around the competitive constraints the firm and product under investigation faces. The most common constraints included in the market are the ones exercised by substitute products.⁷ Although qualitative analysis (based on product characteristics and functionalities) is routinely used to identify demand substitutes, price can play an important role in quantitative analysis of demand substitution.

A question many will recognize is whether customers would switch to other products in response to a hypothetical, small but significant increase in price (the so-called “SSNIP test”). Prices not only represent the point where a seller and a buyer’s valuation of a product intersect, but they can also indicate that product’s significance in relation to other goods and services. Hayek called them “numerical indexes,” embodying the preferences of economic participants across a variety of products.⁸ In a world of limited wealth, the reaction of consumers to price changes – particularly whether they buy more or less of that product and correspondingly more or less of another product – can be evidence that the consumers value certain products more than others. It might also, given the right circumstances, be an indication of a competitive relationship between products.

2 Statement by Commissioner Vestager on Commission decision to fine Google €4.34 billion for illegal practices regarding Android mobile devices to strengthen dominance of Google’s search engine (18 July 2018) available at https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_18_4584.

3 *Kinderstart.com, LLC v. Google, Inc.*, No. C 06-2057 JF (RS), 2007 WL 831806 (N.D. Ca. Mar. 16, 2007) para 5.

4 Eben, M. ‘Market Definition and Free Online Services: The Prospect of Personal Data as Price’ (2018) 14(2) *I/S Journal of Law and Policy for the Information Society* 242.

5 For those interested in a discussion of the concept of “money,” I would recommend reading: Glyn Davies, *A History of Money* (revised and updated by Duncan Connors) (4th edition 2016 University of Wales Press); Goetzmann and Rouwenhorst (eds.), *The Origins of Value: The Financial Innovations that Created Modern Capital Markets* (2005 Oxford University Press).

6 European Commission, Market Definition Notice (1997) para 2.

7 European Commission, Market Definition Notice (1997) para 13.

8 Hayek, F. “The Use of Knowledge in Society,” (1945) 35(4) *The American Economic Review* 525.

Thus, what is important to delineate a market is not merely whether there is a price, regardless of the form of the medium of exchange, but whether consumers react to changes in this price in a way which reveals which products they consider to be substitutes.

III. PERSONAL DATA AS A PRICE

Data may not truly be the “currency” of the 21st Century, but that does not mean it cannot be a price. If users of an online service value their data and provide it in exchange for access to a service, the personal data is a price in the sense described above. Through the “payment” of data, users find themselves in an economic relationship with the providers of the service.

Furthermore, their “purchasing” actions can reveal the extent to which this service fulfils their wants compared to available alternatives. If their consumption patterns change with the amount of personal data they are expected to disclose, it would be possible to get a sense of which services they consider to be substitutes for one another. They might “spend” less personal data on one service, and instead opt for another service, voting not just with their feet, but with their data. Personal data would be the price they pay, and the reactions to changes in data collection could be used to measure demand substitutability.

To determine the feasibility of using personal data to define relevant markets, two questions need to be answered. First, is there a relationship of exchange between the user and the platform? Second, can reactions to changes in personal data collection be used to assess substitution?

The first question to be answered is whether a relationship of exchange exists between users and the platform, based on the personal data they disclose. In the EU and U.S., a consensus seems to be emerging that personal data functions as a medium of exchange. In its *Google* decisions, the European Commission recognized that search services, which are offered free of monetary charge, constitute economic activities, and require the definition of a market. The users may not pay “monetary consideration,” but provide the data which contributes to the monetization of the service, thus entering into a contractual relationship with the company.⁹ In the recently dismissed FTC complaint against Facebook, the FTC and U.S. federal district judge reflected on the social network’s relationship with its users. They are not charged a monetary price, it was argued, but “exchange their time, attention, and personal data, rather than money, for access to Facebook.”¹⁰

Although this seems convincing in principle, the public record does not evidence a thorough assessment of whether the conditions for such an exchange relationship are actually satisfied. For a good of any kind to operate as medium of exchange, it is important that it holds value to both the buyer and the seller and that is accepted as a medium of exchange. In a 2018 paper, I assessed the likelihood that personal data (more specifically, “tradeable personal data”) would fulfil these conditions from the perspective of the user.¹¹ I tentatively concluded that they could be fulfilled in the future. I provided indications that, even though knowledge of the ins and outs of data collection was not perfect, consumer awareness of data collection practices in general seemed to be on the rise, and that consumers increasingly considered themselves to be engaged in an exchange of data for services. Moreover, I anticipated that the advent of personal data management services and increased consent obligations on companies might further boost this awareness.¹² Three years later, it is not entirely obvious whether much has changed.

First, the evidence on consumer awareness remains mixed. A recent study by Akman signals that consumer awareness of the “free” character of services offered by companies such as Google and Facebook, and the source of funding of these services, was mixed. Her results showed that 25-26 percent of respondents believed (erroneously) that their data was collected and *sold* by Google and Facebook, whereas 42-43 percent knew that the platform was funded by advertising, although the paper does not specify how many realize that data *is* collected to enable targeted advertising.¹³ Akman’s questions focused on the (erroneous) understanding by consumers of the monetization practices of the platforms they use, rather than on their awareness that data is collected. As such, it does not really tell us whether users consciously and

9 Case AT.39740 *Google Search (Shopping)*, European Commission Decision of 27 June 2017, paras 152, 158, 320; Case T.40099 *Google Android*, European Commission Decision of 28 July 2018, para 326.

10 United States District Court for the District of Columbia, *Federal Trade Commission v. Facebook*, Civil Action No. 20-3590 (JEB), Memorandum Opinion, available at <https://storage.courtlistener.com/recap/gov.uscourts.dcd.224921/gov.uscourts.dcd.224921.73.0.pdf>, 6.

11 Eben, *supra* n.4.

12 Eben, *supra* n.4, 253.

13 Akman, P. “A Web of Paradoxes: Empirical Evidence on Online Platform Users and Implications for Competition and Regulation in Digital Markets,” (March 2021) working paper available on SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3835280, 20.

purposefully agree to data collection, in the understanding that they will receive services if they do so. They need to be capable of a deliberate choice to disclose data in return for a benefit. This requires that they know they are disclosing data, but it does not mean they need to know the ins and outs of the company's business model or know the exact way their data is used to generate revenue. Ascertaining whether this is the case will require further study of consumer behavior.

Second, we could do with more information on whether consumers value their data in this context. Making a deliberate choice to disclose data also implies that the users of a service value the data they share. Whereas money's value is derived in part from the fact that it is (kept in) limited supply, it can be questioned whether this is true for personal data. Money is valuable because the same euro cannot ordinarily be spent twice: if you buy an expensive house, you won't be able to buy (as many) expensive cars. Data, on the other hand, is often called "non-rivalrous." The same information can be shared with multiple persons. Its value to users cannot, in principle, lie in the fact that it can only be given up once. Rather, its value is derived from its privacy implications, and the costs which can be incurred as a result of the use of the data by other entities.¹⁴

Although personal information could be shared with multiple entities, disclosing it does come at a cost, and may be difficult to undo. Even though data "could be spent twice," once "spent" it is not that easy to take back. Disclosed data reduces the privacy of the data subjects, and can come with monetary costs, as the products offered to consumers later on may be more expensive as more information is available on their willingness to pay. These associated costs could be a good reason for users to value their data, but the research on whether they actually do so has produced mixed results.

In addition to the privacy implications and monetary costs, consumers may also value their data because they know that it is used by companies to generate revenue and thus has value to those companies. In the 2018 paper, I identified companies which are enabling consumers to receive compensation for their data, enabling them to control the data they disclose and directly monetize it. I argued that that these might make it more likely, over time, that consumers will start recognizing the economic value of their data in its own right. Nonetheless, the popularity of these companies is unclear. Although by the end of 2019 two of the companies mentioned in the paper, Datacoup and People.IO, had stopped operating in their original form, a UK company called "gener8" has since made headlines,¹⁵ joining CitizenMe¹⁶ and others in giving consumers the ability to earn money for their personal information.

It is worth noting that it is not necessary at this stage for users to be able to attribute an exact value to their data. Although the evidence so far seems mixed, if users value their data in general, and can sufficiently identify the data categories collected by a company, this should be sufficient to establish a relationship of exchange between the user and the platform.

Although this seems convincing in theory, it is important to be conscious of the obstacles to consumer autonomy in their relationship to data. Whether users are sufficiently aware that and which data is collected is still heavily dependent on the companies themselves. Companies may have incentives to reduce users' awareness of the data being collected on them, which would in turn reduce the likelihood that users consciously and willingly enter into an exchange of their data for the service. It is worth noting, for example, that the Google Play Store used to provide a list of all data permissions an app collects and require users to allow these permissions *before* an app could be installed. Now, these permissions are listed in the "about" section of an app, so that users accept them implicitly rather than expressly. Moreover, the GDPR's¹⁷ consent and transparency requirements may not be sufficient to ensure that users are fully informed of the different categories of data they disclose. This not only may jeopardize the conceptualization of personal data as a medium of exchange, but also render it more difficult for users to choose between services, since they cannot compare them in terms of data collection. This brings us to the second question.

14 Acquisti, A. "The Economics of Privacy," OECD Background Paper 3 (2010) Joint WPISP-WPIE Roundtable on The Economics of Personal Data and Privacy: 30 Years after the OECD Privacy Guidelines, 11-14.

15 After an impressive appearance on the popular TV show "Dragon's Den" in April 2021.

16 <https://www.citizenme.com/>.

17 Regulation (EU) 2016/679 (General Data Protection Regulation) OJ L 119, 04.05.2016; cor. OJ L 127, 23.5.2018.

IV. PERSONAL DATA AND SUBSTITUTION ANALYSIS

If consumers exchange their personal data for services, it seems reasonable that their reactions to changes in data collection could be used to assess substitution. By making a choice to disclose their data to a particular service, they indicate their preference for that service over another. If the service were to collect more data, and users would switch to another, it would be reasonable to assume that the latter is a substitute for the former. Yet there are practical challenges to implementing such an analysis.

The test ordinarily used for monetary prices is the SSNIP test, which stands for “Small but Significant Non-transitory Increase in Price,” whereby consumers’ reactions to a (hypothetical) increase in price are used to identify possible substitutes. The “small but significant” nature of the increase is usually set at 5-10 percent for monetary prices. It is not evident at first glance how much of an increase would be considered “small but significant” if the test were applied to data collection. It is possible that consumers’ sensitivity to data collection is different from their tolerance to monetary price hikes. This may seem like a hurdle to implementing data in a quantitative substitution test, but its importance should not be overstated. After all, the 5-10 percent range used in traditional, monetary price situations is itself the result of compromise. It is a range upon which not all scholars agree and whether it is truly “small but significant” is likely to vary from industry to industry.

A more pressing question is what constitutes an increase in data collection. An increase could either consist of an increase in the *quantity* of data collected overall, or it could be a qualitative increase by collecting *more valuable* data. Certain categories of data might be more valuable than others because they are more privacy-sensitive or because users attribute a higher monetary value to them (in light of the benefits they could reap, for example, if they monetized them directly through companies like gener8 mentioned above). Research by Kummer and Schulte¹⁸ identified the privacy-sensitivity of certain data permissions on the Google Play Store. This indicates a possibility to identify which data categories are more valuable to consumers, so that an increase could be based on the increase in more valuable data, if the authority chose this method. Potentially, it would be possible to study consumer reactions both to increases in quantity of data collected overall and to increases in more valuable data only, to compare the results of both.

A SSNIP-like test based on personal data is not so far-fetched. To shed light on the money-for-privacy trade-off, Kummer and Schulte compared data permissions and prices for different apps on the Google Play Store. This allowed them to study the choices made by app developers to use more privacy-sensitive data permissions for cheaper or free apps than for apps offered in exchange for money. It also allowed them to reflect on the choices made by users downloading apps, revealing that installation numbers were lower for apps with sensitive permissions. Although this remarkable study indicates that a “SSNIP” test based on personal data might be feasibly implemented, at least in the context of app stores, the study was done before Google changed the way it shows data permissions on its app store. Without visibility of the data categories collected, users would not be aware of increases in data collection and not be able to compare it with the data collected by other services.

Another comparison which may be challenging for users is the identification of “better value” alternatives, if not all services are monetized through personal data. It is possible that a service with similar functionalities is offered for a monetary charge. In that case, users may need to have some ability to compare the value “in data” of the first service with the “monetary” value of the second service. Although the valuations may not need to be exact, it still would require that consumers have some internal or external frame of reference to compare the values of the “prices” charged in order to decide whether, in response to an increase in “data price,” it is worth switching to a service with a monetary charge.

A last challenge to note is the so-called “Cellophane Fallacy.” This problem is well-known from the traditional context of monetary prices: if the company already exercises significant market power by pricing near or at the monopoly price, an increase in price may lead consumers to switch to products even if these are not substitutes. Some people argue that the data collection by companies such as Facebook is excessive. The intrusive nature of the data gathering policies is due to the market power the companies in question possess. If there were (more) competition less data would be collected (there would be more “privacy protection options” and more “options regarding data gathering and data usage practices” in the words of the U.S. Federal Trade Commission¹⁹). If this is true, there may be a risk of a personal data-form of the Cellophane Fallacy. If the company is already in a monopoly position, it may already be charging the monopoly “data” price beyond which the collection would cease being profitable. If this is the case – and assuming users are (made) aware of the exact data they disclose – an increase in collection (by increasing the quantity of data collected or by collecting more privacy-sensitive data) might lead them to cease using the service. If they then use another service, it cannot be concluded that it is a substitute.

¹⁸ Kummer, M. and Schulte, P. “When Private Information Settles the Bill: Money and Privacy in Google’s Market for Smartphone Applications,” (2019) 65(8) Management Science 1. See also citations in this paper.

¹⁹ United States District Court for the District of Columbia, *Federal Trade Commission v. Facebook*, FTC Complaint for Injunctive and Other Equitable Relief, available at https://www.ftc.gov/system/files/documents/cases/051_2021.01.21_revised_partially_redacted_complaint.pdf, para 163.

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V. CONCLUSION

Online services are not “free” to use: even when no money changes hands, users do incur other costs such as the personal data they disclose. In both the EU and U.S. competition authorities have come to see the relationship between online platforms and their users as one of exchange, in which users disclose data which contributes to the monetization of the service. The notion that personal data is a price leads to the question whether reactions to data increases could be used in the identification of demand substitutes. The answer seems to be that although this is possible in principle, there are still some hurdles to overcome. The most important questions to resolve concern users: how aware are they of the categories of data collected and could companies and regulators in any way contribute to improving their knowledge; do they value data and accept that they exchange it for access to services; are they able to compare services even if some charge data and others charge money. If satisfactory answers can be provided to these questions, it seems likely that solutions can be developed for the practical challenges in designing a data-based SSNIP test. As Peeperkorn and Verouden put it, “the most important aspect of the SSNIP test is its conceptual side, not its quantitative side.”²⁰ There may be hurdles to a substitution analysis based on personal data, but these might be addressed by combining different versions of the hypothetical scenario (with different levels and types of increases) and employing a variety of methods. Over time, with trial and error, a consistent practice could develop. The SSNIP test is not the “end all and be all” of market definition, but it can provide systematization to a complicated exercise. This is sorely needed in the area of zero-price services.

²⁰ Peeperkorn, L. & Verouden, V. “The Economics of Competition,” In: Faull, J. & Nikpay, A. *The EU Law of Competition* (3rd ed. 2014 Oxford University Press) §1.151.

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