ANDRÁSSY UNIVERSITÄT BUDAPEST

ANDRÁSSY WORKING PAPER SERIES IN ECONOMICS AND BUSINESS ADMINISTRATION

Martina Eckardt
Wolfgang Kerber

Designing the Bundle of Rights on IoT Data: The EU Data Act

2024

Andrássy Working Paper Series
in Economics and Business Administration
No 54

Martina Eckardt und Wolfgang Kerber
Designing the Bundle of Rights on IoT Data: The EU Data Act
Andrássy Working Papers in Economics and Business Administration Nr. 54
2024
ISSN 2560-1458

Published and edited by the the Faculty of Economics and Business Administration of Andrássy University Budapest.
Pollack Mihály tér 3.
H-1088 Budapest
Online at: https://www.andrassyuni.eu/forschung/publikationen/andrassy-working-papers-in-economics-and-business-administration

Managing Editor: Martina Eckardt
Email manuscripts to: martina.eckardt@andrassyuni.hu

This series presents ongoing research in a preliminary form. The authors bear the entire responsibility for papers in this series. The views expressed therein are the authors', and may not reflect the official position of the institute. The copyright for all papers appearing in the series remains with the authors.

Author's address and affiliation:
Martina Eckardt, Andrássy University Budapest (martina.eckardt@andrassyuni.hu)
Wolfgang Kerber, University of Marburg, (kerber@wiwi.uni-marburg.de)

Designing the Bundle of Rights on IoT Data: The EU Data Act

Martina Eckardt und Wolfgang Kerber *

(forthcoming in: Andreas Sattler and Herbert Zech (eds.), The Data Act: First Assessments, 2024, Chapter 1)

Abstract

Internet of Things (IoT) devices are a new, fast-spreading innovation with many benefits but also new problems for which the current legal system does not yet have suitable solutions. The EU Data Act (DA) introduces new rights for users of IoT devices to access and use IoT data and share them with third parties to give users more control over their data (user empowerment) and to make more IoT data available for innovation and create more competition on secondary IoT-related markets for services. The paper analyzes in two steps the change of the bundle of rights on IoT data (1) in the initial DA proposal of the European Commission, and (2) in the final version of the DA. This analysis uses three different concepts for the bundle of rights on IoT data: a data holder-centric concept, a user-centric concept, and the concept of co-generated data. It also discusses the implications of these changes for the effectiveness of the DA to achieve its objectives. Overall, the DA cannot be expected to achieve its objectives. A big problem is that the basic contradictions, open questions, and unclear provisions can lead to great deal of legal uncertainty due to very different interpretations of the rules of the DA and the specific design of the bundle of rights on IoT data. This also includes the relationship to other laws, such as data protection and trade secret law, which also determine important parts of the bundle of rights on IoT data. Therefore, further improvements of the DA and additional policies will be necessary.

Key words: Internet of Things, data access, data governance, EU Data Act, property rights theory, legal evolution

JEL classification: K11, K24, L86, O33, O34

* Martina Eckardt, Professor of Public Economics and Public Finance, Andrássy University Budapest, marti-na.eckardt@andrassyuni.hu; Wolfgang Kerber, Professor of Economics, University of Marburg, School of Business & Economics, kerber@wiwi.uni-marburg.de.

A. Introduction

Internet of Things (IoT) devices are a new, fast-spreading innovation with many benefits but also new problems for which the current legal system does not yet have suitable solutions. The EU Data Act (DA) introduces new rights for users of IoT devices to access and use IoT data and share them with third parties to give users more control over their data (user empowerment) and to make more IoT data available for innovation and create more competition on secondary IoT-related markets for services (e.g., repair services).[1] The DA can be seen not only as introducing new rights on IoT data but also as a much more fundamental legislative act that attempts to design in a novel way the entire bundle of rights on data that are generated by the "Internet of Things": Who has what rights on what types of IoT data and can use, share, and monetize them? Therefore, the DA is also an important element in the necessary legal coevolution addressing new problems arising from the "Internet of Things" as part of technological evolution.[2]

The objective of this article is to analyze how the DA changes the bundle of rights on IoT data and what its effects are on innovation, competition, and empowerment of users of IoT devices.[3] This article will focus primarily on non-personal IoT data because personal IoT data are already subject to the existing EU data protection law.[4] After a brief introduction into the economics of data and the bundle of rights approach from an economic perspective in section B, section C starts with an analysis of the governance of non-personal IoT data before the enactment of the DA, where up to now, the manufacturers of IoT devices have had exclusive de facto control over all IoT data. So far, this gives these data holders a property-like position on non-personal IoT data which results in not enough access, use, and sharing of IoT data with others. This has negative effects on innovation, competition, and choice of the users of IoT devices. Section D explains the objectives of the DA and its two key instruments (new user rights and a new contract about the use of non-personal data) for solving these problems. The main section E analyzes in two steps the change of the bundle of rights on IoT data (1) in the initial DA proposal of the European Commission, and (2) in the final version of the DA. This analysis uses three different concepts for the bundle of rights on IoT data: a data holder-centric concept, a user-centric concept, and the concept of

1 Regulation (EU) 2023/2854 of 13 December 2023 on harmonised rules on fair access to and use of data and amending Regulation (EU) 2017/2394 and Directive (EU) 2020/1828 (Data Act), OJ L 2023/2854, 22.12.2023, p. 1-71.

2 For legal coevolution through technological change, see *Eckardt*, Technischer Wandel und Rechtsevolution, Die Einheit der Gesellschaftswissenschaften 118, Mohr Siebeck 2001; *Eckardt*, The evolution of the German tort law in the 19th century – An economic analysis of the evolution of law, 21 Homo Oeconomicus, 83-116, 2004; and with regard to the digital transformation, see *Kerber*, Digital revolution, institutional coevolution, and legal innovations, 34(6) European Business Law Review, 993-1016, 2023.

3 This article is also based on *Eckardt/Kerber*, Property rights theory, bundles of rights on IoT data, and the EU Data Act, 57 European Journal of Law & Economics, 113-143, 2024, which provides a more detailed economic and legal analysis.

4 For the relationship between the DA and data protection law, see *Sattler*, Data Act and data protection law (Chapter 7 in this volume).

co-generated data. It also discusses the implications of these changes for the effectiveness of the DA to achieve its objectives. Section F concludes and offers some further perspectives.

B. Theoretical framework: Bundle of rights on data and the relevance of market failures

From an economic perspective, the EU data policy is based upon the non-rivalrous character of data regarding its use, i.e. more access to and sharing of data can have many benefits, especially for innovation and competition. Depending on the type of data and the technological and economic conditions, the costs of generating data and the benefits of using it as much as possible can be very different. Therefore, a broad range of different governance solutions about who should have what kinds of rights to access, use, share, and monetize the data can be optimal from an economic perspective. This implies that we should be very cautious to apply too fast traditional well-established legal concepts like "property" on physical goods or IP rights to this new phenomenon of data which requires an own new legal approach. For data, it is necessary to use a very flexible concept that allows to design a wide range of different solutions for properly addressing the complexity of data governance problems.[5]

Such an approach is the bundles of rights approach, which has been used for a long time in the law but which can be derived also from the economic theory of property rights. Both the two extreme solutions of open data (public domain) and of exclusive IP-like rights of data can be analyzed and designed within the bundles of rights approach; this equally holds for many different intermediate solutions, like data access, sharing, portability rights and data trustee solutions.[6] However, for the question which bundle of rights solution is optimal, i.e. who should have which rights on a certain set of data, it is also relevant to take into account how well markets work because rights can be reallocated through trading them. Therefore, it is necessary to analyze whether market failures exist (e.g., market power problems, information asymmetries, behavioral problems, transaction costs) and to what extent such problems are solved by legal rules and regulations. For our analysis of the bundle of rights on IoT data this implies that also the question of market failures on the market for IoT devices and on the markets for non-personal and personal data have to be considered.

---

5 For the economics and complexity of the governance of data, see *Martens*, Data access, consumer interests and social welfare, in: *Drexl* (eds.), Data access, consumer interests and public welfare, Nomos 2021, p. 69–102; *Martens*, A comparative economic perspective on EU data market regulations (Chapter 2 in this volume); *Kerber*, From (horizontal and sectoral) data access solutions towards data governance systems, in: *Drexl* (eds.), Data access consumer interests and public welfare, Nomos 2021, p. 441–476.

6 For the link to the economic theory of property rights, see *Eckardt/Kerber*, Property rights theory, bundles of rights on IoT data, and the EU Data Act, 57 European Journal of Law & Economics, 113 (117). For an application of the bundle of rights approach on data, see, more generally, *Kerber*, Specifying and assigning “bundles of rights” on data: An economic perspective, in: *Hofmann/Raue/Zech* (eds.), Eigentum in der digitalen Gesellschaft, Mohr Siebeck 2022, p. 151–176.

C. The current bundle of rights on IoT data and its problems

The current bundle of rights on IoT data can be described as follows. The manufacturers can design technically the IoT devices in such a way that they get exclusive de facto control over all data that is generated by the users with these devices - usually by directly transmitting the data to a proprietary server and through their technical control over the IoT device. As a consequence, they can "capture" this fast-increasing amount of IoT data, which is a new valuable resource. As far as this data is personal data, EU data protection law provides the users as data subjects with a set of rights on their personal IoT data. In addition, the data holders usually need a contract with the users for the processing, use, and sharing of this personal data ("consent"; Art. 6(1)a GDPR). For non-personal IoT data, however, often no de-jure rights exist. Therefore, the manufacturers as holders of this data are free to use, share, and monetize it. Vice versa, the users as owners of the IoT devices as well as other firms who would also like to use this data are excluded from this data through the technological design of the IoT device. Therefore, so far, the data holders have de facto a property-like position with regard to non-personal IoT data. Thus, they can exclusively extract the value from the data as if they were the "owners" of this data. Through such a strategy of technological capture of the IoT data, the manufacturers can de facto "appropriate" the non-personal data.[7] From an economic perspective, the "bundle of rights" on non-personal IoT data is de facto assigned exclusively to the data holders through their own technological decisions, although they do not have any legal rights on this data.

This exclusive control of the manufacturer over the IoT data has led to a number of serious problems, which were also the main motivation for the Commission for initiating the DA project. It gives the manufacturers a powerful gatekeeper position vis-a-vis the users of the devices and many other firms who need access to this data to offer additional services on secondary markets and to innovate new products and services. This exclusive monopolistic position on these non-personal data can also lead to a systematic under-use of this non-rivalrous resource, e.g. through too high data prices and restrictive conditions for accessing and using the data. Therefore, from a competition and innovation policy perspective, this current form of the governance of IoT data is expected to have negative effects on innovation and competition due to a lack of access to and sharing of IoT data, especially on secondary markets in digital IoT ecosystems.[8] In addition, large concerns have been raised that the owners and users of

7 See *Eckardt/Kerber*, Property rights theory, bundles of rights on IoT data, and the EU Data Act, 57 European Journal of Law & Economics, 113-143, 2024; *Kerber*, Governance of IoT data: Why the EU Data Act will not fulfill its objectives, 72(2) GRUR International, 120-128, 2023; and similar *Lundqvist*, Regulating Access and Transfer of Data, Cambridge University Press 2023, p. 6-56.

8 For an overview on these problems, see *Kerber*, Governance of IoT data: Why the EU Data Act will not fulfill its objectives, 72(2) GRUR International 120 (122), 2023; for the example of connected cars, see *Kerber*, Data governance in connected cars: The problem of access to in-vehicle data, 9 JIPITEC, 310–331, 2018; and, most recently, *Wiebe/Helmschrot/Kreutz*, Studie zur Notwendigkeit und Ausrichtung von spezifischen Datenzugangsregelungen im Bereich des vernetzten Fahrzeugs in der Automobilwirtschaft, Studie im Auftrag der Bundesnetzagentur, February 2023.

the IoT devices do not get enough control over their IoT data, and that they would not get a fair share of the value from this data.

D. The approach of the Data Act: An overview

The DA has understood very well the above-described problems of the current governance of IoT data, especially the negative effects of exclusive de facto control over IoT data for innovation, competition on secondary markets, and the lack of control of users over the generated IoT data. This leads to the objectives of the DA: It wants to make more data available for the innovation of products and services and for protecting and enabling competition on secondary markets. It also intends to enhance the empowerment of users and to provide more fairness regarding the distribution of the value of this data. But the DA also wants to preserve the incentives of IoT manufacturers to invest in data-generating IoT devices.[9]

The DA, however, does not challenge the freedom of manufacturers to design their IoT devices in such a way that they get exclusive de facto control over the data. The DA accepts the technological capturing of this data by the manufacturers and their technological control over the IoT devices. Therefore, the main strategy of the DA is to limit the negative effects from the exclusive de facto control position of the manufacturers through a set of mandatory rules for the governance of IoT devices to solve these problems.

The DA wants to achieve its objectives by two key instruments and a technological precondition about the governance of IoT data:

(1) New rights for the users regarding access, use, and sharing of IoT data: Art. 4 and 5 DA introduce new rights of the users of the devices to access and use the IoT data (Art. 4) and to share them with third parties (Art. 5). The scope of the IoT data for these rights, however, is limited to raw data and "pre-processed" data, and does not encompass inferred and derived IoT data.[10] Users can freely decide with whom they want to share IoT data and for what purposes (e.g., for the provision of services or for innovation), but the data holders can require a (licensing) contract with the data recipients and claim "reasonable compensation" (with FRAND conditions).[11]

(2) New data use contract between data holders and users: In addition to the agreement about the processing, use, and sharing of personal IoT data (consent according to Art. 6(1) a GDPR), the DA introduces the requirement of a new contract about the use of non-personal IoT data by the data holder (Art.

9 See *European Commission*, Proposal for a regulation of the European Parliament and of the Council on harmonised rules on fair access to and use of data (Data Act), 23.2.2022, COM(2022) 68 final [Draft DA], Explanatory Memorandum, p. 2-3.
10 See recital 15 DA.
11 See Art. 8 and 9 DA.

4(13) DA). This implies that without such an agreement with the users, the data holders cannot anymore use, share, and monetize the non-personal IoT data that are under their exclusive de facto control.

An important precondition for these two key instruments is the obligation in Art. 3 DA that manufacturers have to design their IoT device technologically in such a way that this IoT data are easily accessible for the users and can be shared with third parties as data recipients.[12]

E. The change of the bundle of rights by the EU Data Act

I. Introduction

One of the main problems of the DA is that it is not based on a clear and consistent concept about the bundle of rights on IoT data, neither from a legal nor from an economic perspective. We show in this section that this is not only true for the initial proposal of the Commission. Overall, also the changes introduced during the legislative process have not led to a more coherent and effective approach. Therefore, it cannot be expected that the objectives of the DA will be achieved. From our analysis of the proposal and the final version of the DA as well as from the academic and legislative discussions, we identify three different concepts for the bundle of rights on non-personal data, which have been used in the reasoning about the DA, albeit often in a more implicit way. They can be briefly summarized as follows:[13]

(1) Data holder-centric concept: Largely based upon the status-quo situation, in this concept the manufacturers (and data holders) are seen as the "owners" of this data. Due to an alleged incentive problem regarding investing in data-generating IoT devices, according to this concept the data holders also should have a far-reaching IP-like "bundle of rights" on this non-personal data with the possibility to extract most of the value from this data.

(2) User-centric concept: An alternative concept would assign the bundle of rights on this non-personal data to the users of these IoT devices. These are usually also the owners of these physical devices that they have bought from the manufacturers. This concept has some parallels with the current legal situation regarding personal IoT data in the EU.

(3) Concept of co-generated data: This concept is based upon the wide-spread notion that in the data economy often more than one actor contributes to the generation of data. Therefore, all co-generators should have rights on this data

12 Art. 3 DA also encompasses transparency requirements about the generated data, e.g. what types of data, whether it is generated continuously and in real-time, and how to access the data etc.

13 For an in-depth analysis of each of these concepts, see *Eckardt/Kerber*, Property rights theory, bundles of rights on IoT data, and the EU Data Act, 57 European Journal of Law & Economics, 113-143, 2024.

> and participate in the value of this data. With regard to IoT data, the DA views both the manufacturers and the users as contributors to the generation of non-personal IoT data.[14]

In the following subsections, we analyze how and to what extent the DA proposal and the final version of the DA use elements from these three different concepts, and what contradictions and problems arise through the lack of applying a clear concept. In addition, we examine whether the two key instruments introduced by the DA – as presented in section D - can be expected to provide an effective legal solution for achieving the objectives of the DA. This also requires to explore whether the DA correctly identifies and solves existing market failures in B2C and B2B contexts because - as explained in section B - the optimal design of the bundle of rights depends as well on the extent that markets are not suffering from significant market failures.

II. Analysis I: Bundle of rights in the DA proposal of the European Commission

The initial DA proposal of the Commission[15] is still much dominated by the currently strong position of manufacturers with their exclusive de facto control over IoT data. It is therefore closely aligned to the above described data holder-centric concept. Most of the rules in the DA proposal about IoT data fit very well to an interpretation that the data holders should have an IP-like position on non-personal data. The DA strongly emphasizes the incentives to invest in data-generating IoT devices, suggesting the need for data holders to monetize the IoT data, which is close to a typical IP justification. Although the DA explicitly states that it does not confer any new rights on non-personal data to the data holders, it clearly acknowledges and protects the exclusive de facto control position over all IoT data. This is done e.g., by allowing to make data accessible only "in-situ" (e.g., on servers controlled by the data holders) and by giving the data holders the right to require technical protection measures in the case that these IoT data are shared via the data sharing right of the users with third parties.[16] This interpretation that the data are seen as "owned" in an IP-like way by the data holders is also supported by the requirement of a negotiated licensing contract between the data holder and a data recipient with whom the users share the data for a certain purpose.[17] The DA proposal also defines the scope of the data for the data rights very narrowly (only raw data), whereas all other IoT data, and, in particular,

14 See recital 6 DA.

15 See *European Commission*, Proposal for a regulation of the European Parliament and of the Council on harmonised rules on fair access to and use of data (Data Act), 23.2.2022, COM(2022) 68 final.

16 See, e.g., Art. 4(11), 5(5) and recitals 8 and 22 ("in situ access", i.e. data holder need not provide a copy of the data to the user or third-party). If the data are only made accessible and useable "in-situ", then the user can not directly share this data with other firms (and "circumvent" the data sharing mechanism of Art. 5 DA). These rules apply independently from the question whether the data are also trade secrets.

17 However, the data holder is not free in setting a "licensing fee" but can only claim a "reasonable compensation" which, nevertheless, can also entail a profit margin.

derived and inferred data remain under the exclusive de facto control of the data holders (preserving their de facto ownership position on this data).[18]

In the DA proposal of the Commission, however, also important reasoning and rules can be found that do not fit to and even directly contradict such a data holder-centric approach:

(1) The view of the DA that IoT data are co-generated by manufacturers and users seem to contradict the concept of an exclusive "ownership" by data holders. This holds also for the introduction of new user access and sharing rights. However, it is not unusual in IP law that the exclusivity of IP rights has limitations with also other actors having rights for use (e.g., "fair use" in copyright law). Nevertheless, the provisions that allow the users to decide nearly entirely free on how to use this IoT data, with whom to share it and for what purposes, do not fit to a data holder-centric approach.

(2) Particularly important is that the data holders lose their currently existing "de facto ownership" of non-personal data through the second key instrument because for using, sharing, and monetizing the IoT data they now need a contract with the users of the IoT device (Art. 4(13) DA).[19] This can be interpreted as a fundamental change in the assignment of the bundle of rights on non-personal IoT data from the data holders with their exclusive de facto control to the users of the IoT devices:[20] Whereas now the data holders need the consent of the users for using the data, the users have the right to access, use and share this non-personal data without needing the consent of the data holders.[21] This change in the bundle of rights through this new contract was partly heavily criticized in the academic discussion, including demands for the deletion of this new contract.[22]

---

18 Therefore, the introduction of these user rights do not change the bundle of rights for those IoT data which are outside of the scope of these user rights. The exclusion of all inferred and derived IoT data can significantly reduce the usability of the data that can be accessed, used, and shared with these user rights.

19 This was Art. 4(6) in the DA proposal of the Commission.

20 See *Hennemann/Steinrötter*, Data Act – Fundament des neuen Datenwirtschaftsrechts? Neue Juristische Wochenschrift 2022, 1481 (1483); *Specht-Riemenschneider*, Der Entwurf des Data Act, MMR, Zeitschrift für IT-Recht und Recht der Digitalisierung 2022, 809–826; *Wiebe*, Der Data Act–Innovation oder Illusion? GRUR 2023, 1569 (1570).

21 The DA does confer new rights on this non-personal IoT data only to the users but not to the data holders (see also recital 5 DA).

22 See *Drexl et al*., Position statement of the Max Planck Institute for Innovation and Competition of 25 May 2022 on the Commission's Proposal of 23 February 2022 for a regulation on harmonised rules on fair access to and use of data (Data Act), Max Planck Institute for Innovation & Competition Research Paper No. 22–05, 2022, doi.org/10.2139/ssrn.4136484, para. 44-54; *Leistner/Antoine*, IPR and the use of open data and data sharing initiatives by public and private actors, Study commissioned by the European Parliament's Policy Department for Citizens' Rights and Constitutional Affairs at the request of the Committee on Legal Affairs,

A deeper analysis of the two new key instruments in the DA proposal, however, shows that both of them can be expected to be very weak and largely ineffective.

(1) The new user rights for access and sharing of IoT data with other firms suffer from too many restrictions, hurdles, and high transaction costs: Bilateral negotiations between data holders and data recipients about reasonable compensation (with FRAND conditions) as well as technical protection measures, disputes about trade secret protection, and open questions about compliance with data protection law are only some of the problems. In addition, the scope of the shared data is often not sufficient for providing additional services (e.g., repair services) and for enabling innovation. Therefore, the data sharing mechanism via the users often will not be effective, and therefore will not lead to much additional sharing of IoT data, more innovation, and competition on secondary markets.[23]

(2) At least in B2C contexts, it also cannot be expected that the new data use contract regarding non-personal data will give the consumers much more meaningful control over their data and will lead to a fairer share of the value of their IoT data: Consumers will suffer from the same information and behavioral problems (including behavioral manipulation) as in the case of personal data where "notice and consent" solutions do not work sufficiently. In addition, IoT device manufacturers can bundle the contract about the sale of the IoT device with a "buy-out" contract about their use, sharing, and monetizing of the non-personal IoT data. This "contracting away" of the bundle of rights on non-personal data would lead back to the exclusive control of the data holders over the IoT data (but now based upon a contract instead of technical de facto control).[24]

From an economic perspective the DA proposal of the Commission suffered from serious mistakes regarding its assumptions about market failures. (1) It mistakenly claimed that a serious general incentive problem exists for investing in data-generating IoT devices. But since manufacturers can cover their investment costs through the

2022, doi.org/10.2139/ssrn.4125503, p. 92-95. One main argument was that the manufacturers might be more motivated and better capable to use and share the data.

23 In much more detail wee *Kerber*, Governance of IoT data: Why the EU Data Act will not fulfill its objectives, 72(2) GRUR International 120 (125-128), 2023; *Podszun/Offergeld*, The EU Data Act and the access to secondary markets. Study for the Ludwig-Fröhler-Institut für Handwerkswissenschaften, 2022, doi.org/10.2139/ssrn.4256882. Particularly important is also the lack of solutions for technical interoperability which is often necessary for certain complementary services, as e.g. repair and maintenance services.

24 See *Specht-Riemenschneider*, Der Entwurf des Data Act, MMR, Zeitschrift für IT-Recht und Recht der Digitalisierung 2022, 809 (820); *Kerber*, Governance of IoT data: Why the EU Data Act will not fulfill its objectives, 72(2) GRUR International 120 (132), 2023; *Eckardt/Kerber*, Property rights theory, bundles of rights on IoT data, and the EU Data Act, 57 European Journal of Law & Economics, 113-143, 2024; for an analysis of this problem in B2B contexts, see section E.III below.

price of the IoT device, such a general incentive problem does not exist.[25] (2) The DA does not sufficiently take into account the information and behavioral market failures of consumers. Therefore, it should not rely on pure freedom of contract for the data use contract between data holders and consumers without providing additional regulatory measures for protecting the interests of consumers.[26] (3) However, the DA proposal has correctly understood that exclusive control over IoT data is not the best solution due to the non-rivalrous character of data. But due to its mistaken assumption of an unsolved incentive problem for manufacturers, it wrongly favored more the interests of the manufacturers instead of focusing more on the many advantages of more access and sharing of IoT data for the users and for innovation and competition. This wrong balancing of interests might also be the main reason why so many restrictions and hurdles, which mostly protect the data holders, have been implemented in the data sharing mechanism, thus rendering it weak and ineffective.

Although the proposal of the Commission attempted to address the right problems and introduced two new and interesting key instruments for achieving its objectives, a broader assessment from an economic perspective comes to the conclusion that it cannot be expected to achieve its objectives, especially with regard to more innovation, competition, and user empowerment.[27] Due to the mentioned contradictions between a strong alignment with a data holder-centric approach and important elements from a user-centric approach, as well as by including elements from the concept of co-generated data, the DA proposal also did not succeed in developing a coherent design for the bundle of rights on non-personal IoT data.

III. Analysis II: Further changes in the final version of the Data Act

In the further legislative negotiations between the European Parliament, the Council and the Commission (so-called Trilogue), a number of interesting additional changes have been made in the DA, also with regard to the bundle of rights on non-personal data. We will see, however, that regarding both the coherence and the effectiveness of the DA it is unclear to what extent these changes have improved it. In the following, only the most relevant changes are analyzed.

---

25 See *Drexl et al*., Position statement of the Max Planck Institute for Innovation and Competition of 25 May 2022 on the Commission's Proposal of 23 February 2022 for a regulation on harmonised rules on fair access to and use of data (Data Act), Max Planck Institute for Innovation & Competition Research Paper No. 22–05, 2022, doi.org/10.2139/ssrn.4136484, para. 72; *Specht-Riemenschneider*, Der Entwurf des Data Act, MMR, Zeitschrift für IT-Recht und Recht der Digitalisierung 2022, 809 (823); *Martens*, Pro- and anti- competitive provisions in the proposed European Union Data Act, Working Paper 01/2023, Bruegel 2023; and *Kerber*, Governance of IoT data: Why the EU Data Act will not fulfill its objectives, 72(2) GRUR International 120 (128-130), 2023.

26 The new transparency requirements in Art. 3 DA can help only to some extent.

27 See, e.g., *Kerber*, Governance of IoT data: Why the EU Data Act will not fulfill its objectives, 72(2) GRUR International 120 (133), 2023; *Lundqvist*, Regulating Access and Transfer of Data, Cambridge University Press 2023, 102-108; and *Wiebe*, Der Data Act–Innovation oder Illusion? GRUR 2023, 1569 (1578).

Particularly important is that the controversially discussed data use contract between data holders and users has been confirmed and strengthened in the final version of the DA. The provision that the data holders need a contract with the users for using the non-personal IoT data (Art. 4(13) DA) has been complemented with an additional Art. 4(14) DA that includes additional restrictions for the data holders regarding the sharing of data generated by an IoT device (product data). Moreover, the new recital 26 states that only the users are allowed to monetize this product data. The main argument is that such an exclusive assignment of the right to monetize the non-personal IoT product data gives users larger incentives to share the data. This would enable that the data sharing right (Art. 5 DA) can lead to the emergence of "liquid, fair and efficient" data markets which, in turn, would have positive effects on innovation and competition.[28] Whereas the DA proposal of the Commission was always unclear whether it wanted to open a path to such data markets, the final version of the DA now clearly states that it wants such data markets via these user rights and that only the users should have the right to monetize the data. In this context, the DA sees now also a clear role for data intermediaries (as defined and regulated in the Data Governance Act), who can be used by the users, also for monetizing their data. However, the users can also monetize their IoT data via the data holders or other firms. All in all, these new provisions and recitals strongly support that in the final DA the bundle of rights on IoT data has been assigned primarily to the users of IoT devices.

These modifications in the legislative process could be interpreted as a major change in the basic architecture and concept of the DA from a primarily data holder-centric approach in the proposal to a much more user-centric approach in the final DA. However, many other provisions in the DA proposal which are based upon the data holder-centric concept have not been changed, they have even been strengthened to some extent. Although it is now much clearer than in the proposal that it is the user who is licensing the IoT data to the data holders (or other firms), the data holders still can claim "reasonable compensation" from the firms with which the users are sharing their IoT data. This does not fit to a concept in which the users get exclusive rights to use, share, and monetize their non-personal IoT data. The same is true for many provisions in the DA that protect and strengthen unilaterally the de facto control position of the data holders vis-a-vis the users and data recipients.

The notion that this IoT data should have an IP-like protection has also been strengthened to some extent in the final version because during the Trilogue negotiations many concerns have been raised that a lot of this IoT data might be trade secrets of the manufacturers. This has led to strong demands for a stronger protection of trade secrets with respect to the data sharing obligations of the data holders. As a consequence, the data holder-centric concept with regard to IoT data has been strengthened

28 Recital 33 DA; important is that in the final version Art. 6(2)(c) DA now explicitly allows that data recipients can "resell" the data to other firms if users agree.

in the final version through a number of changes (including exceptions to the data access and data sharing obligations of Art. 4 and 5 DA).[29]

Will these changes in the final version of the DA lead to a better achievement of its objectives by making the two key instruments more effective? In the following, we will distinguish between B2C and B2B contexts.

Data use contract (Art. 4(13) DA) in B2C contexts: Although the clearer assignment of the rights on non-personal data to the users strengthens conceptually the key role of the data use contract between data holders and users, this change of the bundle of rights might not help to give the users more effective control over their non-personal data and prevent buy-out contracts regarding this IoT data. The information and behavioral problems of consumers still exist,[30] and the manufacturers can still as easily contract away these rights by bundling this contract with the sale contract as in the initial DA proposal.[31] Even the explicit exclusive assignment of the right to monetize the non-personal IoT product data to the users in the final version of the DA does not change this. In B2C situations such a bundling strategy still implies that the consumers are only left with their non-waivable user rights which cannot be contracted away.[32] It is also unclear whether these market failure problems and bundling strategies of the manufacturers will not counteract the objective to enable the consumers to get a larger share of the value from their IoT data. It is one of the problems in the final DA that it still relies on a pure freedom of contract approach without the necessary measures for dealing with the market failure problems regarding consumers.

What are the effects of these changes in B2B contexts? It was unclear from the beginning whether here a general market failure exists at all and why the question of the allocation of rights to access, use, and share non-personal data cannot be left to free negotiations between manufacturers and business users on the market. While unequal bilateral bargaining power can also be a market failure problem in B2B situations, this

29 See, e.g., Art. 4(6)-(9) DA and recital 31. For the complex discussion about the relationship of trade secret law and DA, see *Wiebe*, The Data Act proposal. Access rights at the intersection with database rights and trade secret protection, GRUR 2023, 227–238; Aplin titleXXX, (Chapter 6 in this volume), *Zech*, Data access rights as property rights (Chapter 4 in this volume).

30 However, in the final version a new prohibition against behavioral manipulation of the user by the data holders was included (Art. 4(4) DA).

31 An amendment of the EP to limit the bundling of these contracts failed in the final negotiations about the DA: "The data holder shall not make the use of the product or related service dependent on the user allowing it to process data not required for the functionality of the product or provision of the related service" (Art. 4(6) s.2 Draft European Parliament Legislative Resolution on the proposal for a regulation of the European Parliament and of the Council on harmonised rules on fair access to and use of data (Data Act) (COM(2022)0068 – C9-0051/2022 – 2022/0047(COD)).

32 This also shows the importance of the non-waivability of these user rights in B2C contexts.

will happen only in a limited group of cases.[33] Thus, it is not surprising that the application of the same rules in B2C and B2B situations about new user access and sharing rights and the data use contract in the proposal of the Commission was much criticized.[34]

Therefore, it has to be welcomed that the final version has tried to react to demands for a stronger differentiation between B2C and B2B situations through an important additional change in the design of the bundle of rights: In B2B situations, it now allows business users to "waive" their new user rights on non-personal data (Art. 4 and 5 DA) (for a "proportionate compensation").[35] This can have many positive effects because it leads back to the principle of freedom of contract and helps to avoid over-regulation in many B2B situations. However, it also raises the question why the mandatory introduction of new but waivable user rights will lead to more access, use, and sharing of IoT data, and therefore to more innovation, competition, and user empowerment. In B2B situations, the manufacturers can also bundle the sale of a smart machine with a contract in which the business users waive their new user rights. In this case, there might not change much compared to the situation before the DA, i.e. the manufacturers have exclusive control over all generated IoT data but now on a contractual basis. With enough bargaining power, the manufacturer can contract away all rights that the DA grants to the business users, including the exclusive rights to monetize this data. If manufacturers do not have such unequal bargaining power vis-a-vis business users, then the latter can negotiate the efficient solutions for the access, use, or sharing of the IoT data also without the rules of the DA. Therefore, it is not clear why the DA should lead to the unlocking of more IoT data in B2B contexts and therefore to more innovation and competition.[36]

Will the changes in the final version of the DA lead to a larger effectiveness of the data sharing mechanism of Art. 5 DA than in the initial proposal of the Commission? The extension of the scope of the IoT data for the user rights by including not only raw data but also "pre-processed" data is at least a small improvement. It can make the shared data more usable for data recipients, but it is very unclear whether this really changes much for enabling complementary services and innovation. Most important is, however, that the restrictions, hurdles, and transaction costs of the data sharing mechanism have not been reduced in the final version of the DA. On the contrary, instead of simplifying the mechanism, additional requirements and hurdles have been introduced. Particular important are the new provisions that strengthen the possibilities for data holders to use claims about trade secret protection of (raw and pre-processed)

33 Even if this is the case, it is not always the manufacturers who are in the stronger position as assumed by the DA. Often business users can have superior bargaining power which leads to the problem that now the manufacturers have no access to the IoT data.
34 See, e.g, *Metzger/Schweitzer*, Shaping markets: A critical evaluation of the Draft Data Act, Zeitschrift für Europäisches Privatrecht 2023, 42 (56-58).
35 Recital 25 DA.
36 It is also not clear why the business users should have generally more incentives for sharing the data than the manufacturers. This depends much on the business models of manufacturers and users.

IoT data for making it harder to share these data, and more expensive and unattractive for data recipients to use such data.[37] Important is also that the two provisions which directly limit the sharing of IoT data and protect the manufacturers of IoT devices against competition have been confirmed and strengthened in the final version of the DA. The DA prohibits that the users and the data recipients use the shared IoT data for developing a product which competes with the IoT devices that have generated this data. In addition, the users are also not allowed to share their IoT data with firms that are designated as gatekeepers in the Digital Markets Act.[38] However, the already described changes for enabling and supporting new markets for non-personal data and the possible active role of data intermediaries in that respect might be a very important positive step that could lead to more unlocking of IoT data and innovation, e.g. through the building of aggregated data sets. But it will be one of the important tasks to clarify how the complex rules of the DA can be applied in such a way that well-functioning data markets for non-personal data can emerge.

F. Conclusions and perspectives

The EU Data Act sets new rules for the governance of data generated by IoT devices. The GDPR already stipulates that consumers must consent to the use of their personal data by others. This holds also for personal data generated by IoT devices. However, so far there were no provisions in place regarding non-personal data. This allowed the manufacturers of IoT devices to technically capture the data through the design of their IoT devices. With the Data Act, the European Commission now wants to achieve that users of IoT devices have more control over their data and get a fair share of its value and that more data is made available to third parties for innovation and competition, in particular on secondary markets. To these ends, the DA introduces two novel provisions which for the first time assign access, use, and sharing rights to users of IoT devices. In addition, it requires manufacturers to get the consent of users via a contract for also using these data. In this paper, we analyzed how the DA will change the bundles of rights on non-personal IoT data and whether it can be expected that the DA achieves its objectives.

Our main findings can be summarized as follows.[39] The DA is not based upon a clear legal or economic concept and is therefore unclear and contradictory regarding its design of the bundle of rights on non-personal data. Although the final version of the DA has clarified some issues, it also has led to new open questions and contradictions, e.g. between the application of a data holder-centric and a user-centric approach. Although the latter has been conceptually strengthened by explicitly assigning the bundle

37 Also other additional provisions were included that can further weaken the data sharing mechanism.

38 See, e.g. Art. 4(10) and Art. 5(3) DA. For a critical analysis see *Metzger/Schweitzer*, Shaping markets: A critical evaluation of the Draft Data Act, Zeitschrift für Europäisches Privatrecht 2023, 42 (59-61); and *Kerber*, Data Act and competition: An ambivalent relationship, Concurrences 2023, No.1, 30–36.

39 For a broader analysis, see *Eckardt/Kerber*, Property rights theory, bundles of rights on IoT data, and the EU Data Act, 57 European Journal of Law & Economics, 113 (136-139), 2024.

of rights on the use, sharing, and monetizing of the IoT product data to the users, it is very unclear whether this will give the users more effective control over their IoT data. The DA does not protect the users against the potential strategy of the data holders to bundle the sales contract about the IoT device with a far-reaching buy-out contract about the use of non-personal data. The newly assigned rights on non-personal data to the users can therefore be contracted away, especially in B2C situations, i.e. the control over the non-personal data can again end up exclusively with the data holder. In B2B situations, this can be different depending on the bilateral distribution of negotiation power.

Another important finding is that in the final version of the DA the concept of co-generated data does play an even smaller role than in the initial proposal of the Commission. Instead of opening access to the data which are non-rivalrous in use, the DA seems to assign an exclusive bundle of rights over raw and pre-processed IoT data to the users of the IoT devices. In the academic discussion on the DA proposal, several authors suggested an application of the concept of co-generated data in which both the data holders and the users should have independent sets of rights to use, share, and monetize the non-personal data.[40] This would also have the advantage that if one actor does not want to share the data, then access and sharing of the data might still be possible via the other contributor to the generation of data. This could be very helpful regarding the objectives of the DA of enabling innovation and competition.[41] However, the final version of the DA with its emphasis on an exclusive assignment of the bundle of rights on data to the users and many options how the data holders can ensure their exclusive control over the non-personal IoT data (via contracts), is on a dangerous path and slippery slope to fall back to mistaken concepts of exclusivity as an optimal governance solution for data that are non-rivalrous in use.

Overall, the DA can still not be expected to achieve sufficiently its objectives of (1) unlocking much more IoT data for innovation and competition, especially on secondary markets, (2) giving users, in particular, consumers, more meaningful control over their IoT data, and (3) improve significantly the fairness of the distribution of the value from the IoT data although explicitly allowing markets for the shared non-personal data might help to some extent. A big problem is that the basic contradictions, open questions, and unclear provisions can lead to great deal of legal uncertainty due to very different interpretations of the rules of the DA and the specific design of the bundle of rights on IoT data. This also includes the relationship to other laws, such as data protection and trade secret law, which also determine important parts of the bundle of rights on IoT data.[42]

---

40 See *Metzger/Schweitzer*, Shaping markets: A critical evaluation of the Draft Data Act, Zeitschrift für Europäisches Privatrecht 2023, 42 (50-51); *Martens*, Pro- and anti- competitive provisions in the proposed European Union Data Act, Working Paper 01/2023, Bruegel 2023, p. 20, who suggested a "mutual exhaustion" of their rights on IoT data.

41 See *Eckardt/Kerber*, Property rights theory, bundles of rights on IoT data, and the EU Data Act, 57 European Journal of Law & Economics, 113 (132-135), 2024.

42 A broader analysis would also include into the analysis of the bundles of rights on IoT data trade secret law, data protection law, and copyright law; see for copyright law *Raue*, "Without

Therefore, it is necessary to think about further improvements of the DA and additional policies. Regarding the DA itself, a streamlining of the data sharing mechanism of Art. 5 DA by reducing the many hurdles, restrictions, and transaction costs would be very important in order to improve significantly its effectiveness. For enabling more innovation, it is also important to ensure that emerging markets for non-personal data can work effectively in practice and are not impeded by the too complex rules of the DA. With regard to the objectives of more empowerment of consumers as users of IoT devices and a fairer sharing of the value of IoT data, it is necessary to introduce additional consumer protection measures which enable consumers to get more control over their data and participate more in the value of their consumer data. In that respect, it is an interesting question whether the DA, which covers both non-personal and personal IoT data, can also be used to better empower consumers regarding their personal data and can therefore complement the GDPR and thus help it in achieving its objectives.[43] However, also additional policies beyond the DA with its user-initiated data sharing mechanism will be necessary:[44] This implies additional regulations for direct access rights of firms to IoT data, e.g., new sectoral regulations (like an updated type approval regulation for motor vehicles) and regulations for getting access to IoT data for training AI-based algorithms. New innovative data trustee solutions for certain sets of IoT data might also lead to additional positive effects for supporting the unlocking of IoT data and more innovation and competition.

prejudice": The interface of the Data Act and copyright, (Chapter 8 in this volume) and *Wiebe*, The database right and Art. 43 of the Data Act (Chapter 9 in this volume).

43 The data sharing right of Art. 5 DA goes far beyond the data portability right of Art. 20 GDPR.

44 See *Eckardt/Kerber*, Property rights theory, bundles of rights on IoT data, and the EU Data Act, 57 European Journal of Law & Economics, 113 (135), 2024; *Eckardt*, Data commons and the EU Data Act in: Heine/Budzinski (eds.), Wettbewerb, Recht und Wirtschaftspolitik, Festschrift für Wolfgang Kerber, Nomos 2024, 241-257.

ANDRÁSSY WORKING PAPER SERIES
IN ECONOMICS AND BUSINESS ADMINISTRATION

ISSN 2560-1458

54 Eckardt, Martina, Kerber, Wolfgang. 2024. “Designing the Bundle of Rights on IoT Data: The EU Data Act”

53 Eckardt, Martina. 2024. “Data Commons and the EU Data Act”

52 Daniel Eugen Kudet. 2023. “Disruption im Mehrkanalhandel – das Traditionswarenhaus Galeria Karstadt Kaufhof unter Druck”

51 Eckardt, Martina, Kerber, Wolfgang. 2023. “Property rights theory, bundles of rights on IoT data, and the Data Act”

50 Bucher. Florian, Eckardt, Martina. 2022. “The EGCT as a Governance form for Cross-Border Cooperation – a Spatial Analysis of its Critical Success Factors”

49 Ade, Adrian. 2022. „The systematic view on literature – a bibliometric analysis of the research front.“

48 Alexenko, Alina. 2022. „Geschäftsberichte als ein Forschungsobjekt und die Relevanz von Behavioral Economics für die Unternehmensberichterstattung.“

47 Ginter, Tamás. 2022. „Lockdown policies: a review of political effects on restrictive measures.“

46 Dötsch. Jörg J. 2021. „Theorizing emergence in framing complexity economics. A Reply.“

45 Dötsch. Jörg J. 2021. „Houses, but in what order? Asymmetric recovery in Hungary’s residential property market after the crisis.“

44 Storch, Rainer. 2020. „Gemeinsamkeiten und Differenzen der Motive von Führungspersonen gewinnrealisierender und dauerdefizitärer Monopolunternehmen“

43 Wontke, Christoph. 2020. „Historische Kapitalanlageperformance deutscher Lebensversicherer im Vergleich zum Kapitalmarkt: Sind die Lebensversicherer besser als ihr Ruf?“

42 Eckardt, Martina. 2019. „Cross-Border Cooperation via the EGTC – A Study on its Main Drivers of Adoption at the Regional Level“

41 Sehic, Jutta. 2019. „Networking and knowledge transfer – Returnee entrepreneurship in the Western Balkans. Research report Bosnia and Herzegovina“

40 Jürgens, Jonas. 2019. „Die Agenda zur besseren Rechtsetzung der Juncker-Kommission: Wirksamer Beitrag zur Stärkung der Union?“

39 Dörstelmann, Felix A. 2019. „Wettbewerb zwischen PEPP und PPP – Zur theoretische Modellierung des potenziellen Wettbewerbs zwischen pan-europäischen und nationalen Altersversorgeprodukten“

38 Sehic, Jutta 2018. „Novelty and links in innovative firms’ networks: An analysis of SME in Central and South Eastern Europe“

37 Eckardt, Martina and Stefan, Okruch 2018. „The Legal Innovation of the European Grouping of Territorial Cooperation and its Impact on Systems Competition“

36 Wickström, Bengt-Arne, Templin, Torsten and Gazzola, Michele 2017. „An economics approach to language policy and linguistic justice“

35 Megyeri, Eszter 2016. „Altersarmut und Wohneigentum in der EU – Eine Analyse mit EU-SILC 2014 Daten“

Frühere Ausgaben sind in der Reihe:

ANDRÁSSY WORKING PAPER SERIES / ISSN 1589-603X

erschienen**:**

XXXIV Dötsch, Jörg. 2015. „Building a knowledge economy: is Hungary turning the right screw?“

XXXIII Hornuf, Lars und Lindner, Julia 2014. „The End of Regulatory Competition in European Law?“

XXXII Eckardt, Martina 2014. „The Impact of ICT on Policies, Politics, and Polities – An Evolutionary Economics Approach to Information and Communication Technologies (ICT)“

XXXI Eckardt, Martina 2014. „Legal Form and Internationalization of Small and Medium_Sized Enterprises in the EU“

XXX Dötsch, Jörg 2013. „Ökonomik und Emergenz. Arbeitspapier zum Emergenzbegriff der Heterodoxie”

XXIX Dötsch, Jörg 2013. „Überlegungen zu Prozessen endogener Destabilisierung von Wettbewerbswirtschaften”

XXVIII Eckardt, Martina und Kerber, Wolfgang 2013. „Horizontal and Vertical Regulatory Competition in EU Company Law: The Case of the European Private Company (SPE)“

XXVII Eckardt, Martina. 2012. „The Societas Privata Europaea – Could it Promote the Internatinalization of Small and Medium-Sized Enterprises?“

XXVI Ebert, Werner und Eckardt, Martina. 2011. „Wirtschafts- und finanzpolitische Koordinierung in der EU – Erfahrungen aus einem Jahrzehnt Politikkoordinierung“

XXV Eckardt, Martina und Räthke-Döppner, Solvig. 2008. „The Quality of Insurance Intermedieary Services – Empirical Evidence for Germany“

XXIV Okruch, Stefan und Alexander Mingst. 2008. „Die Kammerorganisation aus evolutorischer Sicht“.

XXIII Mingst, Alexander. 2008. „Politische Prozesse und die Rolle von Ideologien: Sinnvolle Geschichten in einer ungewissen Welt“.

XXII Mingst, Alexander. 2008. „Evolutionary Political Economy and the Role of Organisations“.

XXI Mingst, Alexander. 2008. „The Organizational Underpinnings of Innovation and Change in Health Care“.

XX Okruch, Stefan. 2007. “The ‘Open Method of Coordination’ and its Effects: Policy Learning or Harmonisation?

XIX Okruch, Stefan. 2006. “Die ‘Offene Methode der Koordinierung’: Gefahr schleichender Harmonisierung oder Chance für Politiklernen?”

XVIII Okruch, Stefan. 2006. “Values and Economic Order: In Search of Legitimacy”

XVII Okruch, Stefan. 2006. „Die EU-Wettbewerbspolitik zwischen Einheitlichkeit und Vielfalt – Anmerkungen aus ordnungsökonomischer Sicht“

XVI Beckmann, Klaus B. 2006. “Tax evaders keep up with the Joneses”

XV Margitay-Becht András 2005 “Inequality and Aid. Simulating the correlation between economic inequality and the effect of financial aid”

XIV Beckmann, Klaus B. 2005. “Tax competition and strategic complementarity”

XIII Meyer, Dietmar – Lackenbauer, Jörg. 2005 „EU Cohesion Policy and the Equity-Efficiency Trade-Off: Adding Dynamics to Martin’s Model”

XII Chiovini, Rita und Zsuzsanna Vetõ. 2004. „Daten und Bemerkungen zu den Disparitäten im Entwicklungsstand ausgewählter Länder”

XI Alfred, Endres. 2004 „Natürliche Ressourcen und nachhaltige Entwicklung”

X Bartscher, Thomas, Ralph Baur and Klaus Beckmann. 2004 „Strategische Probleme des Mittelstands in Niederbayern”

IX Arnold, Volker – Hübner, Marion. 2004. „Repression oder Umverteilung - Welches ist der beste Weg zur Erhaltung der Funktionsfähigkeit marktwirtschaftlicher Systeme? - Ein Beitrag zur Theorie der Einkommensumverteilung.”

VIII Okruch, Stefan. 2003. „Verfassungswahl und Verfassungswandel aus ökonomischer Perspektive - oder: Grenzen der konstitutionenökonomischen Suche nach der guten Verfassung.”

VII Meyer, Dietmar: „Humankapital und EU-Beitritt – Überlegungen anhand eines Duopolmodells.”

VI Okruch, Stefan. 2003. „Evolutorische Ökonomik und Ordnungspolitik – ein neuer Anlauf”.

V Arnold, Volker. 2003. „Kompetitiver vs. kooperativer Föderalismus: Ist ein horizontaler Finanzausgleich aus allokativer Sicht erforderlich?'

IV Balogh, László – Meyer, Dietmar. 2003. „Gerechtes und/ oder effizientes Steuersystem in einer Transformationsökonomie mit wachsendem Einkommen'.

III Beckmann, Klaus B. 2003. „Tax Progression and Evasion: a Simple Graphical Approach".

II Beckmann, Klaus B. 2003. „Evaluation von Lehre und Forschung an Hochschulen: eine institutenökonomische Perspektive".

I Beckmann, Klaus B. and Martin Werding. 2002. „Two Cheers for the Earned Income Tax Credit".

Visit us on the web at http: www.andrassyuni.eu. Please note that we cease to circulate papers if a revised version has been accepted for publication elsewhere.