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Studying the Effects of Peer-to-Peer Sharing Economy Platforms on Society

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Abstract. Peer-to-peer sharing economy platforms potentially have big effects on values in society. Policymakers need to develop governance arrangements to benefit from the positive effects, while simultaneously mitigate the negative effects. This requires having a structured overview of the effects of these platforms on the diversity of values that are involved. Currently no theoretical overview of these effects on values is available. The objective of this article is to structure the research into the effects of sharing economy platforms. We use a theoretical mapping that was developed by using a Grounded Theory approach. By positioning the literature onto the map, we derived an overview of the extend in which each effected value has been studied so far. Based on this mapping, we propose five research themes into specific effects of peer-to-peer sharing economy platforms: social values, consumer and societal risks, working conditions and labor market dynamics, environmental sustainability and innovation.

Keywords. Sharing economy, Peer-to-peer platform, P2P, Values, Effects, Grounded Theory, Governance arrangement, Literature Review

Introduction: The Rise of Sharing Economy Platforms

In the past few years multiple peer-to-peer (P2P) sharing economy platforms, such as Uber and Airbnb, have grown exponentially [1]. Their success is, amongst other factors, based on the ability to greatly reduce transaction costs for users and providers in the market [2] and the positive network externalities of platform use. Besides this, the platforms profit from a legal void and the post-economic crisis conditions [3]. The effects of these platforms on society are considerable. The platforms for example hold the promise of more efficient markets, the empowerment of citizens, economic growth and environmental sustainability [4]. However, they also face multiple challenges and run into opposition from incumbent companies and regulators [1]. Issues that are raised include consumer protection, working conditions and fair competition [5].

Policymakers now face the challenge to find the right governance approach towards these P2P sharing economy platforms. On the one hand the possible positive effects should be stimulated as much as possible, but on the other hand the negative effects should be mitigated. In the words of Kenney and Zysman: “these transfor-
mations need to be simultaneously nurtured, supported, and protected against” [4, p. 4].
To develop suited governance arrangements, it is important that policymakers have
sufficient insights into the effects of P2P platforms on values in society. These insights
can also support governments that wish to develop P2P platforms as part of their
e-government and e-participation policies, in order to assess the consequences of provid-
ing e-services via public platforms on societal values. Currently however no theoretical
overview of these effects is present apart from separate studies [4][6, 7].

The objective of this article is to structure the research on the effects of sharing
economy platforms. We do so by using a theoretical mapping of the effects of P2P
sharing economy platforms. Current literature is linked to the effects that are identified
in this map. By doing so blind spots in literature are identified and new studies towards
specific effects are proposed.

P2P sharing economy platforms in this article are defined as digital platforms
where providers meet with users in order to execute a 1-on-1 transaction with a physi-
cal world component, where no transfer of ownership takes place. More specifically,
only broker platforms are included, which means that providers own the value added
assets and the platform controls the user relationship [8]. Uber and AirBnB are the
well-known examples of this type of platforms.

The remainder of the article is structured as follows. The next section gives an
overview of the types of studies conducted on the sharing economy and positions this
article within this theoretical context. In the third section the mapping of the effects of
P2P sharing economy platforms will be presented, combined with an elaboration on the
approach used to come to this overview. In section four recent publications on the ef-
fects of the platforms are presented and linked to the theoretical model. Section five
uses this information to identify blind spots in literature, i.e. effects that have been
identified, but have not yet been studied. The article concludes with a discussion of the
contributions of this article and recommendations for future research.

1. Theoretical Context

Research on the sharing economy has only recently been started, with Botsman and
Rogers [9] as one of the first to describe the phenomenon as collaborative consumption
[10]. In the past few years different studies on platforms in the sharing economy have
been published, which can be roughly divided into four distinct trends: 1) studies on the
mechanisms behind and success factors of platforms, 2) studies on the motivations for
sharing on these platforms, 3) studies on specific effects of sharing economy platforms
and 4) studies that try to give a holistic view on the effects of sharing economy plat-
forms. Below examples of each of these trends are given and the positioning of this
article is elaborated on.

The first trend in literature focusses on the mechanisms behind and success factors
of platforms. Examples of publications in this trend are Hill and Wellman [11], who
use a game theory approach to prove that by setting the suiting incentives it is possible
to get participants to truthfully report on the quality of their offered products; Anders-
son, Hjalmarsson and Avital [12], who study a multitude of ride sharing companies to
find important distinguishing factors for these companies; Kohda and Masuda [13],
who show that platforms that absorb risks for users are more successful; Slee [14], who
explores the role of reputation systems in the success of platforms; Chen, Mislove and
Wilson [15], who use data analytics to determine Uber’s algorithms; and Henten and Windekille [2] who elaborately study the role of transaction costs in the sharing economy.

The second trend in literature explores the motivation for sharing via platforms and the types of users of these platforms. Examples of publications within this trend are Leonard and Jones [16], who studied the factors that lead to trust in websites and digital platforms; Albinsson and Perera [17], who interviewed users of gift economy platforms to find their motivations for sharing; Zekanović-Korona and Grzunov [18], who used a survey to investigate the demographics and motivations of users of Airbnb; and Hamari, Sjöklint and Ukkonen [19], who used a survey to find the intrinsic motivations for sharing on a P2P platforms.

The third trend in theory is to focus on specific effects of P2P sharing economy platforms or effects of specific sharing economy platforms. The following publications are examples of this trend in literature: Isaac [3, 20], who describes how respectively Uber and Taskrabbit became a success and what effects these platform companies have on their environment; Dillahunty and Malone [21], who study the effects of P2P platforms on income opportunities and reintegration of workers; Zervas, Byers and Proserpio [22], who study the effects of the rise of Airbnb on the incumbent hospitality sector; and Schor, Fitzmaurice, Carfagna & Attwood-Charles [23], who study the effects of sharing economy platforms on inclusion and equality in society.

The final trend in literature aims at a holistic view on the effects of P2P sharing economy platforms on society. Examples of publications in this trend are Cheng [24], who breaks the sharing economy down in different subcomponents and describes a broad range of effects (with a focus on work-related issues); Schor [1], who provides arguments both for and against the sharing economy, with a focus on ecological and social aspects; and Kenney and Zysman [4], who focus on the implications and consequences of digital platforms and attempt to sketch the debate around them.

This article proposes a theoretical mapping of the effects of P2P sharing economy platforms and links publications on the effects of these platforms to this overview. This in order to structure the research on the effects of sharing economy platforms and to identify blind spots in literature. With this objective, our article is positioned in the last trend of research that tries to provide an holistic view on the effects of P2P platforms. This article however also strongly links to the third trend that focuses on specific effects, as we connect the specific studies to a holistic theoretical overview of effects on values in society.

2. Mapping the Effects of Sharing Economy Platforms on Society

In this section we present a theoretical mapping of the effects of P2P sharing economy platforms on society. This theoretical mapping was composed since policymakers have to find the best approach towards the development of peer-to-peer sharing economy platform [4] and currently no theoretical overview of these effects was yet present to support them [4, 6, 7]. The mapping was composed from the perspective of Dutch policymakers, but is based on international literature on peer-to-peer sharing economy platforms.

The perspective that was chosen to indicate the effects of the platforms was the perspective of institutional economics. From this perspective it can be argued that poli-
cymakers need to base their decisions on the underlying values that are effectuated, while considering the involved actors and possible institutional arrangements. The effectuated values are thus the main concepts of interest. In this context, we define values as: “Principles or standards of behavior; one’s judgement of what is important in life” [25]. The decision to focus especially on these values is founded on the premise that policymakers should preferably base their decision on the protection of underlying values and not on the existing institutional arrangements (e.g. sector legislation), which are challenged by the P2P platforms [26]. These values are the ultimate objective of policy and instruments such as legislation and other institutions are used to reach this objective. The foundation for developing new governance arrangements to mitigate the negative consequences of P2P platforms should thus ideally be based on guarding the values and not on the continued use of current instruments or institutions.

To come to this theoretical mapping of the effects on these values a Grounded Theory approach was used [27]. This approach is specifically suitable for the exploratory nature of the study and the aim to build a theoretical framework [28]. The approach consists of three steps of coding in which relevant concepts (in this case: values, actors and institutional arrangements) are identified, categorized and related to each other [29]. The theoretical mapping was constructed in the last months of 2015 and was based on the academic and semi-academic sources available at that time. To validate the model, it was validated with independent experts on the digital economy and public policy and with representatives of different involved actors (e.g. a sharing economy company, the municipality of Amsterdam and the Dutch Consumer Association). The derived theoretical map is presented in Figure 1.

The theoretical map discerns three levels of values (visualized by the three rings): values effectuated at a micro, meso and macro level. The differentiating variables for these levels are the scale and the frequency of transactions on peer-to-peer sharing economy platforms. Micro values can already be effectuated when only a small number of transactions takes place on a small scale. Meso values can be effectuated when this scale and frequency rise (i.e. when the platforms grow and start to become successful). Macro values can be effectuated when the scale and frequency of the transactions are at its max and the peer-to-peer sharing economy platforms are an integral part of the economy.

Besides the three levels of values, the model is divided into four quadrants on the basis of two axes. These axes divide the involved actors into four groups. The horizontal axis divides actors into a demand and supply side of the transaction. The vertical axis divides the actors in direct and indirect involved actors. Direct demand side actors are the consumers that use the platform. Direct supply side actors are the providers to the platform. Indirect supply side actors include investors, incumbent competitors and labor associations. Indirect demand side actors include other citizens and consumer associations. Governmental parties are indirectly involved on both the demand and supply side of the transaction.
By identifying and structuring the effects of peer-to-peer sharing economy platforms in this theoretical mapping, a holistic overview is created, which can be used by policymakers and other parties that want to increase their insight into the sharing economy. An example of this use would be a large city that wants to assess the effects of the rise of Airbnb within city borders. Besides the practical usability of the model, the theoretical overview of effectuated values is the first academic attempt at analytically mapping the effects of P2P sharing economy platforms. Due to the exploratory nature of the Grounded Theory approach the model contains a broad range of identified effects that transcend specific fields of study and is more complete than similar studies discussing the effects of this type of platforms (e.g. [4] & [24]).

3. Structuring the Research

The mapping of the effects of P2P sharing economy platforms can help to create insights into these effects, but also to structure the studies that already have been conducted into these effects. As was discussed in section two of this article, one trend in sharing economy literature focusses on these specific effects. In this section these
Table 1. Overview of publications on the effects of peer-to-peer sharing economy platforms

<table>
<thead>
<tr>
<th>Author &amp; year</th>
<th>Studied effects</th>
<th>Method</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benjaafar, Kong, Li &amp; Courcoubets, 2015 [30]</td>
<td>Waste reduction</td>
<td>General Equilibrium Model for car sharing</td>
<td>Depending on the price of renting, ownership levels go up or down. Consumer surplus is created in any case. Platform companies make the most profit when rental prices are not too low and not too high.</td>
</tr>
<tr>
<td>Dillahunt &amp; Malone, 2015 [21]</td>
<td>Income opportunities</td>
<td>Participatory design approach with 20 unemployed citizens</td>
<td>The sharing economy holds a promise for unemployed persons, however lack of trust in these types of initiatives could be an impediment.</td>
</tr>
<tr>
<td>Edelman, Luca &amp; Svirsky, 2016 [31]</td>
<td>Inclusion</td>
<td>Data analysis of Airbnb field experiment</td>
<td>Airbnb users with distinctively African-American names are less likely to be accepted into an accommodation.</td>
</tr>
<tr>
<td>Fang, Ye &amp; Law, 2015 [32]</td>
<td>Employment</td>
<td>Fixed effects model based on Airbnb data</td>
<td>Airbnb benefits the whole tourism sector and leads to more revenue and jobs. Low-end hospitality jobs will however drop.</td>
</tr>
<tr>
<td>Fraiberger &amp; Sundararajan, 2015 [33]</td>
<td>Waste reduction</td>
<td>General Equilibrium Model based on GetAround car-sharing data</td>
<td>Generally car-sharing leads to higher consumer welfare and lower ownership levels. Especially below-median income consumers stand to benefit from car-sharing as they experience higher value for money, new income opportunities and possibilities for inclusion.</td>
</tr>
<tr>
<td>Horton &amp; Zeckhauser, 2016 [34]</td>
<td>Waste reduction</td>
<td>General Equilibrium Model and survey on the attitudes towards use and ownership of different types of goods</td>
<td>Predicted usage of goods is the biggest determinant for ownership. Generally non-owned goods are most likely to be rented, with the exception of cars, which are rented irrespective of the ownership. Diversity of use is likely to increase.</td>
</tr>
<tr>
<td>Schor, Fitzmaurice, Carflagna &amp; Attwood-Charles, 2016 [23]</td>
<td>Inclusion</td>
<td>Interviews and participant observation of four sharing economy sites</td>
<td>Equality on sharing economy platforms is hard to establish. It is especially hard to create an equal and robust system. A paradox thus exists between the intentions of the sharing economy and its outcome.</td>
</tr>
<tr>
<td>Zervas, Byers &amp; Proserpio, 2015 [22]</td>
<td>Well performing markets</td>
<td>Analysis of Airbnb and hotel data in Texas.</td>
<td>The presence of Airbnb lowers hotel revenue, especially low-end hotels face stronger competition. This increased competition leads to lower prices and increased diversity for consumers. Airbnb does not lead to more economic activity, but changes patterns of consumption.</td>
</tr>
</tbody>
</table>
papers will be linked to the model to show what effects have already been studied and to identify blind spots in current literature. The mapping of the effects of peer-to-peer sharing economy platforms is suited for this exercise since it contains a broad range of effects on different layers and with relevance to different actors involved. The model thus contains anticipated effects from multiple perspectives on peer-to-peer sharing economy platforms and transcends the (possibly) limited views on the effects from specific fields of study (e.g. economists only focusing on economic effects or ecologists only focusing on environmental effects).

The publications discussed in this section were collected using the search engines Google Scholar and Scopus. By searching on the keywords as “sharing economy,” “digital platforms” and “peer-to-peer” in combination with the keyword “effect”, a multitude of publications was found. This set of publications was gathered up to mid-February 2016. Possibly some publications on the effects of these platforms have been missed due to the fact that the keywords of these publications did not match the search criteria. In Table 1 the eight publications that were found and the effects they study are presented in alphabetical order of authors. Besides this the type of study and a short summary of the outcomes are presented.

The overview in the table shows that research has especially been done into the effects of P2P platforms on waste reduction, convenience, fair socio-economic system, employment, income opportunities, inclusion, value for money, economic growth and well performing markets. These values that are covered in the literature are the stand alone values without circles in Figure 1. In the next section we identify the blind spots in the literature and propose research approaches to fill them in.

4. Blind Spots in Literature

Combining the studied effects of Table 1 with the mapping of the effects of P2P sharing economy platforms, results in an overview of effects that have been studied and effects that have not or only partly been studied. These last ones are indicated in Figure 1 by circles, the numbers refer to the blind spots as presented in this section. They are composed of combinations of different effectuated values in the mapping model of the effects. Naturally all identified effectuated values can be studied individually, but since limited research has been conducted so far, we formulated broader blind spots. On the basis of these blind spots we propose several approaches to study values in the domain of P2P platforms.

**Blind spot 1 – Social value** The first blind spot in literature concerns studies into the social value that is created by P2P platforms in the sharing economy. Social value includes concepts such as establishing personal contact, the creation of social ties, strengthening communities and social cohesion. In the discourse around the sharing economy these aspects are frequently mentioned as an argument in favor of the sharing economy development [35], but no academic studies have been identified in this field. An approach to study the social value of P2P sharing economy platforms would be to conduct a survey amongst users to identify the individual effects these platforms have. Respondents could for example be asked whether the use of a P2P economy platform has led to a lasting social tie or to an increased connection with a specific group or community.
**Blind spot 2 – Consumer and societal risks** The second blind spot in literature on P2P sharing economy platforms are the risks for consumers and society. These risks are broadly acknowledged and are input for much governmental concern [4]. Academic studies into these effects have however not been conducted. Studies towards consumer safety, legal liability, prevention of criminal activity and public health could form the basis for the development of governance arrangements to mitigate these risks. A way to study consumer and societal risks is conducting a data analysis of accidents that happened due to the transactions on these platforms. Such a study might however only be possible after most of the damage is done and might not be preferable. Another approach would be to use a risk management approach specifically adjusted to sharing economy practices. Such a study could include a systematic identification of the consumer and societal risk and a theoretical calculation of these risks in terms of frequency and impact.

**Blind spot 3 – Working conditions and labor market dynamics** The effects on employment possibilities due to the rise of P2P platforms have already been studied [21][30][32,33], but the effects on working conditions and macro labor market dynamics have not. Journalists report that the working conditions of, for example, Uber drivers are not sufficient to provide a sustainable living [36], however no systematic calculations on this issue have been conducted. Macro effects of sharing economy platform work have not been studied yet either. The implications of the rise of part-time work through these platforms for the overall labor market could be a cause for policy reform in which flexibility and autonomy in the labour market play a role for both sides of the platforms: the providers as well as the labour force that provide their services through the platform. To study the working conditions of P2P sharing economy platform providers, case studies could be conducted to identify possible problems with working relations. A next step would be to calculate the minimum preconditions for work in the sharing economy and to identify whether these preconditions are met at different platforms. To study the macro effects on the labor market an approach could be used that models the trends and dynamics that are caused by the sharing economy.

**Blind spot 4 – Environmental sustainability** Despite the fact that the concept of the sharing economy is often considered to have a positive effect on the value environmental sustainability[35], we see that this topic is not covered in the literature on the effects of P2P platforms so far. Although some studies have been conducted into effects on ownership levels, the implications of these effects on environmental sustainability are not clear. Besides this, other second order effects (e.g. increased air travel due to Airbnb) might cancel possible positive environmental effects [1]. A way to study the environmental impact of peer-to-peer sharing economy platforms would be to first identify all possible effects on the environment and to create a conceptual causal model of these effects. This model could then be used to create a dynamic mathematical model to calculate the environmental effects under certain assumptions or in certain scenarios.

**Blind spot 5 – Innovation** The last blind spot that we found refers to the value of the innovative character of P2P platforms. How innovative and disruptive are P2P platforms in the domains in which they operate (e.g. the personal transportation sector or the hospitality domain)? This kind of analysis requires economic approaches to reveal the influence of P2P platforms on the business models and the market structure of the domain in which the platform operates.
In summary, studies towards effects in one of these five blind spots have the potential to add value to the academic discourse on the sharing economy and to help policymakers in determining the best governance approach towards regulation of P2P sharing economy platforms. In addition, these studies will support policymakers in their own decision making process towards developing public P2P platforms for e-services in their operations as a local, regional or national government organization. In the latter case, the influence of P2P platforms on public tasks (currently not covered in this article, but mentioned in the model) also needs to be taken into account.

5. Contributions and Future Work

Peer-to-peer sharing economy platforms show an exponential growth over the past few years and are bound to have significant effects on society [4, 5]. Policymakers need to come with the right approach to benefit from the positive effects, but to mitigate the negative effects [4]. In order to find this best approach theoretical insights into the specific effects of these platforms are of vital importance [6]. The contribution of this paper is structuring the recent literature on specific effects by linking the individual studies to a theoretical map of the effects of P2P sharing economy platforms. This theoretical overview of the effects is the first academic attempt at analytically mapping the effects of these platforms and as such aimed at going beyond the descriptive accounts as found in the literature. Our theoretical map offers an holistic overview of the effects of these platforms that transcends the limited perspectives from different fields of study on the effects (e.g. economists only focusing on economic effects or ecologists only focusing on environmental effects). Subsequently, we performed a literature review to discover the values that have been studied so far and compared these with the values positioned in our theoretical map.

We identified five blind spots in literature. These blind spots are the effects of P2P sharing economy platforms on social values, consumer and societal risks, working conditions and labor market dynamics, environmental sustainability and, finally, innovation. Future work can focus on the effects in these blind spots to increase academic understanding of the effects of P2P sharing economy platforms and to support policymakers with developing suited governance arrangements and developing public P2P platforms for e-governance.

Besides these studies into specific effects, future work can also focus on the improvement of the theoretical mapping of the effects on values, as presented in this article. Links and relations between the identified effects in the model can be added in order to clarify the cohesion of the model. A logical continuation of the Grounded Theory Approach by which the model was developed would be a continued exploration of effects of P2P platforms on societal values. As such, the proposed studies into specific effects can further enrich the model with new insights from the dynamic phenomenon of P2P sharing economy platforms.
References


