



**UNDERSTANDING SOCIAL-PSYCHOLOGICAL DETERMINANTS AND
EFFECTS OF COLLABORATIVE CONSUMPTION**

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List of acronyms

ATT	<i>Attitude</i>
B2C	<i>Business-to-consumer</i>
C2C	<i>Consumer-to-consumer</i>
CFI	<i>Comparative fit index</i>
CLF	<i>Common latent factor</i>
CO ₂	<i>Carbon dioxide</i>
df	<i>Degrees of freedom</i>
e.g.	<i>For example</i>
et al.	<i>And others</i>
F	<i>F-value</i>
H	<i>Hypothesis</i>
i.e.	<i>In other words</i>
incl.	<i>Including</i>
INT	<i>Intention</i>
M	<i>Mean</i>
MIMIC	<i>Multiple indicators, multiple causes</i>
n	<i>Sample size</i>
ns	<i>Statistically not significant</i>
p	<i>Probability</i>
p.	<i>Page</i>
P2P	<i>Peer-to-peer</i>
PBC	<i>Perceived behavioral control</i>
PLS-SEM	<i>Partial least squares structural equation</i>

PN	<i>Personal norm</i>
Q^2	<i>Stone-Geisser criterion</i>
r	<i>Correlation</i>
R^2	<i>Squared multiple correlation</i>
RMSEA	<i>Root mean square error of approximation</i>
RQ	<i>Research question</i>
S.	<i>Size</i>
SD	<i>Standard deviation</i>
SE	<i>Standard error</i>
SN	<i>Subjective norm</i>
TACT	<i>Time, action, context, target</i>
ToO	<i>Transfer of ownership</i>
VO	<i>Value orientation</i>
w ₁	<i>Wave one</i>
w ₂	<i>Wave two</i>
WEF-YGL	<i>World Economic Forum Young Globald</i>
β	<i>Standardized regression coefficient</i>
Δ	<i>Delta</i>
λ	<i>Factor loading</i>
χ^2	<i>Chi square</i>

1. Introduction

Current consumption practices based on the notion of buying new things for private use and final disposal are major causes of severe economic, environmental, and social problems facing society at large (Schrader & Thøgersen, 2012). In fact, unsustainable consumption practices are being amplified by continued growth of the global economy (Prothero et al., 2011). Sustainability experts agree that a transformative approach to consumption is needed to address these problems (Heinrichs, 2013). Recent economic, social, and technological trends, including the rise of mobile internet and social networks, might have resulted in such a transformative approach: collaborative consumption (Barnes & Mattsson, 2016; Owyang, 2013).

In their book *What's mine is yours*, Botsman and Rogers (2011) use the term collaborative consumption to describe the shared use of common resources and idle assets in peer networks. Although the boundaries of collaborative consumption are blurry, it has quickly become an umbrella term for a wide range of consumer behaviors that focus on, but are not limited to accessing instead of owning things. Some of the most prominent examples include rental platforms for private living space (e.g., AirBnB) and car-sharing services (e.g., tamyca). Other examples include platforms or services that allow peers to do anything from swapping clothes (e.g., Kleiderkreisel) to providing food to others for free (e.g., foodsharing).

Collaborative consumption, which is also referred to as the sharing economy (Möhlmann, 2015), has begun to disrupt established sectors. The five main collaborative consumption sectors (i.e., private living space, car-sharing, music and video streaming, staffing, and finance) are estimated to grow from around \$ 15 billion in 2013 to \$ 335 billion in revenues by 2025 globally (PricewaterhouseCoopers, 2015). Beyond its economic relevance, researchers (Botsman & Rogers, 2011; Prothero et al.,

2011) argue that this emerging socio-economic model has the potential to alleviate problems such as resource depletion, climate change, excessive waste, and social alienation. Thus, collaborative consumption is highly relevant for researchers, practitioners, and policymakers aiming to address these problems.

However, research has only recently focused its attention on collaborative consumption. As a result, the academic discourse is lagging behind public discourse and practice (Heinrichs, 2013). In particular, further research is needed in three areas. First, as the basic idea and the exact scope of the term remain unclear (Lamberton, 2016), researchers have called to elaborate on the basic concept of collaborative consumption (Heinrichs, 2013). Second, current research on individual reasons to engage in collaborative consumption remains incomplete. This is because an integrated perspective capturing the range and relevance of different variables beyond the influence of individual variables like attitudes or trust is missing. Moreover, it is not well understood which role individual values have for collaborative consumption and how they influence it. Thus, researchers have called to comprehensively examine the social-psychological determinants of collaborative consumption (Barnes & Mattsson, 2016; Heinrichs, 2013) including the role of values (Piscicelli, Cooper, & Fisher, 2015). Finally, although researchers assume collaborative consumption may become a global phenomenon that fosters a shift from a culture of mass-consumerism toward more sustainable consumption, there is a lack of understanding of the actual influence of collaborative consumption on consumers (Prothero et al., 2011). Knowledge about collaborative consumption's effects on consumers' mindsets with regard to the environment and the society is required. Thus, researchers have called to examine collaborative consumptions' social-psychological effects (Heinrichs, 2013; Martin, 2016).

For this reason, the primary objective of this thesis is to advance the understanding of collaborative consumption's social-psychological determinants and effects. The thesis builds on social-psychological theories of behavior—in particular, the theory of planned behavior (Ajzen, 1985, 1991; Fishbein & Ajzen, 2010), value theory (Schwartz, 1994), and value-belief-norm theory (Stern, Dietz, Abel, Guagnano, & Kalof, 1999)—to examine the social-psychological variables and underlying values and beliefs that determine collaborative consumption behavior and the effects it has on consumers over an extended period of time. However, before being able to understand determinants and effects of these consumer behaviors, it is a prerequisite to define which particular behaviors are relevant for examination. Thus, it is a secondary objective of this thesis to clearly identify and delimit collaborative consumption behaviors. Addressing these calls will contribute to further theory development around collaborative consumption and enable practitioners and policymakers to shape the further development of collaborative consumption as a more sustainable form of consumption and to improve its uptake.

In the remainder of the introductory chapter, research deficits are identified and research questions derived that guide this thesis (section 1.1). In section 1.2, the structure of this thesis is presented, before its key findings are highlighted in section 1.3.

1.1. Research deficits and questions

Collaborative consumption research sources are very diverse, involving academic studies, popular scientific books, private and public reports, blogs, and others (Belk, 2014b). This thesis will primarily focus on academic and popular scientific accounts

of research to reflect the nature of the field. Other sources will only be considered, if they provide valuable insights in addition.

Most research on collaborative consumption primarily falls within one of five areas: 1) emergence, conceptual frame, and definitions, 2) consumption behaviors, 3) consumer motivation, 4) sustainability, and 5) business models, economic issues and regulation. This thesis aims to answer questions that result from research deficits in the first four of these areas. In the following, these research deficits will be identified and three research questions, will be derived that guide this thesis.

The basic idea and the scope of collaborative consumption remain unclear

Research in the first area is concerned with the emergence of the phenomenon collaborative consumption, the development of a conceptual frame, and its definition. Closely related is research in the second area that deals with particular consumer behaviors that together make up collaborative consumption. While researchers in both areas have provided valuable insights on collaborative consumption, there are major deficits that need to be addressed. Foremost, collaborative consumption has been variously conceptualized in the literature based on context (Felson & Spaeth, 1978), reciprocity (Belk, 2014a) access versus ownership (Bardhi & Eckhardt, 2012), as well as networks and technology (Botsman & Rogers, 2011). Therefore, the exact scope of this term remains unclear (Lamberton, 2016). This is mainly because each of these perspectives is associated with a different set of actual consumer behaviors. This is problematic in two ways. First, as long as it is unclear which particular behaviors collaborative consumption represents, any theoretical examination or conclusion based on the term will be subject to ambiguity. Second, in order to meet the challenge of systematic behavioral change, sustainable consumption research has called for measures enabling the change of overall consumption patterns made up of particular

related behaviors, as opposed to targeting individual behaviors only (Thøgersen, 1999). Thus, when attempting to systematically change unsustainable for collaborative consumption practices, knowledge is required about these particular collaborative consumption behaviors and whether or not they are related to each other, forming a consumption pattern. So far, there is a lack of this kind of knowledge about collaborative consumer lifestyles. As a result, two research deficits can be identified. First, there is a lack of research resulting in an unambiguous basic concept of collaborative consumption and a differentiated conceptual understanding of different collaborative consumption behaviors. Second, there is a lack of research on the relationships between different collaborative consumption behaviors to uncover collaborative consumer lifestyles. Addressing these two research deficits, the first research question of this thesis is formulated as:

Research question 1: *What are the consumer behaviors that together make up collaborative consumption and how are these behaviors related to each other?*

Understanding of determinants is limited to isolated variables leaving relative strengths of and interdependencies between variables untapped

The third research area deals with the overarching role of consumers within collaborative consumption and the reasons that drive consumers to engage in this form of consumption. However, current research on determinants of collaborative consumption—that is, the social-psychological variables and underlying values and beliefs of this behavior—remains incomplete (Heinrichs, 2013; Möhlmann, 2015; Prothero et al., 2011). Foremost, although researchers have provided valuable insights into particular variables thus far, for example, for attitudes (Hamari, Sjöklint, & Ukkonen, 2015) or satisfaction (Möhlmann, 2015), no comprehensive behavioral

models have been examined to understand the full decision-making process and the relative importance of different social-psychological variables for engaging in collaborative consumption. For example, previous research has found sustainable consumption to be determined by distal behavioral factors like pro-environmental and pro-social values mediated by more proximal behavioral factors like attitudes, norms, and behavioral control (Stern, 2000; Thøgersen, 2006), but we lack this kind of knowledge in the context of collaborative consumption. Moreover, different views have emerged of collaborative consumption being primarily determined by economic/egoistic motives (e.g., profit motives, self-interest, pragmatism; Bardhi & Eckhardt, 2012; Belk, 2014a, 2014b), primarily determined by normative motives (e.g., sustainability, improving community; Albinsson & Perera, 2012), or by both (Botsman & Rogers, 2011). This lack of theoretical agreement makes it difficult for practitioners in the private and public sector to implement adequate measures to improve the uptake of collaborative consumption. As a research deficit, a lack of research on the influence of social-psychological variables on collaborative consumption behavior including the underlying values and beliefs can be identified. Hence, addressing this deficit in research, the second research question that is raised in this thesis, is formulated as:

Research question 2: *Which social-psychological variables and underlying values and beliefs determine actual collaborative consumption?*

Actual effects of collaborative consumption on consumers' mindsets are not well understood

Research in the fourth area is concerned with the sustainability of collaborative consumption from an economic, environmental, and social perspective. As collaborative consumption is proposed as a step beyond unsustainable linear

consumption patterns toward more sustainable consumption practices (Botsman & Rogers, 2011; Heinrichs, 2013; Prothero et al., 2011), researchers, practitioners, and policymakers aiming to achieve a transition toward sustainability are interested in the effects of collaborative consumption on the environment, the economy, and the society (Heinrichs, 2013; Martin, 2016). As nascent research on collaborative consumption has primarily examined its determinants (e.g., Hamari et al., 2015; Piscicelli et al., 2015), research on its effects remains scarce. Foremost, although researchers have provided valuable insights into collaborative consumption's effects on the environment (Leismann, Schmitt, Rohn, & Baedeker, 2013) and on the economy (Owyang, 2013), insights into effects on the society are missing. In particular, there is a lack of knowledge about the social-psychological effects of collaborative consumption on the individual level. Given the importance that individual values, attitudes, and norms have for collaborative consumption in particular (Barnes & Mattsson, 2016) and for sustainable behavior—and thus for the transition to sustainability—in general (Stern, 2000; Thøgersen, 2006), it would be valuable to understand the effects collaborative consumption has on these social-psychological factors. Moreover, research finds contradictory predictions of collaborative consumption's further development: While supporters of collaborative consumption frame it as a “pathway to sustainability”, those who resist collaborative consumption frame it as a “nightmarish form of neoliberal capitalism” (Martin, 2016, p. 149). Thus, Martin (2016) has called for empirical research examining actual effects of collaborative consumption in order to enable its development as a more sustainable form of consumption. In conclusion, a lack of research on the social-psychological effects of collaborative consumption on consumers over time can be identified as a deficit. Thus, the final research question addressing this deficit is formulated as:

Research question 3: *Does collaborative consumption affect consumers' values, attitudes, and norms?*

1.2. Structure of the thesis

This thesis contains three studies, each addressing one of the research questions developed in the previous section. The first study is primarily conceptual and lays the groundwork for the two subsequent empirical studies examining the social-psychological determinants of collaborative consumption and its effects on consumers respectively. Figure 1 illustrates the structure of this thesis. The introductory chapter is followed by three chapters each representing one of the three studies.

Figure 1. Structure of the thesis

Chapter	Content
1 Introduction	<ul style="list-style-type: none">• Relevance of research topic• Research deficits and questions• Key findings
2 First study	Conceptual groundwork What are the consumer behaviors that together make up collaborative consumption and how are these behaviors related to each other?
3 Second study	Social-psychological determinants Which social-psychological variables and underlying values and beliefs determine actual collaborative consumption?
4 Third study	Social-psychological effects Does collaborative consumption affect consumers' values, attitudes, and norms?
5 Discussion and conclusions	<ul style="list-style-type: none">• Theoretical implications• Avenues for further research

The first study titled “*Prototypical collaborative consumption behaviors and their relations: A conceptual review and empirical study*” (chapter two) examines consumer behaviors that are comprised by the term “collaborative consumption” and the relations between these behaviors. In order to identify prototypical collaborative

consumption behaviors, original definitions of collaborative consumption in the literature are reviewed. To derive hypotheses on the relationships between the prototypical behaviors, the study draws on theoretical foundations from the field of consumer lifestyles (Fournier, Antez, & Beaumier, 1992; Moore, 1963) and behavioral spillover (Bratt, 1999; Thøgersen, 1999; Truelove, Carrico, Weber, & Raimi, 2014). In order to test the relationships between prototypical collaborative consumption behaviors, two surveys measuring performance of these behaviors for 224 consumers were used. To test the hypotheses, bivariate correlation testing using Pearson's correlation coefficient, explorative factor analysis, and step-wise linear regression in SPSS was conducted.

The second study titled "*Understanding collaborative consumption: An extension of the theory of planned behavior with value-based personal norms*" (chapter three) aims to understand which social-psychological variables and underlying values and beliefs determine actual collaborative consumption. The theory of planned behavior (Ajzen, 1991) is used as the primary theoretical framework, as it is a well-established model that has been shown to explain a wide range of consumer behaviors (Bamberg, Ajzen, & Schmidt, 2003; Dean, Raats, & Shepherd, 2012; Kidwell & Jewell, 2003; Kurland, 1995; Swaim, Maloni, Napshin, & Henley, 2014). Moreover, practitioners in marketing (Smith et al., 2008) and public policy (Xiao, Tang, Serido, & Shim, 2011) find the theory a useful framework for understanding and influencing behavior. However, reviews and meta-analyses (Armitage & Conner, 2001; Conner & Armitage, 1998; Ravis, Sheeran, & Armitage, 2009) have found the theory's ability to account for normative motives to perform a behavior is weak and have called for further theory development (Head & Noar, 2014). As normative motives are expected to be particularly important in the context of collaborative consumption, the theory is

extended with a value-based personal norm variable (Stern et al., 1999). The variables of the extended theory of planned behavior model were measured for 224 consumers in a survey. Their actual collaborative consumption behavior was assessed in a second survey four weeks later. Amos's covariance-based structural equation modeling was used, because it simultaneously tests all latent variables and relationships in a structural model. This allows for rigorous tests of the extended theoretical framework (Anderson & Gerbing, 1988).

The third study titled *“Does collaborative consumption affect consumers’ values, attitudes, and norms? A panel study”* (chapter four) examines the nature of causality between collaborative consumption and behavioral factors in order to determine whether collaborative consumption affects consumers’ values, attitudes, and norms over time. There are four potential causal relationships between these factors that have been examined in the literature in other behavioral domains: values, attitudes, and norms cause behavior (McGuire, 1976; Stern et al., 1999); behavior causes values, attitudes, and norms (Bem, 1967; Gundelach, 1992); values, attitudes, norms, and behavior mutually cause each other (Kelman, 1974; Schwartz, 1994; Thøgersen & Ölander, 2006; Reibstein, Lovelock, & Dobson, 1980); and values, attitudes, norms, and behavior are unrelated (Wicker, 1969). The study primarily builds on the theory of planned behavior (Ajzen, 1985, 1991; Fishbein & Ajzen, 2010), value theory (Schwartz, 1994), and the value-belief-norm theory (Stern et al., 1999) to determine the theoretical framework linking collaborative consumption, values, attitudes, and norms over time. The theoretical framework is tested based on a two-wave panel over a time period of nine months using survey data from 168 consumers. Statistical analysis proceeded in three stages. First, temporal stability and change in values, attitudes, norms, and the five collaborative consumption behaviors over time as well

as reliability and validity of variables were examined. Second, variance-based structural equation modelling (PLS-SEM) in SmartPLS 3 was used to analyze the intra-wave relationships between values, attitudes, norms, and collaborative consumption (Ringle, Wende, & Becker, 2015). Finally, PLS-SEM with a cross-lagged panel design was used to examine the interaction between values, attitudes, norms, and collaborative consumption between the two waves.

All three studies are based on a sample drawn from two populations. The first sample was selected from registered members of eight collaboration-based organizations and the second was a random sample of people not registered to any collaboration-based organization. The eight collaboration-based organizations offer or enable private car-renting, private ride-sharing, commercial bike-renting, commercial product swapping/borrowing, private food-gifting, commercial renting of private living space (2x), and private job-sharing. Thus, the sample covers a wide range of prototypical collaborative consumption behaviors providing a unique perspective beyond isolated behaviors. Participants took part in the study as a longitudinal two-wave panel over a time period of nine months. While the first and the second study use data from wave one, the third study is based on the full panel including waves one and two.

1.3. Key findings

Overall, this thesis advances the conceptual understanding of collaborative consumption and provides new insights into its determinants and effects.

The conceptual literature review in chapter two finds collaborative consumption is a behavioral category made up of five prototypical behaviors: renting, borrowing/sharing, accepting gift/donation, swapping/bartering, and buying used. The

study highlights collaborative, shared use of resources as the primary exchange logic underlying these five behaviors (Scaraboto, 2015). This exchange logic synthesizes previously distinctive perspectives on collaborative consumption found in the literature and emphasizes important commonalities with other concepts primarily focused on the production side, like the circular economy (Mont & Heiskanen, 2015). The resulting definition of collaborative consumption includes behaviors where ownership is transferred, thus extending the understanding of Bardhi and Eckhardt (2012) and reciprocal behaviors, thus extending the understanding of Belk (2014a). Furthermore, while the study builds on the understanding of Botsman and Rogers (2011), it explicitly accounts for behaviors that are initiated and performed in the low-technology and offline realm.

Using survey data from 224 consumers, no negative correlations between these five behaviors are found, suggesting that the behaviors are not compensatory. However, the findings suggest that collaborative consumption is made up of two sub-categories. On the one hand, borrowing/sharing, accepting gift/donation, swapping/bartering and buying used are positively correlated, loading a single factor, suggesting a coherent consumption pattern based on these behaviors. On the other hand, renting is not correlated with any other particular collaborative consumption behavior, suggesting that this behavior is still largely performed in isolation.

Next, the empirical study in chapter three finds consumers' actual collaborative consumption behavior is determined by their intention to consume collaboratively and the perceived control over collaborative consumption. Consumers' intention to consume collaboratively is determined by consumers' attitudes, subjective norms, and personal norms. Cost savings, efficient use of resources, and community with others are found to be consumers' underlying behavioral beliefs. Consumers' friends and

young people in general are found to determine subjective norms as underlying normative beliefs. Actual collaborative consumption was predicted by the control beliefs Internet access and high geographic density of collaborative consumption options. Personal norms to consume collaboratively are determined by consumers' altruistic and biospheric value orientations. The findings empirically confirm that collaborative consumption occupies a middle ground on the continuum from being primarily determined by economic/egoistic motives on one end (e.g., Bardhi & Eckhardt, 2012; Belk, 2014a, 2014b) to being primarily determined by normative motives on the other (e.g., Albinsson & Perera, 2012). It follows that collaborative consumption can be pin-pointed neither as a mere form of economic exchange nor as a primarily normative form of sharing resources. This finding is consistent with findings from the broader field of sustainable consumption, where researchers (Ölander & Thøgersen, 1995) find consumers make trade-offs between personal cost and benefits (e.g., cost and taste of organic food) and external consequences (e.g., CO₂ emissions).

Finally, chapter four present results from an empirical panel study that examines the relationship between values, attitudes, norms, and collaborative consumption over time. The study's focus in particular is on the effects collaborative consumption has on consumers' values, attitudes, and norms. The findings suggest collaborative consumption has mutual causal relationships with values, attitudes, and norms causing each other in a continuing reciprocal process. Thus, the study advances social-psychological research on the relationships between values, attitudes, norms, and behavior in general by empirically showing that they mutually cause each other in a continuing reciprocal process. In particular, collaborative consumption is found to have statistically significant positive cross-lagged effects on future altruistic values,

attitudes, subjective norms, and personal norms with regards to this form of consumption. The role of altruistic values is in line with the value-belief-norm theory (Stern et al., 1999) and the findings from Piscicelli et al. (2015). It also seems reasonable given the communal nature of collaborative consumption in networks and the motivational goals associated with altruistic values, i.e., to help others, achieve social justice, and equality. However, no statistically significant effects of collaborative consumption are found on consumers' future biospheric and egoistic values. In other words, the more consumers engaged in collaborative consumption, the more concerned they were for others, while it did not affect their concern for the environment or themselves.

By addressing the three research questions derived in section 1.1, this thesis aims to improve the conceptual understanding of collaborative consumption, advance knowledge about its determinants and effects, and enable practitioners and policymakers to shape collaborative consumption's further development as a more sustainable form of consumption and improve its uptake. Overarching implications of the results from these three studies are discussed in the final chapter of this thesis. Moreover, avenues for further research aiming to advance our understanding of collaborative consumption's determinants and effects are provided.

2. First study: “Prototypical collaborative consumption behaviors and their relations: A conceptual review and empirical study”¹

Abstract In academic and public debates “collaborative consumption” is used as a generic term for the shared use of common resources and idle assets in consumer or peer networks. However, because of varying conceptualizations the exact scope—that is, the particular consumer behaviors represented—of this term remains unclear. Thus, any theoretical examination or conclusion based on the term is ambiguous. Along with this ambiguity goes a lack of understanding about collaborative consumer lifestyles and the relations between different collaborative consumption behaviors, further complicating any attempt for systematic change from unsustainable toward collaborative consumption patterns. Based on a conceptual review, collaborative consumption is found to be a behavioral category made up of five prototypical behaviors: renting, borrowing/sharing, accepting gifts/donations, swapping/bartering, and buying used. Using survey data from 224 consumers collaborative consumption is furthermore found to be divided into two sub-categories. On the one hand, borrowing/sharing, accepting gifts/donations, swapping/bartering, and buying used are positively correlated, loading a single factor, suggesting a coherent consumption pattern. Furthermore, step-wise linear regression suggests these behaviors to spill over to each other. On the other hand, renting (e.g., car-sharing, AirBnB) is not related to any of these behaviors, suggesting it to still be largely performed in isolation. These findings advance our understanding of consumer lifestyles and behavioral spillover in the domain of collaborative consumption. Moreover, they enable practitioners to

¹ An earlier version of this study was accepted at the 2016 AMA Summer Marketing Conference, Atlanta, GA, USA.

increase the uptake of collaborative consumption by making use of the links between related behaviors or bridging the gap between behaviors so far unrelated.

2.1. Introduction

Severe economic, environmental, and social problems facing society at large call for a systematic change of current consumption practices (Schrader & Thøgersen, 2012). Researchers (Botsman & Rogers, 2011; Heinrichs, 2013; Leismann et al., 2013; Prothero et al., 2011) and practitioners (World Economic Forum Young Global Leaders, 2013) have proposed increasingly popular behaviors like car-sharing, clothing swaps, and shared use of private living space as a step toward more sustainable consumption practices, as they enable the shared use of common resources and idle assets, thereby reducing new purchases as well as resource depletion and excessive waste that come along. For example, every car-sharing vehicle is supposed to reduce car ownership by 9-13 vehicles (Owyang, 2013). Taking many different forms, these apparently new consumer behaviors seemingly blend market-based exchange like B2C renting as well as non-market-based exchange like borrowing between peers (Scaraboto, 2015).

Coined as one of 10 ideas that will change the world “collaborative consumption” emerged as a generic term for these behaviors (Walsh, 2011). However, because of the fact that collaborative consumption has been variously conceptualized in the literature based on context (Felson & Spaeth, 1978), reciprocity (Belk, 2014a), access versus ownership (Bardhi & Eckhardt, 2012), as well as networks and technology (Botsman & Rogers, 2011) it remains unclear what exactly the scope of this term is (Lamberton, 2016). This is mainly because each of these perspectives is associated with a different

set of actual consumer behaviors. This is problematic in two ways. First, as long as it is unclear which particular behaviors collaborative consumption represents, any theoretical examination or conclusion based on the term will be subject to ambiguity. Second, in order to meet the challenge of systematic behavioral change, sustainable consumption research has called for measures enabling the change of overall consumption patterns made up of particular related behaviors, as opposed to targeting individual behaviors only (Thøgersen, 1999). Thus, when attempting to systematically change unsustainable for collaborative consumption practices, knowledge is required about these particular collaborative consumption behaviors and whether or not they are related, forming a consumption pattern. So far, we lack this kind of knowledge about collaborative consumer lifestyles. Therefore, it is the objective of this study to answer the following research question: What are the consumer behaviors that together make up collaborative consumption and how are these behaviors related to each other?

To identify behaviors that make up collaborative consumption, original definitions of collaborative consumption in the literature are conceptually reviewed. For the analysis of relationships between the prototypical behaviors, the study builds on theoretical foundations from the field of consumer lifestyles (Fournier et al., 1992; Moore, 1963) and behavioral spillover (Bratt, 1999; Thøgersen, 1999; Truelove et al., 2014). This study contributes to the extant literature in several meaningful ways. First, conceptual clarification with regards to the particular behaviors making up collaborative consumption is provided. Second, to the best knowledge of the author, this study is the first to empirically examine the relationships between several different collaborative consumption behaviors. Making consumption patterns of related behaviors and gaps between unrelated behaviors visible further advances the theoretical understanding of collaborative consumption as well as of consumer lifestyle and behavioral spillover in

this domain. Finally, the findings of this study enable collaboration-based organizations and policy makers to increase the uptake of collaborative consumption by making use of the links between related behaviors or bridging the gap between behaviors so far unrelated.

The study unfolds as follows. First, collaborative consumption literature is conceptually reviewed to identify prototypical behaviors. Then, theoretical foundations are introduced and hypotheses on the relationships between collaborative consumption behaviors derived. Thereafter, the method of the empirical study is explained before the results are reviewed. Finally, research and practical implications are discussed and areas for further research provided.

2.2. Conceptual literature review

2.2.1. Collaborative consumption in the literature

Despite the growing number of publications on the subject, the exact scope of the term remains unclear (Lamberton, 2016). In response to the research question, literature on collaborative consumption is reviewed to identify previous publications aiming to define the scope and concept of collaborative consumption in order to provide a perspective on the status quo and to derive a common understanding. The search for relevant publications is focused on academic (peer-reviewed) studies and popular scientific books to reflect the nature of this research field. Using EBSCO's Business Source Premier database the initial search included the terms "collaborative consumption" and "sharing economy" as they are often used synonymously (Möhlmann, 2015). A total of 593 publications (including duplicates) resulted. Looking for original definitions of collaborative consumption, Felson and Spaeth

(1978) and Belk (2014a) were identified. As has been done elsewhere (Tukker, 2015), these publications were checked for references, identifying two more publications including original definitions: Bardhi and Eckhardt (2012) and Botsman and Rogers (2011). All four publications have been cited considerable times based on google scholar indicating their relevance in the field: Felson and Spaeth (1978) 93 citations; Belk (2014a) 177 citations; Bardhi and Eckhardt (2012) 222 citations; Botsman and Rogers (2011) 722 citations.

Each of the four definitions provided in these publications (see Table 1) reflect a distinct understanding of collaborative consumption based on different exchange logics, that is, major underlying ideas that define and guide consumer behaviors (Scaraboto, 2015). As a result, each of the four definitions represent different sets of particular consumer behaviors while excluding others. In the following, each of the four definitions will be introduced, the primary underlying exchange logics explained, and the resulting consumer behaviors pointed out. Furthermore, major limitations that each of these understandings implies from a sustainability and resource productivity perspective will be illustrated. Finally, as a response to these limitations, a synthesized definition of collaborative consumption will be provided.

Context. Felson and Spaeth (1978, p. 614) define collaborative consumption as “those events in which one or more persons consume economic goods or services in the process of engaging in joint activities with one or more others”. The primary exchange logic underlying this understanding is that consumption is tight to and routinely embedded in spatial, social, situational, and behavioral contexts. As a result, their understanding includes behaviors as diverse as drinking beer with friends, eating meals with relatives, or using a washing machine for family laundry (Felson & Spaeth, 1978). However, from a sustainability and resource productivity perspective this notion

makes their definition too broad as it primarily focuses on the circumstances that provide a frame for consumer behaviors rather than on the particular characteristics of actual resource exchange, that is, the acquisition and distribution of resources (Belk, 2014a).

Reciprocity. Belk (2014a, p. 1,597) defines collaborative consumption as “people coordinating the acquisition and distribution of a resource for a fee or other compensation”. Belk’s (2014a) primary exchange logic of collaborative consumption is reciprocity between people, that is, the expectation of return or compensation, as present in market-mediated exchange. He explicitly differentiates collaborative consumption from non-reciprocal and non-market-mediated sharing (Belk, 2009; Belk, 2014a; Benkler, 2004). Behaviors included are long-term renting and leasing, short-term renting, swapping/bartering, and buying used (Belk, 2014a). He excludes sharing as it is non-reciprocal, borrowing as a borderline case of sharing, and gift-giving as it involves the permanent transfer of ownership (Belk, 2014a). The limitation of Belk’s (2014a) understanding lies within the strong separation between reciprocal (collaborative consumption) and non-reciprocal (e.g., borrowing) behaviors. He outlines this separation exemplary by comparing AirBnB which involves short-term renting incl. monetary compensation with CouchSurfing where people allow other people to temporarily use their private living space without any compensation (Belk, 2014b). However, despite different exchange logics and motivations associated with these two behaviors, excess capacity of existing living space is utilized in both cases eliminating the need to create new living space.

Access versus ownership. Bardhi and Eckhardt (2012, p. 881) implicitly define collaborative consumption when they describe access-based consumption as “transactions that can be market mediated but where no transfer of ownership takes

place”. The primary exchange logic here is the specific acquisition mode of resources. They focus on the potential of access to, or the temporal possession of resources to satisfy consumer needs as opposed to the need to acquire ownership of these resources (Bardhi & Eckhardt, 2012; Rifkin, 2000). As a result, behaviors represented by their understanding of collaborative consumption are essentially all forms of renting (incl. leasing, subscription, or pay per use) and borrowing. Bardhi and Eckhardt’s (2012) understanding is at least conceptually limited by their focus on transactions where no ownership is transferred. Behaviors like gifting/donating, swapping/bartering, or buying used, where ownership is effectively transferred are excluded although they have the potential to address resource depletion, excessive waste and other issues related to the sustainability and productivity of consumption.

Networks and technology. Botsman and Rogers (2011, p. xv) define collaborative consumption as “traditional sharing, bartering, lending, trading, renting, gifting, and swapping, redefined through technology and peer communities”. The primary exchange logics underlying Botsman and Rogers’ (2011) understanding are networks and technology. They observed consumers and peers to pool or commonly use resources in networks enabled by internet and communication technologies. They include the broadest set of behaviors with borrowing, renting, buying used, gifting, swapping, and sharing. Their understanding is a technology focused one, however, collaborative consumption behaviors can equally occur in a non-technology based way offline. For example, there are several older types of companies and organizations that have long since facilitated collaborative consumption like libraries, cooperatives, flea-markets and neighborhood clubs (Albinsson & Perera, 2012; Ozanne & Ballentine, 2010). In fact, many of these organizations are experiencing increased membership and growth (WEF-YGL, 2013).

Table 1. Definitions of collaborative consumption in the literature

Author	Definition	Exchange logic	Behavior comprised
Felson and Spaeth (1978)	“[...] Events in which one or more persons consume economic goods or services in the process of engaging in joint activities with one or more others”	Context	Undefined consumer behaviors that take place in spatial, social, situational, and behavioral contexts
Belk (2014a)	“People coordinating the acquisition and distribution of a resource for a fee or other compensation”	Reciprocity	Renting (incl. leasing, subscription, pay per use) Buying used Swapping/bartering
Bardhi and Eckhardt (2012)	“Transactions that can be market mediated but where no transfer of ownership takes place”	Acquisition mode (access)	Borrowing Renting (incl. leasing, subscription, pay per use)
Botsman and Rogers (2011)	“Traditional sharing, bartering, lending, trading, renting, gifting, and swapping, redefined through technology and peer communities”	Networks Technology	Borrowing Renting (incl. leasing, subscription, pay per use) Buying used/trading Accepting gifts/donations Swapping/bartering Sharing
This study	“Acquiring or providing resources from or to others for collaborative, shared use among consumers or peers as opposed to buying new resources for private use and final disposal”	Collaborative, shared use Acquisition mode Reciprocity Compensation	Borrowing/sharing Renting (incl. leasing, subscription, pay per use) Buying used Accepting gifts/donations Swapping/bartering

2.2.2. Primary exchange logic: Collaborative, shared use

Following the limitations outlined above, it is concluded that neither context, reciprocity, access versus ownership, nor networks and technology seem appropriate

to define collaborative consumption from a sustainability and resource productivity perspective. Instead, in order to synthesize the various understandings found in the literature, a common exchange logic is introduced that defines collaborative consumption on a higher level. This primary exchange logic becomes evident when differentiating collaborative consumption from individual, linear consumption (Mont & Heiskanen, 2015). The latter is based on the notion of buying new things for private use and final disposal, whereas collaborative consumption is based on the effective management of collaborative, shared use of common products, assets, or services among consumers or peers (Rifkin, 2014). In production and in consumer research similar ideas have already been established like the circular economy (Ellen MacArthur Foundation, 2014; Mont & Heiskanen, 2015) and consumption cycles (Luchs et al., 2011) however so far they have not been used to define collaborative consumption. In contrast to individual and linear consumption, these behaviors require some degree of collaboration between consumers, peers or between an individual and a collaboration-based organization. In addition, they involve at least two people sharing the use of a resource over time resulting in multiple consumption cycles (i.e., acquisition, use, distribution). Moreover, these behaviors facilitate the development of more efficient products and services and absorption of the surplus created by over-production and -consumption (Prothero et al., 2011). Thus, the following definition of collaborative consumption is proposed:

Acquiring or providing resources from or to others for collaborative, shared use among consumers or peers as opposed to acquiring new resources for private use and final disposal.

Beyond the primary exchange logic of collaborative, shared use, three secondary exchange logics provide structure for our conceptual understanding of collaborative

consumption. The first is the acquisition mode of resources involving the temporary access or shared ownership as proposed by Bardhi and Eckhardt (2012) and the transfer of ownership that effectively occurs in redistribution markets outlined by Botsman and Rogers (2011). The second is reciprocity including reciprocal behaviors that are usually associated with the expectation of a return and non-reciprocal behaviors. The third differentiates between behaviors that involve a compensation (monetary or non-monetary) and no compensation.

The type of network and the degree of technology involved in the actual consumer behaviors provide the context for our understanding of collaborative consumption. On the one hand, networks can be market-mediated forms of B2C markets or C2C markets. The former is characterized by a collaboration-based organization owning the resources and coordinating access to them (e.g., car-sharing), while the latter allows consumers to coordinate exchange of their own resources for a fee (e.g., swapping clothes) (WEF-YGL, 2013). On the other hand, networks can be non-market mediated involving self-organizing communities of peers (WEF-YGL, 2013). Finally, collaborative consumption can involve a high degree of technology, for example internet based social networks, GPS-based location services, or electronic payment methods (Botsman & Rogers, 2011). However, it can also involve very low degrees of or no technology at all, for example consumer behaviors initiated or performed in the offline realm (Albinsson & Perera, 2012; Ozanne & Ballentine, 2010).

2.2.3. Prototypical collaborative consumption behaviors

Five prototypical behaviors can be derived from the major configurations of the three exchange logics outlined before. These are renting, borrowing/sharing, accepting

gifts/donations, swapping/bartering, and buying used, making up the behavioral category of collaborative consumption (see Table 2). There might be different behaviors in the realm of collaborative consumption, but they will likely be variations or combinations of the prototypes established here. In the following, each of the five prototypical behaviors will briefly be characterized and examples provided.

Table 2. Prototypical collaborative consumption behaviors

Behavior	Collaborative, shared use	Acquisition mode	Reciprocity	Compensation
Renting	Yes	Access	Yes	Monetary
Borrowing	Yes	Access	No	None
Accepting ^b	Yes	ToO ^a	No	None
Swapping	Yes	ToO ^a	Yes	Non-monetary
Buying used	Yes	ToO ^a	Yes	Monetary
Buying new for private use	No	ToO ^a	Yes	Monetary

a Transfer of ownership, b gifts or donations

Renting. Renting, leasing, subscription based service, and other forms of pay per use enable the shared use of resources. This increases the use intensity of resources while at the same time decreasing the need for consumer to buy individual units, thus also decreasing the need to produce these units (Luchs et al., 2011). Renting enables the temporary access of resources when needed without needing to own them outright. Other than borrowing/sharing, renting involves reciprocity, usually in the form of a monetary rental fee. Examples include car-sharing (e.g., www.tamycade) or renting private living space (e.g., www.airbnb.de).

Borrowing/sharing. Borrowing/sharing enables the shared use of resources and thereby increases their use intensity (Luchs et al., 2011). Similar to renting it enables consumers or peers to temporarily access resources of others when needed. In general, reciprocity, meaning the expectation of a return is not involved when borrowing/sharing something. Instead, free usage is granted to consumers or peers.

While borrowing can occur between all kinds of consumers and peers, true sharing primarily occurs between members of close communities (Belk, 2009). Thus, Belk (2014b) points out borrowing as a borderline case of sharing. An example is the shared use of private living space without compensation (e.g., www.couchsurfing.com).

Accepting gifts/donations. Gifting and donating things allows the redistribution of resources from where they are not needed (anymore) to where they are needed or can be useful. Thus, accepting a gift or donation is another way to share the use of something. In both cases, ownership of resources is transferred to the recipient. Usually there is no reciprocity involved in either gifting or donating. Examples include the donation of excess food to organizations that distribute it in turn to those who need it (e.g., www.foodsharing.de).

Swapping/bartering. Swapping or bartering involves the exchange of products or assets for other products or assets without using money as compensation (Luchs et al., 2011). Similar to buying something used, this form of exchange enables repeated use of resources thereby extending the life of pre-owned or used products which decreases the need for new products, or assets to be produced (Luchs et al., 2011). Ownership of resources is simultaneously transferred and reciprocity is involved to the degree that a swap can only be successful if the involved consumers or peers agree on the exchanged resources. Examples include swapping used clothes (e.g., www.exsila.ch).

Buying used. Buying pre-owned or used products and resources enables their shared use thereby extending their life and decreasing the need for new products to be produced as well as the resource input associated with the production (Luchs et al., 2011). While ownership of used products is transferred to a new owner when bought, the total use period of this product is effectively shared across the different owners. Reciprocity is involved in the form of monetary compensation. Examples include

buying used clothes at flea markets as well as via various online platforms (e.g., www.ebay.de; www.kleiderkreisel.de).

2.3. Theoretical framework and hypotheses

2.3.1. Consumer lifestyles

The second part of the research question asks how collaborative consumption behaviors are related to each other, that is, whether they form patterns. The idea that consumer behaviors form patterns was first introduced in the consumer lifestyle literature (Moore, 1963). Its objective is to develop a meaningful approach to consumer segmentation in order to understand consumer behavior and derive effective practical implications. Studies proposed segmentation based on different lifestyles expressed through related consumer behaviors (e.g., Fournier et al., 1992). In addition, Fournier et al. (1992) find similar attitudes, values, and demographics to correlate with these patterns of related consumer behaviors. Researchers within sustainable consumption have called for the change of overall consumption patterns, as opposed to targeting individual behaviors only, to meet the challenge of systematic behavioral change (Thøgersen, 1999). In particular, unsustainable consumption lifestyles, meaning patterns of related consumer behaviors with adverse economic, environmental, and social consequences need to be changed for alternative lifestyles with lower levels of material consumption and other adverse consequences (Mont & Power, 2009). A collaborative lifestyle, being a pattern of collaborative consumption behaviors is associated with lower levels of material consumption, in particular with the reduction of new purchases as well as resource depletion and excessive waste that come along (Botsman & Rogers, 2011; Heinrichs, 2013; Leismann et al., 2013; WEF-

YGL, 2013). As a collaborative lifestyle can touch a wide range of consumption areas with strong implications for sustainability, for example, transport/mobility, housing, and everyday consumer goods, it would be valuable to understand whether collaborative consumption behaviors actually form patterns (Power & Mont, 2012). Based on the theoretical foundations outlined here, consumers are assumed to express their collaborative lifestyle through an interrelated pattern of the prototypical collaborative consumption behaviors identified here. Thus, it is hypothesized:

H₁: Performance of (a) renting, (b) borrowing/sharing, (c) accepting gifts/donations, (d) swapping, and (e) buying things used is positively correlated with the performance of the four other prototypical collaborative consumption behaviors.

2.3.2. Behavioral spillover and category-based behavior evaluation

While the consumer lifestyle literature suggests collaborative consumption behaviors to likely form patterns, literature on behavioral spillover (Bratt, 1999; Thøgersen, 1999; Truelove et al., 2014) provides insights into how such patterns might emerge. The literature on behavioral spillover is primarily concerned with sustainable or pro-environmental behavior change. It claims that behavior change or performance of one particular sustainable behavior might have an effect on the performance of another sustainable behavior, that is, the first behavior spills over to the second behavior (Thøgersen & Ölander, 2003). Behavioral spillover can be negative and positive (Truelove et al., 2014). Following this view, a behavioral spillover is negative when a rise of one sustainable behavior leads to a reduction of another sustainable behavior and positive, when a rise of one sustainable behavior leads to a rise of another

sustainable behavior implying the formation of a behavioral pattern (Thøgersen & Crompton, 2009).

In general, negative behavioral spillover is associated with rebound effects, the single action bias, and moral licensing effects, while positive behavioral spillover is generally associated with consistency and identity effects (Truelove et al., 2014). In addition, Thøgersen (1999) provides particular reasoning about how behavioral spillover works. He identifies and tests four potential processes underlying positive behavioral spillover: 1) increased salience of attitudes towards other behaviors targeting the same problem; 2) learning about consequences of sustainable behavior producing attitude change towards other behaviors; 3) increased salience of sustainable values; 4) category-based behavior evaluation. Empirically, Thøgersen (1999) only finds support for positive behavioral spillover through category-based behavior evaluation, which is why this process will further be outlined.

In general, most social psychological models of behavior used in consumer research assume an individual to make a conscious decision, for example, to form an intention, to perform a behavior after carefully processing available information about the behavior in question (e.g., likely consequences, expectations of others, required personal and external resources) (Ajzen, 1991; Jackson, 2005). However, categorization research questions whether people generally become aware, evaluate, and apply such information at the level of individual objects or whether some simpler, unconscious process at the level of an aggregated category of similar objects initiates a response (Sujan, 1985). Whereas the former is referred to as “piecemeal-based evaluation”, “category-based evaluation” is proposed to describe the latter. According to category-based evaluation, people unconsciously allocate objects in their environment into categories to enable an efficient understanding and processing of the

world around them (Sujan, 1985). Whenever a new object can be allocated into a previously defined category, an affective or heuristic response associated with this category can quickly be carried out with regards to the new object (Fiske & Pavelchak, 1986; Sujan, 1985). People only apply conscious piecemeal-based evaluation if a new object cannot unambiguously be allocated into an existing category.

While categorization research shows that people use category-based rather than piecemeal-based information evaluation processes when confronted with other people (Fiske & Pavelchak, 1986) and consumer products (Sujan, 1985), Thøgersen (1999) provides empirical evidence for category-based evaluation with regards to different sustainable behaviors. In line, with these theoretical foundations consumers are expected to allocate the prototypical behaviors into the category of collaborative consumption causing a positive behavioral spillover beyond their conscious intention to consume collaboratively in general. Thus, we hypothesize:

H₂: Performance of (a) renting, (b) borrowing/sharing, (c) accepting gifts/donations, (d) swapping, and (e) buying things used has a positive effect on the performance of other behaviors within the same behavioral category beyond the effect of consumers' intentions to consume collaboratively.

2.4. Method

2.4.1. Design and sample

A first online survey including a short vignette based on the definition of collaborative consumption established in this study, items measuring consumers' intention to consume collaboratively, and control measures was distributed in May 2015. Four weeks after completion, participants received a second online survey to measure how

often they performed the prototypical collaborative consumption behaviors including information on acquired resources and type of network used. Both surveys were anonymous. A unique participant-generated code was used to match the two data files. The surveys were distributed in two ways. First, eight collaboration-based organizations were asked to distribute the surveys to their registered members to include participants familiar with collaborative consumption.² Second, the surveys were distributed randomly to university students from two German universities and to the wider public (e.g., via Newsletters, Facebook) to include participants not familiar with collaborative consumption. Three hundred sixty participants completed the first and 249 (69%) the second survey. Listwise deletion in case of missing values resulted in 224 participants for statistical analyses. Median age of this sample was 30 and 52% were female. The majority (90%) lived in Germany, 5% in Switzerland. Sixty-two percent were employed, 29% were students, and 9% had no employment or already retired. Median income was 2,000-2,999 EUR. Twenty-six percent were not registered to any collaboration-based organization.

2.4.2. Measures and statistical analysis

In the first survey (see the Appendix 1-1), three established and validated items were used to measure consumers' intention to consume collaborative within the next four weeks (*Intention*) based on Ajzen's theory of planned behavior (Ajzen, 2006). The three items were measured using Likert-type 7-point scales. Additionally, we included control measures for age, gender, and income.

² Including private car-renting, private ride-sharing, commercial bike-renting, commercial product swap-ping/borrowing, private food-gifting, commercial renting of private living space (2x), and private job-sharing.

Collaborative consumption behavior was measured in the second survey in three ways (see the Appendix 1-2). First, one item was used to ask participants how often they generally acquired something through collaborative consumption within the last four weeks (*Acquisition*). Second, participants were asked in particular how often they performed the five prototypical collaborative consumption behaviors in this time period (*Renting*, *Borrowing/Sharing*, *Accepting gifts/donations*, *Swapping/Bartering*, and *Buying used*). Finally, participants were asked what kind of resource they acquired (*Resource*) via the prototypical behaviors they reported and what type of network (commercial B2C/C2C versus non-commercial/private P2P) they used (*Network*).

To test the hypotheses bivariate correlation testing using Pearson's correlation coefficient, explorative factor analysis, and step-wise linear regression in SPSS was conducted. As an exploratory form of data analysis the latter allows for examination of changes in explained variance (R^2 change) when additional independent variables are added to a regression equation.

2.5. Results

2.5.1. Descriptive results

Although 176 participants (79%) reported that they had acquired something through collaborative consumption at least once in the previous four weeks, means of the prototypical behaviors ($1.29 \leq M \leq 1.82$) show that frequent collaborative consumption is still rare (see Table 3 for descriptive results). *Borrowing/Sharing* was performed most frequently (by 111 participants). In 81% of cases it occurred in P2P networks (i.e., non-market mediated). *Renting* was the second most frequently performed prototypical behavior (by 103 participants) and it occurred mostly (77%) in

B2C/C2C networks (i.e., market-mediated). *Buying used* followed as third most frequently performed prototypical behavior (by 84 participants) occurring in both B2C/C2C networks (53%) as well as in P2P networks (42%). *Accepting gifts/donations* was forth most frequently performed prototypical behavior (by 72 participants) occurring mostly in P2P networks (80%). The least frequently performed prototypical behavior was *Swapping/Bartering* (by 48 participants) occurring mostly in P2P networks (72%). 124 participants (55%) reported that they had performed more than one of the five prototypical behaviors in the previous four weeks. The most frequently acquired resources by prototypical behavior were books via *Borrowing/Sharing*, cars and private living space via *Renting*, clothes/accessories via *Buying used*, food via *Accepting gifts/donations*, and clothes/accessories via *Swapping/Bartering*.

Table 3. Descriptive results (means, standard deviations, frequencies; n = 224)

Variable	M	SD	never	2	3	4	5	6	daily	> 2
<i>Intention</i>	4.59	1.73								
<i>Acquisition</i>	3.13	1.54	48	38	34	63	29	9	3	176
<i>Borrowing/Shar.</i>	1.82	1.23	113	55	29	23	2	1	1	111
<i>Renting</i>	1.76	1.28	121	56	21	16	8	1	1	103
<i>Buying used</i>	1.64	1.23	140	36	23	18	6	1	0	84
<i>Accepting gift/d.</i>	1.45	1.18	152	37	18	12	3	1	1	72
<i>Swapping/Bart.</i>	1.29	1.08	176	21	12	10	4	1	0	48

2.5.2. Relationships between prototypical collaborative consumption behaviors

Results from 2-tailed bivariate correlation testing are shown in Table 4. All prototypical behaviors have significant, medium correlations with *Acquisition* ($.32 \leq r \leq .48$). There were no negative correlations between the prototypical collaborative consumption behaviors. The four prototypical behaviors *Borrowing/Sharing*, *Buying*

used, *Accepting gifts/donations*, and *Swapping/Bartering* share small-large statistically significant positive correlations ($.21 \leq r \leq .53$). However, *Renting* does not have any statistically significant bivariate correlations with these four prototypical behaviors.

The exploratory factor analysis resulted in a two factor solution (see Table 4). *Borrowing/Sharing*, *Buying used*, *Accepting gifts/donations*, and *Swapping/Bartering* make up the first factor with all factor loadings $> .50$. Cronbach's α of this factor meets the recommended threshold of $.70$, thereby indicating adequate reliability (Churchill, 1979). *Renting* remains as the second factor. Based on these results $H_1(b)$, $H_1(c)$, $H_1(d)$, and $H_1(e)$ are supported by the data, while $H_1(a)$ has to be rejected, as apart from *Renting*, *Borrowing/Sharing*, *Buying used*, *Accepting gifts/donations*, and *Swapping/Bartering* were positively correlated, loading a single factor.

Table 4. Results (Pearson's correlation coefficients, loadings from exploratory factor analysis; $n = 224$)

Variable	2	3	4	5	6	7	λ_1	λ_2
1 <i>Intention</i>	.45***	.31***	ns	.31***	.30***	.23***		
2 <i>Acquisition</i>	-	.48***	.45***	.43***	.42***	.32***		
3 <i>Borrowing/Shar.</i>		-	ns	.24***	.53***	.37***	.76	
4 <i>Renting</i>			-	ns	ns	ns		.91
5 <i>Buying used</i>				-	.21**	.33***	.55	
6 <i>Accepting gift/d.</i>					-	.48***	.80	
7 <i>Swapping/Bart.</i>						-	.77	

** $p < .01$, *** $p < .001$ (2-tailed), ns = not significant

In order to test whether the performance of one prototypical collaborative consumption behavior had a positive effect on the performance of another prototypical collaborative consumption behavior step-wise linear regression was performed. In the first step, control measures (*Age*, *Gender*, and *Income*) were included as independent variables. In the second step, *Intention* (Cronbach's $\alpha = .91$) was included in the regression equation. Finally, the prototypical collaborative consumption behaviors were included

to check whether they would have additional effects beyond the control measures and *Intention* indicating a positive behavioral spillover. Results including the significance of R^2 changes are shown in Table 5. Apart from *Renting*, the remaining prototypical collaborative consumption behaviors have statistically significant positive effects on the performance of another prototypical collaborative consumption behavior beyond *Intention*, significantly accounting for additional variance (R^2 -change) in the dependent behavior. For example, the control measures did not significantly explain variance (R^2) in the dependent behavior *Borrowing/Sharing* in step 1. *Intention*, that was included in step 2, had a significant positive effect ($\beta = .32, p < .001$) on *Borrowing/Sharing*, statistically significantly explaining an additional .10 (R^2 change) of its variance. *Accepting gifts/donations*, that was included in step 3, had a significant positive effect ($\beta = .50, p < .001$) on *Borrowing/Sharing* beyond the effect of *Intention*. It statistically significantly explains an additional .20 (R^2 change) of the variance in *Borrowing/Sharing*. The total variance (R^2) in *Borrowing/Sharing* explained is .34. According to Cohen's effect size index (Cohen, 1992) this effect is large. Based on these results $H_2(b)$, $H_2(c)$, $H_2(d)$, and $H_2(e)$ are supported by the data while $H_2(a)$ has to be rejected, as all prototypical collaborative consumption behaviors have significant positive effects except for *Renting*.

Table 5. Results from step-wise linear regression (standardized regression coefficients, explained variance; n = 224)

Dependent	Independent	Step 1	Step 2	Step 3
<i>Borrowing/ Sharing</i>	<i>Age</i>	-.14 ^{ns}		
	<i>Gender</i>	-.14 [*]		
	<i>Income</i>	-.02 ^{ns}		
	<i>Intention</i>		.32 ^{***}	
	<i>Renting</i>			.05 ^{ns}
	R ² (R ² change)	.04 (.04) ^{ns}	.14 (.10) ^{***}	.14 (.00) ^{ns}
	<i>Buying used</i>			.17 [*]
	R ² (R ² change)	.04 (.04) ^{ns}	.14 (.10) ^{***}	.16 (.02) [*]
	<i>Accepting gift/donation</i>			.50 ^{***}
	R ² (R ² change)	.04 (.04) ^{ns}	.14 (.10) ^{***}	.34 (.20) ^{***}
	<i>Swapping/Bartering</i>			.32 ^{***}
	R ² (R ² change)	.04 (.04) ^{ns}	.14 (.10) ^{***}	.23 (.09) ^{***}
<i>Renting</i>	<i>Age</i>	-.15 [*]		
	<i>Gender</i>	.18 ^{**}		
	<i>Income</i>	.07 ^{ns}		
	<i>Intention</i>		.19 ^{**}	
	<i>Buying used</i>			.00 ^{ns}
	R ² (R ² change)	.15 (.15) ^{***}	.18 (.03) ^{**}	.18 (.00) ^{ns}
	<i>Accepting gift/donation</i>			.09 ^{n.s.}
	R ² (R ² change)	.15 (.15) ^{***}	.18 (.03) ^{**}	.19 (.01) ^{ns}
	<i>Swapping/Bartering</i>			-.03 ^{ns}
	R ² (R ² change)	.15 (.15) ^{***}	.18 (.03) ^{**}	.18 (.00) ^{ns}
<i>Buying used</i>	<i>Age</i>	.10 ^{ns}		
	<i>Gender</i>	-.14 [*]		
	<i>Income</i>	-.06 ^{ns}		
	<i>Intention</i>		.29 ^{***}	
	<i>Accepting gift/donation</i>			.12 [*]
	R ² (R ² change)	.06 (.06) [*]	.13 (.07) ^{***}	.14 (.01) [*]
	<i>Swapping/Bartering</i>			.26 ^{***}
	R ² (R ² change)	.06 (.06) [*]	.13 (.07) ^{***}	.20 (.07) ^{***}
<i>Accepting gifts/ donations</i>	<i>Age</i>	-.05 ^{ns}		
	<i>Gender</i>	-.24 ^{***}		
	<i>Income</i>	-.22 ^{**}		
	<i>Intention</i>		.25 ^{***}	
	<i>Swapping/Bartering</i>			.41 ^{***}
	R ² (R ² change)	.12 (.12) ^{***}	.18 (.06) ^{***}	.34 (.16) ^{***}
<i>Swapping/ Bartering</i>	<i>Age</i>	.06 ^{ns}		
	<i>Gender</i>	-.17 [*]		
	<i>Income</i>	-.05 ^{ns}		
	<i>Intention</i>		.21 ^{**}	
	R ² (R ² change)	.04 (.04) ^{ns}	.08 (.04) ^{**}	

* p < .05, ** p < .01, *** p < .001 (2-tailed), ns = not significant

2.6. Discussion and conclusion

In the present paper, literature on collaborative consumption was conceptually reviewed and five prototypical collaborative consumption behaviors were identified: renting, borrowing/sharing, accepting gifts/donations, swapping/bartering, and buying used. Furthermore, the relationships between these five behaviors were empirically examined to determine whether they form a coherent consumption pattern. No negative correlations between these five behaviors were found, suggesting that they are not compensatory. However, the empirical results suggest collaborative consumption to be divided into two sub-categories. On the one hand, borrowing/sharing, accepting gifts/donations, swapping/bartering, and buying used are positively correlated, loading a single factor, suggesting a coherent consumption pattern based on these behaviors. Furthermore, step-wise linear regression suggests these behaviors to spill over to each other. On the other hand, renting is not related to any other particular collaborative consumption behavior, suggesting this behavior to still be largely performed in isolation.

2.6.1. Theoretical implications

This study advances extant knowledge about collaborative consumption in several meaningful ways. To begin with, conceptual clarification is provided with regards to the particular behaviors that make up collaborative consumption. By highlighting the primary exchange logic of collaborative, shared use, collaborative consumption is conceptually established as a behavioral category that is distinct from the primary consumption notion of buying new things for private use and final disposal. This distinction is primarily a sustainability and resource productivity oriented one. While

the culture of individual, mass consumption that goes along with continuously buying new things has been associated with severe economic, environmental, and social problems (Schrader & Thøgersen, 2012), repeatedly using common resources in consumer or peer networks has the potential to alleviate some of these tensions (Botsman & Rogers, 2011; Heinrichs, 2013; Leismann et al., 2013). Moreover, collaborative, shared use synthesizes previously distinctive perspectives on collaborative consumption found in the literature and emphasizes important commonalities with other concepts primarily focused on the production side, like the circular economy (Mont & Heiskanen, 2015). As a result, the definition of collaborative consumption established here includes behaviors where ownership is transferred thus extending the understanding of Bardhi and Eckhardt (2012) as well as reciprocal behaviors thus extending the understanding of Belk (2014a). Furthermore, while this study is building on the understanding of Botsman and Rogers (2011), it explicitly accounts for behaviors that are initiated and performed in the low-technology and offline realm.

To the best knowledge of the author, this study is the first to empirically examine the relationships between five different collaborative consumption behaviors. The findings suggest that there are two forms of collaborative lifestyles. One is characterized by a coherent consumption pattern based on borrowing/sharing, accepting gifts/donations, swapping/bartering, and buying used. The other is determined by renting (e.g., car-sharing, AirBnB). The prototypical behaviors forming the consumption pattern cut across the secondary exchange logics and include reciprocal and non-reciprocal behaviors as well as those enabling access to resources and transfer of ownership. As a reciprocal, access-based behavior renting bears similarities with behaviors from the coherent consumption pattern like buying used

(which is also reciprocal) as well as borrowing/sharing (which is also access-based), although it is still performed in isolation from other collaborative consumption behaviors. These findings confirm the view that neither reciprocity nor acquisition mode are the defining exchange logics of collaborative consumption. However, they also provide potential for further investigation into why consumers frequently choosing renting as a preferred type of consumption do not yet systematically chose other collaboration-based behaviors as well.

The positive behavioral spillovers found between borrowing/sharing, accepting gifts/donations, swapping/bartering, and buying used provide insights into the underlying process of how this consumption pattern emerges. The findings suggest consumers to apply some form of category-based behavior evaluation beyond the conscious evaluation of behavior (Fiske & Pavelchak, 1986; Sujan, 1985). These findings are in line with findings from Thøgersen (1999) and point toward a cognitive reason for behavioral spillover.

2.6.2. Practical implications

This study's findings enable collaboration-based organizations and policy makers to increase the uptake of collaborative consumption by making use of the links between related behaviors or bridging the gap between behaviors so far unrelated. Regarding the former, collaboration-based organizations could either develop solutions that cut across related behaviors internally or establish cooperation with other collaboration-based organizations that facilitate related behaviors. Regarding the latter, policy makers and in particular communal decision makers could develop adequate regulatory systems and incentives in cities to bridge the gap between renting and other

prototypical collaborative consumption behaviors. For example, our findings suggest that consumers renting private living space (e.g., using AirBnB during a vacation) do not usually make use of other collaborative consumption behaviors yet. However, there is vast potential to complement the AirBnB experience with these behaviors, for example, by borrowing/sharing books in advance of the vacation, swapping unneeded clothes with equipment that fits the type of vacation, or using local food gifting networks for cooking. Collaboration-based organizations and policy makers could provide adequate information, coordination, and incentives to enable this interconnection of renting and the four other collaborative consumption behaviors.

2.6.3. Limitations and further research

Despite its contributions, this study has limitations that provide potential for further research. First, our study is based on self-reported consumer behavior using single items for measurement of behavior. Further research could employ more comprehensive behavioral constructs or experimental designs to verify the present results. Second, collaborative lifestyles are identified by means of related behaviors. Further research might examine whether these related behaviors are complemented by similar consumer attitudes, values, and demographics as suggested by Fournier et al. (1992) taking another step toward a comprehensive segment of collaborative consumers. Third, it was chosen to examine category-based behavior evaluation as one potential process underlying positive behavioral spillover between the collaborative consumption behaviors. Further research could examine other processes as suggested by Thøgersen (1999). Fourth, as this study is based on cross-sectional data, we cannot draw reliable conclusions on the casual relations between correlated behaviors. Thus, further research should employ longitudinal designs to examine the causal interrelation

between different prototypical collaborative consumption behaviors. Finally, it was chosen to empirically examine collaborative consumption at the level of behavioral prototypes implying some degree of abstraction reasonable for a first approximation of their relations. Further research could employ qualitative designs to better understand how collaborative consumption patterns emerge and why particular forms of renting are not yet complemented by other collaborative consumption behaviors. In conclusion, there is vast potential for further research to build on the results from this study to further advance the understanding of collaborative consumption and improve its uptake.

Appendix 1-1: First study, first survey

Variable	Item ^a
Intention	I intend to consume collaboratively within the next month (Extremely unlikely/likely; INT1) I plan to consume collaboratively within the next month (Strongly disagree/agree; INT2) I will try to consume collaboratively within the next month (Definitely false/true; INT3)
Age	Please state the year of your birth
Gender	Please state your gender (Female/male)
Income	Please state your monthly net income (< 500/500-999/1,000- 1,999/2,000-2,999/3,000-3,999/4,000-4,999/≥ 5,000/n/a)

a All items were measured on Likert-type 7-point response scales

Appendix 1-2: First study, second survey

Variable	Item ^a
Collaborative consumption (acquisition)	Please estimate how many times in the last 4 weeks you generally acquired something through collaborative consumption (Never/daily)
Renting	How many times have you particularly consumed something collaboratively in the last 4 weeks by ... renting something (Never/daily)
Borrowing	... borrowing something (Never/daily)
Swapping	... swapping something (Never/daily)
Accepting gift or donation	... accepting a gift or donation (Never/daily)
Buying used	... buying something used (Never/daily)
Resources	If you have consumed something collaboratively in the last 4 weeks by (prototypical behavior), what was it primarily (Car, bicycle, living space, office space, clothing/accessory, food, skill, book, DVD, tool, toy, sport equipment, camera, other)
Network	If you have consumed collaboratively in the last 4 weeks by (particular behavior), in which context (commercial, non-commercial/private)

^a All items were measured on Likert-type 7-point response scales, except the item on resources

3. Second study: “Understanding collaborative consumption: An extension of the theory of planned behavior with value-based personal norms”³

Abstract Collaborative consumption is proposed as a step beyond unsustainable linear consumption patterns toward more sustainable consumption practices. Despite mounting interest in the topic, little is known about the determinants of this consumer behavior. We use an extended theory of planned behavior to examine the relative influence of consumers’ personal norms and the theory’s basic social-psychological variables attitudes, subjective norms, and perceived behavioral control. Moreover, we use this framework to examine consumers’ underlying value and belief structure regarding collaborative consumption. We measure these aspects for 224 consumers in a survey and then assess their actual collaborative consumption behavior in a second survey. Our structural model fits the data well. Collaborative consumption is more strongly—through intentions—influenced by personal norms and attitudes than by subjective norms. Personal norms to consume collaboratively are determined by consumers’ altruistic and biospheric value orientations. Cost savings, efficient use of resources, and community with others are found to be consumers’ underlying attitudinal beliefs. We conclude that collaborative consumption can be pin-pointed neither as a mere form of economic exchange nor as a primarily normative form of sharing resources. Instead, collaborative consumption is determined by economic/egoistic (e.g., cost savings) and normative (e.g., altruistic and biospheric

³ Roos, D. & Hahn, R. (2017). Understanding Collaborative Consumption: An Extension of the Theory of Planned Behavior with Value-Based Personal Norms. *Journal of Business Ethics*. <https://doi.org/10.1007/s10551-017-3675-3>. Earlier versions of this study were accepted at the 2016 AMA Summer Marketing Conference, Atlanta, GA, USA and the Academy of Management 2016 Annual Meeting, Anaheim, CA, USA.

value orientations) motives. Implications for collaborative consumption research, the theory of planned behavior, and practitioners are discussed.

3.1. Introduction

Current consumption practices based on the notion of buying new things for private use and final disposal are major causes of severe economic, environmental, and social problems facing society at large (Schrader & Thøgersen, 2012). Recently, researchers (Botsman & Rogers, 2011; Heinrichs, 2013; Leismann et al., 2013; Prothero et al., 2011) and practitioners (WEF-YGL, 2013) have proposed collaborative consumption—that is, borrowing, renting, gifting, swapping, and buying used, common, or idle resources in consumer or peer networks—as a step toward more sustainable consumption practices. As an emerging socio-economic model, collaborative consumption has the potential to alleviate problems such as economic strain, resource depletion, climate change, excessive waste, and social alienation (Botsman & Rogers, 2011; Prothero et al., 2011).

However, despite some prominent exceptions, acceptance, adoption, and diffusion of collaborative consumption practices are still limited (Piscicelli et al., 2015). To some degree, the slow uptake can be explained by the external requirements of collaborative consumption. It often depends on the technology infrastructure and requires a critical mass of consumers that ensures a balance between demand and supply of resources (Botsman & Rogers, 2011), both of which vary substantially by country, region, and community. Regardless of these context-specific determinants, researchers have identified consumers' internal motivation as the strongest inhibitor of collaborative consumption (Barnes & Mattsson, 2016), which is consistent with findings from the

broader field of sustainable consumption (Prothero et al., 2011). Thus, to improve the uptake of collaborative consumption on a large scale, it is necessary to understand the behavior from a consumer perspective. However, current research on determinants of collaborative consumption—that is, the social-psychological variables and underlying values and beliefs of this behavior—remains incomplete for several reasons (Heinrichs, 2013; Prothero et al., 2011).

First, although researchers have provided valuable insights into particular variables thus far, for example, for attitudes (Hamari et al., 2015) or satisfaction (Möhlmann, 2015), no comprehensive behavioral models have been examined to understand the full decision-making process and the relative importance of different social-psychological variables for engaging in collaborative consumption. For example, previous research has found sustainable consumption to be determined by distal behavioral factors like pro-environmental and pro-social values mediated by more proximal behavioral factors like attitudes, norms, and behavioral control (Stern, 2000; Thøgersen, 2006) but we lack this kind of knowledge in the context of collaborative consumption. Second, different views have emerged of collaborative consumption being primarily determined by economic/egoistic motives (e.g., profit motives, self-interest, pragmatism; Bardhi & Eckhardt, 2012; Belk, 2014a, 2014b), primarily determined by normative motives (e.g., sustainability, improving community; Albinsson & Perera, 2012), or by both (Botsman & Rogers, 2011). This lack of theoretical agreement makes it difficult for practitioners in the private and public sector to implement adequate measures to improve the uptake of collaborative consumption. Third, most studies have relied on explanations of behavioral intentions without measuring actual collaborative consumption behavior (e.g., Yin, Qian, & Singhapakdi, 2016). This is problematic, as research has identified a considerable gap between

intentions and actual behavior left to explain (Ajzen & Fishbein, 2005). Finally, while there is research on individual collaborative consumption models like car-sharing (Bardhi & Eckhardt, 2012) or bike-sharing (Yin et al., 2016) there is a lack of research on a general disposition toward collaborative consumption as a categorical alternative to individual, linear consumption. In response to these gaps in the research, the aim of our study is to understand which social-psychological variables and underlying values and beliefs determine actual collaborative consumption behavior.

We use the theory of planned behavior (Ajzen, 1985, 1991) as our initial theoretical framework, because it is a well-established model that has been shown to explain a wide range of consumer behaviors (Bamberg et al., 2003; Kidwell & Jewell, 2003; Kurland, 1995; Swaim et al., 2014; Taylor & Todd, 1995) and it is open to the inclusion of additional normative variables (Ajzen, 1991). Thus, it is well-suited to examine the relative influence of economic/egoistic and normative motives and comprehensively investigate consumers' underlying value and belief structure regarding collaborative consumption. Moreover, practitioners find the theory a useful framework for developing behavioral change interventions (Smith et al., 2008; Xiao et al., 2011).

Our contribution to the literature is threefold. First, we advance collaborative consumption research, empirically showing that it is determined by economic/egoistic (e.g., cost savings) and normative motives (e.g., altruistic and biospheric value orientations). Second, we extend Ajzen's (1985, 1991) theory of planned behavior with a value-based personal norm variable and evaluate its addition based on criteria suggested by Fishbein and Ajzen (2010), addressing the recent call for further development of this theory (Head & Noar, 2014). Finally, we enable practitioners to implement measures to improve the uptake of collaborative consumption.

In the next section, we briefly review the literature on collaborative consumption and provide a definition. Moreover, we describe the extended theory of planned behavior including the value and belief structure underlying collaborative consumption and derive hypotheses. Thereafter, we explain our research method and present the results. In the final section, we discuss implications of our results for collaborative consumption research, the theory of planned behavior, and practitioners.

3.2. Theoretical framework and hypotheses

3.2.1. Defining collaborative consumption

Recently, many terms and concepts have described forms of consumption related to those discussed here. Among those terms are “sharing” or “sharing economy” (Belk, 2009, 2014b), “access” or “access-based consumption” (Bardhi & Eckhardt, 2012; Chen, 2009), “commercial sharing systems” (Lamberton & Rose, 2012), “the mesh” (Gansky, 2010), and “product-service systems” (Mont, 2004). Building on the conceptual thinking of Botsman and Rogers (2011) and Rifkin (2014), we argue that the term “collaborative consumption” is best used to account for such alternative forms of consumption. These forms are based on the differentiation from individual, linear consumption (Mont & Heiskanen, 2015). The latter is based on the notion of buying new things for private use and final disposal, whereas collaborative consumption is based on the effective management of collaborative, shared use of used, common, or idle resources (i.e., products, assets, or services). Building on Ajzen and Fishbein (1980), we view collaborative consumption as a behavioral category that includes five prototypical behaviors discussed in the literature (Bardhi & Eckhardt, 2012; Belk,

2014a; Botsman & Rogers, 2011) that reflect the same underlying disposition: renting, borrowing, gifting, swapping, and buying things used.

These five behaviors represent major configurations of the four primary exchange logics (Scaraboto, 2015) underlying collaborative consumption (see Table 6), that is 1) collaborative, shared use, 2) acquisition mode (transfer of ownership versus access), 3) reciprocity (reciprocal versus non-reciprocal behaviors), and 4) compensation (monetary versus non-monetary). All five behaviors require some degree of collaboration between consumers, peers or between an individual and a collaboration-based organization. Moreover, they all involve at least two people sharing the use of a resource over time resulting in multiple consumption cycles (i.e., acquisition, use, distribution). Renting and borrowing facilitate exchange without transfer of ownership as resources are only temporarily accessed (e.g., car-sharing, shared use of living space). When gifting, swapping, or buying things used, ownership is transferred while multiple consumers effectively share the use of products or assets over time. We consider some of these behaviors non-reciprocal (e.g., borrowing, gifting), while others are reciprocal involving some form of monetary (e.g., renting, buying used) or non-monetary compensation (e.g., swapping). These behaviors can be found in commercial market structures (business-to-consumer and consumer-to-consumer markets) or privately (between peers) and both online and offline. Thus, our understanding of collaborative consumption can be summarized as:

Acquiring or providing resources from or to others for collaborative, shared use among consumers or peers as opposed to acquiring new resources for private use and final disposal.

Table 6. Prototypical collaborative consumption behaviors

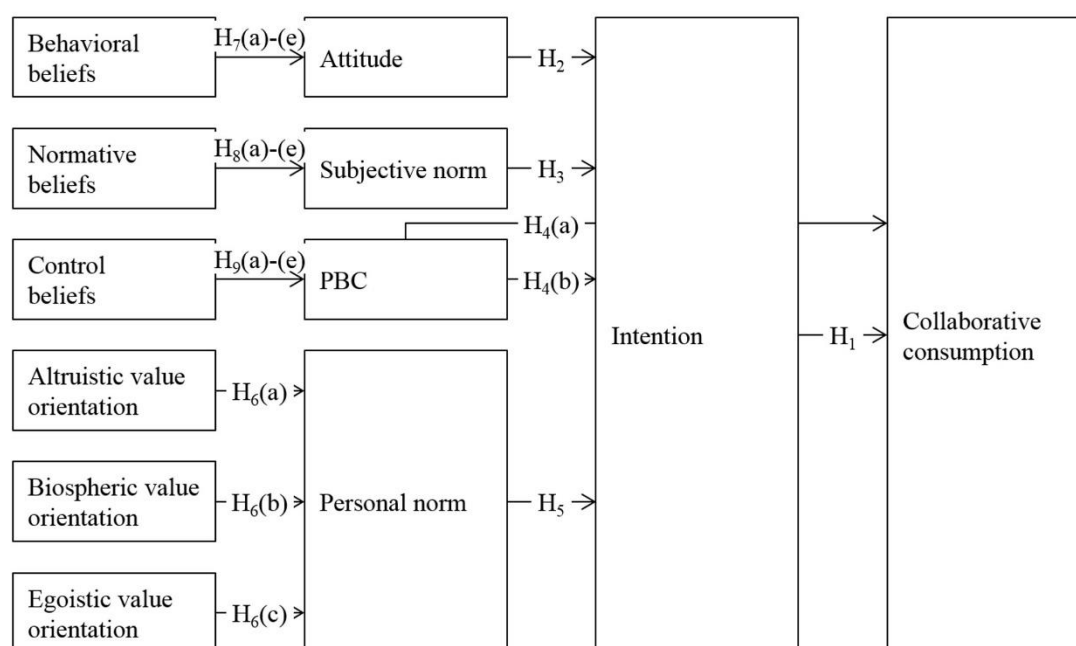
Behavior	Collaborative, shared use	Acquisition mode	Reciprocity	Compensation
Renting	Yes	Access	Yes	Monetary
Borrowing	Yes	Access	No	None
Accepting ^b	Yes	ToO ^a	No	None
Swapping	Yes	ToO ^a	Yes	Non-monetary
Buying used	Yes	ToO ^a	Yes	Monetary
Buying new for private use	No	ToO ^a	Yes	Monetary

a Transfer of ownership, b gifts or donations

3.2.2. Extending the theory of planned behavior to understand collaborative consumption

Our theoretical framework is based on an extended theory of planned behavior (see Figure 2). The theory of planned behavior (Ajzen 1985, 1991) is a useful initial framework for understanding collaborative consumption for several reasons. First, it is a well-established model that has been shown to explain a wide range of consumer behaviors (Bamberg et al., 2003; Kidwell & Jewell, 2003; Kurland, 1995; Swaim et al., 2014; Taylor & Todd, 1995). Second, it is, in principle, open to the inclusion of additional variables (Ajzen, 1991). As we expect normative motives to be particularly important in the context of collaborative consumption and as reviews have shown that the theory's ability to account for these motives is weak (Armitage & Conner, 2001; Conner & Armitage, 1998; Ravis et al., 2009), we extend the theory with a value-based personal norm variable (Stern et al., 1999). Third, it provides a useful framework to comprehensively examine underlying values and beliefs expected to indirectly determine collaborative consumption.

Figure 2. Determinants of collaborative consumption (theoretical framework)⁴



Briefly, the theory of planned behavior itself (Ajzen, 1985, 1991) is an extension of the theory of reasoned action (Ajzen & Fishbein, 1980) designed to explain the determinants of an individual's conscious decision to perform a behavior that is beyond complete volitional control. According to the theory of planned behavior, the performance of a behavior can be predicted by an individual's intention to perform the behavior and the perceived control over the behavior (Ajzen, 1991). In turn, intentions can be predicted by someone's attitudes, subjective norms, and perceived behavioral control regarding the behavior (Ajzen, 1991).

Intentions represent an individual's motivation in the sense of a conscious decision to perform a behavior after careful consideration of available information. Collaborative consumption involves this conscious consideration of relevant information that might include potential benefits and costs of what is consumed, likely external consequences (e.g., the impact of emissions related to the consumption) or other personal and

⁴ Control variables were examined as direct effects of age, gender, income, and size of hometown on collaborative consumption

external requirements to perform the behavior. In addition, we expect consumers to make a conscious choice between collaborative and non-collaborative consumption options, for example, between the use of a car-sharing service and the purchase of a new car (Botsman & Rogers, 2011). Attitudes reflect the overall positive or negative evaluation of performing the behavior. Belk (2014a) and Botsman and Rogers (2011) acknowledge consumers are likely to produce favorable attitudes toward collaborative consumption as its economic benefits tend to be greater than the associated cost. Subjective norms refer to the perceived social pressure of significant others to perform or not perform the behavior. Concordantly, Botsman and Rogers (2011) view collaborative consumption as a socioeconomic groundswell indicating consumers are beginning to create such expectations (or social norms) that will guide individuals' consumption behavior. Perceived behavioral control (PBC) refers to the perceived ease or difficulty of performing a behavior. Thus, PBC refers to an individual's perception of whether he or she has the required internal factors, similar to Bandura's (1997) concept of self-efficacy, or expects the required external factors to be present, similar to Triandi's (1977) concept of facilitating conditions. According to Ajzen (1991), PBC has two relationships. First, to the degree that the perceived control over a behavior represents actual control, it can be used to directly predict actual behavior (Ajzen, 1991). Second, PBC can be used to predict an individual's intention to perform a behavior (Ajzen, 1991). As collaboration in consumer or social networks and use of technology are often involved in collaborative consumption, consumers can be assumed to lack full control over collaborative consumption in most situations (John, 2013). Concordantly, Belk (2014a) and Botsman and Rogers (2011) identify knowledge about information and communication technology, as well as the ability and time to organize other aspects of collaborative consumption (e.g., the time

involved in arranging the swap of clothes) as important personal and external factors.

Based on these theoretical premises, we propose the following hypotheses:

H₁: Consumers' intention to consume collaboratively will be positively related to consumers' actual collaborative consumption behavior.

H₂: Consumers' attitudes toward collaborative consumption will be positively related to consumers' intention to consume collaboratively.

H₃: Consumers' subjective norms regarding collaborative consumption will be positively related to consumers' intention to consume collaboratively.

H₄: Consumers' perceived behavioral control over collaborative consumption will be positively related to (a) consumers' actual collaborative consumption behavior and (b) consumers' intention to consume collaboratively.

As we attempt to understand the relative influence of economic/egoistic and normative motives on collaborative consumption, this study focuses on the extension of the theory of planned behavior in a way that allows us to capture normative motives adequately. Concordantly, reviews and meta-analyses have found the theory of planned behavior's ability to account for normative motives to be weak when examining behaviors with a moral dimension, that is, in situations when someone faces a tradeoff between a behavior's personal and external consequences (Armitage & Conner, 2001; Conner & Armitage, 1998; Ravis et al., 2009). As we expect normative motives are particularly important in the context of collaborative consumption, we included personal norms as an additional determinant of intention (Conner & Armitage, 1998; Manstead, 2000). Ajzen (1991, p. 199) argues that "the theory of planned behavior is, in principle, open to the inclusion of additional variables" if they can statistically significantly explain additional variance beyond the theory's basic

variables. A personal norm represents an individual's own moral obligation or responsibility to perform, or not to perform a behavior, beyond perceived social pressures (Ajzen, 1991). Building on norm activation research by Schwartz (1977, 1994), Stern et al. (1999) argue that personal norms are based on individual values and the motivation to protect them with appropriate behavior. Examination of subjective and personal norms is particularly interesting when it comes to behaviors that represent social change. In this case, personal norms might have stronger effects than subjective norms as society might not have internalized new norms yet (Stern et al., 1999). Supporting this view, Botsman and Rogers (2011) suggest consumers' social and environmental concern is an important determinant of collaborative consumption. According to their view, consumers take a personal moral responsibility to protect the environment and prevent social harm through their choice of appropriate consumption. Thus, we consider it useful to examine personal norms beyond subjective norms in the context of collaborative consumption, as we expect consumers to carefully evaluate whether this new form of consumption is the "right or wrong thing to do" from an environmental and social perspective. The stronger the personal norm to consume collaboratively, the stronger the intention to do so. Therefore, we propose the following hypothesis:

H₅: Consumers' personal norms to consume collaboratively will be positively related to consumers' intention to consume collaboratively.

3.2.3. Values and beliefs underlying collaborative consumption

Apart from the proximal behavioral factors introduced in the previous section, it is the objective of this study to uncover the structure of consumers' underlying values and beliefs regarding collaboration consumption. Building on Schwartz's (1977, 1994)

norm activation and value research, Stern et al. (1999) develop a value-belief-norm theory that suggests an individual's altruistic (i.e., concern for the well-being of other humans) and biospheric (i.e., concern for the state of the environment and the well-being of other species) value orientations are positively related to the formation of a personal norm to behave in a sustainable way, while an egoistic value orientation (e.g., concern for own material wealth, success) is negatively related to personal norms.⁵ Although little is known about the underlying processes that determine the influence of values on collaborative consumption, Piscicelli et al. (2015) find collaborative consumers score higher on self-transcendence (altruistic and biospheric) than on self-enhancement (egoistic) values. Building on these theoretical premises, we hypothesize:

H₆: Consumers' (a) altruistic and (b) biospheric value orientation will be positively and (c) their egoistic value orientation will be negatively related to consumers' personal norms to consume collaboratively.

Attitudes, subjective norms, and PBC are based on three kinds of salient beliefs a person has (Ajzen, 1991). Attitudes are produced by beliefs about likely consequences of the behavior and their subjective evaluation (behavioral beliefs). Subjective norms are the result of beliefs about significant others' normative expectations and the motivation to comply with them (normative beliefs). Finally, PBC is formed by beliefs about the presence of internal and external factors and their power to facilitate or inhibit performance of the behavior (control beliefs). These beliefs are behavior specific, thus, they cannot be generalized a priori (Pavlou & Fygenson, 2006).

⁵ Although the value-belief-norm theory suggests the effect of value orientations on personal norms to be mediated by beliefs (i.e., new ecological paradigm, awareness of consequence, ascription of responsibility), we will examine a direct effect on personal norms to maintain parsimony of our model.

Therefore, prior to the main study, we conducted a qualitative elicitation study with 25 consumers to elicit salient beliefs associated with collaborative consumption as suggested by Fishbein and Ajzen (2010). With a median age of 30 years and 60% female consumers, the sample of the elicitation study was similar to the sample of the main study. Beliefs were elicited by asking open questions about the advantages and disadvantages of collaborative consumption (behavioral beliefs), people who might approve or disapprove of collaborative consumption (normative beliefs), and personal and external factors that would facilitate or inhibit collaborative consumption (control beliefs) (see the Appendix 2-1; Ajzen, 2006). Following Fishbein and Ajzen (2010), we conducted content and frequency analyses to identify the five most common behavioral, normative, and control beliefs. We briefly introduce each belief in the following, highlight their theoretical relevance in the context of collaborative consumption, and derive additional hypotheses.

The five most common behavioral beliefs were (1) *cost savings*, (2) *environmental protection*, (3) *dependency on others' behavior*, (4) *efficient use of resources*, and (5) *community with others*. *Cost savings* has been identified as a determinant of collaborative consumption in previous research. For example, Bardhi and Eckhardt (2012) find car-sharing users are motivated by economic concerns. Botsman and Rogers (2011) find collaborative consumption is cheaper than the non-collaborative option in many cases. In addition, Owyang (2013) outlines collaborative consumption as driven by the objective to monetize excess or idle inventory and to increase financial flexibility. Several researchers also identified *environmental protection* as a determinant of collaborative consumption. For example, Mont and Heiskanen (2015) and Prothero et al. (2011) highlight environmental concern as a key driver for the shared use of products and assets in the context of sustainable consumption. Similarly,

Botsman and Rogers (2011) suggest consumers' environmental concern is an important determinant of collaborative consumption. Hamari et al. (2015) find sustainability is a primary driver of consumers' attitudes toward collaborative consumption. *Dependency on others' behavior* refers to a potential disadvantage of collaborative consumption, in particular in situations in which ownership of resources remains with the collaboration-based organization or the resource provider. In these situations, consumers might not apply the same care to the resource as in ownership situations (e.g., high wear-and-tear of resources). *Dependency on others' behavior* can therefore be interpreted as a lack of trust between collaborative consumers. This well-known phenomenon is found in research ranging from the "tragedy of the commons" (Hardin, 1968) to Botsman and Rogers (2011), who emphasize the need for trust between collaborative consumers to overcome the fear of others' adverse behavior, and Möhlmann (2015), who finds trust is a determinant of collaborative consumption in business-to-consumer and consumer-to-consumer contexts. *Efficient use of resources* can be interpreted as one means to achieve the end of environmental protection. In an analysis of three collaborative consumption behaviors, Leisman et al. (2013) identified a general resource-saving potential as long as the resource savings are not cancelled out by framework conditions (e.g., additional transportation) or rebound effects. *Community with others* has been identified as an outcome and a determinant of collaborative consumption (Albinsson & Perera, 2012; Botsman & Rogers, 2011). Following these premises, we hypothesize:

H7: Consumers' beliefs about (a) cost savings, (b) environmental protection, (c) efficient use of resources, and (d) community with others will be positively related to and beliefs about (e) dependency on others' behavior will be negatively related to consumers' attitudes toward collaborative consumption.

Next, the five most common normative beliefs were (1) *friends*, (2) *colleagues*, (3) *young people*, (4) *family*, and (5) *elderly people*. *Friends*, *colleagues*, and *family* are common normative referents across a wide range of behaviors (Fishbein & Ajzen, 2010) and thus are likely also perceived to be relevant in the context of collaborative consumption. However, *young people* and *elderly people* seem to be important as researchers found young in particular rather than elderly people engage in collaborative consumption. Examples include young people engaging in car-sharing as car-ownership is becoming less important for their self-definition (Belk, 2014a), access-based collaborative consumption behaviors (e.g., borrowing, renting) to reduce debt, or buying used things (e.g., second-hand clothing) as many young people cannot afford to purchase new things (Owyang, 2013). Thus, we hypothesize:

H₈: Consumers' beliefs about (a) friends, (b) colleagues, (c) young people, (d) family will be positively related to and beliefs about (e) elderly people will be negatively related to consumers' subjective norms regarding collaborative consumption.

Finally, the five most common control beliefs are (1) *ease of use*, (2) *availability of products and services*, (3) *Internet access*, (4) *high geographic density (of collaborative consumption options)*, and (5) *transparent information about offerings*. *Ease of use* is well-known in information systems research, a relevant stream of research given the need for collaborative consumers to often use technology, in particular the Internet, smart phones, and social networks (John, 2013). For example, in Davis's (1989, p. 320) technology acceptance model, perceived ease of use—"the degree to which a person believes that using [a technology] would be free of effort"—is a primary determinant of technology usage. *Availability of products and services* emphasizes the need for collaboration-based organizations or peers to provide what is

needed, when it is needed, and where it is needed. According to Botsman and Rogers (2011), a critical mass of consumers is needed to ensure this match of supply and demand. *Internet access* was identified by Barnes and Mattsson (2016) among other technological enablers (e.g., smart phones) as a necessary factor for collaborative consumption in many cases. *High geographic density of collaborative consumption options* refers to the belief that people who live in agglomerations or cities with a high number of other collaborative consumers can more easily engage in collaborative consumption. For example, Bardhi and Eckhardt (2012) find access-based collaborative consumption is more popular in urban areas due to natural space limitations. Thus, instead of trying to find parking or storage space for cars, bikes, or other resources, citizens increasingly prefer to rent or borrow the things they need temporarily. The relevance of *transparent information about offerings* as a general determinant of consumer behavior has been emphasized by Clemons (2008). According to his view, consumers reward organizations that provide more necessary information in a transparent way more than those that provide little information that is difficult to access. In a collaborative consumption context, examples of necessary information include the condition of second-hand products, the return process of accessed resources, or the structure of a pay-per-use scheme. Following these premises, we hypothesize:

H₉: Consumers' beliefs about (a) ease of use, (b) availability of products and services, (c) Internet access, (d) high geographic density, and (e) transparent information about offerings will be positively related to consumers' perceived behavioral control over collaborative consumption.

3.3. Method

3.3.1. Design and sample

Following the qualitative elicitation study, in May 2015 we distributed the first online survey, which included a short vignette based on our definition of collaborative consumption (see the Appendix 2-2), measures based on our theoretical framework, and control measures. Four weeks after completing the survey, the participants received the second online survey to measure if, how, and what they had actually consumed collaboratively. Both surveys were anonymous. A unique participant-generated code was used to match the two data files.

The sample was drawn from two populations. The first was selected from registered members of eight collaboration-based organizations,⁶ and the second was a random sample (university students from two German universities and the wider public) to include participants not familiar with collaborative consumption. of people not registered with any collaboration-based organization. Three hundred sixty participants completed the first survey, and 249 (69%) completed the second survey. Listwise deletion in the case of missing values resulted in 224 participants for statistical analyses. They ranged from 18 to 78 years of age with a median age of 30 years, and 52% were female. The majority (90%) lived in Germany. Sixty-two percent were employed, 29% were students, and 9% were not employed or had already retired. Median income was €2,000-2,999. Twenty-six percent were not registered with any collaboration-based organization. Based on Chow's (1960) test statistic, the results from the sample of registered collaboration-based organization members and non-

⁶ Including private car-renting, private ride-sharing, commercial bike-renting, commercial product swap-ping/borrowing, private food-gifting, commercial renting of private living space (2x), and private job-sharing.

members were not statistically significantly different ($F = 1.42, p < .01$). Therefore, we report the results of the combined data from both samples ($n = 224$).

3.3.2. Measures

We designed both surveys following Ajzen's (2006) and Fishbein and Ajzen's (2010) recommended approaches. In the first survey (see the Appendix 2-3), we used standard theory of planned behavior measures for *Intention*, *Attitude*, *Subjective norm*, *PBC*, and the salient beliefs (Ajzen, 1991; Fishbein & Ajzen, 2010), as well as established and validated measures for *Altruistic*, *Biospheric*, and *Egoistic value orientation* (Schwartz, 1994; Stern et al., 1999) and *Personal norm* (Stern et al., 1999). All measures were based on multiple items (at least three) to reduce measurement error. Apart from the items that measured values, all other items matched the wording of the behavioral item to ensure internal validity (Fishbein & Ajzen, 2010), were measured on Likert-type 7-point response scales, and were randomized throughout the survey to reduce response biases. Value items were taken from the Schwartz (1994) value inventory and measured on Likert-type 9-point scales ranging from "opposed to my values" to "of supreme importance" by asking "How important or unimportant is X as a guiding principle in your life?" where X refers to one of ten values that make up the *Altruistic*, *Biospheric*, and *Egoistic value orientation*. We also included control measures for age, gender, income, and size of hometown.

For the assessment of self-reported behavior in the second survey (see the Appendix 2-4), we operationalized *Collaborative consumption* in line with Fishbein and Ajzen's (2010) target, action, context, time (TACT) considerations at a high level of generality in order to develop an understanding of a general disposition toward collaborative

consumption. Thus, we specified the target, action, and time. As a result, we measured *Collaborative consumption* with the following item: “Please estimate how many times in the last 4 weeks [time] you generally acquired something [target] through collaborative consumption [action].” To reduce response bias associated with a single behavioral item, we also asked in particular how many times people *Borrowed, Rented, Accepted a gift or donation, Swapped, or Bought used* and what type of resource was acquired. While the study specifically focuses on the acquisition phase of collaborative consumption in comparison with individual, linear consumption, we nevertheless used one additional item to ask respondents how many times in the last 4 weeks they provided something for collaborative consumption (provision).

3.3.3. Statistical analysis

We used Amos’s covariance-based structural equation modeling (maximum likelihood) because it simultaneously tests all latent variables and relationships in a structural model. Thus, we could rigorously test our extended theoretical framework (Anderson & Gerbing, 1988). We followed the two-step approach recommended by Anderson and Gerbing (1988). As the first step, we tested and revised the measurement model using confirmatory factor analysis. We based the revisions of the measurement model on the factor loadings from the confirmatory factor analysis and modification indices. After revising the measurement model, we tested the structural model as the second step. As all proposed hypotheses were directional, we used one-tailed testing, unless otherwise specified, to draw accurate empirical conclusions (Cho & Abe, 2013). As the chi-square test depends on sample size (Bentler & Bonett, 1980), we further used chi-square divided by degrees of freedom (χ^2/df), the comparative fit index (CFI), and the root mean square error of approximation (RMSEA) to examine goodness of

model fit. We considered $\chi^2/df < 2$, CFI $> .90$, and RMSEA $< .05$ to indicate good model fit (Browne & Cudeck, 1993; Byrne, 1989; Homburg & Baumgartner, 1995).

As suggested by Ajzen (1991), we tested the relationships between the salient beliefs and the latent theory of planned behavior-variables attitude, subjective norm, and PBC separately. While beliefs are typically aggregated into one construct and correlation of this construct with the attitude measures is tested, we applied an approach to decompose the belief construct into individual beliefs as suggested by Bagozzi (1981) and Pavlou and Fygenson (2006). As we assume these relationships to be formative, that is, consumers' attitudes to be caused by a set of beliefs they have, we operationalized them as multiple indicators, multiple causes (MIMIC) models in Amos as recommended by Jarvis, MacKenzie and Podsakoff (2003). Salient beliefs were formed as the products of the belief strength multiplied by the respective outcome evaluation (for behavioral beliefs), motivation to comply (for normative beliefs), and power (for control beliefs) as proposed by Ajzen (1991).

3.4. Results

3.4.1. Descriptive results

One hundred seventy-six participants (79%) reported in the second survey that they had acquired something through *Collaborative consumption* at least once in the previous four weeks. Means and standard deviations of all items and latent variables are presented in Table 7. The most frequently acquired resources by prototypical behavior were books via *Borrowing*, cars and living space via *Renting*, clothes/accessories via *Buying used*, food via *Accepting a gift or donation*, and clothes/accessories via *Swapping*. All correlations between the five prototypical

behaviors and *Collaborative consumption* (see Table 8) are highly statistically significant and of medium size (Cohen, 1992), signaling sufficient validity of the *Collaborative consumption* item. Correlation between acquiring and providing something is medium ($r = .43$, $p < .01$) indicating that collaborative consumers take on both roles frequently.

3.4.2. Measurement model

We included all items for the latent variables *Intention*, *Attitude*, *Subjective norm*, *PBC*, *Personal norm*, *Altruistic*, *Biospheric*, and *Egoistic value orientation* in the initial measurement model. The initial measurement model fit the data well ($p < .001$; $\chi^2/df = 1.60$; CFI = .94; RMSEA = .05; see Table 9). To revise the initial measurement model we excluded SN3 and PBC3 as their factor loadings were $\leq .50$ and added covariance paths between error terms as suggested by the modification indices. The revised measurement model fit the data very well ($p < .001$; $\chi^2/df = 1.42$; CFI = .96; RMSEA = .04; see Table 9). All remaining factor loadings were statistically significant and between .62 and .92. Cronbach's α of all latent variables in the revised measurement model was between .73 and .91 indicating good reliability (Churchill 1979; see Table 7). Moreover, no validity, multi-collinearity, or common method issues were found as all tests were within the recommended boundaries (average variance extracted $> .50$, maximum shared variance $<$ average variance extracted, average shared variance $<$ average variance extracted; variance inflation factors < 3) (Fornell & Larcker, 1981; O'brien, 2007).

As we collected data using a single method (online surveys), we additionally tested for common method bias using the 3-step common latent factor (CLF) approach in Amos

(Podsakoff, MacKenzie, Podsakoff, & Lee, 2003). First, we added a single latent factor connected to all observed items in our revised measurement model, in order to capture the common variance among all observed items. Second, we calculated standardized regression coefficients of this CLF-model. Finally, we compared standardized regression coefficients of the CLF-model and the revised measurement model. All differences between these coefficients were below the recommended threshold ($\Delta < .20$), suggesting common method bias not to be a problem.

Table 7. Results (means, standard deviations, loadings from confirmatory factor analysis, Cronbach's α ; $n = 224$)

Variable/item	M ^a	SD ^a	λ	α^a
Collaborative consumption	3.13	1.54		
Borrowing	1.82	1.23		
Renting	1.76	1.28		
Buying used	1.64	1.23		
Accepting gift or donation	1.45	1.18		
Swapping	1.29	1.08		
Intention	4.59	1.73		.91
INT1	4.14	1.99	.85	
INT2	4.83	1.79	.92	
INT3	4.79	1.83	.88	
Attitude	5.49	1.21		.90
ATT1	5.73	1.48	.84	
ATT2	5.79	1.28	.80	
ATT3	5.85	1.45	.85	
ATT4	5.25	1.60	.84	
ATT5	4.88	1.50	.62	
ATT6	5.46	1.52	.75	
Subjective norm	4.46	1.21		.77
SN1	4.26	1.29	.66	
SN2	4.17	1.58	.74	
SN3	5.96	1.38	.50	
SN4	4.95	1.53	.78	
PBC	6.19	1.11		.84
PBC1	6.14	1.21	.83	
PBC2	6.23	1.19	.87	
PBC3	5.69	1.40	.13	
Personal norm	2.96	1.64		.83
PN1	2.79	1.88	.84	
PN2	3.54	1.91	.67	
PN3	2.57	1.90	.85	

Variable/item	M ^a	SD ^a	λ	α^a
Altruistic VO	6.87	1.48		.81
Equality	7.00	1.95	.77	
Helpful	6.77	1.60	.63	
Social justice	6.50	1.93	.88	
World at peace	7.22	1.93	.63	
Biospheric VO	5.98	1.71		.85
Unity with nature	5.27	2.03	.70	
Environmental protection	6.31	1.83	.87	
Respect for the earth	6.38	2.06	.87	
Egoistic VO	5.61	1.51		.73
Successful	6.67	1.69	.85	
Wealth	5.20	1.92	.60	
Authority	4.95	2.00	.66	

abc Items excluded ($\lambda < .50$), a Based on items not excluded

Table 8. Results (Pearson's correlation coefficients; n = 224)

Variable	1	2	3	4	5	6	7	8
1. Collaborative consumption	—							
2. Intention	.45**	—						
3. Attitude	.35**	.54**	—					
4. Subjective norm	.33**	.44**	.41**	—				
5. PBC	.27**	.38**	.49**	.36**	—			
6. Personal norm	.31**	.59**	.38**	.31**	.17*	—		
7. Altruistic VO	.21**	.25**	.31**	.23**	.21*	.38**	—	
8. Biospheric VO	.17*	.24**	.26**	.19*	.09 ^{ns}	.37**	.69**	—
9. Egoistic VO	.03 ^{ns}	-.07 ^{ns}	-.03 ^{ns}	-.09 ^{ns}	.12 ^{ns}	-.20*	-.03 ^{ns}	-.09 ^{ns}
Borrowing	.48**							
Renting	.45**							
Buying used	.43**							
Accepting	.42**							
Swapping	.32**							
Provision	.43**							

* p < .05, ** p < .01 (2-tailed), ns = not significant (p ≥ .05)

Table 9. Goodness of fit of the measurement and structural models (n = 224)

Model	χ^2	df	p	χ^2/df	CFI	RMSEA
Initial measure. model	559.61	349	< .001	1.60	.94	.05
Revised measure. model	444.65	313	< .001	1.42	.96	.04
Structural model	662.45	348	< .001	1.90	.91	.06

df = degrees of freedom, CFI = comparative fit index, RMSEA = root mean square error of approximation

3.4.3. Structural model

To create the structural model, we added the item *Collaborative consumption* that assessed the self-reported behavior as the dependent variable to the revised measurement model. The structural model fit the data well ($p < .001$; $\chi^2/df = 1.90$; CFI = .91; RMSEA = .06; see Table 9). Apart from the relationship between *PBC* with *Intention*, all other relationships were statistically significant (see Table 10). *Intention* ($\beta = .40$, $p < .001$) and *PBC* ($\beta = .13$, $p < .05$) had statistically significant positive relationships with *Collaborative consumption* explaining 22% of its variance ($R^2 = .22$). Thus, H_1 and $H_4(a)$ are supported by the data. *Attitude* ($\beta = .33$, $p < .001$), *Subjective norm* ($\beta = .17$, $p < .05$), and *Personal norm* ($\beta = .43$, $p < .001$) had statistically significant positive relationships with *Intention* explaining 49% of its variance ($R^2 = .49$). Thus, H_2 , H_3 , and H_5 are supported by the data. The *Altruistic* ($\beta = .32$, $p < .001$) and *Biospheric* ($\beta = .23$, $p < .001$) *value orientations* had statistically significant positive relationships and the *Egoistic* ($\beta = -.20$, $p < .01$) *value orientation* had a statistically significant negative relationship with *Personal norm* explaining 20% of its variance ($R^2 = .20$). Thus, $H_6(a)$, $H_6(b)$, and $H_6(c)$ are supported by the data. According to Cohen's (1992) effect size index, these effects are medium (for behavior and personal norm) and large (for intention). Based on the data, we have to reject only $H_4(b)$. Moreover, none of the control variables had a statistically significant relationship with *Collaborative consumption*.

Table 10. Results of the structural model (standardized regression coefficients, standard errors, p-values, and explained variance; n = 224)

H ^a	Dependent	Independent	β	SE	p	R ²
H ₁	Collaborative consumption	Age	-.01	.01	ns	.22
	Collaborative consumption	Gender	-.01	.18	ns	
	Collaborative consumption	Income	.06	.04	ns	
	Collaborative consumption	S. of hometown	.01	.07	ns	
	Collaborative consumption	Intention	.40	.07	***	
H _{4(a)}	Collaborative consumption	PBC	.13	.10	*	
H ₂	Intention	Attitude	.33	.14	***	.49
H ₃	Intention	Subjective norm	.17	.10	*	
H _{4(b)}	Intention	PBC	.10	.12	ns	
H ₅	Intention	Personal norm	.43	.07	***	
H _{6(a)}	Personal norm	Altruistic VO	.32	.12	***	
H _{6(b)}	Personal norm	Biospheric VO	.23	.08	***	.20
H _{6(c)}	Personal norm	Egoistic VO	-.20	.09	**	

a Hypothesis, * p < .05, ** p < .01, *** p < .001, ns = not significant (p ≥ .05)

3.4.4. MIMIC-models

Results from the analyses of MIMIC-models are presented in Table 11. We found no multi-collinearity between the formative beliefs with all variance inflation factors < 3. Three statistically significant positive relationships were found between the behavioral beliefs *Cost savings* ($\beta = .33$, $p < .001$), *Efficient use of resources* ($\beta = .18$, $p < .05$), as well as *Community with others* ($\beta = .15$, $p < .05$) and *Attitude* explaining 30% of its variance ($R^2 = .30$). Thus, *H_{7(a)}*, *H_{7(c)}*, and *H_{7(d)}* are supported by the data. *Subjective norm* had two statistically significant positive relationships with the normative beliefs *Friends* ($\beta = .40$, $p < .001$) and *Young people* ($\beta = .15$, $p < .05$) explaining 18% of its variance ($R^2 = .18$). Thus, *H_{8(a)}* and *H_{8(c)}* are supported by the data. In addition, *PBC* had two statistically significant positive relationships with the control beliefs *Internet access* ($\beta = .16$, $p < 0.5$) and *High geographic density* ($\beta = .16$, $p < .05$) explaining 28% of its variance ($R^2 = .28$). Thus, *H_{9(c)}* and *H_{9(d)}* are supported by the data. According to Cohen's (1992) effect size index, these effects are large (for attitude and

PBC) and medium (for subjective norm). Based on the data, we have to reject $H_7(b)$, $H_7(e)$, $H_8(b)$, $H_8(d)$, $H_8(e)$, $H_9(a)$, $H_9(b)$, and $H_9(e)$.

Table 11. Results of the MIMIC-models (standardized regression coefficients, standard errors, p-values, and explained variance; n = 224)

H ^a	Dependent	Independent (belief)	β	SE	p	R ²
H _{7(a)}	Attitude	Cost savings	.33	.01	***	.30
H _{7(b)}	Attitude	Environmental protection	.05	.01	ns	
H _{7(c)}	Attitude	Efficient use of resources	.18	.01	*	
H _{7(d)}	Attitude	Community with others	.15	.01	*	
H _{7(e)}	Attitude	Dependency on others' behavior	-.04	.01	ns	
H _{8(a)}	Subjective norm	Friends	.40	.01	***	.18
H _{8(b)}	Subjective norm	Colleagues	-.14	.01	ns	
H _{8(c)}	Subjective norm	Young people	.15	.01	*	
H _{8(d)}	Subjective norm	Family	.08	.01	ns	
H _{8(e)}	Subjective norm	Elderly people	-.09	.01	ns	
H _{9(a)}	PBC	Ease of use	.13	.01	ns	.28
H _{9(b)}	PBC	Availability of products and services	.13	.01	ns	
H _{9(c)}	PBC	Internet access	.16	.01	*	
H _{9(d)}	PBC	High geographic density	.16	.01	*	
H _{9(e)}	PBC	Transparent information about offerings	.05	.01	ns	

a Hypothesis, * p < .05, ** p < .01, *** p < .001, ns = not significant (p ≥ .05)

3.5. Discussion and conclusion

The objective of this study was to understand which social-psychological variables and underlying values and beliefs determine actual collaborative consumption behavior. Our structural model based on the extended theory of planned behavior fits the data well, explaining a medium amount of variance in self-reported collaborative consumption behavior and a large amount of variance in consumers' intention to consume collaboratively. Thus, we provide empirical evidence that consumers' intention to consume collaboratively and their actual behavior is determined by economic/egoistic (e.g., cost savings) and normative motives (e.g., altruistic and biospheric value orientations). Furthermore, we highlight the applicability of the

extended theory of planned behavior in the context of consumer behavior. The results have several implications for collaborative consumption research, the theory of planned behavior, and practitioners.

3.5.1. Theoretical implications for collaborative consumption research

We advance the research on collaborative consumption by empirically illustrating its determinants. The findings empirically confirm the argument that collaborative consumption occupies a middle ground on the continuum from being primarily determined by economic/egoistic motives on one end (e.g., Bardhi & Eckhardt 2012; Belk, 2014a, 2014b) to being primarily determined by normative motives on the other (e.g., Albinsson & Perera, 2012). It follows that collaborative consumption can be pinpointed neither as a mere form of economic exchange nor as a primarily normative form of sharing resources. This finding is consistent with findings from the broader field of sustainable consumption, where researchers (Ölander & Thøgersen, 1995) find consumers make trade-offs between personal cost and benefits (e.g., cost and taste of organic food) and external consequences (e.g., CO₂ emissions).

Consumers' intentions to consume collaboratively were more strongly influenced by personal norms and attitudes than by subjective norms. PBC was not a statistically significant determinant of intentions. In particular, consumers' personal norms to consume collaboratively were statistically significantly determined by their altruistic and biospheric value orientations, as suggested by Stern et al. (1999). Thus, further advancing insights from Piscicelli et al. (2015), our findings suggest the process of self-transcending (i.e., altruistic and biospheric) values determining collaborative

consumption to be mediated by personal norms. The more consumers in our sample were concerned with personal wealth and success (i.e., their egoistic value orientation), the less likely they formed such personal norms (Stern et al., 1999).

Next, consumers' attitudes are a statistically significant determinant of the intention to consume collaboratively, although of weaker influence than personal norms. Economic/egoistic (i.e., cost savings) and normative motives (i.e., efficient use of resources) are reflected by consumers' behavioral beliefs underlying their attitudes toward collaborative consumption. This supports the relevance of economic benefits associated with collaborative consumption, identified by Bardhi and Eckhardt (2012), Belk (2014a, 2014b), and Owyang (2013). At the same time, however, our findings suggest collaborative consumption is driven by the urge for social community and the goal to achieve more resource-saving, sustainable consumption, as identified by Albinsson and Perera (2012), Botsman and Rogers (2011), and Hamari et al. (2015). Dependency on others' behavior did not emerge as a statistically significant behavioral belief suggesting consumers accept potential disadvantages or risks that have been associated with this form of consumption. This finding indicates that the consumers in our sample may have trusted others to take good care of the resources they acquired, an important prerequisite for collaborative consumption (Botsman & Rogers, 2011; Möhlmann, 2015).

Consumers' subjective norms—that is, the perceived social pressure to consume collaboratively—is a statistically significant, although somewhat weaker, determinant of the intention to consume collaboratively. This supports Botsman and Roger's (2011) observation that consumers begin to develop related social norms to favor collaborative over individual mass consumption in the form of a socioeconomic groundswell. Our findings suggest consumers' friends and young people make up this

groundswell as they determine the underlying normative beliefs resulting in consumers' subjective norms.

Surprisingly, the relationship between PBC and intention to consume collaboratively was not statistically significant, although the relationship between PBC and actual collaborative consumption behavior was. According to meta-analytic research, the relationships of PBC with intention and behavior cannot be considered homogeneous across studies (Notani, 1998). However, contrary to our results, Notani (1998) found the PBC-intention relationship (82.4% of tested relationships) is more consistent than the PBC-behavior relationship (48.6% of tested relationships) in general. As the reliability of our PBC variable is high ($\alpha = .84$), operationalization does not seem to explain our results. Instead, a potential explanation could be derived from the different reasons PBC is expected to influence intention and behavior. Although PBC has motivational implications for intention similarly to attitude, subjective, and personal norm, PBC is used as a proxy for actual control in the prediction of behavior. It follows that the high PBC of the consumers in our sample ($M = 6.19$) has no additional motivational influence on the intention to consume collaboratively beyond the other variables in the extended framework. However, in the prediction of collaborative consumption behavior, PBC and intention are statistically significant determinants. Accordingly, PBC plays a role when it comes to actual collaborative consumption as suggested by Botsman and Rogers (2011) and Belk (2014a). Based on the underlying control beliefs, we conclude the external factors Internet access and high geographic density of collaborative consumption options determine whether consumers are actually able to engage in collaborative consumption in the moment of behavior. Moreover, the statistically significant effect of consumers' intentions on actual

behavior suggests collaborative consumption to involve a conscious decision-making process prior to performing the behavior.

3.5.2. Theoretical implications for the theory of planned behavior

We extend Ajzen's (1991) theory of planned behavior with a (value-based) personal norm variable, addressing the recent call for further development of this theory (Head & Noar, 2014). Our extended model fits the data well explaining a medium amount of variance in self-reported behavior and a large amount of variance in intention. According to Fishbein and Ajzen (2010, p. 273), other variables should be "added to the theory with caution and only after careful [theoretical] deliberation and empirical exploration." They suggest five criteria any additional variable to the theory should meet that we evaluate in the following (Fishbein & Ajzen, 2010).

First, the additional variable should be behavior-specific and conform to the principle of compatibility. In particular, the additional variable should be able to be defined and measured in terms of the TACT elements that describe the behavior (Fishbein & Ajzen, 2010). Our personal norm items are collaborative consumption specific and worded in the same way as the other variables from the theory of planned behavior considering the TACT elements as suggested by Fishbein and Ajzen (2010). Thus, the first criterion is met. Second, the additional variable should be a causal determinant of either intention and/or behavior (Fishbein & Ajzen, 2010). We have argued theoretically that the stronger the personal norm—that is, someone's own moral obligation—to perform a behavior, the stronger the intention to actually perform the behavior. In other words, a change in the additional variable is expected to produce a change in intention. Our empirical findings confirm this theoretical reasoning. Other

researchers provide similar empirical support. For example, Stern et al. (1999) find that changes in personal norms statistically significantly explain changes in the intention to make sacrifices in order to protect the environment. Thus, the second criterion is met. Third, the additional variable should be conceptually independent of the theories existing variables (Fishbein & Ajzen, 2010). Although personal norms are very different from attitudes and PBC, they account for normative motives in the decision process to perform a behavior similarly to subjective norms. However, subjective and personal norms can be conceptually distinguished based on the source of the normative influence. Subjective norms refer to the perceived social pressure of significant others to perform a behavior (extrinsic motivation); personal norms refer to someone's own moral obligation or responsibility to perform or not perform a behavior (intrinsic motivation). Based on this evaluation, the third criterion is met. Fourth, the additional variable should consistently improve the prediction of intentions and/or behavior beyond the theory's existing variables (Fishbein & Ajzen, 2010). In our study, personal norms had a statistically significant positive relationship with intention ($\beta = .43, p < .001$), accounting for most of the variance ($R^2 = .49$) compared with the theory's existing variables attitudes ($\beta = .33, p < .001$) and subjective norms ($\beta = .17, p < .05$). Thus, within the context of our study, this criterion is met. Finally, the additional variable should be potentially applicable to a wide range of behaviors (Fishbein & Ajzen, 2010). As our study deals with a single behavioral category, we cannot draw conclusions about the applicability to other behaviors. However, further evidence for the applicability is provided by meta-analyses. For example, Ravis et al. (2009) find norms have statistically significant positive relationship with intention increasing its explained variance by a further 3% after the theory's basic variables have been taken into account.

In conclusion, we provide strong arguments for the addition of a personal norm variable to the theory of planned behavior. However, as our evaluation is limited by the context of our study, we have two suggestions. First, we suggest further research to examine whether personal norms can consistently predict intention to perform a wide range of behaviors in order to evaluate Fishbein and Ajzen's (2010) last two criteria. Second, we suggest further research to examine in particular whether personal norms should be added to behavior-specific versions of the theory of planned behavior as suggested by Head and Noar (2014). The addition could be more meaningful when examining behaviors with a moral dimension (e.g., collaborative consumption, sustainable consumption) than behaviors without a moral dimension.

3.5.3. Practical implications

Our results enable practitioners from the private and public sector to implement adequate measures to improve the uptake of collaborative consumption, as we contribute to a more comprehensive understanding of this novel consumer behavior. A summary of the major implications for practitioners derived from our findings is presented in Table 12. In particular, practitioners should reflect consumers' economic/egoistic as well as their normative motives to consume collaboratively. Foremost, practitioners should focus on measures to influence the moral obligation of consumers to consume "the right way" and consumers' attitudes toward collaborative consumption. Appeals to expectations of significant others and PBC may be less effective when aiming to influence consumers' intentions to consume collaboratively. When aiming to influence consumers' personal norms to consume collaboratively practitioners should make sure to address consumers' concern for others and for the environment. When aiming to influence consumers' attitudes toward collaborative

consumption, practitioners should stress potential cost savings, efficient use of resources, and the communal aspect of collaborative consumption. If practitioners choose to appeal to expectations of others, they should use young people and consumers' friends as representatives calling for collaborative consumption. Finally, when aiming to improve consumers' perceived behavioral control practitioners might, for example, want to further improve high speed Internet coverage where necessary and applicable and create more options for collaborative consumption in cities as well as in rural areas where the density of such option is low.

Two examples should illustrate how practitioners could reflect consumers' economic/egoistic as well as their normative motives to improve the uptake of collaborative consumption. First, from a strategic perspective, practitioners should build on the range of economic/egoistic and normative motives when defining and communicating their mission, vision, and organizational culture to enable collaborative consumers to identify with the organization. Second, from an operational perspective, practitioners should emphasize economic (e.g., cost savings) and normative (e.g., efficient use of resources) motives, as well as address consumers' moral obligation when acquiring collaborative consumers through information and advertisement. To retain collaborative consumers, collaboration-based organizations could create user interfaces and experiences that inform about economic (e.g., additional income) and normative (e.g., reduced CO₂ emissions) motives.

Table 12. Major implications for practitioners

Result	Practical implication
Intentions are more strongly influenced by personal norms and attitudes than by subjective norms.	Focus on measures to influence the moral obligation of consumers to consume “the right way” and consumers’ attitudes toward collaborative consumption. Appeals to expectations of significant others may be less effective.
Personal norms are determined by altruistic and biospheric value orientations.	Address consumers’ concern for others and for the environment, when aiming to influence consumers’ personal norms to consume collaboratively.
Attitudes are determined by cost savings, efficient use of resources, and community with others.	Stress economic/egoistic (i.e., cost savings) and normative (i.e., efficient use of resources, community with others) motives, when aiming to influence consumers’ attitudes toward collaborative consumption.
Intentions and PBC influence actual collaborative consumption behavior.	Enable consumers to create intentions to consume collaboratively and convert them into actual behavior by influencing consumers’ PBC.
PBC is determined by Internet access and high geographic density of collaborative consumption options.	Further improve high speed Internet coverage where necessary and create more options for collaborative consumption in cities as well as in rural areas, when aiming to influence consumers’ PBC over collaborative consumption.

3.5.4. Limitations and further research

Despite the study’s contributions, it has several limitations that provide potential for further research. First, we examined collaborative consumption as an aggregated behavioral category. This allows for comparison with other aggregated forms of consumption, such as buying new things for private use and final disposal. In line with our approach, Fishbein and Ajzen (2010) argue that examining behaviors at a higher level of generality avoids the risk of little theoretical or practical significance associated with narrow definitions of behavior. However, it would be interesting to

systematically examine whether the relevance and strength of the determinants vary depending on the particular collaborative consumption behavior and context despite a “general disposition” toward collaborative consumption as a behavioral category. Thus, future research could use our model to systematically compare borrowing, renting, gifting, swapping, and buying things used. Second, our measures are based on self-reports. We can rule out common-method bias and attempt to reduce measurement error by using at least three items for each measure and the degree of biased reporting of actual behavior by including items on particular behaviors and acquired resources. However, future research could build on observed behavior or experimental designs to verify our results. Finally, the participants were primarily German-speakers who live in highly industrialized countries (e.g., Germany). When attempting to change unsustainable practices to more collaborative consumption practices on a global scale, conditions in other countries and cultures must be examined to cross-verify our results. Thus, future studies could employ the framework established here with samples from other countries particularly accounting for cultural differences.

Appendix 2-1: Second study, belief elicitation questions

Belief	Elicitation question ^a
Behavioral	What do you believe are the advantages of consuming collaboratively to you? What do you believe are the disadvantages of consuming collaboratively to you? What else comes to mind when you think about consuming collaboratively?
Normative	Please list the individuals or groups (names are not necessary) who would approve or think you should consume collaboratively. Please list the individuals or groups (names are not necessary) who would approve or think you should not consume collaboratively. Please list the individuals or groups who are most likely to consume collaboratively. Please list the individuals or groups who are least likely to consume collaboratively.
Control	Please list any factors or circumstances that would make it easy or enable you to consume collaboratively. Please list any factors or circumstances that would make it difficult or prevent you from consuming collaboratively. Are there any other issues that come to mind when you think about the difficulty of consuming collaboratively.

a Open questions

Appendix 2-2: Second study, vignette

Nowadays, many people use products and services in collaboration with others or in communities. Often, these communities and the shared use of products and services are enabled by modern technologies, such as mobile Internet, social networks, and GPS.

Examples of collaborative consumption include the shared use of cars and bikes, swapping clothes, and renting living or working space.

Collaborative consumption in this survey is defined as:

To acquire a resource (e.g., a car, a bike, clothes, living or working space, a skill, or anything you want) from someone by ...

... renting it or

... borrowing it or

... swapping it or

... accepting it as a gift or donation or

... buying it used.

This is in contrast to exclusively buying a new resource for private use.

Appendix 2-3: Second study, first survey

Variable	Item ^a
Intention	<p>I intend to consume collaboratively within the next month (Extremely unlikely/likely; INT1)</p> <p>I plan to consume collaboratively within the next month (Strongly disagree/agree; INT2)</p> <p>I will try to consume collaboratively within the next month (Definitely false/true; INT3)</p>
Attitude	<p>For me consuming collaboratively within the next month would be ... (Harmful/beneficial; ATT1)</p> <p>... (Bad/good; ATT2)</p> <p>... (Worthless/valuable; ATT3)</p> <p>... (Unpleasant/pleasant; ATT4)</p> <p>... (Dull/exciting; ATT5)</p> <p>... (Unenjoyable/enjoyable; ATT6)</p>
Subjective norm	<p>Most people who are important to me think that I ... (Should not/should consume collaboratively within the next month; SN1)</p> <p>The people in my life whose opinion I value would ... (Disapprove/approve of consuming collaboratively within the next month; SN2)</p> <p>Most people who are important to me consume collaboratively (Completely false/true; SN3)</p> <p>Many people like me consume collaboratively (Strongly disagree/agree; SN4)</p>
PBC	<p>If I wanted to, I could consume collaboratively within the next month (Definitely false/true; PBC1)</p> <p>For me consuming collaboratively within the next month would be ... (Impossible/possible; PBC2)</p> <p>How much control do you have over consuming collaboratively within the next month (No control/full control; PBC3)</p>
Personal norm	<p>How strongly do you feel a personal obligation to consume collaboratively within the next month (Strongly not obliged/strongly obliged; PN1)</p> <p>I expect from myself to consume collaboratively within the next month (Absolutely false/true; PN2)</p> <p>Personally, I have a moral obligation to consume collaboratively within the next month (Strongly disagree/agree; PN3)</p>
Altruistic VO	<p>How important or unimportant is equality (equal opportunity for all) as a guiding principle in your life (opposed to my values/of supreme importance)</p> <p>... helpful (working for the welfare of others)</p> <p>... social justice (correcting injustice, care for the weak)</p> <p>... a world at peace (free of war and conflict)</p>
Biospheric VO	<p>... unity with nature (fitting into nature)</p> <p>... protecting the environment (preserving nature)</p> <p>... respecting earth (harmony with other species)</p>
Egoistic VO	<p>... successful (achieving goals)</p> <p>... wealth (material possessions, money)</p> <p>... authority (the right to lead or command)</p>

Variable	Item ^a
	Consuming collaboratively within the next month ...
Cost savings	... would lead to cost savings (Extremely unlikely/likely) Cost savings for me are ... (Bad/good)
Environm. protection	... would lead to environmental protection (Extremely unlikely/likely) Environmental protection for me is ... (Bad/good)
Depend. on others' behavior	... would lead to dependency on others' behavior (Extremely unlikely/likely) Dependency on others' behavior for me is ... (Bad/good)
Efficient use of resources	... would lead to efficient use of resources (Extremely unlikely/likely) Efficient use of resources for me is ... (Bad/good)
Commun. with others	... would lead to community with others (Extremely unlikely/likely) Community with others for me is ... (Bad/good)
Friends	My friends consume collaboratively (Extremely unlikely/likely) When it comes to consumption, how much would you like to be like your friends (Not at all/very much)
Colleagues	My colleagues consume collaboratively (Extremely unlikely/likely) ... your colleagues (Not at all/very much)
Young people	Young people consume collaboratively (Extremely unlikely/likely) ... young people (Not at all/very much)
Family	My family consumes collaboratively (Extremely unlikely/likely) ... your family (Not at all/very much)
Elderly people	Elderly people consume collaboratively (Extremely unlikely/likely) ... elderly people (Not at all/very much) In the coming month, I expect ...
Ease of use	... to experience ease of use of collaborative c. (Extremely unlikely/likely) Ease of use would make it ... (Much more difficult/much more easy)
Avail. of products and services	... to have availability of products and services (Extremely unlikely/likely) Availability of products and services would make it ... (Much more difficult/much more easy)
Internet access	... to have Internet access (Extremely unlikely/likely) Internet access would make it ... (Much more difficult/much more easy)
High geog. density	... to experience high geographic density of collaborative consumption options (Extremely unlikely/likely) High geographic density of collaborative consumption options would make it ... (Much more difficult/much more easy)
Transp. Inform. about offerings	... to have transparent information about collaborative offerings (Extremely unlikely/likely) Transparent information about collaborative offerings would make it ... (Much more difficult/much more easy)
Age	Please state the year of your birth
Gender	Please state your gender (Female/male)

Variable	Item ^a
Income	Please state your monthly net income (< 500/500-999/1,000-1,999/2,000-2,999/3,000-3,999/4,000-4,999/≥ 5,000/n/a)
Size of hometown	Where are you living (metropolis, >1 mil./large town, > 100,000/medium town, 20,000-100,000/small town, 5,000-20,000/rural, < 5,000 inhabitants)

a All items were measured on Likert-type 7-point response scales, except items on altruistic, biospheric, and egoistic value orientation that were measured on Likert-type 9-point response scales, and control items

Appendix 2-4: Second study, second survey

Variable	Item ^a
Collaborative consumption	Please estimate how many times in the last 4 weeks you generally acquired something through collaborative consumption (Never/daily)
Collaborative consumption (provision)	Please estimate how many times in the last 4 weeks you generally provided something through collaborative consumption (Never/daily)
Renting	How many times have you particularly consumed something collaboratively in the last 4 weeks by renting something (Never/daily)
Borrowing	... borrowing something (Never/daily)
Swapping	... swapping something (Never/daily)
Accepting gift or donation	... accepting a gift or donation (Never/daily)
Buying used	... buying something used (Never/daily)
Resources	If you have consumed something collaboratively in the last 4 weeks by (prototypical behavior), what was it primarily (Car, bicycle, living space, office space, clothing/accessory, food, skill, book, DVD, tool, toy, sport equipment, camera, other)

^a All items were measured on Likert-type 7-point response scales, except the item on resources

4. Third study: “Does collaborative consumption affect consumers’ values, attitudes, and norms? A panel study”⁷

Abstract Collaborative consumption is proposed as a step beyond unsustainable linear consumption patterns toward more sustainable consumption practices. However, little is known about effects of collaborative consumption on individuals. We build on social-psychological behavior theory using cross-lagged structural equation modeling based on a two-wave panel study with 168 consumers to examine the effects collaborative consumption has on consumers’ values, attitudes, and norms. Our structural model explains a medium to large amount of variance in self-reported collaborative consumption. We find collaborative consumption has statistically significant positive cross-lagged effects on future altruistic values, attitudes, subjective norms, and personal norms. However, no statistically significant effects of collaborative consumption are found on consumers’ future biospheric and egoistic values. Thus, the more consumers engaged in collaborative consumption, the more concerned they were for others, while it did not affect their concern for the environment or themselves. Theoretical and practical implications of our results are discussed.

4.1. Introduction

Collaborative consumption—that is, renting, borrowing, gifting, swapping, and buying used, common, or idle resources in consumer or peer networks—is proposed as a step beyond unsustainable linear consumption patterns toward more sustainable

⁷ Roos, D. & Hahn, R. (2017). Does Shared Consumption Affect Consumers’ Values, Attitudes, and Norms? A Panel Study. *Journal of Business Research*, 77, 113-123. An earlier version of this study was accepted at the 2017 Winter AMA Conference, Orlando, FL, USA.

consumption practices (Botsman & Rogers, 2011; Heinrichs, 2013; Prothero et al., 2011). Consequently, researchers, practitioners, and policymakers aiming to achieve a transition toward sustainability are interested in the effects collaborative consumption actually has on the environment, the economy, and the society (Heinrichs, 2013; Martin, 2016). As nascent research on collaborative consumption has primarily examined its determinants (e.g., Hamari et al., 2015; Möhlmann, 2015; Piscicelli et al., 2015), research on its effects remains incomplete. Foremost, although researchers have provided valuable insights into collaborative consumption's effects on the environment (e.g., Leismann et al., 2013) and on the economy (e.g., Owyang, 2013), insights into effects on the society are missing. In particular, there is a lack of knowledge about the social-psychological effects collaborative consumption has on the individual level. Given the importance that individual values, attitudes, and norms have for collaborative consumption in particular (Barnes & Mattsson, 2016) and for sustainable behavior in general (Stern, 2000; Thøgersen, 2006)—and thus for the transition to sustainability—it would be valuable to understand the effects collaborative consumption has on these social-psychological factors. Moreover, research finds contradictory predictions of collaborative consumptions' further development. While supporters of collaborative consumption frame it as a “pathway to sustainability”, those who resist collaborative consumption frame it as a “nightmarish form of neoliberal capitalism” (Martin, 2016, p. 149). Thus, Martin (2016) has called for empirical research examining actual effects of collaborative consumption in order to enable its development as a more sustainable form of consumption. In response to these gaps in the research, our study aims to answer the research question: Does collaborative consumption affect consumers' values, attitudes, and norms?

To answer this question, we empirically examine the causal relationship between collaborative consumption, values, attitudes, and norms. The four potential causal relationships between these factors have been examined in the literature in other behavioral domains: values, attitudes, and norms cause behavior (McGuire, 1976; Stern et al., 1999); behavior causes values, attitudes, and norms (Bem, 1967; Gundelach, 1992); values, attitudes, norms, and behavior mutually cause each other (Kelman, 1974; Schwartz, 1994; Thøgersen & Ölander, 2006; Reibstein et al., 1980); and values, attitudes, norms, and behavior are unrelated (Wicker, 1969). However, theoretical agreement is lacking (Bentler & Speckart, 1981), previous results vary with the examined behavior (Kahle & Berman, 1979), and interaction between values, attitudes, norms, and behavior has not yet been examined in an integrated model as called for (Thøgersen, 2006). To the best of our knowledge, our study is the first to examine this interaction in the context of collaborative consumption and the first to use a mediated model including values, attitudes, and norms in any context. We use cross-lagged structural equation modeling based on a two-wave panel study with 168 consumers to test our hypotheses. Our study makes several contributions to the extant literature. First, we advance social-psychological research on the relationships between values, attitudes, norms, and behavior by empirically showing that they mutually cause each other in a continuing reciprocal process. We advance research on effects of collaborative consumption on society, in particular on consumers' altruistic values, attitudes, subjective norms, and personal norms. Finally, we provide practitioners with insights that will help them to take adequate decisions in order to enable the development of collaborative consumption as a more sustainable form of consumption.

4.2. Theoretical framework and hypotheses

4.2.1. Collaborative consumption

Recently, many terms and concepts have described forms of consumption related to those discussed here. Among those terms are “sharing” or “sharing economy” (Belk, 2009, 2014b), “access” or “access-based consumption” (Bardhi & Eckhardt, 2012; Chen, 2009), “commercial sharing systems” (Lamberton & Rose, 2012), “the mesh” (Gansky, 2010), and “product-service systems” (Mont, 2004). Building on the conceptual thinking of Botsman and Rogers (2011) and Rifkin (2014), we argue that the term “collaborative consumption” is best used to account for such alternative forms of consumption. These forms are based on the differentiation from individual, linear consumption (Mont & Heiskanen, 2015). The latter is based on the notion of buying new things for private use and final disposal, whereas collaborative consumption is based on the effective management of collaborative, shared use of used, common, or idle resources (i.e., products, assets, or services). Building on Ajzen and Fishbein (1980), we view collaborative consumption as a behavioral category that includes five prototypical behaviors discussed in the literature (Bardhi & Eckhardt, 2012; Belk, 2014a; Botsman & Rogers, 2011) that reflect the same underlying disposition: borrowing, renting, gifting, swapping, and buying things used.

These five behaviors represent major configurations of the four primary exchange logics (Scaraboto, 2015) underlying collaborative consumption, that is 1) collaborative, shared use, 2) acquisition mode (transfer of ownership versus access), 3) reciprocity (reciprocal versus non-reciprocal behaviors), and 4) compensation (monetary versus non-monetary). All five behaviors require some degree of collaboration between consumers, peers or between an individual and a collaboration-based organization. Moreover, they all involve at least two people sharing the use of a

resource over time resulting in multiple consumption cycles (i.e., acquisition, use, distribution). Renting and borrowing facilitate exchange without transfer of ownership as resources are only temporarily accessed (e.g., car-sharing, shared use of living space). When gifting, swapping, or buying things used, ownership is transferred while multiple consumers effectively share the use of products or assets over time. We consider some of these behaviors non-reciprocal (e.g., borrowing, gifting), while others are reciprocal involving some form of monetary (e.g., renting, buying used) or non-monetary compensation (e.g., swapping). These behaviors can be found in commercial market structures (business-to-consumer and consumer-to-consumer markets) or privately (between peers) and both online and offline. Although our understanding includes the provision of resources, we focus on the acquisition of things through collaborative consumption in this study, as it represents the unambiguous alternative to buying something new. Thus, our understanding of collaborative consumption can be summarized as:

Acquiring resources from others for collaborative, shared use among consumers or peers as opposed to acquiring new resources for private use and final disposal.

4.2.2. Behavioral factors to understand collaborative consumption

Four major groups of social-psychological factors are suggested when examining sustainable (consumer) behaviors: Motivational (e.g., values, attitudes, norms), individual (e.g., behavior-specific knowledge and skills, social status), external/contextual (e.g., availability, laws and regulations, supportive policies, advertising), and habitual factors (e.g., past behavior) (Stern, 2000; Thøgersen, 2006). In line with Barnes and Mattsson (2016), we will focus on motivational and habitual

factors (by means of panel data) as they were identified as strongest inhibitor of collaborative consumption. Next, we will describe the behavioral factors building our theoretical framework and their relevance for collaborative consumption. Then, we will examine their three potential causal relationships with collaborative consumption and derive hypotheses.

Values. Schwartz (1994, p. 21) defines values as: "... desirable transsituational goals, varying in importance, that serve as guiding principles in the life of a person or other social entity." Values can both motivate as well as explain and justify behavior (Thøgersen & Ölander, 2002). According to Schwartz (1994), values can be divided into ten motivational groups depending on the type of motivational goal they represent. He further distinguishes these ten motivational groups along two dimensions in self-transcending versus self-enhancing values, on the one hand, and values representing an openness for change versus conservation, on the other hand. Stern et al. (1999) suggest a further distinction of self-transcendent values into altruistic (i.e., concern for the well-being of other humans) and biospheric (i.e., concern for the state of the environment and the well-being of other species) value orientations, while using the term egoistic for the self-enhancement value orientation. While little is known about the underlying processes determining the influence of values on collaborative consumption, Piscicelli et al. (2015) found that collaborative consumers score higher on self-transcendence values than on self-enhancement values. In line with these findings, we think it is valuable to examine consumers' values in the context of collaborative consumption.

Attitudes. Mediating the effects of biological (personal) and environmental (external) factors, attitudes reflect the overall positive or negative evaluation of performing a behavior (Ajzen, 1991). This behavioral factor most explicitly represents an

individual's calculation of the personal benefits and costs he or she associates with the behavior. As we expect consumers to make trade-offs between the benefits and costs associated with various alternatives including collaborative as well as non-collaborative consumption options, we consider attitudes to be an essential factor in determining collaborative consumption.

Norms. Norms account for the normative evaluation of the behavior (Manstead, 2000). Norms can be distinguished based on the source of the normative influence in subjective (social) norms and personal norms. *Subjective norms* refer to the perceived social pressure of significant others to perform or not perform the behavior (Ajzen, 1991). According to Botsman and Rogers (2011), consumers are in the process of forming new social norms that favor the collaborative and shared use of common resources over an individual, mass consumption. Therefore, we expect that subjective norms are positively related with collaborative consumption. *Personal norms* represent an individual's own moral obligation or responsibility to perform, or not to perform a behavior, beyond perceived social pressures (Ajzen, 1991). Personal norms can be used to explain additional variance in behaviors with a moral dimension, that is, in situations when someone faces a trade-off between a behavior's personal and external consequences (Conner & Armitage, 1998). Stern et al. (1999) argue that personal norms are based in individual values and the motivation to protect those by appropriate behavior. Examination of subjective and personal norms is particularly interesting when it comes to behaviors representing social change like collaborative consumption, in which case personal norms might have stronger effects than subjective norms as society might not have internalized new norms, yet (Stern et al., 1999). Thus, we consider it useful to examine personal norms beyond subjective norms in the context of collaborative consumption, as we expect consumers to carefully evaluate

whether this new form of consumption is the “right or wrong thing to do” from an environmental and social perspective.

4.2.3. Causal relationships between values, attitudes, norms, and collaborative consumption

As there is empirical evidence that values, attitudes, and norms are related to collaborative consumption in some form (e.g., Piscicelli et al., 2015; Hamari et al., 2015; Möhlmann, 2015), we will neglect the relationship suggested by Wicker (1969)—that is, attitudes (values and norms) and behavior are unrelated—and focus on the three remaining relationships to derive our hypotheses.

Values, attitudes, and norms cause collaborative consumption. According to Schwartz (1994), people acquire values both through socialization to dominating social values as well as through individual learning experience. The former suggests that values are relatively stable concepts that change rather slowly. In line with this view, Gundelach (1992) has identified differences between generations as one of three basic causes of value changes. Following these thoughts, Schwartz (1994) suggests that, at least in the short-to-medium term, an individual’s value priorities are likely to be relatively stable and motivate behavior. Most researchers view values as rather distal behavioral factors whose effect on behavior is mediated by more proximal behavioral factors, like beliefs about consequences and responsibility as well as personal norms. Building on Schwartz’s (1977, 1994) norm activation and value research, Stern et al. (1999) develop a value-belief-norm theory suggesting an individual’s altruistic (i.e., concern for the well-being of other humans) and biospheric (i.e., concern for the state of the environment and the well-being of other species) value orientations to be positively

related to the formation of a personal norm to behave in a sustainable way, while an egoistic value orientation (e.g., material wealth, success) is negatively related to personal norms.⁸ Thus, we hypothesize:

H₁: Consumers' (a) altruistic and (b) biospheric value orientation will be positively and (c) their egoistic value orientation will be negatively related to consumers' personal norms to consume collaboratively.

Attitudes are produced by beliefs about likely consequences of the behavior and their subjective evaluation (behavioral beliefs). It is argued that an attitude based on these beliefs motivates the conscious decision to perform a behavior. As a general rule, the more favorable the attitude toward a behavior, the more likely the performance of the behavior (Ajzen, 1991). Subjective norms are the result of beliefs about normative expectations of significant others and the motivation to comply with them (normative beliefs). Similar to favorable attitudes, it is argued that pressure from significant others motivates individuals to make conscious decisions to perform a behavior. The more favorable the subjective norms, the more likely is the performance of the behavior (Ajzen, 1991). In the value-belief-norm theory (Stern et al., 1999) it is assumed that people consciously evaluate potential consequences of the behavior for the environment or others and whether they take responsibility for these consequences. Based on these beliefs, people form personal norms that motivate the performance of adequate behaviors. Similarly, the stronger the personal norms the more likely is the performance of the behavior. Based on these theoretical premises, we hypothesize:

⁸ Although the value-belief-norm theory suggests the effect of value orientations on personal norms to be mediated by beliefs (i.e., new ecological paradigm, awareness of consequence, ascription of responsibility), we will examine a direct effect on personal norms to maintain parsimony of our model.

H₂: Consumers' (a) attitudes, (b) subjective norms, and (c) personal norms regarding collaborative consumption will be positively related to their actual collaborative consumption behavior.

Collaborative consumption causes values, attitudes, and norms. There is also theoretical reason and empirical evidence that points toward a causal priority of behavior over values, attitudes, and norms. According to Schwartz (1994), values can change based on individual learning experience. Similarly, Gundelach (1992) identifies changing conditions through an individual's lifecycle and periodical influences as additional causes of value changes. In line with both views, individuals may change their values based on experience inferred from behavior. Experience of a behavior may question an individual's current value priorities and potentially lead to change in values if they are not consistent with the performed behavior (Thøgersen & Ölander, 2002). Thus, we propose the following hypotheses:

H₃: Consumers' past collaborative consumption behavior will be positively related to their (a) altruistic and (b) biospheric value orientation and negatively related to their (c) egoistic value orientation in the future.

Similar to the effect of behavior on values, there is theoretical reasoning to expect consumers' attitudes and norms to adjust as a consequence of a behavior as people strive for cognitive consistency or as a rationalization for their action (Riketta, 2008). This causal relationship is grounded in the theory of cognitive dissonance (Festinger, 1957) and the theory of self-perception (Bem, 1967). Based on these theoretical premises, we hypothesize:

H₄: Consumers' past collaborative consumption behavior will be positively related to their (a) attitudes, (b) subjective norms, and (c) personal norms regarding collaborative consumption in the future.

Values, attitudes, norms, and collaborative consumption mutually cause each other.

Kelman (1974) suggests that attitudes and behavior mutually cause each other in a continuing reciprocal process. According to his view, attitudes are a “determinant, component, and consequent” of behavior (Kelman, 1974, p. 316). Following this view, behavior acts as a reference to form, test, modify, or abandon attitudes that in turn motivate behavior again (Kelman, 1974). This reciprocal interaction between behavior and attitude is driven by new experiences and feedback information as inferred from actual behavior. Similar to the reciprocal relationship between attitudes and behavior, it can be assumed that values, norms, and behavior mutually cause each other over time. A reciprocal relationship between values, attitudes, norms, and collaborative consumption is present, if all of the above hypotheses are confirmed respectively.

4.3. Method

4.3.1. Design and sample

We test our hypotheses by means of a two-wave panel study. Each wave is made up of two distinct online surveys, resulting in a total of four surveys. Wave one started in May 2015 (t_1) with the first survey including a short vignette based on our understanding of collaborative consumption (see the Appendix 3-1) and measures on values, attitudes, subjective, and personal norms. Four weeks after completion (t_2), participants received the second online survey to measure if, how, and what they actually consumed collaboratively. Wave two started in February 2016 (t_3) using the same survey as in May 2015. Four weeks after completion (t_4), participants received the second survey again. We conducted a pre-test ($n = 25$) to validate the measures. All surveys were anonymous and a unique participant-generated code was used to

match the four data files. We used the chance to win one of three gift vouchers or provide one of three donations with a total value of 300 EUR as an incentive for participation in all four surveys. As we study values and consumption patterns assumed to change rather slowly as well as proximal behavioral factors assumed to change faster, we choose a lag of nine months between the two waves as middle ground (Riketta, 2008).

The sample was drawn from two populations. The first sample was selected from registered members of eight collaboration-based organizations⁹ and the second was a random sample (university students from two German universities and the wider public) of people not registered to any collaboration-based organization. To make sure that at least some change in behavior would take place one collaboration-based organization (i.e., commercial bike-renting) was included that started its service in a major German city during our study. Three hundred sixty participants completed the first survey. Of the three hundred sixty, 249 (69%) completed the second, 179 (50%) the third, and 168 (47%) the fourth survey. They ranged from eighteen to 78 years of age with a median age of 30, and 54% were female. The majority (90%) lived in Germany, 5% in Switzerland. Fifty-eight percent were employed, 30% were students, and 7% had no employment or already retired. Median income was 2,000-2,999 EUR. Thirty-seven percent were not registered to any collaboration-based organization. Based on Chow's (1960) test statistic the results from the sample of registered collaboration-based organization members and non-members were not significantly

⁹ Including private car-renting, private ride-sharing, commercial bike-renting, commercial product swap-ping/borrowing, private food-gifting, commercial renting of private living space (2x), and private job-sharing.

different. Therefore, we report the results of the combined data from both samples ($N = 168$).

4.3.2. Measures

We use established and validated items in the first survey (see the Appendix 3-2) to measure *Altruistic*, *Biospheric*, and *Egoistic value orientation* (Schwartz, 1994), *Attitude*, *Subjective norm* (Fishbein & Ajzen, 2010), and *Personal norm* (Stern et al., 1999). All measures were based on multiple items (at least three) to reduce measurement error. Apart from the items that measured values, all other items matched the wording of the behavioral item to ensure internal validity (Fishbein & Ajzen, 2010), were measured on Likert-type 7-point response scales, and were randomized throughout the surveys to reduce response biases. Value items were taken from the Schwartz (1994) value inventory and measured on Likert-type 9-point scales. For the assessment of self-reported behavior in the second survey (see the Appendix 3-3), we operationalized *Collaborative consumption* in line with Fishbein and Ajzen's (2010) target, action, context, time (TACT) considerations at a high level of generality in order to develop an understanding of a general disposition toward collaborative consumption. Thus, we specified target, action, and time. As a result, we measured collaborative consumption by asking "How many times have you particularly consumed collaboratively in the last four weeks [time] by X [action] something [target]" where X refers to one of five different collaborative consumption behaviors—*Borrowing*, *Renting*, *Accepting gift/donation*, *Swapping* and *Buying used*. The five responses were summed to form an aggregated *Collaborative consumption* index representing the overall collaborative consumption pattern of each participant similar

to other studies (Thøgersen & Ölander, 2002). In addition, we asked what type of resource was acquired.

4.3.3. Statistical analysis

Statistical analysis proceeds in three stages. First, we examine temporal stability and change in values, attitudes, norms, and the five collaborative consumption behaviors over time as well as reliability and validity of variables. Second, we use variance-based structural equation modelling (PLS-SEM) in SmartPLS 3 to analyze the intra-wave relationships between values, attitudes, norms, and collaborative consumption (Ringle et al., 2015). PLS-SEM is a two-step approach. Initially, construct values are calculated based on multiple items for all latent variables as part of the measurement model. Thereafter, path coefficients between the latent variables are calculated as part of the structural model. Loadings obtained in step one can be interpreted just like factor loadings in factor analysis, while path coefficients obtained in step two can be interpreted just like standardized regression coefficients in regression analysis (Lee, 1997). We use PLS-SEM as opposed to covariance-based SEM (e.g., in Amos) because it is more suitable for small sample sizes since already 100 observations can be sufficient to achieve acceptable levels of statistical power (Reinartz, Haenlein, & Henseler, 2009). As all proposed hypotheses were directional, we used one-tailed testing, unless otherwise specified, to draw accurate empirical conclusions (Cho & Abe, 2013). Finally, PLS-SEM with a cross-lagged panel design is used to examine the interaction between collaborative consumption, values, attitudes, and norms between the two waves. Cross-lagged panel design based structural equation modeling attempts to answer major questions about the pattern of direct (both autoregressive and cross-lagged) and indirect (i.e., mediated) relations among constructs over time (Little,

Preacher, Selig, & Card, 2007). The cross-lagged panel design is therefore supposed to be more suitable than cross-sectional research in answering whether values, attitudes, and norms cause collaborative consumption, or conversely whether collaborative consumption causes values, attitudes, and norms, or whether both effects operate reciprocally (Oud & Delsing, 2010). Researchers have successfully used the PLS-SEM approach based on longitudinal data before to analyze relationships between behavior and attitudes (Lee, 1997), or self-efficacy (Shea & Howell, 2000).

4.4. Results

4.4.1. Descriptive results

One hundred thirty-eight participants (82%) reported in wave one that they had acquired something through *Collaborative consumption* at least once in the previous four weeks, 132 (79%) in wave two. The most frequently acquired resources by prototypical behavior were books via *Borrowing*, cars and living space via *Renting*, clothes/accessories via *Buying used*, food via *Accepting a gift or donation*, and clothes/accessories via *Swapping*.

4.4.2. Temporal stability and change

Values. All correlations are positive and highly significant (see Table 13). Hence, value orientations seem to be stable over the time span of nine months. Factor loadings of all values exceed the recommended threshold of .50. Cronbach's α of the *Altruistic*, *Biospheric*, and *Egoistic* value orientations exceed the recommended threshold of .70 (Churchill, 1979) signaling adequate reliability. Average variance extracted (AVE) of all value orientations is $> .57$, thus exceeding the recommended threshold of .50

(Fornell & Larcker, 1981) and signaling appropriate convergent validity. Moreover two out of three mean changes are statistically significant (*Biospheric*; $\Delta M = .21$, $p < .05$; *Egoistic*; $\Delta M = -.26$, $p < .05$), one is marginally significant (*Altruistic*; $\Delta M = .14$, $p = .09$).

Attitude and norms. All correlations are positive and highly significant (see Table 14). Hence, like values the more proximal behavioral factors seem to be stable. Factor loadings of all items exceed the recommended threshold of .50 except for the item SN3. Thus, we dropped this item from the measurement model. Resulting Cronbach's α for all variables exceed the recommended threshold of .70 signaling adequate reliability. Average variance extracted (AVE) of *Attitude*, *Subjective norm*, and *Personal norm* is $> .68$, signaling appropriate convergent validity. Contrary to our expectations, none of the mean changes from $-.05 \leq \Delta M \leq .13$ are statistically significant.

Collaborative consumption. The level of collaborative consumption is shown in Table 15 as means of the five different collaborative consumption behaviors as well as an aggregated behavior index representing the overall collaborative consumption pattern. All correlations are positive and highly significant. Means between 1.43 and 2.08 (max. 7) indicate that regular collaborative consumption practices are still rare. While the overall consumption pattern of the participants becomes more collaborative over time, the mean change is not statistically significant. Only the mean of *Borrowing* statistically significantly increases from wave one to wave two ($\Delta M = .17$, $p < .05$).

Table 13. Temporal stability, change, and reliability of values (n = 168)

Variable/item	M _{W1}	M _{W2}	ΔM	r ¹	λ ² _{W1}	λ ² _{W2}	α ³ _{W1}	α ³ _{W2}
<i>Altruistic</i>	6.87	7.01	.14 ^{ms}	.60***			.81	.84
Equality	7.00	7.10	.10 ^{ns}	.55***	.77	.80		
Helpful	6.77	6.77	.00 ^{ns}	.50***	.63	.69		
Social justice	6.50	6.63	.13 ^{ns}	.61***	.88	.80		
World at peace	7.22	7.56	.34*	.45***	.63	.74		
<i>Biospheric</i>	5.98	6.19	.21*	.71***			.85	.85
Unity with nature	5.27	5.21	-.06 ^{ns}	.62***	.70	.69		
Environm. protection	6.31	6.75	.44***	.61***	.87	.78		
Respect for the earth	6.38	6.62	.24*	.63***	.87	.97		
<i>Egoistic</i>	5.61	5.35	-.26*	.57***			.73	.74
Successful	6.67	6.53	-.14 ^{ns}	.55***	.85	.68		
Wealth	5.20	4.98	-.22 ^{ns}	.55***	.60	.59		
Authority	4.95	4.54	-.41**	.49***	.66	.85		

1 Test-retest, 2 Factor loading, 3 Cronbach's α, * p < .05, ** p < .01, *** p < .001, ns = not significant, ms = marginally significant (p < .1)

Table 14. Temporal stability, change, and reliability of attitude and norms (n = 168)

Variable/item	M _{W1}	M _{W2}	ΔM	r ¹	λ ² _{W1}	λ ² _{W2}	α ³ _{W1}	α ³ _{W2}
<i>Attitude</i>	5.49	5.44	-.05 ^{ns}	.52***			.90	.93
ATT1	5.77	5.81	.04 ^{ns}	.49***	.84	.82		
ATT2	5.81	5.71	-.10 ^{ns}	.39***	.78	.92		
ATT3	5.82	5.78	-.04 ^{ns}	.29***	.85	.85		
ATT4	5.24	5.27	.03 ^{ns}	.37***	.86	.87		
ATT5	4.89	4.69	-.20 ^{ns}	.41***	.62	.64		
ATT6	5.43	5.38	-.05 ^{ns}	.51***	.73	.89		
<i>Subjective norm</i>	4.46	4.59	.13 ^{ns}	.49***			.77	.79
SN1	4.30	4.34	.04 ^{ns}	.38***	.66	.68		
SN2	4.21	4.39	.18 ^{ns}	.42***	.74	.79		
SN3	5.92	6.07	.15 ^{ns}	.38***	.48	.57		
SN4	4.92	5.10	.18 ^{ns}	.47	.77	.77		
<i>Personal norm</i>	2.93	3.03	.10 ^{ns}	.69***			.84	.84
PN1	2.80	2.98	.18 ^{ns}	.61***	.86	.85		
PN2	3.53	3.69	.16 ^{ns}	.57***	.69	.75		
PN3	2.51	2.49	-.02 ^{ns}	.61***	.86	.80		

1 Test-retest, 2 Factor loading, 3 Cronbach's α, *** p < .001, ns = not significant,

Table 15. Temporal stability and change of collaborative consumption behaviors (n = 168)

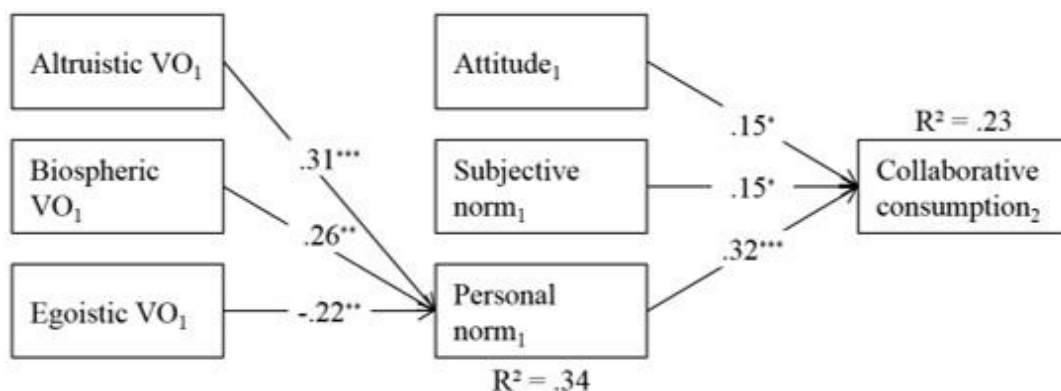
Variable/item	M _{W1}	M _{W2}	ΔM	r ¹
Borrowing	1.91	2.08	.17*	.47***
Renting	1.87	1.87	.00 ^{ns}	.37***
Buying used	1.73	1.65	-.08 ^{ns}	.56***
Accepting gift/donation	1.64	1.71	.07 ^{ns}	.55***
Swapping	1.49	1.43	-.06 ^{ns}	.59***
<i>Collaborative consumption (aggregated index)</i>	8.62	8.73	.11 ^{ns}	.68***

1 Test-retest, * p < .05, *** p < .001, ns = not significant

4.4.3. Intra-wave structural model

Figure 3 shows the results from the intra-wave structural analysis. The model explains 34% (R^2 adjusted = .32) of the variance in *Personal norm₁* and 23% (R^2 adjusted = .21) of the variance in *Collaborative consumption₂*. According to Cohen's (1992) effect size index these effects are large for *Personal norm₁* and medium for *Collaborative consumption₂*. Moreover, the Stone-Geisser criterion of both *Personal norm₁* ($Q^2 = .23$) and *Collaborative consumption₂* ($Q^2 = .20$) are > 0 signaling predictive relevance of our model (Fornell & Bookstein, 1982). We obtained standardized path coefficients by means of bootstrapping. The coefficients show that the *Altruistic₁* ($\beta = .31$, $p < .001$) and *Biospheric₁* ($\beta = .26$, $p < .01$) value orientation have statistically significant positive relationships, while the *Egoistic₁* ($\beta = -.22$, $p < .01$) value orientation has a statistically significant negative relationship with *Personal norm₁*. Based on these results, $H_1(a)$, $H_1(b)$, and $H_1(c)$ are supported by the data. As expected, *Attitude₁* ($\beta = .15$, $p < .05$), *Subjective norm₁* ($\beta = .15$, $p < .05$), and *Personal norm₁* ($\beta = .32$, $p < .001$) have statistically significant positive relationships with *Collaborative consumption₂*. Thus, $H_2(a)$, $H_2(b)$, and $H_2(c)$ are supported by the data.

Figure 3. Intra-wave structural model of wave one (n = 168)



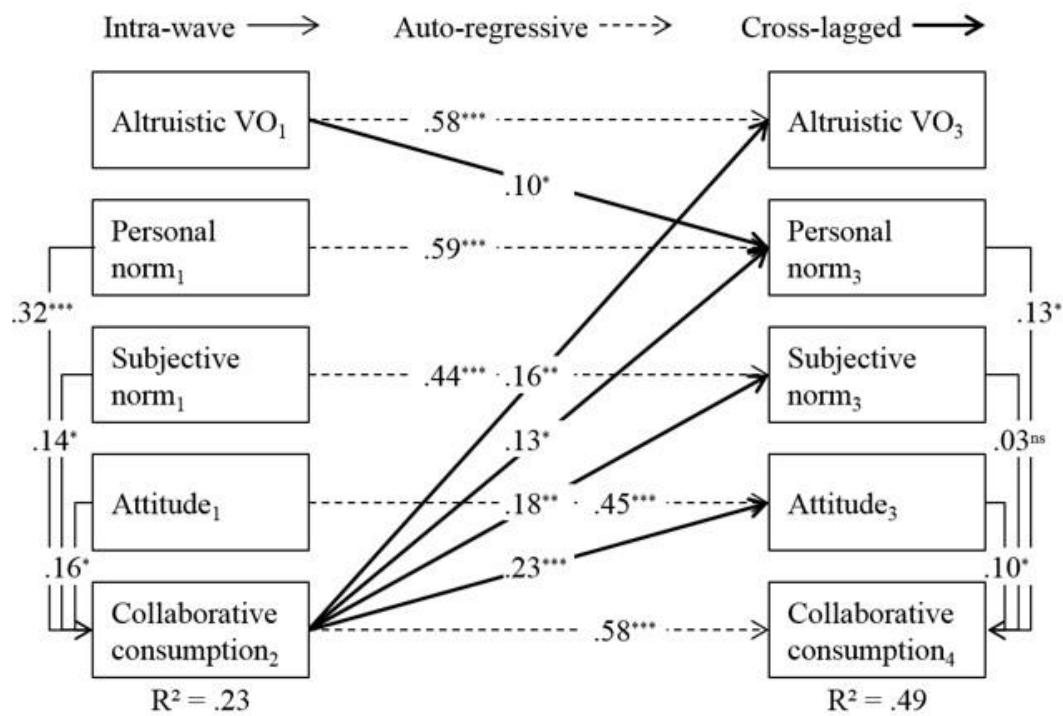
* $p < .05$, ** $p < .01$, *** $p < .001$, ns = not significant

4.4.4. Cross-lagged structural model

We combined data from both waves to create the cross-lagged structural model. Initially, we performed a 2W7V cross-lagged panel analysis including the three value orientations (i.e., *Altruistic*, *Biospheric*, and *Egoistic*), *Attitude*, *Subjective norm*, *Personal norm*, and *Collaborative consumption*. We did not include lags from *Attitude*₁, *Subjective norm*₁, and *Personal norm*₁ to *Collaborative consumption*₄ as the former measures account for the following four weeks and do therefore not represent a causal effect over a time span of nine months. We found significant positive cross-lagged effects between *Collaborative consumption*₂ and the *Altruistic*₃ value orientation, *Attitude*₃, *Subjective norm*₃, and *Personal norm*₃. However, no significant cross-lagged effects were found between *Collaborative consumption*₂ and the *Biospheric*₃ as well as the *Egoistic*₃ value orientation. Thus, we dropped these two variables for further analysis. The resulting 2W5V cross-lagged panel analysis is shown in Figure 4. The model explains 23% (R^2 adjusted = .21) of variance in *Collaborative consumption* in wave one and 49% (R^2 adjusted = .48) in wave two. According to Cohen's (1992) effect size index these effects are medium for *Collaborative consumption*₂ and large for *Collaborative consumption*₄. The Stone-Geisser criterion of both *Collaborative consumption*₂ (Q^2 = .19) and *Collaborative consumption*₄ (Q^2 = .44) are > 0 signaling predictive relevance of our model (Fornell & Bookstein, 1982). We obtained standardized coefficients for three kinds of paths from bootstrapping. First, we obtained coefficients for intra-wave paths between the proximal behavioral factors (i.e., *Attitude*, *Subjective norm*, *Personal norm*) and *Collaborative consumption*. As expected, the coefficients in wave one are similar to the coefficients obtained from the intra-wave structural model before. Second, we obtained coefficients for the auto-regressive paths between same variables measured

in wave one and wave two accounting for past experience, decisions, and behavior (e.g., habit). All coefficients of the autoregressive paths are positive and highly statistically significant. When past behavior is accounted for, the relationships between the proximal behavioral factors and *Collaborative consumption* in wave two are attenuated substantially. However, *Attitude*₃ ($\beta = .10$, $p < .05$) and *Personal norm*₃ ($\beta = .13$, $p < .05$) still have statistically significant positive relationships with *Collaborative consumption*₄. Only *Subjective norm*₃ ($\beta = .03$, $p > .05$) does not have a statistically significant influence on *Collaborative consumption*₄ over and above past behavior. Finally, we obtained coefficients for the cross-lagged effects. The *Altruistic*₁ value orientation in wave one has a statistically significant positive influence on the *Personal norm*₃ ($\beta = .10$, $p < .05$) in wave two. The reverse effect between *Personal norm*₁ and the *Altruistic*₃ value orientation was not found. *Collaborative consumption*₂ has statistically significant positive relationships with the *Altruistic*₃ ($\beta = .16$, $p < .01$) value orientation, as well as with *Attitude*₃ ($\beta = .23$, $p < .001$), *Subjective norm*₃ ($\beta = .18$, $p < .01$), and *Personal norm*₃ ($\beta = .13$, $p < .05$). Thus, $H_3(a)$, $H_4(a)$, $H_4(b)$, and $H_4(c)$ are supported, $H_3(b)$ and $H_3(c)$ are not supported by the data.

Figure 4. Cross-lagged structural model (n = 168)



* $p < .05$, ** $p < .01$, *** $p < .001$, ns = not significant

4.5. Discussion and conclusion

Collaborative consumption is proposed as a step beyond unsustainable linear consumption patterns toward more sustainable consumption practices. Consequently, researchers, practitioners, and policymakers aiming to achieve a transition toward sustainability are interested in the effects collaborative consumption actually has on the environment, the economy, and the society. As insights into collaborative consumption's social-psychological effects on the society at the individual level were missing, we examined whether collaborative consumption affects consumers' values, attitudes, and norms over time. Our findings suggest collaborative consumption has mutual causal relationships with values, attitudes, and norms causing each other in a continuing reciprocal process. Our findings have several theoretical and practical implications.

4.5.1. Theoretical implications

Collaborative consumption has been contradictorily framed as a “pathway to sustainability” by some and as a “nightmarish form of neoliberal capitalism” by others (Martin, 2016). However, little is known about its actual effects making it difficult to make reliable predictions about its further development. We examined collaborative consumption’s social-psychological effects on consumers’ values, attitudes, and norms to find out whether it is advantageous for a transition toward sustainability or disadvantageous. Our findings suggest the more consumers are engaged in collaborative consumption behavior, the more altruistic they become over time. Moreover increased collaborative consumption leads consumers to maintain their favorable attitudes, subjective norms, and personal norms with regards to collaborative consumption. However, no statistically significant cross-lagged effects of collaborative consumption are found on consumers’ future biospheric and egoistic values. In other words, the more consumers engaged in collaborative consumption, the more concerned they were for others, while it did not affect their concern for the environment or themselves. Thus, we conclude that engaging in actual collaborative consumption might directly aid a transition to social sustainability, while it does not seem to immediately affect consumers’ value orientation with regards to environmental sustainability. We discuss implications of our findings for each social-psychological variable of our theoretical framework.

Values. Generally, value orientations are expected to be extremely stable and change rather slowly. This would make any attempt to change consumers’ values very difficult. However, we find significant changes in value orientations over the short-to-medium time period of nine months (see Table 13). In particular, consumers in our sample give a higher priority to the altruistic and biospheric value orientation and a

lower priority to the egoistic value orientation over time. These changes could be explained by measurement error as it is particularly difficult to measure abstract mental concepts like values that are assumed to be of low salience. However, as we use Schwartz's (1994) extensively validated value inventory and focus on aggregated value orientations instead of individual values we are confident to reduce measurement error to a minimum. This leaves room for alternative explanations that we set out to discuss here.

As for the altruistic value orientation, our results show that collaborative consumption and altruism mutually cause each other over time. In particular, we find statistically significant cross-lagged effects from collaborative consumption to the altruistic value orientation as well as from the altruistic value orientation to collaborative consumption mediated by personal norm over and above auto-regressive effects. These findings provide new evidence for the understanding of the relationship between values and behavior against the backdrop of value theory (Gundelach, 1992; Schwartz, 1994), which claims that predominant causal influence goes from values to behavior in the short-to-medium term. In addition, researchers previously find that value orientations do not adjust to environment-friendly consumption patterns in the short-to-medium term (Thøgersen & Ölander, 2002). However, our findings challenge this theoretical premise and empirical evidence and suggest that causal influence goes in both directions in the short-to-medium term. That the altruistic value orientation is affected by collaborative consumption and at the same time maintains a significant influence on future collaborative consumption behavior through personal norm over and above auto-regressive effects is in line with the value-belief-norm theory (Stern et al., 1999) and the findings from Piscicelli et al. (2015). It also seems reasonable given the communal nature of collaborative consumption in consumer or peer networks and the

motivational goals associated with the altruistic value orientation, in particular to help others, achieve social justice, and equality.

However, we do not find statistically significant cross-lagged effects between collaborative consumption and the biospheric nor the egoistic value orientation beyond auto-regressive effects of past behavior. This is surprising, as the intra-wave structural model indicates an influence of both value orientations on behavior mediated by personal norm. The missing cross-lagged effect of the biospheric value orientation could be explained by the motivational goals of the biospheric value orientation (i.e., concern for the state of the environment and the well-being of other species). While actual collaborative consumption behavior has cued consumers' associations with other humans (e.g., renting living space from someone else) and led to them being even more concerned for their well-being, our findings suggest that it has not cued associations with the environment or other species. This seems reasonable given that we examined consumers' aggregated collaborative patterns. It would be interesting to examine differences between particular collaborative consumption behaviors in further research to determine whether there are behaviors that cue associations with the environment or other species (e.g., driving a car vs. renting living space). Collaborative consumption might lack a statistically significant cross-lagged effect on the egoistic value orientation, as the motivational content of this value orientation is potentially reflected by past behavior to some degree. Finding a similar result with regards to egoistic values, Thøgersen and Ölander (2002) assume egoistic consumers might not change their value orientation based on behavioral routines as it is perceived as unpleasant.

Attitudes. Furthermore, our results show that causality between collaborative consumption and attitudes works in both ways. This finding provides new evidence

for the discussion on the direction of causality within attitude-behavior theory (Bem, 1967; Kelman, 1974; McGuire, 1976; Wicker, 1969) and empirically confirms Kelman's (1974) view on the dynamic relationship between attitude and behavior. While a favorable attitude toward collaborative consumption has a motivational effect on collaborative consumption, the actual behavior itself provides a positive force to maintain a favorable attitude (Bem, 1967; Kelman, 1974). This finding is also in line with Thøgersen (2006) who finds a positive cross-lagged effect between public transport behavior and attitudes over time.

Norms. Collaborative consumption has statistically significant cross-lagged effects on subjective and personal norms. With regards to subjective norms, engaging in collaborative consumption likely increases the exposure to and the awareness of others and their attitude toward collaborative consumption, even as the effect of subjective norms on future collaborative consumption behavior is attenuated when past behavior is accounted for. While not explicitly accounted for in the value-belief-norm theory (Stern et al., 1999) the cross-lagged effect of collaborative consumption on personal norms suggests a relationship between personal norms and behavior similar to the one between attitudes and behavior (Kelman, 1974). Our findings are in line with previous studies from the domain of organic food consumption and personal norms (Thøgersen & Ölander, 2006). Collaborative consumption seems to provide positive feedback reinforcing an individual's commitment to take responsibility for others and the environment.

4.5.2. Practical implications

In addition to our theoretical contributions, several practical implications can be derived from our findings that emphasize points of intervention for practitioners and policymakers. We provide scientific evidence that helps practitioners and policymakers to initiate the reciprocal process between collaborative consumption, values, attitudes, and norms and thus shape its further development. On the one hand, practitioners and policymakers should use both education and information (e.g., advertisement) to address consumers' altruistic and biospheric values, attitudes, subjective and personal norms. On the other hand, it seems reasonable that practitioners and policymakers attempt to change external conditions in addition, for instance by reducing external inhibitors and creating adequate incentives to achieve immediate behavior change. Our findings suggest, that performance of collaborative consumption will subsequently influence consumers' altruistic values, attitudes, and norms in a continuing reciprocal process. Ideally, both approaches can be integrated to make consumers try collaborative consumption, while at the same time providing adequate feedback information that will help adjust values, attitudes, and norms (Thøgersen, 2006).

4.5.3. Limitations and further research

Despite its contributions, our study has some limitations that provide potential for further research. First, based on the priority given to motivational factors and habitual behavior as strongest inhibitors of collaborative consumption, we focus our panel study on respective variables. However, to develop an actual understanding of the interaction between collaborative consumption and other behavioral factors like

individual (e.g., behavior-specific knowledge and skills, social status) and external/contextual (e.g., availability, laws and regulations, supportive policies, advertising) and to compare those findings with the ones provided here, further research could examine additional factors. Particularly interesting are questions on the role of laws and regulations and supportive policies in the interaction between values and collaborative consumption as these factors are subject to substantial public and academic debate (Barnes & Mattsson, 2016; Hartl, Hofmann, & Kirchler, 2015). These factors not only enable or inhibit but also frame the perception of collaborative consumption and thus the experience inferred from it. Second, in order to develop a fundamental idea about the interaction between values, attitudes, norms, and collaborative consumption, we examined behavior at the level of the consumption pattern based on five prototypical collaborative consumption behaviors. Further research could examine differences between these behaviors. Based on the various underlying exchange logics that we have described in our study, these behaviors might have different effects on values, attitudes, and norms over time. Finally, while we chose a time lag of nine months as a middle ground between the causal effects on values as well as on attitudes and norms we cannot conclude with certainty that this time lag is appropriate. Further research could examine different time lags to compare significance and strengths of effects to further narrow down the time period for these causal effects to evolve.

Appendix 3-1: Third study, vignette

Nowadays, many people use products and services in collaboration with others or in communities. Often, these communities and the shared use of products and services are enabled by modern technologies, such as mobile Internet, social networks, and GPS.

Examples of collaborative consumption include the shared use of cars and bikes, swapping clothes, and renting living or working space.

Collaborative consumption in this survey is defined as:

To acquire a resource (e.g., a car, a bike, clothes, living or working space, a skill, or anything you want) from someone by ...

... renting it or

... borrowing it or

... swapping it or

... accepting it as a gift or donation or

... buying it used.

This is in contrast to exclusively buying a new resource for private use.

Appendix 3-2: Third study, first survey

Variable	Item ^a
Attitude	For me consuming collaboratively within the next month would be (Harmful/beneficial; ATT1) ... (Bad/good; ATT2) ... (Worthless/valuable; ATT3) ... (Unpleasant/pleasant; ATT4) ... (Dull/exciting; ATT5) ... (Unenjoyable/enjoyable; ATT6)
Subjective norm	Most people who are important to me think that I ... (Should not/should consume collaboratively within the next month; SN1) The people in my life whose opinion I value would ... (Disapprove/approve of consuming collaboratively within the next month; SN2) Most people who are important to me consume collaboratively (Completely false/true; SN3) Many people like me consume collaboratively (Strongly disagree/agree; SN4)
Personal norm	How strongly do you feel a personal obligation to consume collaboratively within the next month (Strongly not obliged/strongly obliged; PN1) I expect from myself to consume collaboratively within the next month (Absolutely false/true; PN2) Personally, I have a moral obligation to consume collaboratively within the next month (Strongly disagree/agree; PN3)
Altruistic VO	How important or unimportant is equality (equal opportunity for all) as a guiding principle in your life (opposed to my values/of supreme importance) ... helpful (working for the welfare of others) ... social justice (correcting injustice, care for the weak) ... a world at peace (free of war and conflict)
Biospheric VO	... unity with nature (fitting into nature) ... protecting the environment (preserving nature) ... respecting earth (harmony with other species)
Egoistic VO	... successful (achieving goals) ... wealth (material possessions, money) ... authority (the right to lead or command)

a All items were measured on Likert-type 7-point response scales, except items on altruistic, biospheric, and egoistic value orientation that were measured on Likert-type 9-point response scales

Appendix 3-3: Third study, second survey

Variable	Item ^a
	How many times have you particularly consumed something collaboratively in the last 4 weeks by ...
Renting	... renting something (Never/daily)
Borrowing	... borrowing something (Never/daily)
Swapping	... swapping something (Never/daily)
Accepting gift or donation	... accepting a gift or donation (Never/daily)
Buying used	... buying something used (Never/daily)
Resources	If you have consumed something collaboratively in the last 4 weeks by (prototypical behavior), what was it primarily (Car, bicycle, living space, office space, clothing/accessory, food, skill, book, DVD, tool, toy, sport equipment, camera, other)

a All items were measured on Likert-type 7-point response scales, except the item on resources

5. Discussion and conclusion

The objectives of this thesis were to clearly identify and delimit collaborative consumption behaviors and to advance the understanding of collaborative consumption's social-psychological determinants and effects. Thus, this thesis responds to recent calls to close the gaps in research surrounding these aspects (Barnes & Mattsson, 2016; Heinrichs, 2013; Martin, 2016). The thesis is comprised of three studies. In the following, the results of these studies are summarized and their theoretical implications as a whole are highlighted (section 5.1). Moreover, potential avenues for further research are discussed (section 5.2).

5.1. Theoretical implications

In order to meet the objectives of this thesis, a consumer behavior perspective was taken to develop a conceptual framework of collaborative consumption behaviors and social-psychological theories of behavior—in particular, the theory of planned behavior (Ajzen, 1985, 1991; Fishbein & Ajzen, 2010), value theory (Schwartz, 1994), and value-belief-norm theory (Stern et al., 1999)—were used to examine collaborative consumption's determinants and effects.

The first study examines collaborative consumption and its connection to sustainable resource use by addressing the research question: what are the consumer behaviors that together make up collaborative consumption and how are these behaviors related to each other? The conceptual literature review finds collaborative consumption is a behavioral category made up of five prototypical behaviors: renting, borrowing/sharing, accepting gift/donation, swapping/bartering, and buying used. The study highlights collaborative, shared use of resources as the primary exchange logic

and acquisition mode, reciprocity, and compensation as secondary exchange logics defining these five behaviors. Using survey data from 224 consumers, no negative correlations between these five behaviors are found, suggesting that the behaviors are not compensatory. However, the findings suggest that collaborative consumption is made up of two sub-categories. On the one hand, borrowing/sharing, accepting gift/donation, swapping/bartering and buying used are positively correlated, loading a single factor, suggesting a coherent consumption pattern based on these behaviors. On the other hand, renting is not correlated with any other particular collaborative consumption behavior, suggesting that this behavior is still largely performed in isolation.

The second study examines determinants of collaborative consumption by addressing the research question: which social-psychological variables and underlying values and beliefs determine actual collaborative consumption? In general, it finds consumers' actual collaborative consumption behavior to be determined by both economic/egoistic (e.g., cost savings) and normative (e.g., altruistic value orientation) motives. In particular, it is determined by their intention to consume collaboratively and the perceived control over collaborative consumption. Consumers' intention to consume collaboratively is determined by consumers' attitudes, subjective norms, and personal norms. Cost savings, efficient use of resources, and community with others are found to be consumers' underlying behavioral beliefs. Consumers' friends and young people in general are found to determine subjective norms as underlying normative beliefs. Actual collaborative consumption was predicted—through PBC—by the control beliefs Internet access and high geographic density of collaborative consumption options. Personal norms to consume collaboratively are determined by consumers' altruistic and biospheric value orientations.

The third study examines collaborative consumption's effects on consumers' mindsets over time by addressing the research question: does collaborative consumption affect consumers' values, attitudes, and norms? Using cross-lagged structural equation modeling based on a two-wave panel study with 168 consumers, the study finds collaborative consumption has mutual causal relationships with values, attitudes, and norms causing each other in a continuing reciprocal process. In particular, collaborative consumption is found to have statistically significant positive cross-lagged effects on future altruistic values, attitudes, subjective norms, and personal norms with regards to this form of consumption.

From a theoretical perspective, this thesis contributes to the extant literature in several meaningful ways.

First, by identifying five prototypical collaborative consumption behaviors it creates unambiguous clarity around collaborative consumption's basic concept. The exchange logic of collaborative, shared use synthesizes previously distinctive perspectives on collaborative consumption found in the literature and emphasizes important commonalities with other concepts primarily focused on the production side, like the circular economy (Mont & Heiskanen, 2015). The resulting definition of collaborative consumption includes behaviors where ownership is transferred, thus extending the understanding of Bardhi and Eckhardt (2012) and reciprocal behaviors, thus extending the understanding of Belk (2014a). Furthermore, while the study builds on the understanding of Botsman and Rogers (2011), it explicitly accounts for behaviors that are initiated and performed in the low-technology and offline realm. This understanding will advance further theoretical and empirical examination and benefit the communication on and development of measures directed at collaborative consumption by practitioners and policymakers.

Second, it adds to the list of existing determinants of collaborative consumption behavior, examines the relative importance of attitudes, subjective, and personal norms, and particularly provides new insights into the role of values for collaborative consumption. Finding collaborative consumption to occupy a middle ground between primarily market-based exchange (e.g., Bardhi & Eckhardt, 2012; Belk, 2014a, 2014b) and normative sharing (e.g., Albinsson & Perera, 2012; Belk, 2009) further advances the theoretical understanding of this behavior. It follows that collaborative consumption can be pin-pointed neither as a mere form of economic exchange nor as a primarily normative form of sharing resources. This finding is consistent with findings from the broader field of sustainable consumption, where researchers (Ölander & Thøgersen, 1995) find consumers make trade-offs between personal cost and benefits (e.g., cost and taste of organic food) and external consequences (e.g., CO₂ emissions).

Third, this is the first research effort to use a longitudinal panel to examine the social-psychological effects of collaborative consumption on consumers over time. Finding collaborative consumption to positively affect consumers' altruistic values, attitudes, and norms provides a new theoretical and empirical perspective on its development as a potential catalyst for a sustainable transformation of consumption. The role of altruistic values is in line with the value-belief-norm theory (Stern et al., 1999) and the findings from Piscicelli et al. (2015). It also seems reasonable given the communal nature of collaborative consumption in networks and the motivational goals associated with altruistic values, i.e., to help others, achieve social justice, and equality. However, no statistically significant effects of collaborative consumption are found on consumers' future biospheric and egoistic values. In other words, the more consumers

engaged in collaborative consumption, the more concerned they were for others, while it did not affect their concern for the environment or themselves.

Fourth, to the author's best knowledge, this study is among the first to empirically examine the relationships between five different collaborative consumption behaviors contributing to the consumer lifestyle and the behavioral spillover literature. The findings suggest that there are two forms of collaborative lifestyles. One is characterized by a coherent consumption pattern based on borrowing/sharing, accepting gifts/donations, swapping/bartering, and buying used. Finding positive behavioral spillovers between borrowing/sharing, accepting gifts/donations, swapping/bartering, and buying used suggests consumers to apply some form of category-based behavior evaluation of these collaborative consumption behaviors (Fiske & Pavelchak, 1986; Suja, 1985). These findings are in line with findings from Thøgersen (1999) and point toward a cognitive reason for behavioral spillover. The other consumer lifestyle is determined by renting (e.g., car-sharing, AirBnB). As a reciprocal, access-based behavior renting bears similarities with behaviors from the coherent consumption pattern like buying used (which is also reciprocal) as well as borrowing/sharing (which is also access-based) although it is still performed in isolation from other collaborative consumption behaviors. These findings confirm the view that neither reciprocity, as suggested by Belk (2014a) nor acquisition mode, as suggested by Bardhi and Eckhardt (2012) are the defining exchange logics of collaborative consumption.

Fifth, it provides empirical evidence and theoretical reasoning that suggests the extension of the theory of planned behavior (Ajzen, 1985, 1991) by a value-based personal norm variable in the context of collaborative consumption. Based on the discussion of required criteria any adjustment of the theory of planned behavior should

meet, the thesis suggests the use of a personal norm variable as a general addition to the antecedents of intention (Fishbein & Ajzen, 2010) when examining behaviors with a moral dimension to adequately account for normative influences. Thus, this thesis responds to a recent call for further development of this theory (Head & Noar, 2014).

Finally, it advances social-psychological research on the relationships between values, attitudes, norms, and behavior in general by empirically showing that they mutually cause each other in a continuing reciprocal process. These results question the conventional view, that values are stable in the short-term (Schwartz, 1994) and extend Kelman's (1974) idea of mutual causation between behavior and attitudes to values, and norms.

5.2. Avenues for further research

Each of the three studies has surfaced further questions that have been pointed out in the respective chapters. However, there are three major avenues for further research to advance the understanding of collaborative consumption that can be derived from this thesis as a whole.

First, building on the conceptual framework of collaborative consumption developed in chapter two and the associated empirical findings on the relationships between the five prototypical collaborative consumption behaviors, theoretical links between these collaborative lifestyles and the emerging sustainable lifestyle literature (Mont, Neuvonen, & Lähteenoja, 2014) could be examined and employed as a programmatic frame for further research. In particular, potential paths to collaborative consumer lifestyles call for further theoretical and empirical examination. For example, other theoretical mechanisms to pattern formation apart from behavioral spillover like habit

formation (Verplanken & Wood, 2006) or normalization (Thomas & Sharp, 2013) could complement findings from this thesis and result in a more nuanced understanding of collaborative consumption patterns. In addition, facilitating and deterring conditions of the pattern formation should be identified as potential points of intervention for practitioners and policymakers.

Second, when examining collaborative consumption's determinants and effects in chapter three and four, collaborative consumption has been operationalized as an aggregated behavioral category similar to previous research in the field of sustainable consumption (Thøgersen & Ölander, 2002). In the case of Thøgersen and Ölander (2002) and the present thesis, this aggregation allowed for the identification of a general disposition toward forms of consumption different from a resource intensive linear and private one. As highlighted in chapter three, collaborative consumption as a whole is determined by both economic/egoistic (e.g., cost savings) and normative (e.g., altruistic value orientation) motives. Further research could build on the understanding of these motives and systematically examine potential differences in the range and relevance of determinants between renting, borrowing, swapping, gifting, and buying used. Thus, research could take the next step from an understanding of the general disposition toward collaborative consumption established in chapter three, to a more granular understanding of determinants and potential links to the different exchange logics (i.e., acquisition mode, reciprocity, compensation) identified in this thesis. In chapter four, collaborative consumption as a whole was shown to stabilize consumers' attitudes and norms toward this form of consumption and make them more concerned for the wellbeing of others over time. Further research could examine which particular collaborative consumption behaviors can be used most effectively to change the

prevailing culture of “consumerism”—that is, the sum of attitudes, norms, and values toward consumption—toward a more sustainable one (Stern, 2000; Thøgersen, 2006).

Finally, in this thesis, primarily quantitative research methods, in particular structural equation modeling, have been applied to survey data from a longitudinal panel. These methods were appropriate to rigorously test the theoretical framework established in this thesis and examine the casual nature between collaborative consumption, attitudes, norms, and values over time. However, further research might employ different methodological approaches to cross-validate present findings and answer further questions that have been risen in this thesis. Building on findings from chapter two, qualitative research methods could be employed in an attempt to better understand why particular collaborative consumption behaviors are performed in patterns and how these patterns emerge. For example, in depth understanding of consumers’ behavioral practices could enable the identification of entry behaviors into collaborative consumption, paths towards comprehensive patterns, and ways to bridge the gap between renting and other collaborative consumption behaviors. Moreover, experimental research could be used to examine various types of interventions based on the theoretical framework established in chapter three to entirely change consumers’ linear to collaborative consumption practices or to motivate people to adopt a collaborative consumption from a previously linear consumption path (e.g., selling or gifting used things instead of finally disposing them). Based on findings in this thesis, interventions should be focused on consumers’ personal norms, attitudes, and their perceived behavioral control over collaborative consumption and address their altruistic and biospheric value orientations.

All three research avenues would add to the conceptual understanding of collaborative consumption and enable practitioners and policymakers to further target their measures

aimed to develop collaborative consumption as a more sustainable consumption alternative and further increase its uptake.

5.3. Conclusion

In conclusion, this thesis has taken a consumer behavior perspective to clearly identify and delimit collaborative consumption behaviors as ways for more sustainable resource use. Moreover, it has shown how using social-psychological theories of behavior can lead to new insights into determinants and effects of collaborative consumption. Findings from this thesis contribute to collaborative consumption research, to social-psychological behavior research, and they provide practitioners with an advanced understanding of this form of consumption. However, they have also risen new questions and led to avenues for further research. Hence, there is no doubt that scholars will continue to investigate collaborative consumption, its diverse determinants, and its actual effects.

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Appendix I: Co-author declarations



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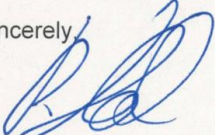
Co-author declaration for the article "Understanding Collaborative Consumption: An Extension of the Theory of Planned Behavior with Value-Based Personal Norms"

As the co-author of "Understanding Collaborative Consumption: An Extension of the Theory of Planned Behavior with Value-Based Personal Norms" (currently under review at the Journal of Business Ethics, previously accepted at the 76th Annual Meeting of the Academy of Management and the 2016 AMA Summer Marketing Academic Conference), I herewith confirm the individual contribution to the article by first author Daniel Roos which consisted of:

- Initiator of and main contributor for the formulation of the concept phase
- Major contribution with regard to the theoretical underpinnings
- Major contribution with regard to the planning and execution of the empirical study
- Complete analysis of the data
- Major contribution to the presentation, interpretation and discussion of the results

I can therefore testify, that Daniel Roos has made the majority of contributions to the paper and that the entire study would not have been conducted without him.

Sincerely,




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Co-author declaration for the article "Does Collaborative Consumption Affect Consumers' Values, Attitudes, and Norms? A Panel Study"

As the co-author of "Does Collaborative Consumption Affect Consumers' Values, Attitudes, and Norms? A Panel Study" (currently under review at the Journal of Business Research, previously accepted at the 2017 Winter AMA Conference), I herewith confirm the individual contribution to the article by first author Daniel Roos which consisted of:

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- Major contribution with regard to the theoretical underpinnings
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