

How the burdens of ownership promote consumer usage of access-based services

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Abstract Services that let customers access goods, such as car-sharing, are gaining increasing relevance as an alternative to ownership. These access-based services allow consumers to avoid the “burdens of ownership”, i.e., risks and responsibilities that come with owning a good. However, the interplay between consumers’ risk perception of ownership, access-based service usage, and the subsequent decision to reduce or forgo ownership has not been sufficiently investigated. Based on risk perception theory, we hypothesize the effects of different risk dimensions (financial, performance, social) on the intensity of access-based service usage, as well as the latter’s influence on ownership reduction. Using a unique dataset that links survey and actual usage data of car-sharing users, we test four corresponding hypotheses. The results reveal that access-based service usage is positively influenced by all three ownership risk perceptions. Moreover, a higher usage of an access-based service increases the likelihood that consumers subsequently reduce ownership.

Keywords Access-based consumption · Sharing · Risk perception · Ownership

1 Introduction

Access-based services that provide customers with a temporary access to goods have received an increasing attention as an alternative to ownership (e.g., Bardhi and

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Eckhardt 2012; Belk 2013; Moeller and Wittkowski 2010; Wirtz and Ehret 2009). Business models that are based on accessing instead of owning products include car- and bike-sharing (e.g., Zipcar, Capital Bikeshare), short-term rentals of fashion items (e.g., Bag Borrow or Steal), or peer-to-peer platforms (e.g., RelayRides, Airbnb). As Lovelock and Gummesson (2004, p. 34) note, such “transactions that do not involve a transfer of ownership are distinctively different from those that do.” This is mainly due to customers acquiring neither full property rights to the accessed product nor the risks and responsibilities attached to ownership (Moeller and Wittkowski 2010).

The idea of such business models is not new, as rental services have existed for a long time (e.g., Babione 1964). However, Internet technologies have simplified such services for both the lessor and the lessee and enabled a greater reach (Belk 2013). According to the US Census Bureau (2014), revenues of rental and leasing services have increased by almost 55 % in the past 15 years, from \$90 billion in 1998 to over \$139 billion in 2013. In conjunction with societal trends, such as a habituation of online-sharing behavior via social media (Galbreth et al. 2012), a “sharing revolution” (Bruce 2012) has developed.

While previous research has investigated the traditional ownership paradigm and its effects in much detail (e.g., Barone et al. 1999; Kamleitner and Erki 2013), Lovelock and Gummesson (2004) have called for further research that considers access as an alternative perspective. Although some publications have addressed consumer behavior in this area (e.g., Bardhi and Eckhardt 2012; Durgee and O’Connor 1995; Moeller and Wittkowski 2010), several questions have not found sufficient attention. Specifically, as ownership and access represent two alternative modes of consumption, it is commonly proposed that the “burdens of ownership” (Moeller and Wittkowski 2010), i.e., risks and responsibilities that come with owning a product, are important reasons for consumers to decide for access instead of ownership. The assumption is that if consumers perceive ownership to bear higher risk, this should increase their usage of access-based services, which in turn should allow them to forgo ownership. Although Wittkowski et al. (2013) find the risk of obsolescence to be an important factor for firms’ intentions to use access-based services, existing research has neither considered different risk dimensions (financial, performance, social) nor empirically investigated whether and how the burdens of ownership influence both access-related and ownership-related behavior. The goal of the present research is thus to determine how consumers’ perceptions of different risk dimensions associated with product ownership influence the use of corresponding access-based services and, in turn, their decision to reduce ownership. To develop the conceptual model, we draw on risk perception theory (Bauer 1960; Mitchell 1999), and test it using a unique dataset that combines survey and actual usage data. We thus contribute to the existing literature as this is the first empirical investigation of the interplay between the burdens of ownership, the use of an access-based service, and subsequent changes in ownership decisions. Specifically, we hypothesize that consumers’ usage of an access-based service is positively influenced by their perceived financial risk, performance risk, and social risk of owning the accessed product, and that the more consumers use an access-based service, the more likely they will be to subsequently reduce ownership of a corresponding product.

2 Ownership risk perception and access-based services

Ownership represents just one possible consumption mode. In contrast to acquiring ownership, access-based services let customers acquire usage time of a good (Durgee and O'Connor 1995). Building on previous work (Bardhi and Eckhardt 2012; Lovelock and Gummesson 2004), we define access-based services as *market-mediated transactions that provide customers with temporally limited access to goods in return for an access fee, while the legal ownership remains with the service provider*. At the core of an access-based service is thus an asset that is successively used by multiple individuals (i.e., shared) over time. Instead of satisfying one individual's (i.e., the owner) need for unlimited access to an asset, access-based services satisfy multiple individuals' need for temporary access.

A key point of distinction between ownership and access-based consumption is the so-called “burdens of ownership” (Moeller and Wittkowski 2010) or the risks and responsibilities that accompany ownership. Consumers are faced with several ownership risks, such as financial, performance, and social risk (DeVecchio and Smith 2005), the risk of the property's obsolescence, and the risk of insufficient capacity utilization (Berry and Maricle 1973). These risks include the responsibility of maintaining and repairing one's property. Conversely, an access-based service user only faces risks related to choosing between alternative services. Access-based services thus enable customers to economize on the costs of ownership (Wirtz and Ehret 2009).

Generally, risk is considered to consist of two components, significance and uncertainty (DeVecchio and Smith 2005). The first component comprises the potentially negative outcomes of a purchase decision. The second component involves the (un)certainty of the outcomes. As one or both components increase—i.e., more negative (or less positive) outcomes and a higher certainty of negative (or a lower certainty of positive) outcomes—the level of risk associated with a purchase decision increases. Although individual differences regarding risk-proneness exist (Cho and Lee 2006), consumers generally try to avoid risk. Previous research found that increasing levels of perceived risk negatively impact product evaluations (Ofir and Bechtel 1990), reduce the likelihood of service adoption (Forsythe and Shi 2003), and lead to lower willingness to pay (Maier et al. 2014). A purchase decision that is perceived to bear a too high level of risk may thus be modified or abandoned. On the one hand, perceived risk of different purchase alternatives is therefore a determinant of consumers' preference for a specific product. On the other hand, perceived risk of a purchase decision may also lead to consumers deciding not to purchase at all. As it is impossible for consumers to calculate the objective risk of a purchase decision, risk perception theory focuses on the subjectively perceived level of risk (Dowling and Staelin 1994). Such an individual risk assessment may focus on different aspects of a purchase decision. Specifically, three types of risk are commonly distinguished: financial, performance, and social (DeVecchio and Smith 2005).

2.1 Financial risk

Financial risk refers to the uncertainty regarding the potential financial loss that a purchase decision may result in. In general, the financial risk increases with a product's price. Compared to ownership, access-based services require customers to only pay a

fee per usage unit (e.g., per minute or day). These fees are significantly lower than the purchase price of the product, making an access-based service more affordable than ownership (Lovelock and Gummesson 2004). Although over time the accumulated fees paid for an access-based service can be higher than the price for purchasing the used good (Durgee and O'Connor 1995), the individual payments are lower and more predictable. Moreover, access does not possess the same opportunity costs as ownership. Thus, if consumers perceive the financial risk of ownership to be high, access should be perceived as a more efficient alternative. The higher the perceived financial risk of ownership, the more frequently should consumers avoid such risk by using an access-based service.

2.2 Performance risk

Performance risk refers to the uncertainty about whether a product will perform as expected (Bauer 1960). It includes aspects such as the risk of not being able to use a purchased product to its full potential due to product failure and the risk of necessary repairs or replacements. Due to an owner's responsibility for repair, maintenance or replacement, a higher performance risk leads to a higher likelihood of additional post-purchase costs as well as additional physical and mental efforts required for dealing with performance failure. In access-based services, however, the responsibility for dealing with performance issues rests with the service provider. Consumers only pay for actual usage and do not have to worry about additional maintenance efforts. As such, the more consumers are concerned about performance risks associated with product ownership, the more they should utilize an access-based service.

2.3 Social risk

Social risk refers to the extent to which purchase decisions are believed to be judged by others and may influence one's social standing. Generally, purchasing and subsequently possessing a product sends signals to peers about one's self (Belk 1988). A higher social risk thus implies uncertainty about how peers may evaluate the buyer due to a purchase decision.

While owning a product usually represents a more long-term commitment and thereby sends a clear message to others, access-based service users do not commit to a product but rather engage in a temporally limited affiliation with it. Compared to ownership, the likelihood of access resulting in negative social consequences should thus be lower. Moreover, past research suggests that consumers who choose access over ownership are more likely to seek social approval (Trocchia and Beatty 2003). Therefore, as consumers who use access-based services have to worry less about negative social consequences, those who perceive ownership to bear a high social risk should use an access-based service more.

3 Access-based service usage and ownership-related behavior

In addition to studying the influence of ownership risk perceptions on access-based service usage as outlined above, we further consider the relationship between access

and ownership-related behavior. Being able to access a product gives consumers an alternative to owning it. On the one hand, ownership and access are by no means mutually exclusive consumption modes, as consumers can own (e.g., a car) and utilize access (e.g., vehicles of a car-sharing provider) at the same time. On the other hand, however, the usage of an access-based service commonly replaces usage of an owned product. Therefore, the more consumers use an access-based service, the less are they capable of utilizing the capacity of a corresponding product they own. One way to address this increase in the burden of ownership is to reduce ownership. However, ownership reduction does not necessarily equal fully abandoning ownership, although the latter is the endpoint of ownership reduction. For instance, Martin et al. (2010) found that, in general, car-sharing customers are more likely to reduce their vehicle holdings in the course of using the service compared to non-customers. However, the relationship between usage intensity and ownership reduction has not been empirically investigated. We thus test whether a positive effect of access-based service usage on ownership reduction exists.

4 Analysis

4.1 Setting and data collection

We cooperated with a US car-sharing provider to collect data in an online survey among its customers. Car-sharing represents an increasingly popular alternative to car ownership (Shaheen et al. 2009). The service allows registered customers to individually access a fleet of vehicles for short-term usage in return for a usage fee per minute. As such, car-sharing can be considered one of the most advanced access-based services currently on the market (Bardhi and Eckhardt 2012; Belk 2013) and therefore represents an appropriate context for our study. To incentivize participation, customers had the chance to win minutes of free usage when completing the survey. A total of 818 responses from customers were obtained, for whom the car-sharing company provided information on actual usage behavior. As the service provider had previously used extensive promotional activities that included free minutes for new customers, we eliminated 42 participants who had used the service only once since their registration, leaving a sample of 776 customers. Respondents were 62.9% males and 37.1 years old ($SD=11.1$) on average.

4.2 Measures

Established scales were used to measure the latent constructs in our model (see [Appendix](#)). Consumers' perceived financial, performance, and social risk of car ownership were captured with five-point Likert scales using items by DelVecchio and Smith (2005).

Access-based service usage was based on actual usage data, supplied by the car-sharing provider. Specifically, the total usage length in minutes over a six-month period was used. This combination of survey and observed behavioral data prevents common method bias and reduces the likelihood of self-generated validity effects (Feldman and Lynch 1988).

Ownership reduction was assessed by combining two questions. First, subjects were asked whether they had reduced the number of vehicles in their household since having started to use the service. Second, they were queried whether their household currently

owned a car. Combination of both variables yielded three possible ownership reduction scenarios: no ownership reduction, partial ownership reduction (reduction and current ownership), and full ownership reduction (reduction and no current ownership).

4.3 Results

4.3.1 Measurement model

Results of an exploratory and a confirmatory factor analysis supported the hypothesized factor structure. All indicator reliabilities were above 0.4; construct reliabilities and coefficient alpha values were all above 0.7. Average variances extracted exceeded 0.5; comparisons with squared multiple correlations indicated adequate discriminant validity of all constructs. Overall, the measurement model assessment suggested adequate convergent and discriminant validities as well as construct reliabilities (Appendix).

4.3.2 Structural model

To account for non-normal distribution of both behavioral variables (i.e., access usage, ownership reduction), maximum likelihood estimation with robust standard errors based on a numerical integration algorithm was used in Mplus. Based on the relevant fit indices, the structural model estimation results indicated a good model fit (see Fig. 1). Overall, the hypothesized model was supported. Access-based service use is positively influenced by financial risk ($\gamma=0.198, t=5.528, p<0.001$; H1), performance risk ($\gamma=0.096, t=2.234, p<0.05$; H2), and by social risk ($\gamma=0.107, t=3.138, p<0.01$; H3). Furthermore, the access-based service usage in turn exerts a positive influence on ownership reduction ($\beta=0.131, t=3.115, p<0.01$; H4). In addition to these hypothesized paths, a post hoc analysis revealed that, surprisingly, social risk also exerted a negative direct influence on ownership reduction ($\gamma=-0.106, t=-2.339, p<0.05$).

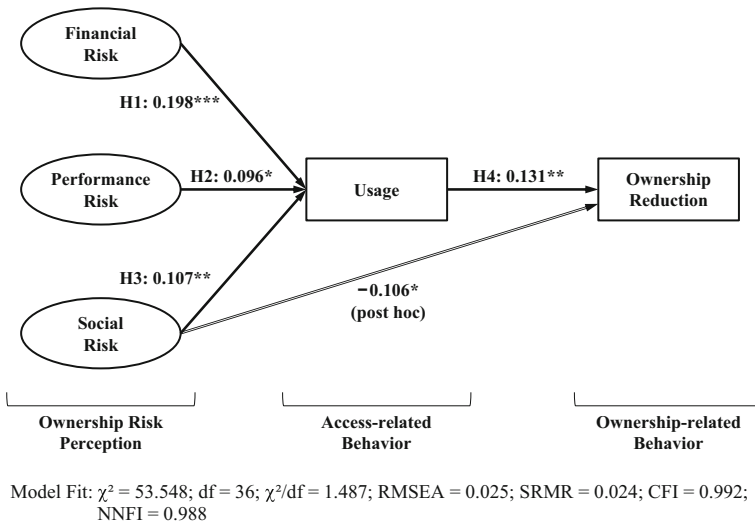


Fig. 1 Study results: *** $p<0.001$, ** $p<0.01$, * $p<0.05$; maximum likelihood estimation with robust standard errors based on a numerical integration algorithm was used

5 Discussion

This research investigated the relationship between perceived risk of ownership, access-related behavior, and ownership-related behavior. We proposed four hypotheses which all received support. The extent to which ownership is perceived to bear financial risks was found to increase the usage of a corresponding access-based service. As hypothesized in H1, the lower financial commitment inherent in an access-based service makes it a viable alternative to ownership. As ownership carries significant product performance risk, H2 predicted a positive relationship of performance risk and access-based service usage. While the results were the weakest among the three risk dimensions, the findings support our prediction. The perceived social risk of ownership positively influenced the usage of an access-based service, supporting H3. Apparently, the temporally limited association with a product in an access-based service is an alternative for customers who are uncertain about the social consequences of owning a product. Finally, access-based service usage increased the likelihood of ownership reduction. In line with H4, the more customers access a product, which leads to lower capacity utilization of the corresponding owned good, the more likely they are to at least partially replace owning with accessing.

A surprise was the post hoc analysis result that showed a negative direct influence of social risk on ownership reduction, competing with the indirect positive influence via access usage. This finding could be explained by the symbolic status that is commonly attached to ownership (Belk 1988). As consumers who perceive ownership to bear high social risk are likely to be more susceptible to social influence, this would explain the lower likelihood of ownership reduction among these individuals.

6 Implications and limitations

Theoretically, this research contributes to the growing literature on access-based consumption (e.g., Bardhi and Eckhardt 2012; Belk 2013) by advancing the understanding of consumers' actual behavior. Moreover, we provide evidence of how risk perception in one choice category (i.e., ownership) influences behavior in a related, yet distinct alternative category (i.e., access).

Several managerial implications can be derived from the research findings. First, in order to promote the use of access-based services, companies offering such services can focus on any of the three aspects of risk: financial, performance, or social risk associated with owning the accessed product. Financial risk appears to be an especially prominent and promising determinant, exerting the largest influence on the intensity of consumers' access-based usage. Additionally, access-based service providers could highlight the efficiency and purposeful use of resources offered by access relative to ownership. With respect to performance risk, companies should focus on highlighting the burdens of maintenance and product repair for product owners, while simultaneously guaranteeing availability and proper functionality of products in their service. With regards to the social risk aspect, providers could highlight the temporary and experiential nature of their services. Finally, the business models of access-based service providers commonly rely on a high utilization of the accessible products. Our results suggest that a clear risk-based delineation of access and ownership focusing on the

financial, performance, and social risks of the latter represents a viable strategy to encourage greater access-based usage.

Limitations of our research include its focus on the car-sharing business model. As numerous other access-based services exist, such as fashion or tool rentals, future research should aim for validating the investigated relationships in other contexts. Additionally, our study focused solely on the burdens of ownership, as these had previously been deemed relevant for access-based services. However, burdens of access may also exist. Future studies should thus complement our study by relating the perceived risks of access-based services to ownership decisions or the tradeoffs between access and ownership. In addition, benefits associated with each consumption mode relative to its costs should be examined in the future.

7 Conclusion

Due to societal trends enabled by internet technologies, access-based services represent an increasingly relevant consumption pattern. However, little is known about the interplay between ownership and access. Our study, combining survey data with data on customers' actual usage of an access-based service, reveals that different dimensions (financial, performance, social) of the perceived risk of owning a type of product influence how consumers use a corresponding access-based service, and that this usage in turn exerts an influence on the decision to reduce ownership.

Appendix

Table 1 Items and reliability measures

	Cronbach's alpha	Construct reliability	Factor loadings	Indicator reliability
Financial risk	0.837	0.838		
x_1 —Given the financial expenses associated with purchasing a car, there is substantial financial risk.			0.749	0.561
x_2 —I would worry about the cost of purchasing a car.			0.836	0.698
x_3 —Given the financial commitment, I may regret purchasing a car.			0.802	0.643
Performance risk	0.783	0.786		
x_4 —If a car malfunctions, the consequences can be fairly severe.			0.693	0.481
x_5 —Buying the wrong car can lead to very negative outcomes.			0.711	0.506
x_6 —You need to be careful when buying a car since a lot can go wrong when you use it.			0.817	0.667
Social risk	0.802	0.803		
x_7 —If I buy a car, other people are likely to evaluate my purchase.			0.733	0.537
x_8 —Other people will judge me depending on the car I purchase.			0.797	0.635
x_9 —If I buy a car, I will probably have to explain to some people how I chose it.			0.746	0.556

CFA model fit: $\chi^2=46.341$, $df=24$, $\chi^2/df=1.931$, RMSEA=0.035, SRMR=0.027, CFI=0.991, NNFI=0.987

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