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### *Factors affecting car-sharing and participation in the sharing economy*

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#### **Abstract**

The dissemination of the idea of the sharing economy has created new opportunities in many areas of consumer life. A particular impact can be seen in the short-term rental and joint travel market. The popularity of online portals allowing shared car trips demonstrates that this is an area worth exploring. This research involved 275 respondents in order to identify the main factors conditioning the willingness to use these types of services. A confirmatory factor analysis confirmed the existence of three factors – savings, expectation and atmosphere – that determine the use of car-sharing. The article describes the entire procedure and estimates the fit of the model. Finally, limitations and recommendations for further research are provided.

### **Defining the sharing economy**

The concept of the sharing economy has become very popular in recent years, although it is still understood in different ways by many researchers (Buda & Lehota, 2016; Görög, 2018; Jastrzębska & Legutko-Kobus, 2017; Poniatowska-Jaksch & Sobiecki, 2016). There are many discrepancies associated with defining terms related to this phenomenon. Terms used in relation to the concept include: “access economy”, “peer economy”, “peer-to-peer economy”, “circular economy”, “gift economy”, “gig economy”, “on-demand economy”, “collaborative economy” or “mesh economy” (Buda & Lehota, 2016; 2017; Galley, 2016; Sobiecki, 2016). Researchers are attempting to systematise these terms, set them together or propose their specific definitions (Botsman, 2015; Görög, 2018; Grybaitė & Stankevičienė, 2016; Sobiecki, 2016), though there is much disagreement regarding their meaning.

This article focuses on the sharing economy which is considered a general term that describes economic, cultural and technological transformation driven by innovation in communication and information technologies (Botsman & Rogers, 2010; Schor, 2017). Koopman, Michell, and Thierer (2015, p. 531) understand the sharing economy as “any marketplace that brings together distributed networks of individuals to share or exchange otherwise underutilized assets”. The sharing economy includes all types of goods and services shared or exchanged for both monetary and nonmonetary benefit (Koopman et al., 2015).

The assumption that people (households) and enterprises have unused resources is at the root of the sharing economy (Poniatowska-Jaksch & Sobiecki, 2016). Sharing allows these resources to be used, increases their productivity, minimises their waste or reduces the cost of ownership. Therefore, in the sharing economy access to products is more valued than their ownership (Chen, 2009; Rifkin, 2000).

Great importance in the development and functioning of the sharing economy is attributed to digital platforms. They coordinate and mediate in sharing processes (Poniatowska-Jaksch & Sobiecki, 2016). Thus, the sharing economy is considered a business and organisational-technological innovation – “a new way of doing business which is based on the use of digital techniques to organize market exchange” (Pietrewicz & Sobiecki, 2016). Digital platforms have contributed to the dissemination of sharing processes and the reduction of transaction costs between suppliers and consumers (Botsman & Rogers, 2010; Gansky, 2010). Their commonness and availability for a large number of users is associated with the speed and ease of making transactions (Buda & Lehota, 2017). The development of new technologies, an increase in the number of social networks and an improvement in their quality and attractiveness are factors causing the emergence of innovative forms of communication. They, combined with constant access to the Internet, have accelerated the process of the creation of the sharing economy (Rifkin, 2016).

Researchers' opinions on the nature of the sharing economy differ. On the one hand, the sharing economy is perceived more as a trend resulting from technological progress (Jastrzębska & Legutko-Kobus, 2017). On the other hand, there are solid grounds to believe that it is a social phenomenon (Banaszek, 2016).

### **Sharing economy as a social phenomenon**

Considerations of the sharing economy may lead to the statement that people are its key element. Their participation implies inherently existing relations between them, which leads to the conclusion that the sharing economy can be considered a social phenomenon. This is mentioned by Banaszek (2016, p. 51) who emphasises the concept of the social economy, which "refers to many spheres of social life, and its key principle is to reinvest profits for the benefit of the community". It is based on the values of participation, solidarity and self-governance, and it may play a very important role in supporting the processes of building a civil society. Banaszek (2016) claims that the sharing economy is included in the area of the social economy and means a new economic and social trend built around the sharing of human and material resources. Furthermore, the sharing economy is based on cooperation and trust (Poniatowska-Jaksch & Sobiecki, 2016).

Emotional values play an important role in the issue. They are associated with self-esteem, a sense of taking actions for others and with the awareness of being part of important processes of change (Pietrewicz & Sobiecki, 2016). Sharing always involves more than one person. Therefore, it is associated with the occurrence of certain relations between people. It connects people with each other and can create a sense of solidarity and bonding (Belk, 2010). It also facilitates new social contacts and stimulates social cohesion in neighbourhoods (Botsman & Rogers, 2010). Belk (2007; 2010) believes that the need for a sense of unity and experiencing unity can be one of the main factors that cause sharing.

Besides the social effects of the sharing economy, it also has a significant impact on the natural environment. It enables a more efficient utilisation of assets so, therefore, it is possible to save limited resources that would otherwise be needed for production (Agyeman, McLaren, & Schaefer-Borrego, 2013; Botsman & Rogers, 2010). Sharing contributes to the reduction of harmful effects on the environment, for example, related to emissions of pollutants and exhaust gases (Botsman & Rogers, 2010; Pietrewicz & Sobiecki, 2016). In the sharing economy, it is possible to achieve a higher level of meeting needs at relatively low marginal costs. This results in reducing the demand for new resources and the related pressure on the natural environment, which means lower levels of emissions of pollutants and greenhouse gases, and reduced energy demand. Thus, the sharing economy contributes to the better allocation of resources in the economy (Pietrewicz & Sobiecki, 2016). According to Grybaitė and Stankevičienė (2016), the benefits of the sharing economy

are consistent with the dimensions of sustainable development: economic, social and environmental. This is important because of the growing need for sustainability, which also goes hand in hand with the increasing awareness of people about environmental problems. Factors such as the importance of the community and the ability to reduce environmental problems and reduce costs, encourage people to take up the practice of sharing, openness and collaboration (Tussyadiah, 2015).

### **What we share**

The sharing economy allows diversified resources to be shared along with services such as space, homes, goods, cars, meals, services, and even skills, information or knowledge (Bardhi & Eckhardt, 2012; Barnes & Mattsson, 2017; Buda & Lehota, 2017). According to Pietrewicz and Sobiecki (2016), the sharing economy mainly includes services which are characterised by relatively high sales profitability, such as free living and office space, transport, home and technical services.

Initially, the sharing economy business model was based on the *consumer-to-consumer* (C2C) relationship. Contact between private individuals took place through digital platforms and enabled the sharing of resources or knowledge (Böcker & Meelen, 2017; Buda & Lehota, 2017). Skillshare, Wikipedia or even Facebook are mentioned as examples of platforms for sharing knowledge and Uber, BlaBlaCar, Oscar, Waze, Bubi, Airbnb or Couchsurfing – for sharing services (Buda & Lehota, 2016; 2017). The most commonly used sharing platforms are those related to ride and accommodation (Andreotti et al., 2017). Over time, the success of the sharing economy became of interest to those in the business environment, which resulted in the appearance of the *business-to-consumer* (B2C) model in the sharing economy. Individual owners have been replaced by companies acting as suppliers of products and services. A good example of this is Uber, which initially functioned as a way to earn extra income; now entrepreneurs employ many drivers in their business. Another example is the difference in the functioning of Airbnb and Couchsurfing. Airbnb's main goal is monetary earnings, while Couchsurfing focuses more on social values and its aim is to have its users meet locals, get to know the culture or make new friends. In conclusion, the direction of the sharing economy has changed. There are still areas of sharing that work according to their original purpose, but increasingly often entrepreneurs see the possibility of profit and transform the model of cooperation between individuals into business.

### **Motivation for participation in the sharing economy**

Many researchers underline that in general, there is still relatively little research into the exact motives of participation in sharing (Andreotti et al., 2017). The knowledge and understanding of this subject is still inconsiderable (Tussyadiah, 2015).

Simultaneously, the researchers' interest in motivations for participating in the sharing economy is constantly increasing (Böcker & Meelen, 2017).

Motivations for participating in the sharing economy may vary depending on many factors. Böcker and Meelen (2017) provide evidence of the existence of different motivations to participate in the sharing economy in their research. Motivations depend on the socio-demographic characteristics of participants, the role of the participant as a user or provider of goods, and on types of shared goods. The authors found that the economic motive is the main factor that drives accommodation sharing, environmental motivations are important particularly for car and ride-sharing, and social motivations are important for meal sharing.

In a more general way, the issue was examined by the Deloitte group. The Deloitte study (2015) investigated respondents' opinions regarding what the sharing economy offers. The study revealed that 65% of respondents think that lower costs is a key benefit of sharing services, while 63% believe they may offer more sustainable consumption. Next, 49% of the surveyed population indicated an increase in choice to be a benefit and 40% an increase in convenience. PwC (2015) found similar results but listed a social factor that is also significant – the most frequently mentioned advantages of sharing services in general are: low costs (86%), convenience (83%), community (78%) and sustainability (76%). According to another study, 86% of respondents agreed that convenience (less time and stress) is a major benefit of ride hailing services (Smith, 2016). However, in the case of car sharing, Bardhi and Eckhardt (2012) claim that economic motivations are dominant. Botsman and Rogers (2010) also suggest that social motivations lead to sharing economy participation as well, while Belk (2014) focuses in his article on the essence of sharing and underlines that not only functional motives are important in this issue but also altruistic ones. He claims that people participate in sharing because, on the one hand, they need a particular object or service but on the other hand, important social values appear. These are social bonds, reciprocity, caring and generosity, so sharing is a communal phenomenon. Andreotti et al. (2017), after analysing a number of literature sources on motives for participation in the sharing economy, point to three key general motives in their report: instrumental (monetary, convenience), social-hedonic (community, fun) and normative (altruism, sustainability). All those general motives lead to participatory behaviours in the sharing economy.

This paper focuses on car-sharing. As was mentioned earlier, the main factors relevant in this issue, indicated by various researchers, are economic, environmental and social. Focusing primarily on car-sharing, some additional and more specific motivators have been indicated. According to Koźlak (2017), people going on a long route are looking for people who are heading in the same direction to share the costs of fuel, enjoy company while traveling and meet interesting people. Similarly, travellers seeking a car are driven by economic motives, the convenience of traveling and the opportunity to spend time in good company.

## Research

As a result of the research, three main groups of factors determining the motivation to use car-sharing services were identified: savings, atmosphere and expectations. A total of 275 completed questionnaires were collected using the CAWI questionnaire survey. The study was conducted on a group of respondents from the so-called millennial generation, which is associated with a greater inclination to use such services (Ganapati & Reddick, 2018). In the study, filtering questions about their own experience in relation to various sharing economy services were used. As a result, 108 positive responses were obtained, which constituted less than 40%, which was the basis for further analysis.

The test used confirmatory factor analysis (CFA). A 7-point Likert scale was used (1 – “I strongly disagree”, 7 – “I definitely agree”). The study was based on individual experiences, using a leading European platform for common car travel. The savings questions were: By using [portal name] I saved money (sav1); Using the [portal name] I got to the place faster (sav2); Using [portal name] I had the opportunity to choose a more convenient connection (sav3). Questions about expectations regarding travel were: The opinion of other users about the driver was important to me (exp1); It was important to me what car I would travel (exp2). Questions about the atmosphere were: Thanks to the use of a shared journey, I met new people (atm1); Time has passed faster thanks to conversation (atm2). Due to the inseparable area of latent variables, the assumption of possible covariance was accepted. As a result of the analysis of residuals and based on the substantive justification, it was assumed that there is justification for the covariance of the question regarding getting to know the future driver with the data on the assessment of atmosphere in the field of conversations on the road. The final CFA model specifies 8 regressions, 4 covariances and 8 variances, totalling 19 parameters that need to be estimated. The presented covariance table indicates satisfactory values; only in two cases were 0.1 recommended values slightly (by 0.02 and 0.01) exceeded, however, there was no substantive justification for the correlation (Table 1).

**Table 1.** Residuals

	sav1	sav2	sav3	exp1	exp2	atm1	atm2
sav1	0.00						
sav2	-0.02	0.00					
sav3	0.01	0.00	0.00				
exp1	0.04	0.01	0.00	0.00			
exp2	0.00	-0.06	-0.10	0.00	0.00		
atm1	0.04	-0.12	0.03	-0.01	0.11	0.00	
atm2	-0.05	0.01	0.00	-0.01	0.05	0.01	0.00

Source: Authors' own study.

All assumed variables in the final model assume a standardised value (for the whole model) above 0.5 (Hair et al., 2009) and are statistically significant (Table 2). The value of individual observable variables ranged from 0.50 to 0.92 (Figure 1). The average variance extracted (AVE) and composite reliability were also evaluated at this stage. For factor savings, they amounted to 0.49 and 0.74, respectively; for expectations: 0.54 and 0.69; and for atmosphere: 0.71 and 0.83. This means that in two cases, the recommended 0.5 (Bagozzi & Yi, 1988) and 0.7 (MacKenzie et al., 2011) have not been achieved, however, these values differ slightly (0.01) from those recommended.

**Table 2.** Factor loadings

Latent factor	Indicator	B	SE	Z	Beta	sig
saving	sav1	0.869	0.143	6.074	0.598	***
saving	sav2	0.871	0.134	6.483	0.633	***
saving	sav3	1.231	0.140	8.794	0.833	***
expectations	exp1	1.429	0.194	7.371	0.910	***
expectations	exp2	0.788	0.161	4.905	0.503	***
atmosphere	atm1	1.375	0.180	7.625	0.771	***
atmosphere	atm2	1.486	0.169	8.774	0.918	***

\*\*\*p < 0.001

B – Estimation, SE – Standard Error

Source: Authors' own study.

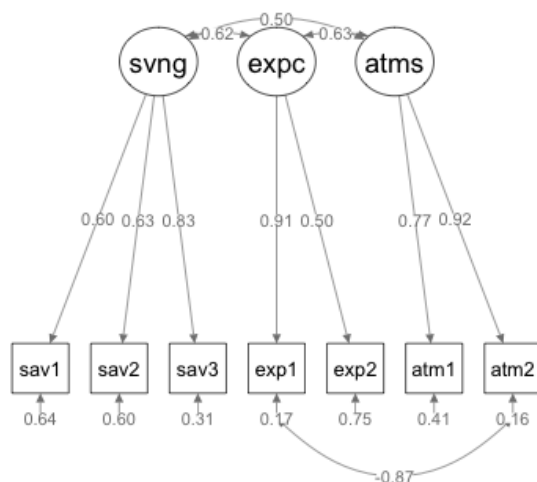
**Table 3.** Latent factor correlations

Factor 1	Factor 2	Correlation	sig
saving	expectations	0.619	***
saving	atmosphere	0.495	***
expectations	atmosphere	0.625	***

\*\*\*p < 0.001

Source: Authors' own study.

The overall CFA model was examined, comparing it with the recommended values (Cheng et al., 2018). The results show acceptable fit [ $\chi^2/df = 1.53$ , goodness-of-fit index (GFI) = 0.962, normed fit index (NFI) = 0.939, confirmatory fit index (CFI) = 0.977, Tucker–Lewis index (TLI) = 0.952, root mean square error of approximation (RMSEA) = 0.07].



**Figure 1.** Model

Source: Authors' own study.

## Conclusions

As a result of the research, three latent variables were confirmed statistically: savings, atmosphere and expectations. The observable variables presented in the model allow areas to be identified that motivate and condition the sharing economy in the area of car sharing in a satisfactory way. In the context of savings, it should be noted that this area concerns both savings in time and money, while optimising travel time. Expectations arise from non-financial conditions with which users have the opportunity to get acquainted: driver reviews issued by previous co-passengers and a car type and model that can determine the travelling comfort. The atmosphere in relation to car sharing applies to the created relationship between co-passengers. Among the restrictions, a limited number of respondents meeting the required conditions should be highlighted. Future research, as an extension of the research results, should consider the diversity of clients of such services and identify the latent variables described for consumer behaviour, including purchase loyalty and intentions. A separate area worth researching is the relationship of the tendency to use these type of services to the elements related to sustainability and the motivation for the reluctance to use shared journeys.

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