SHARING ECONOMY: A STUDY ON THE FACTORS INFLUENCING USERS' MOTIVATION TO USE RIDE SHARING PLATFORMS

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ABSTRACT

This research is intended to explore sharing economy, particularly ride sharing. The study aims to identify the impact of four factors—economic, social, environmental, and technological—on individuals' motivation and decision to use three ride sharing platforms: UBER, GRAB and Go-JEK in Indonesia. Based on available literature, four research hypotheses are tested, namely that (1) economic factors; (2) social factors; (3) environmental factors; and (4) technological factors have positive influence on individuals' motivation and decision to use ride sharing services. Primary and secondary data are used to answer the research questions. Primary data were obtained through an online survey of 355 respondents, while secondary data were obtained from various related literatures. The research is both descriptive and quantitative in nature, the empirical analysis suggest that economic, social, environmental, and technological factors are positively associated with users' decision to use ride sharing.

Keywords: sharing economy, ride sharing, motivations, internet, technology.

ABSTRAK

Penelitian ini bertujuan untuk mengeksplorasi konsep sharing economy, khususnya ride sharing. Secara khusus, studi ini bertujuan untuk mengidentifikasi pengaruh dari empat factor, yaitu faktor ekonomi, sosial, lingkungan, dan teknologi terhadap motivasi dan keputusan individu untuk menggunakan tiga platform perjalanan bersama: UBER, GRAB, dan Go-JEK di Indonesia. Berdasarkan literatur yang tersedia, empat hipotesis penelitian diuji, yaitu bahwa (1) faktor ekonomi; (2) faktor sosial; (3) faktor lingkungan; dan (4) faktor teknologi memiliki pengaruh positif terhadap motivasi dan keputusan individu untuk menggunakan layanan ride sharing. Data primer dan sekunder digunakan untuk menjawab pertanyaan penelitian. Data primer diperoleh melalui survei online terhadap 355 responden, sedangkan data sekunder diperoleh dari berbagai literatur terkait. Penelitian ini bersifat deskriptif dan kuantitatif, analisis empiris menunjukkan bahwa faktor ekonomi, sosial, lingkungan, dan teknologi secara positif terkait dengan keputusan pengguna untuk menggunakan berbagi perjalanan.

Kata kunci: berbagi ekonomi, berbagi perjalanan, motivasi, internet, teknologi.

1. Introduction

UBER, Go-JEK and GRAB employs a business model known as the "sharing economy". This business model has developed rapidly in urban areas in various countries, including Indonesia. The sharing economy, as a new business model, drives an evolution in how consumers conduct business activities (Cohen & Kietzmann, 2014). The growing number of sharing economy platforms is linked to high demand for such platforms, something which is driven by economic growth as well as population growth, particularly in urban areas. A similar condition has also occurred in Indonesia. The population of Indonesia has experienced very rapid growth, especially in urban areas. High population growth in urban areas can be attributed to massive urbanization and the development policies that emphasize urban areas. Such a growth rate has also caused more complex urban problems to emerge, including those related to transportation.

The number of two-wheel and four-wheel vehicles has increased rapidly. Increasing number of such vehicles, however, has not coincided with infrastructure development, and as such traffic congestion has become a significant challenge for Indonesia. For example, Jakarta, one of the densest cities in the world, experiences an annual economic loss of three billion IDR due to traffic congestion (Primanita, 2016). These economic losses are caused, in part by increased travel time, fuel costs, and business expenses. The costs of congestion are expected to reach 498 billion IDR by 2020, an increase of approximately 41% (Alphabeta, 2017). Around 64 daily commutes are made in large cities in Indonesia, the number predicted to reach 70 million by 2020 (Alphabeta, 2017). Inadequate means of transportation in urban areas has encouraged people to respond promptly to the emergence of technology-based means of transportation. The sharing economy has also developed in Indonesia, where many companies using such a model have begun operating in major cities across Indonesia. One factor encouraging the development of sharing economy is the increase of the internet user in Indonesia. Between 2005 and 2017, internet users increased from 8.1 million to 53.2 million (http://www.internetlivestats.com/internet-users/indonesia/, retrieved on 10/31/2017).

This research aims to investigate the sharing economy, especially as related to ride sharing. The main objective is to study the factors that influence users' or consumers' motivation and decision to use ride sharing. Although sharing economy has only begun developing recently, many sharing economy-based business models have already developed in Indonesia. Nevertheless, an inquiry into the sharing economy in Indonesia are still very limited. More importantly, the sharing economy is yet not widely researched, so few empiric studies of the sharing economy are available in Indonesia. This study is expected to provide theoretical and policy contributions. First, although the sharing economy has become relatively developed, especially in urban areas, theoretical and empirical literatures on such a subject in Indonesia are still limited. Research into the sharing economy in Indonesia is thus challenging, and this research significantly contributes by providing knowledge on the sharing economy phenomenon, especially as related to ride sharing in Indonesia, which is still a new and under-researched phenomenon. Second, from a practical perspective, the outcomes of this research is relevant for sharing economy-based business actors in determining their business strategies as well as for urban structuring policy makers and stakeholders.

2. Literature Review
2.1 Sharing Economy: Definition

The definition of sharing economy may commence by interpreting the word "share" as follows: "a portion belonging to, due to, or contributed by an individual or group; one's full or fair portion; and the part allotted or belonging to one of a number owning together property or interest". As a verb, sharing means, among others, "to divide and distribute in; to partake of, use, experience, occupy, or enjoy with others; to tell (thoughts, feelings, experiences, etc.) to others". This definition indicates that a portion or overall distribution of ownership is attached to someone. Furthermore, in Merriam Webster dictionary, sharing economy is interpreted as "economic activity that involves individuals buying or selling usually temporary access to goods or services, especially as arranged through an online company or

organization(https://www.merriam-webster.com/dictionary/sharing retrieved on 6/9/2017). Such buying or selling is carried out using technology. As in Cohen and Kietzmann (2014), the sharing economy is a form of economic transaction that takes place in real time using the internet and other technology-related devices to facilitate people to find individuals who meet their needs without transaction activities like at a traditional market.

In the literature, the term "sharing economy" is often used interchangeably with "collaborative consumption" or "collaborative economy" (Belk, 2014; Botsman, 2015; Botsman & Rogers, 2010). This collaborative consumption takes place due to use of the internet to bring together (match) people who want to share their assets or services (Petropoulos, 2017). According to Botsman and Rogers (2010), collaborative consumption involves various forms of resource sharing using technology on a scale never before possible, as the technology did not exist previously. As in Botsman (2015), collaborative consumption occurs due to changes in the traditional market system as a result of technological development. Because of technological development, forms of transactions that were previously impossible become possible. A similar opinion, expressed by Schor (2014), holds that collaborative consumption is a form of goods and services distribution involving the use of durable assets, the exchange of goods and services, and the sharing of productive assets. As put forward by Botsman (2015), the collaborative economy is an economic ecosystem using a decentralized network in which a middleman brings together people with a need and people with the tools to satisfy this need (such tools are assets that are not fully used by the owner).

One form of sharing economy is ride sharing. Ride sharing, as a transportation model, has actually been long known, since the Second World War (Hahn & Metcalfe, 2017). However, it has become more popular as technology has developed, since the development of ride sharing has been motivated in part by "bringing together" parties that want to "share" and parties that need such "sharing". Ride sharing has become easier with technology and the internet by using Global Position Systems, smartphones, and electronic payments (Hahn & Metcalfe, 2017). Ride sharing is often interpreted as a transportation model in which users share vehicles and travel costs with others that have similar travel schedules and times to reach their travel destinations (Furuhata *et al.*, 2013). Such a definition emphasizes the cost sharing aspects, as well as the condition that users' travel destinations and times should be similar. According to Chan and Shaheen (2012), ride sharing is a means of transportation that is able to reduce traffic congestion and save energy, since ride sharing may reduce emissions and the dependence on fossil fuel.

2.1. Determinants of Sharing Economy

Motivation and Decision

Motivation can be defined as something that can encourage someone to undertake or not undertake an action (Gredler *et al.*, 2004; Cherry, 2017). More specifically, Cherry (2017) defines motivation as a process for initiating, directing, and maintaining the achievement of an objective influenced by biological, emotional, social, and cognitive factors. From this definition, in the context of economic and business behavior, then motivation can be interpreted as an individual action to start (decide) to use or not use something to

meet needs. Cherry (2017) lists three conditions that can motivate individuals in making decisions, namely (1) activation, which refers to the individual decision to take action; (2) persistence, which indicates action taken continuously in achieving goals even when the individual faces various challenges in achieving such goals; and (3) intensity, which relates to the degree of concentration and power of the individual in action.

In Cherry (2017), motivation that drives individuals to make particular decisions is classified into two types: (1) intrinsic motivation and (2) extrinsic motivation. Intrinsic motivation refers to individuals' actions or decisions that are driven by internal rewards. In other words, the motivation to engage in a behavior arises from within the individual because it naturally satisfies individual goals. This intrinsic motivation includes personal gratification or satisfaction. In contrast, extrinsic motivation involves individual behavior which aims to earn external rewards or avoid punishment. This motivation involves factors that come from outside a person but can influence behavior. Extrinsic factors include money, prizes, and social recognition. Both intrinsic and extrinsic factors influence one's motivation to take action and make decisions.

Based on the above discussion, it is argued that the economic, social, environmental and technological factors discussed in the previous section play an important role in influencing individuals' motivation and decision to use ride sharing.

Economic Factors

Although many factors motivate the popular use of sharing economy, economic motivations are seen to be the main factor (Bardhi & Eckhardt, 2012; Bellotti *et al.*, 2015 cited in Böcker & Meelen, 2016). Many scholars argue that there is a relationship between economic crises and the increase of sharing economy activities (Rivera *et al.*, 2017; Böcker & Meelen, 2016; Godelnik, 2017). When people lose their jobs during the economic crisis, and experience a decrease of income, their power to purchase goods and services declines sharply. This loss of income motivates individuals to reduce their living costs, including by using cheaper products or services to meet their life needs. Böcker and Meelen (2016) add that the financial difficulties faced by communities, particularly during the onset of crisis in 2008, induce people to change their consumption patterns and views of private ownership. Social views of the sharing economy, which emphasize mass production and consumption, make individual ownership less important, people are not really interested in buying or owning products, instead, they are more interested in in renting and sharing the products (Roh, 2016).

Grybaitė and Stankevičienė (2016) capture that sharing economy may increase productivity, motivate innovation and entrepreneurship, as well as reduce costs. On another note, the use of digital technology in sharing economy helps the creation of more diverse service with lower prices, more rapid and convenient transaction; all of these may encourage increased productivity. Hamari *et al.*, (2015) reiterate that sharing of goods and services provides economic impact. Sharing economy motivates utility maximizing behavior, since consumers focus not on individual ownership but are willing to share their resources with others. The most important benefit of the sharing economy, they argue, is cost saving which occurs since people need not to buy and own anymore, rather they prefer to rent things (Yaraghi & Ravi, 2017).

Frenken and Schor (2017) argue that sharing economy has a role in creating new markets by expanding trade and creating purchasing power in the economy. Rivera *et al*., (2017) emphasizes the importance of technology to carry out sharing consumption. According to them, economic platforms are able to connect individuals with other individuals and economically connect different groups of users. An organization is able to create value by bringing together supply and demand for goods and services and matching providers and consumers. This is where the sharing economy creates economic (savings) and also utilitarian (convenience) benefits (Rivera *et al*., 2017). The use of ride sharing also reduces mobility costs up to 65%, creates economic opportunities for the approximately seven million people expected to be engaged in ride sharing by 2020, and enabled some 400,000 people to become part of the financial system by 2020 (Alphabeta, 2107). Given the review above, the following hypothesis is raised:

H_1: Economic motive-related factors have a positive association with the motivation and decision to take part in ride sharing.

Social Factors

Botsman and Rogers (2010) observe that the emergence of the sharing economy is a significant response to the lessening of the collectivity principle or sense of belonging to a certain social group. Here is where sharing economy is viewed as being able to develop social relationships, since it is created from inter-individual social trust. The creation of social trust is integral to developing better social relationships and establishing social inclusion within a community (Grybaitė & Stankevičienė, 2016). Frenken and Schor (2017) express that the non-existence of social trust makes people reluctant and unwilling to share with others, except for those within their own network, as those others are considered "strangers" (Botsman & Rogers, 2010). The viewing of others as strangers creates loneliness. The existence of digital technology represents a tool driving various activities that allow individuals to no longer share only with people they know, but also with people without pre-existing connections or similar characteristics. As such, people no longer feel that others are strangers.

Sharing economy develops digital trust within the community through technology's ability to allow consumers to label and rate products and services during their transactions with providers (Yaraghi & Ravi, 2017). Hence, ride sharing creates social values in the form of inclusiveness and well-being. Using technology, the feeling of others as strangers is reduced, as technology enables the existence of wider and rapid peer-to-peer connections so that people have the feeling of interconnectedness (Botsman & Rogers, 2010). Sharing economy is viewed as broader wider relationships, where previously social relationship was limited to family members or other closely linked circles. As such, social relationships tend to be established widely through information technology.The information above leads to the following hypothesis:

H_2: Social value-related factors have a positive association with the motivation and decision to take part in ride sharing.

Environmental Factors

Greater attention has been given to environmental issues since the concept of sustainability emerged in the 1980s. In this era, the media began to promote the importance of sustainability and motivate the public to better understand various problems, such as overpopulation,

drought, famine, and environmental degradation (Bartlett, 2016). Such problems emerged because the economic development in many countries focused primarily on efforts to achieve economic growth. UNIDO (2014) criticized such an approach has created various social problems within communities, including environment problems. In view of such conditions, one challenge faced in the economy is the large and excessive use of resources following high population growth. In turn, this high population growth is followed by high demand for goods, which encourages increased demand for raw materials and creates wastes that negatively impact the environment (Bartlett, 2016). Excessive use of resources accelerates the use of available resources, and may negatively impact the environment through the increase of carbon emissions (Casey & Galor, 2017). Ride sharing, such as motorcycle and car sharing, leads to energy saving in various sectors, both downstream (vehicle scrap page) and upstream (fuel and motor vehicle industries) as found in a study by Nijland and Meerkerk (2017). They investigated car sharing in the Netherlands and revealed that ride sharing has reduced ownership and car use rates, as well as carbon dioxide emissions. Their research also found that car sharing caused car ownership to decrease by 30% and followed by the decrease in the use of parking lot. This has reduced exhaust emissions by 13%−18%.

Recognizing this condition, the suggested approach is for development to take environmental impact into consideration; in other words, a more sustainable development can establish a sustainable society (Heinrichs, 2013). Grybaitė and Stankevičienė (2016) mention that the sharing economy emphasizes the consumption of pre-existing goods, which need not be new. This may significantly reduce the use of energy and establish efficiency. One way sustainable development can be achieved is through resource sharing and collaborative consumption. Resource sharing may reduce the total consumption of new products and also reduce wasted resources (Owyang et al., 2013). This sharing economy may, as a business model, reduce the excessive use of resources, so that resources may be saved for future generations' consumption (Leismann et al., 2013). It is predicted that ride sharing will reduce carbon dioxide emissions equivalent to saving around 415,000 hectares of land for deforestation, as well as reduce air pollution by 8% in big cities of Indonesia by 2020 (Alphabeta, 2017). Considering the environmental aspects presented above, the following hypotheses are proposed:

H_3: Environmental consideration-related factors have a positive association with the motivation and decision to take part in ride sharing.

Technological Factors

Technological development has motivated the emergence of new business models that can easily be implemented. As in Matzler et al., (2015), sharing economy has emerged because of the availability of the internet and social media. Ride sharing becomes easy and simple due to the existence of technology that is able to exhibit the vehicle's level of use (occupancy) as well as location (mobile- and location-based technology). This may be referred to as a new business model (Teubner & Flath, 2015). Hamari et al., (2015) argue that the sharing economy is a technological phenomenon, stemming out of the development of computers and other electronic equipment such as the internet. The use of the internet, smartphones, and other mobile

equipment facilitate transactions between buyers and sellers in ways that never existed in the past (Telles JR., 2016). The sharing economy has changed the habits and behaviors of consumers. Conventional and traditional transactions become modern consumers in their sharing and exchanging (Botsman & Rogers, 2010).

Information technology has become part of individual life, encouraging us to become more used to various complex services, including peer-to-peer market platforms (Teubner & Flath, 2015). Digital technology is able to motivate the emergence of interpersonal trust and reduce strangers' "strangeness" factors when individuals decide to use the services of others. This is because technology is able to explain who drivers are, for example by providing profiles or ratings. A similar view is expressed by Figueroa (2016), who argues that technology has become a significant factor encouraging and motivating the emergence of a sharing economy. Technology such as mobile phones and social media platforms have a role in establishing individual and organizational networks that may facilitate the information and knowledge exchange process. With reference to the above discussion, the hypothesis below is raised:

H$_4$: Technology-related factors have a positive association with the motivation and decision to take part in ride sharing.

3. Research Design
3.1. Research Design, Population and Sample

The questions in this research are descriptive and causal (Sekaran & Bougie, 2016), focusing on a relatively new phenomenon, for example, sharing economy. As such, it is exploratory, investigating a new phenomenon where knowledge on the topic is still rare (Blaikie, 2010; Manerikar & Manerikar, 2014). Descriptive and causal research questions in this study can correctly be addressed using an exploratory approach, and as such explorative knowledge may be obtained (Myers, 2009; Yin, 2009; Teddlie & Tashakkori, 2009). Primary data and secondary data were used in this study. Primary data were collected through an online survey, using the platform www.surveyplanet.com. Secondary data were obtained from secondary sources, such as scientific articles, related publications, and other sources. Study population is individuals living in urban areas in Indonesia who have used three ride sharing platforms: Go-JEK, GRAB, and UBER. Due to resources limitations, it not possible to reach such an overall population. As the alternative strategy, representative samples were used using non-probability convenient sampling. This technique was used based on convenience argument in obtaining samples. It must be noted that, although the results of analysis using convenient selected respondents cannot be considered truly representative of the population, this approach is superior for certain situations given that it is inexpensive, easy to implement, and saves time (Smith and Albaum, 2012, p. 98). It is presumed that populations of this study are large, but the definite number of is unknown. The required minimum sample size is calculated by the formula in Smith and Albaum (2012, p. 103–104). For unknown population size, the total sample needed uses the formula: n = (Z-score)^2 * StdDev*(1-StdDev)/(margin of error) (Smith & Albaum, 2012). Using a confidence level of 90% (Z = 1,645), standard of deviation of 0.5, and margin of error of 5%, the total required sample is obtained as follows: sample (n) = (1.64)^2 x .5(.5)/(.05)^2 = 321.4 rounded up

to 322; as such, for this research a total sample of 322 was required.

The online survey took place over a period of eight weeks, from July to September 2017. The survey consisted of multiple choice questions. Respondents were requested to choose answers in the form of a dichotomous scale using the five-point Likert Scale: (1) strongly disagree; (2) disagree; (3) neutral; (4) agree; (5) strongly agree. As such, the analyzed variables are in interval measurements in the form of a metric scale. The survey also used essay questions developed from related literature, such as in Table 1. The primary data collected through the survey was analyzed with a regression analysis using SPSS.

Table 1. Variables and References

Concepts	Sources
Economic Factors: Cheaper price; Saving of Financial resources; Increased productivity and efficiency.	Grybaitė and Stankevičienė (2016); Rivera et al., (2017); Böcker and Meelen (2016); Godelnik (2017); Yaraghi and Ravi (2017); Böcker and Meelen (2016); Frenken and Schor (2017); Alphabeta (2017).
Social Factors: Existence of social trust; Development of social relationships; Sharing with others; Helping others (sense of willingness to share).	Botsman and Rogers (2010); Grybaitė and Stankevičienė (2016); Yaraghi and Ravi (2017); Alphabeta (2017).
Environmental Factors: Reduction in air pollution; Reduction in environmental degradation; Saving energy resources (fuel); Reduction in carbon emissions.	Bartlett (2016); UNIDO (2014); Casey and Galor (2017); Nijland and Meerkerk (2017); Heinrichs (2013); Owyang et al., (2013); Phipps et al., (2013); Leismann et al., (2013); Alphabeta (2017).
Technological Factors: Establishment of digital trust; Establishment of interpersonal trust; Ownership of smartphones, mobile phones, and other electronic devices; Availability of internet access.	Matzler et al., (2015); Teubner and Flath (2015); Hamari et al., (2015); Telles JR (2016); Botsman and Rogers (2010); Teubner and Flath (2015); Figueroa (2016).

3.2. Pilot Study

Pilot studies were first carried out to check the strength and weakness of the questions in the submitted questionnaire (Thabane et al., 2010). These were meant to find out whether all questions to be answered by the targeted respondents could be well understood. These pilot studies were carried using three different groups of ride sharing users, who were conveniently selected based on their previous use of ride sharing services. The first pilot study was carried out by requesting five students from different faculties at Atma Jaya Catholic University of Indonesia in Jakarta, with the highest education level of Senior High School, answer the survey questions. The second pilot study was carried out on four ride sharing users when the author attended an academic workshop at the Jakarta State University on 13–14 July 2017, which involved various lecturers from several cities in Indonesia. The highest education levels of those four participants were masters and doctoral degrees. The third pilot study was carried out by recruiting an enumerator to reach four ride sharing users who were neither students nor formal workers, but routinely using ride sharing for the daily activities; their highest education level was secondary school. The results of the pilot studies showed confusion among pilot study participants on several questions, particularly questions related to

environmental aspects. As such, several questions related to environmental aspects were revised. The revised questions were then uploaded to the website surveyplanet.com.

3.3. Research Model and Analysis Technique

The research is a causal study that seeks to examine the impact of independent variables on the dependent variable. The appropriate analysis technique for this causal study is a multiple regression cross-sectional technique. The dependent variable is the motivation or decision of consumers to use ride sharing, while the independent variables are the factors that affect individuals' motivation or decision to use ride sharing. They are classified into four types: (1) economic drivers; (2) social drivers; (3) environmental drivers; and (4) technological drivers (Botsman & Rogers, 2010). The relationship between the dependent variable and the independent variables in this study is expressed in the following regression equation:

$$Y_i = a_0 + b_1X_{1i} + b_2X_{2i} + b_3X_{3i} + b_4X_{4i} + \varepsilon_i \quad (1)$$

Where Y is the dependent variable, a_0 is the constant (intercept), b is the regression coefficient or estimation parameter, X is the independent variables, and ε_i is the error term that experiences a change at each cross-section unit. ε_i, known with the term idiosyncratic error, is used to comply with the Gauss-Markov assumption. Regression was continued by carrying out robust estimation to improve the sharpness of the analysis results, namely by including control variables into the initial regression model. Control variables are often not taken into account in regression equations. However, they also have a significant role in enhancing the predicting power of regression analysis results (Shuttleworth n.d cited on https://explorable.com/controlled-variables, retrieved on November 16, 2017.) Including control variables into regression equations may enhance the predicting power of regression analysis results, and may also help researchers identify spurious relationships among the regressed variables (Sweet & Grace-Martin, 2010).

The control variables in this research were chosen by considering the results of several previous studies, which found that demographic variables have a role in determining the motivation of and decision made by an individual. These variables include, among others, gender and age cohort. Tanellari *et al.*, (2014) show that different genders have different responses towards individual decisions in adopting technology. This is reaffirmed by several research results, which indicate that men are more responsive in adopting technology than women (see, for example, Obisesan, 2014; Mishra *et al.*, 2015). Age cohort also affects individual responsiveness in using technological devices and the internet. For example, Yang and Jolly (2008) discovered that, compared to Generation X, it is more difficult for members of the Baby Boomer generation (age group) to adopt smartphone technology, since they consider the use of internet-based telephones to be difficult given the phones' features (which, they hold, are more complex), and that benefit factors are most important for them in deciding to use internet-based electronic devices. Considering this matter, age cohort and gender have been used as control variables in the regression model. The age cohort in this research is divided into Young Millennials (17-24 years), Old Millennials (25-34 years), Gen X (35-50 years) and Baby Boomers (51-64 years) which is adapted from Merriman (2015).

4.   Results and Discussion

Survey Results

The survey was carried out over the course of eight weeks, from the third week of July until Mid of September 2017. In accordance with the sampling technique used, the survey was targeted to obtain a minimum of 322 respondents. The survey results showed that 356 respondents participated. After the responses were filtered manually for completeness and validity, as well as representativeness of the target group, 355 were taken for analysis. Although the minimum sample was 322, all valid responses were used in the analysis, as larger sample size increases the power of precision of estimates.

Respondent Demographics

Survey results indicate that 65.4% of the respondents (232 persons) were women, and 34.6% (123 persons) were men; one respondent did not answer this question on gender. Of the respondents, 350 were Indonesian citizens and 5 were foreign citizens. The millennial age group in this research was divided into two, namely the old millennial group and the young millennial group. The young millennial group is also often referred to as Generation Z, those who are very active in using smart phones or social media and spend most of their time doing online activities (Merriman, 2015). The majority of respondents (189 persons or 53.2%) are from this age group, followed by those included in the Generation X group, aged 35–50 years (83 persons or 23.4%), the old millennial group, aged 25–34 years (76 persons or 22%) and the baby boomer group, aged 51–64 (7 persons or 2%). Of respondents, 67.6% (240 persons) are unmarried, 25.9% (92 persons) are married and have children, and 6.5% (23 persons) are married but have no children. A total of 40.6% respondents (144 persons) have a master degree as their highest education level, followed by baccalaureate graduates (130 persons or 36.6%), doctorate program graduates (15.2% or 54 persons), diploma program graduates (14 persons or 3.9%), high school graduates (12 persons or 3.4%). One respondent did not complete elementary school.

Table 2. Demographic Characteristics of Respondents

	Number of Respondents	Percentage
Sex		
Female	232	65.3
Male	123	34.6
Age cohort		
Young millennial	189	53.2
Generation X	83	23.3
Old millennial	76	21.4
Baby Boomer	7	1.9
Educational Background		
Doctoral	54	15.2
Master	144	40.6
Baccalaureate	130	36.6
Diploma	14	3.9
High School	12	3.4
< High School	1	0.3
N	355	100
Sex		
Female	232	65.3

Source: Data Analysis (2017)

Motivation: Dominance of Economic Factors

With reference to existing literature, there are four reasons—economic, social, environmental and technological—for individuals to use ride sharing. The survey results showed that 95% (336 persons) agreed that they use Go-JEK, GRAB, or UBER for economic reasons; only 5% (19 persons) did not agree that economic reasons encouraged them to use ride sharing. 86% (307) of respondents related their use of ride sharing to technological factors. With regard to the environmental factors, Go-JEK, GRAB, or UBER users seemed evenly split, with 48% (171 persons) agreeing that they use Go-JEK, GRAB, or UBER due to environmental factors and 52% (184 persons) not agreeing. Although Indonesia has strong social kinship relationship systems, social reasons were not particularly important motivators for the use of Go-JEK, GRAB, or UBER. The survey results showed that only 37% of respondents (132 persons) viewed social factors as their motivation to use ride sharing services; 63% of respondents did not agree that social factors are a reason for using Go-JEK, GRAB, or UBER.

Furthermore, the respondents were asked to provide more detail on their perceptions regarding the factors that encourage them to use ride sharing services. The survey results showed that 40% of respondents agreed and 29% strongly agreed that economic considerations encouraged them to use

ride sharing services. A similar finding was made related to technological factors, with 49% of respondents agreeing and 29% strongly agreeing that technological considerations were a factor in their using ride sharing services. 49% and 39% of respondents, respectively, were neutral regarding the role of social and environmental factors in their use of online ride sharing services. This confirmed that the online ride sharing service users who participated in this study did not view social or environmental reasons as their main motivators.

Table 3. Summary of the Factors Influencing the Use of Ride Sharing

Influencing Factors	Perception	Agree (%)	Disagree (%)
Economy	Relatively cheap price	93	7
	Better service compared to conventional motorcycles/taxis	84	16
Social	Develops social relationships	28	72
	Suggested by friends/other people	58	42
	Wants to chat with online motorcycle/taxi drivers	13	87
	Wants to help online motorcycle/taxi drivers	43	57
Environment	Wants to reduce air pollution	47	53
	Reduces environmental degradation	45	55
	Reduces use of fuel	53	47
	Reduces carbon emission	48	52
Technology	In possession of smart phones	89	11
	Has internet access	92	8
	Likes related technological matters	76	24
	Relatively cheap price	93	7
	Better service compared to conventional motorcycles/taxis	84	16
	Develops social relationships	28	72
	Suggested by friends/other people	58	42
	Wants to chat with online motorcycle/taxi drivers	13	87
	Wants to help online motorcycle/taxi drivers	43	57

Source: Data Analysis (2017)

As Table 3 shows, nearly all respondents (93%) agreed that online ride sharing tariffs are cheaper, and 84% agreed that online taxi and motorcycle services are better, than non-application-based taxi or motorcycle services. The literature suggested that social factors, such as the desire to develop social relationships, to follow the suggestions of friends or family members, to chat with driver or other social intentions, and to help other people (in this case, online ride sharing drivers), motivate consumers to use ride sharing. The survey results did not show much social motivation for using ride sharing services, and on average only 35% of the respondents agreed that social factors encouraged them to use ride sharing; 65% of respondents did not agree that social factors contribute to their use of ride sharing.

Like economic factors, technological aspects seemed to strongly affect individuals' decision to use online ride sharing services. A total of 92% of respondents agreed that they use online ride sharing services due to technological developments, such as possession of smart phones and access to the internet. The total of 89% of respondents said that they own smartphones, and 76% said that they use online ride sharing services since they like matters related to technology. With regards to environmental aspects, the survey results showed a relative balance between respondents who agreed and respondents who did not agree that environmental factors motivated them to switch to online motorcycle and taxi services. For example, 47% of respondents agreed that they used online motorcycle and taxi services since they wanted to play a role in reducing air pollution, 45% agreed that they wanted to reduce environmental degradation, 53% agreed that the use of the online taxi and motorcycle services may reduce fuel use, and 48% agreed that using the online taxi and motorcycle services may reduce carbon emissions.

The information provided by respondents to several open questions related to their motivation and decision to use ride sharing showed that they considered the online taxi and motorcycle services to be relatively cheap, affordable, and easy to access since orders are made through smartphone applications. This is also due to several online taxi and motorcycle services using flat tariffs; as a result, users feel that the costs are fixed, even when traffic congestion occurs. The relatively cheap tariffs occur because online ride sharing services often give discounts, resulting in cheaper tariffs. The survey results also showed that online ride sharing services are faster, as when users are in a hurry they may order earlier and obtain faster pick-up. Ride sharing is also viewed as practical, since users need not use their own vehicles, which is considered exhausting and potentially incur additional costs such as parking fees and fuel. In addition, respondents also feel safer, since they consider ride sharing companies (Go-JEK, GRAB, and UBER) to have selected their drivers through driver screening. This sense of safety is also attributed to online ride sharing services being able to send detailed information on their trip to other parties, including their travel route, the name of their driver, etc. through location sharing. Users are able to see a photograph of their driver and also the police number of the vehicle used. Users also have clear media in case they need to complain about driver impoliteness or driving behavior.

Correlation and Regression Analysis

Correlation analysis is carried to ensure the influence of economic, social, environmental, and technological factors on consumers' motivation and decision to use ride sharing services. The results show that economic, social, environmental, and technological factors have a significant and positive association with individuals' decision to use the online ride sharing services being researched. The motivation and decision to use ride sharing has a significant and positive association with

economic factors (r = 0.561); social factors (r = 0.579); environmental factors (r = 0.668); and technological factors (r = 0.600). The analysis also show that the regression model used does not have a multicollinearity problem, since the Pearson correlation coefficient for the respective independent variables are all below 0.80 (Ref. Table 4).

Table 4. Association between Motivation and Various Factors influencing Motivation to Use Ride Sharing

Variables		Correlation Coefficients	Significance Level
Motivation in Using Ride Sharing	Economic Factors	0.561**	0.000
	Social Factors	0.579**	0.000
	Environmental Factors	0.668**	0.000
	Technological Factors	0.600**	0.000
Economic Factors	Motivation in Using Ride Sharing	0.561**	0.000
	Social Factors	0.110*	0.040
	Environmental Factors	0.221**	0.000
	Technological Factors	0.368**	0.000
Social Factors	Economic Factors	0.579**	0.040
	Motivation in Using Ride Sharing	0.110*	0.000
	Environmental Factors	0.352**	0.000
	Technological Factors	0.166**	0.000
Environmental Factors	Economic Factors	0.668**	0.000
	Social Factors	0.221**	0.000
	Motivation in Using Ride Sharing	0.352**	0.000
	Technological Factors	0.248**	0.000
Technological Factors	Motivation in Using Ride Sharing	0.600**	0.000
	Economic Factors	0.368**	0.000
	Social Factors	0.166**	0.002
	Environmental Factors	0.248**	0.000

Source : Data Analysis

Hypothesis Testing and Multiple Regression Results

To test the associations of economic, social, environmental, and technological factors on individuals' motivation and decision to use ride sharing services, regression analysis is carried out using Equation (1); the results are summarized in Table 5. By carrying out the t test, it was found out that economic factors, social factors, environmental factors, and also technological factors are statistically proven to have a positive and significant association on consumers' motivation and decision to use ride sharing services, either taxi or motorcycle, for the three platforms being studied. The adjusted R^2 of 83% reinforces the ability of economic, social, environmental and technological factors to clarify variations in individual motivations or decisions to use the online ride sharing being studied. This concurs with the results of previous studies, as well as the theory used as the basis of analysis.

The regression coefficient of economic factors revealed that the economic-related factors have a positive and significant association with the motivation to use ride sharing. The coefficient can be understood as every increase of one unit of the economic factors motivates users to use ride sharing services by about 0.228 units. This finding is in agreement with Matzler *et al.,* (2015), who find that the cheaper cost is the main factor motivating users of ride sharing services. A similar finding was also found in a study of Yaraghi and Ravi (2017), who shows that the use of ride sharing is meant to save user costs (Yaraghi & Ravi, 2017). With regards to social factors, as found in Yaraghi and Ravi (2017), the sharing economy has established digital trust within communities, where digital trust building may be carried out efficiently due to the availability of technology. Social factors

were found to be a driver of users' motivation to use ride sharing services, with a regression coefficient of 0.266. This implies that every 1 social factor unit increase causes an approximately 0.266 unit increase in ride sharing.

The significant and positive association among environmental factors with consumers' motivation to use ride sharing is also confirmed in the regression model. During the period of analysis, environmental-related factors are significant with a regression coefficient of about 0.278; one unit change in environmental-related factors is associated with a 0.278 unit change in the motivation to use ride sharing services. The regression results also confirmed that the motivation to use ride sharing has a statistically positive and significant association with technological factors, with a regression coefficient of 0.265. This implies that one unit change in technological factors causes a 0.26 unit change in users' motivation to use ride sharing services such as Go-JEK, GRAB, and UBER.

Surprisingly, with respect to the control variables, it was found that age cohort and gender have no significant association with users' motivation to use ride sharing. The survey results showed that 65% of respondents were women. However, although the number of women respondents is larger, regression results showed that gender apparently has no significant effect on ride sharing users' motivation. This finding is relevant with the study results of Kooti *et al.,* (2017) who conclude that women and men have no different behavior in using UBER for ride sharing. The regression results also showed no significant effect of age cohort on the motivation to use ride sharing. This may be interpreted that, although the majority of the reviewed respondents are included in the Millennial Generation, the motivation of other ride sharing users,

namely the Baby Boomers generation and also Generation X, in using ride sharing services is no different than the motivation of the Millennial Generation.

Table 5. Influencing Factors in Using Ride Sharing Dependent Variable : Decision to Use Ride Sharing

	Estimate (β)	T-Statistics	P-Value	Hypothesis Supported
Economic Factors	0.228	13.510*	0.000	Yes
Social Factors	0.266	15.266*	0.000	Yes
Environmental Factors	0.278	16.656*	0.000	Yes
Technological Factors	0.265	13.936*	0.000	Yes
Dummy 1_Gender	-0.031	-0.879	0.380	
Dummy _Age Cohort	0.040	1.246	0.214	

*Significant at a 5% level; Number of Observation= 355; R^2 (Adjusted for d.f.)= 83%; F-Statistics = 304.409
Source : Data Analysis

By using α = 95% (p = 0.05), with the p-value of the obtained residual, namely 0.000, it may be concluded that the obtained Adjusted R^2 is significant, which means that the independent variables, economic, social, environmental, and technological factors are able to clarify variations in individuals' motivation and decision to use ride sharing. Regression results show that the regression model being used is significant, $F_{(6, 346)}$ 304.4, p< 0.05, Adjusted R2 = 0.83.

4.1 Managerial Implication

The results of this study indicate that ride sharing users in Indonesia are statically proven to use ride sharing on four factors, namely economic, social, environmental and technological factors. Among these four factors, economic factors are the most dominant factors affecting the use of ride sharing. These economic factors, among others, are price comparisons using ride sharing which are seen by users as cheaper than conventional transportation media that have been used by consumers. The managerial implications of this finding can be suggested to ride sharing providers.

Ride sharing users are price-sensitive, implying that prices are a factor that plays an vital role in the decision to use ride sharing. In terms of influencing their market share, ride sharing providers (GOJEK and GRAB), need to be careful in increasing or decreasing the price of their ride sharing services. For public policy makers, namely government institutions, the dominant price as a factor affecting ride sharing is an indication that there is a significant opportunity cost from the user side when deciding to use ride sharing. Prudent policy is required when policy makers adjusting price regulations in the operation of ride sharing in Indonesia.

5. Conclusion and Limitation
5.1. Conclusion

This study concludes that economic factors are most dominant in motivating individuals' use of ride sharing. Technological factors are also viewed by users as having a significant role in motivating them to use ride sharing, where 86% of respondents agreed on the importance of technology, followed by environmental factors (48%) and social factors (37%). Regression reveal that four

hypotheses tested are supported by the empirical data collected; economic, social, environmental, and technological factors significantly and positively affect individuals' decision to use ride sharing, with the regression coefficients ranging from 0.011 to 0.278 in magnitude. Two demographic variables used as control variables, namely gender and age cohort, were not proven as statistically affecting the motivation to use ride sharing services, which may be interpreted to mean that male and female users have no difference in motivation. In addition, Millennial and non-Millennial age groups were also not shown to have different motivations in using ride sharing services.

5.2. Limitation

Several limitations of this study should be stated. First, this study was built on survey results focusing on respondents' views concerning the factors that affect their motivation and decision to use ride sharing. The survey results were processed, but not validated in multiple samples. Therefore, this research result may not be generalized. Second, the four reviewed factors that motivate individuals' use of ride sharing are presumed to also be affected by other various factors, such as different availability of technological infrastructures, as well as different levels of technology adoption in urban and non-urban areas (Wang, 2013). As such, it is presumed that research with a similar topic may reach different conclusions if research samples are differentiated according to location or geographical factors in urban and non-urban areas. Given these limitation, this study will give direction a more comprehensive research into ride sharing. Follow-up research on ride sharing, with more diverse or in-depth sampling and coverage of the four factors (or other factors) that affect the motivation to use ride sharing services, must be carried out to make further findings and verify the results of this research.

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