7 Case 6. The Korean experience of sharing economy and its policy implications

Jungwook Kim and Hangyul Cho, Center for Regulatory Studies, Korea Development Institute

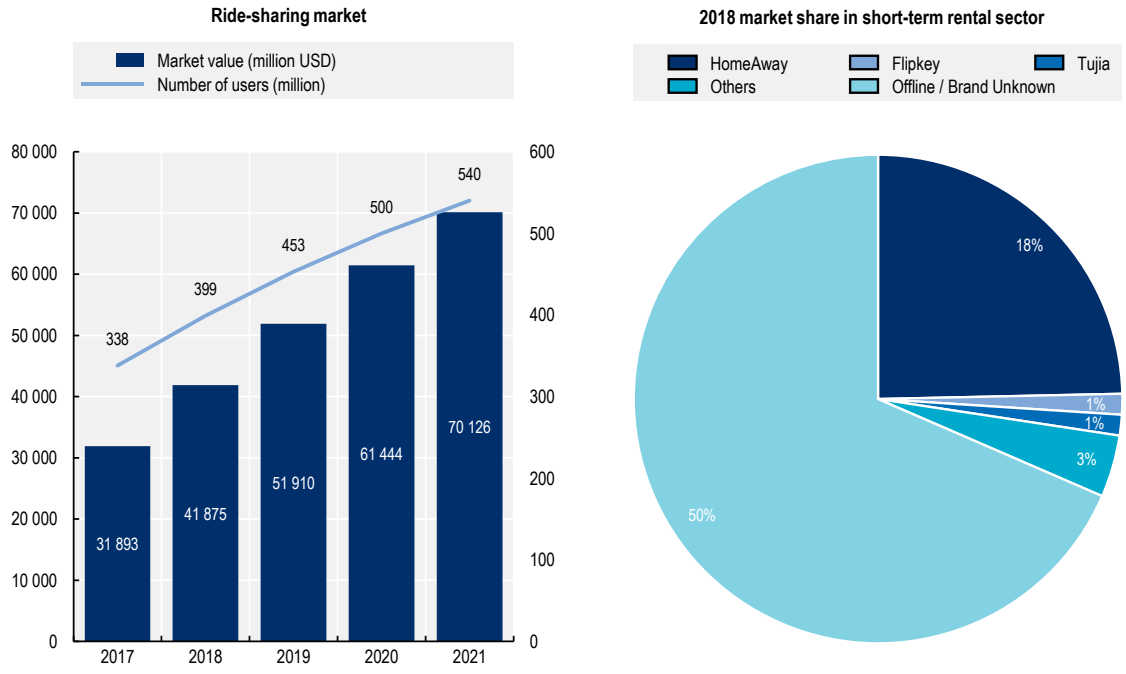
The benefits of the sharing economy include potentially lower transaction costs of services, leveraging of excess capacity, improved customer experiences, and potential for stimulating new types of consumption.
However, the introduction of the sharing economy firms is not without potential problems; e.g. around regulatory equity, crowding out of existing transactions, potential transaction risks, and safety threats. This case study presents recommendations on the appropriate regulatory frameworks for the development of the sharing economy in Korea. These recommendations seek to provide regulatory equity and flexibility while addressing regulatory enforcement difficulties by delegating implementation to platforms, and are expected to be instrumental in fostering innovation in the country's new growth engines.

Introduction

Sharing economy: status and prospects

The rapid growth of the sharing economy and so-called "sharing economy firms" is well-defined and evident. (Jiang, 2019[1]) finds that the share of Americans who have used ride-sharing services, namely Uber and Lyft, more than doubled to 36% in 2018, compared to only 15% in 2015. Zipcar, an America-based car-sharing company, reports that the number of its members exceeded 1 million in 2016 in more than 500 cities worldwide. In the accommodation-sharing sector, another American player Airbnb has excelled. In 2018, its revenue marked a record-high of USD 3.6 billion, a significant increase from 2.6 billion in 2017 (iPropertyManagement, 2020[2]). The company's revenue in 2020 reached comparable levels (USD 3.4 billion) despite the impact of the health crisis on the tourism and accommodation sectors.

Figure 7.1. Growth of ride-sharing and accommodation-sharing markets



Source: (Statista, n.d.[3]); (Yong, 2019[4]).

PwC (2015) expects the global market value of the five sectors of sharing and platform economy to grow from 15 billion USD in 2013 to 335 billion USD by 2025 to match the performance of the traditional economy sectors. The same report finds that collaborative finance, accommodation sharing, ride sharing, and vehicle sharing would become the fastest growing sectors within the sharing economy. In 2015, the total revenue from short-term Person-to-Person (P2P) accommodation rentals, such as Airbnb, occupied 2% of the American accommodation market. However, (Olson and Kemp, 2015[5]) expect this number to increase by as much as 10% by 2025, with revenue of 107 billion USD. At the same time, ride-sharing platforms represented by Uber would also experience a significant growth, representing 5% of the global taxi market worth USD 90 billion.

Sharing economy in Korea: an overview

In the early 2010s, the sharing economy in Korea has been led by a number of start-ups who advocated Korean versions of Airbnb and Uber.

While Korea is yet to catch up with the global pace of the sharing economy market, the Korean market has also experienced rapid development based on outstanding Information and Communication Technology (ICT) infrastructure. In 2019, the Korean sharing economy attracted investment worth 276 billion KRW, only to come in second after the smart healthcare sector. There exists public consensus that the sharing economy is indeed an inevitable phenomenon. A survey conducted by the Economic Information and Education Center at the Korea Development Institute (KDI) in 2019 found that while only 29.7% of the general public had experienced sharing economy services, nearly 70% expected Korea's sharing economy to continue its growth in the next five years.

Scope and structure

Peer-to-peer transactions utilising privately owned assets are nothing new. However, the recent developments in Information and Communication Technology (ICT) have enabled the phenomena of sharing economy to operate more frequently and to stand out as an entirely new economy. In fact, with the sharp increase in the number of smartphone users, transactions and exchanges utilising digital platforms show high potential to become a significant part of the mainstream economy. While the proliferation of the sharing economy is now an undeniable trend, it raises several issues with respect to the current governmental systems and procedures due to its differences with the incumbent industries. Ensuring and promoting healthy competition among the incumbent and new business models is therefore up to the regulatory authorities who must address the question of whether sharing economy platforms should be subject to different regulatory treatments. While sharing economy platforms such as Uber and Airbnb have experienced noticeable growth since their establishment, conflicts with incumbent businesses continue to arise. The two major causes of discontentment are summarised in Table 7.1.

Table 7.1. Causes of discontentment and claims of respective market players

Category	Incumbent industries	Sharing economy firms
Entry barrier	"Sharing economy platforms are threats to existing businesses."	"Incumbent players are demanding over-protective measures that increase entry costs for sharing economy platforms."
Regulatory equity	"Sharing economy firms are not subject to classical rules and regulations."	"Regulations designed for traditional business practices are applied inappropriately to newly evolved business models."

Source: Authors.

This study thus analyses the key issues pertaining to the sharing economy in Korea, and presents implications for government policies to support its sustainable growth. First, this study proposes regulation-in-proportion as a new regulatory framework. Differentiating professional suppliers from non-professional suppliers provides several benefits that help ensure regulatory equity. By categorising the two parties based on a set level of transaction, professional and regular suppliers may decide how much to supply with respect to their capability. Non-professional players, on the other hand, are given an option to reduce the costs they incur in abiding by the one size-fits-all regulations and instead benefit from eased regulations. The regulation-in-proportion framework, however, involves some difficulties in its enforcement process. Consequently, in order to ensure effectiveness of the proposed regulatory framework, this paper further proposes imposing specific regulations on the sharing economy platforms.

The remaining part of the paper is organised as follows. Section 2 reviews and organises various definitions of the sharing economy, while Section 3 presents the cases and issues associated with the sharing economy in Korea. Section 4 provides regulatory alternatives in detail, and finally Section 5 presents the conclusions.

Setting the framework: concepts and components

Previous discussions

The concept of "sharing" is not an entirely striking phenomenon in the modern society. In fact, it has been present around the world as one of the long-standing principles of managing common assets and resources. The concept has been particularly useful, specifically in cases where it is difficult for an individual to possess specific resources, tools, and infrastructures that are necessary for leading a proper economic life. The community-wide management of limited resources, such as library services and carpools, has generally proven effective in achieving optimised utilisation.

Yet, the concept of "sharing economy" may be considered a relatively new phenomenon with no crystal-clear definition and boundaries. Its ambiguity has been extensively disputed, but the concept "still lacks a shared definition" as (Botsman, 2013[6]) criticises. (Lessig, 2008[7]) is widely accepted to be the first to introduce the modern definition of sharing economy, by differentiating it from commercial economies and highlighting social relations as the means of resource allocation. While not providing a formal definition, the OECD refers, in the context of domestic activities, to new "sharing economy" platforms allowing people to rent, exchange or share their apartment or car, and points out that these initiatives "challenge existing regulation of established markets and call for balanced policy responses that enable innovation while protecting the public interest" (OECD, 2015[8]).

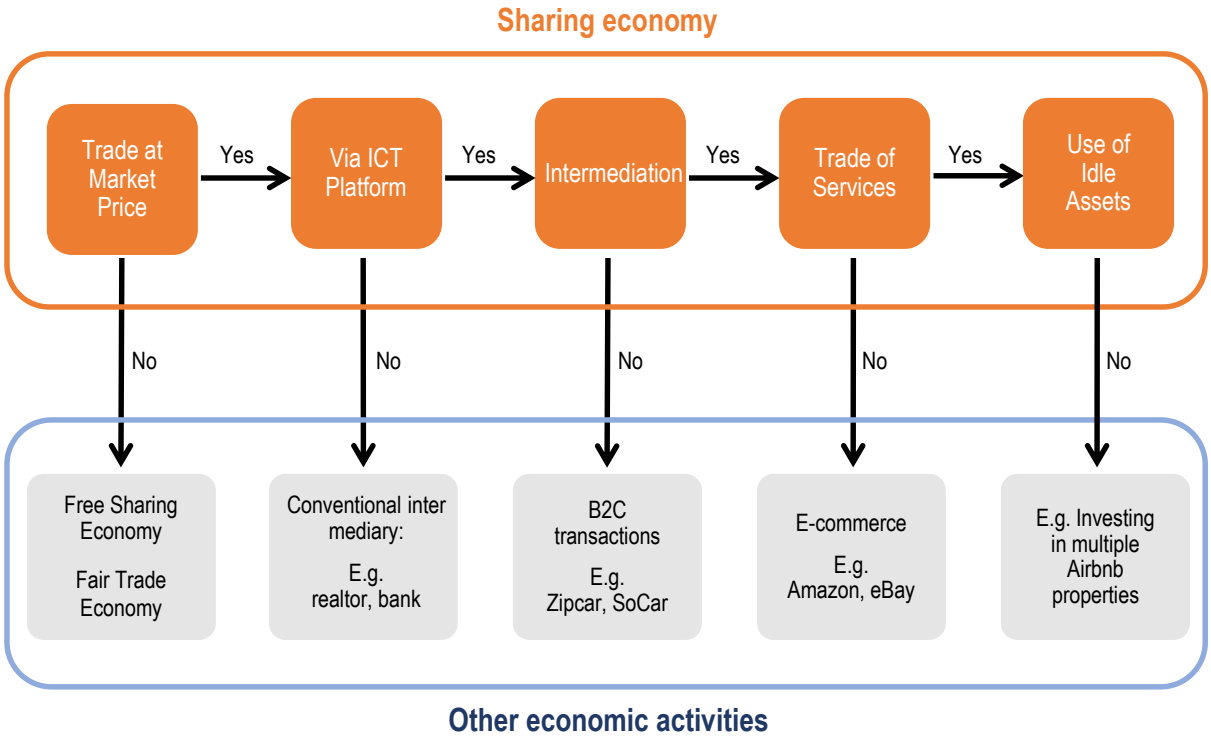
Due to lack of statutory basis and consensus, companies whose business models connect individual customers through ICT platforms generally claim themselves to be sharing economy firms.

A narrow definition with a focus on the sharing of idle assets

As (Botsman, 2015[9]) claims, the narrow definition does not include every efficient matching of supply and demand in the scope of sharing economy, unless the practice involves "true sharing" and collaboration. True sharing in this context involves sharing of idle or under-utilised assets. (Kim, Lee and Hwang, 2016[10]) recognise the five characteristics of the sharing economy as follows: 1) utilisation of the ICT platform; 2) transaction at market prices; 3) transaction of services; 4) transaction via intermediaries; and 5) transaction of idle assets. The five core components of the sharing economy are what differentiate the sharing economy from other economic activities that have existed before.

Figure 7.2 differentiates sharing economy from other similar economies, based on the definition stated above. The first criterion is whether a transaction occurs at the market price. Failure to meet this criterion means the practice is a non-profit transaction, and thus cannot be included in the scope of sharing economy. The second criterion is whether the transaction takes place via ICT on-demand technology. An on-demand transaction represents a real-time searching for a supplier who can meet a consumer's demand using smartphones and/or the Internet. A practice via a conventional intermediary does not therefore qualify as a part of sharing economy. The third criterion is the use of intermediation. Zipcar, for example, utilises on-demand technology in renting the company-owned vehicles to consumers. Consequently, Zipcar's business practice serves as an example of the Online-to-Offline (O2O) economy, but not as that of the sharing economy. The fourth criterion is whether the subject of transaction is limited to services. If the subject of transaction is a tangible commodity, such transaction comes under the scope of a traditional e-commerce activity, such as that of Amazon and eBay.

Figure 7.2. Identification tree of the sharing economy



Source: (Kim, Lee and Hwang, 2016[10]).

The last criterion is the use of an idle asset. Only if an empty room or a vacant house is rented through an online accommodation-sharing platform, such practice may fall within the scope of sharing economy.

Arguably, the narrow definition is not sufficient to encompass numerous sharing economy activities, which have grown out of the original Peer-to-Peer-based sharing of goods and services to much broader opensource communities. Even Uber and Airbnb, the so-called flagships of the sharing economy, fail to fit such definition completely, as neither of them shares idle assets. Instead, those activities can be seen as mere encashment of assets that come along when selling one's services.

A Broad definition with a focus on ICT platform applications

The sharing economy previously defined by Lessig takes the form of pure sharing and bartering. However, the use of ICT-based platforms has brought about different interpretations of sharing economy. Recent definitions of sharing economy are not based solely on collaborative consumption. Rather, they focus more on whether certain activity creates certain economic values and whether it utilises digital platforms in exchanging products and services. In the early stages of sharing economy, the scope of transactions was limited to Peer-to-Peer (P2P) transactions, in which individuals exchange economic value via an ICT-based intermediary platform. P2P transactions are thus the most basic type of sharing economy activities. Business-to-People (B2P) transactions are made when a sharing economy firm behaves as a direct supplier of products and services. The government-driven sharing economy is also typical in Korea. The government participates in the sharing economy as a supplier, although profitability is not guaranteed in this instance.

Table 7.2. Categorisation by parties of interest

Type	Relationship among participants	Examples
Peer-to-Peer (P2P)	Individual ↔ Platform ↔ Individual	Airbnb
Business-to-People (B2P)	Firm (+Platform) ↔ Individual	Zipcar, Socar, GreenCar, Kickgoing
Government-to-Citizen (G2C)/ Not-for-Profit (NFP)	Government (+Platform) ↔ Individual	Seoul Bike

Source: Authors.

According to Alex Stephany (Stephany, 2015[11]), the chief executive officer of JustPark, one of Europe's leading sharing economy businesses, the sharing economy creates value in making use of underutilised assets to reduce the need for ownership of such assets. Consequently, the paradigm of the sharing economy needs not be limited to interpersonal exchanges but rather extends to B2P models. Under such circumstances, companies such as Zipcar may be included in the scope of sharing economy.

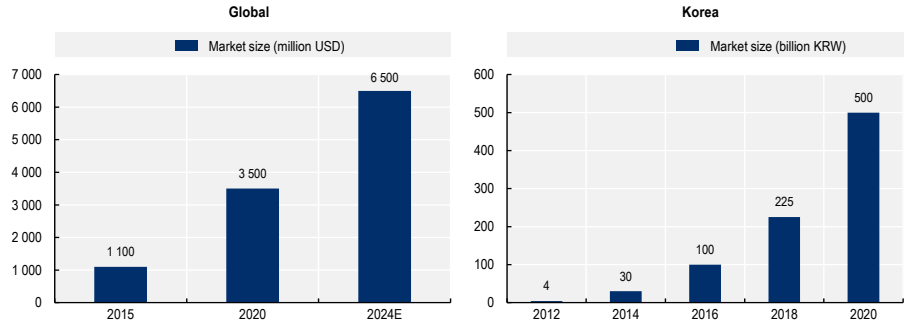
Table 7.3. Overview of Korean sharing economy (selected platforms)

	Socar	GreenCar	Kickgoing	SeoulBike
Business Model	Car-sharing	Car-sharing	Electronic scooter-sharing	Bicycle-sharing
Service Launch	November 2011	October 2011	September 2018	October 2015
Subscribers	Approx. 7 million	Approx. 3.5 million	Approx. 1 million	Approx. 3 million
Serviced Zones	4 000 stations in 110 municipalities	3 200 stations in 88 municipalities	Selected areas in Seoul Capital Area	2 500 stations around Seoul
Number of Vehicles	14 000	9 000	20 000	37 500
Ownership information	Largest shareholder: SK	Mother Company: Lotte	-	Operated by: Seoul Metropolitan Government

Source: (Socar, 2021[12]), (Kang, 2021[13]), (Lee, 2021[14]), (Seoul Metropolitan Government, 2021[15]).

The Korean government, in its Sharing Economy Stimulation Plan presented in January 2019, officially defines the sharing economy as an economic model in which individuals, enterprises, and public institutions utilise platforms to share assets and services and thereby promote economic efficiency. The Bank of Korea also defines online platforms such as Airbnb and Uber as part of the sharing economy.

Figure 7.3. Scope of the sharing economy in GDP calculation



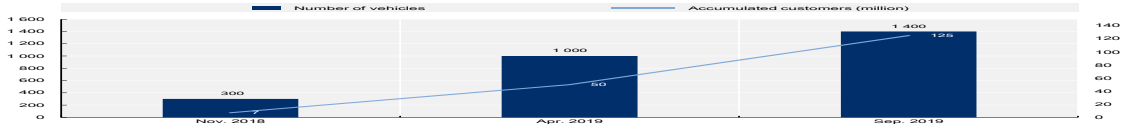
Source: (Bank of Korea, 2017[16]).

This chapter also intends to investigate Korean cases under the broad definition of sharing economy, and aims to capture a wider range of phenomena and analyse the regulatory issues related to sharing economy.

Core components

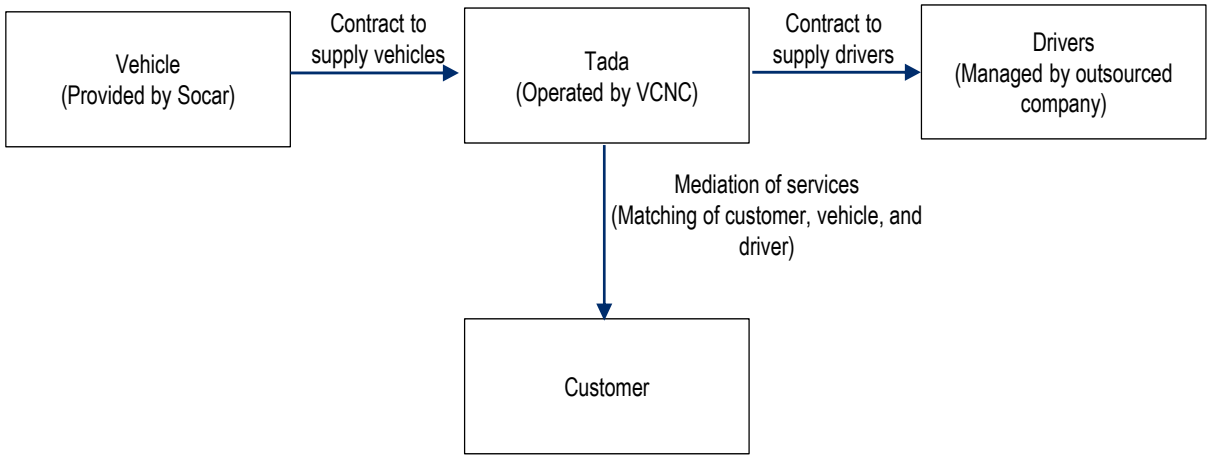
The fundamental difference between classical economies and the sharing economy is the utilisation of ICT-based platforms. An ICT-based platform is defined as a tool that mediates the exchange of goods and services by matching supply and demand. In fact, it is the mediation of ICT-based platforms that has ushered in the modern sharing economy.

Figure 7.4. Visual definition of classical economies



Source: Authors.

Figure 7.5. Visual definition of sharing economies



Source: (Kim, Lee and Hwang, 2016[10]).

As visualised in Figure 7.5, suppliers and consumers search for each other via an ICT platform. When a match and a deal are made, the former provides the latter with the rights to access the assets at the market price, while both parties are charged with a brokerage fee for their use of the platform.

The development of ICT has fulfilled the basic requirement of sharing economy. It is now difficult to imagine sharing economy activities without the intervention of Internet and smart devices. Supplies and demands can be met in a simple manner, and goods and services may be exchanged in real time. Consequently, the objectives of sharing and exchange no longer have to be limited to tangible assets. While mobility and short-term rental platforms have largely dominated the sharing economy domain, opportunities in numerous other professional services are also on the rise.

Table 7.4. Categorisation of the sharing economy by shared assets

Category	Sectors	Shared assets
Tangible assets	Point-to-Point (P2P) Mobility	Car / Bicycle
		Ride / Carpool
	Space	Accommodation
		Office
		Parking lot
		Kitchen
Intangible assets	Talent / Knowledge	Talent / Knowledge
	Finance	Crowdfunding

Source: Authors.

Sharing of tangible assets includes the sharing of vehicles, accommodation and spaces. Such form of the sharing economy activity provides extra profit to suppliers who are willing to share their assets with consumers. The California-based accommodation-sharing platform Airbnb would be the most representative business model of tangible asset sharing. In the meantime, sharing of intangible assets represents provision of intangible contents or services such as education and ride services. When intangible assets are shared, the supplier provides the appropriate service to the consumer, who then pays for the service.

Sharing economy in Korea: status and limits

Status and characteristics

The majority of Korean sharing economy start-ups were established after 2012, when Uber and Airbnb first started operations in Korea. The domestic business models have been largely influenced by global companies, and thus are not significantly differentiated from those of Zipcar, Uber, and Airbnb. In fact, some of the early sharing economy companies emphasised that they are Korean versions of the aforementioned flagship companies. One outstanding difference, however, is that Korea's ride-sharing sector has slowed down whereas Uber, a ride-sharing platform, has grown into one of the largest sharing economy companies overseas (Telles, 2016[17]).

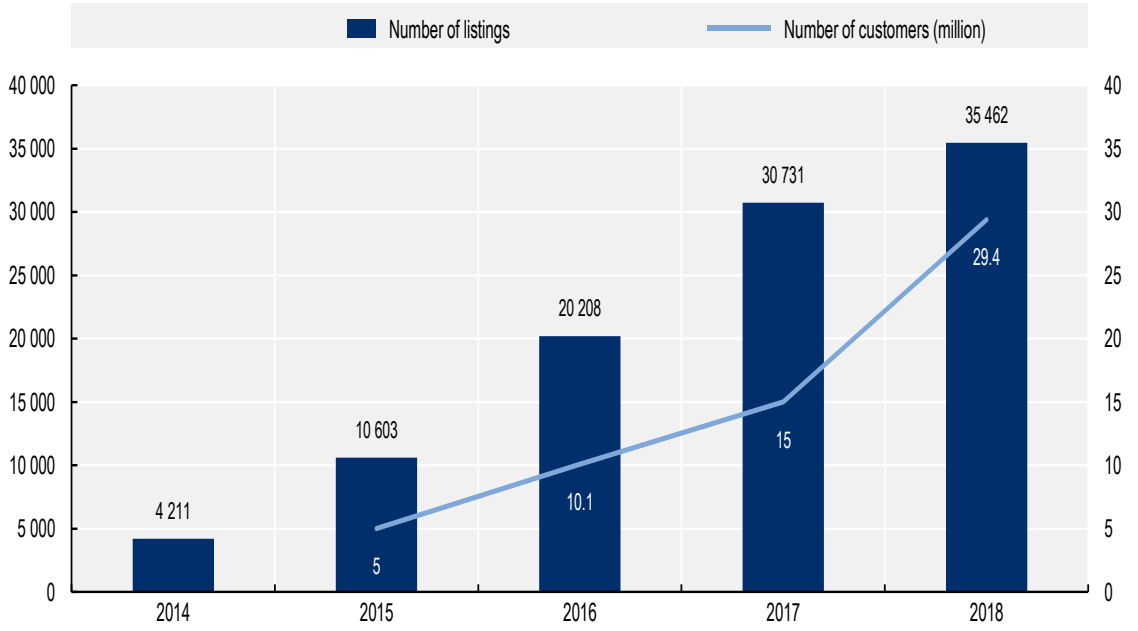
Results of a survey by (Korea Development Institute (KDI), 2019[18]) reveal that Korean citizens deem ride-sharing to be the most necessary service for vitalisation of the sharing economy. Among the respondents, 31.4% chose ride-sharing as the most important service for improving the overall quality of transportation services and resolving traffic issues.

Such slow progress in the ride-sharing sector may be the outcome of the prolonged controversy in the process of introducing Uber in Korea. It is highly likely that the controversy regarding the legal soundness of Uber, which occurred in the early stages of development, has interrupted the successful and sustainable expansion of the ride-sharing industry.

Last, as demonstrated by the widely-known Zipcar, Uber, and Airbnb, the sharing economy and its participants are vulnerable to network effects. (United Nations Department of Economic and Social Affairs, 2020[19]) points out that the sharing economy is characterised by its "winner-takes-most" type market despite the generally low marginal costs across platforms. Typically, one or two sharing economy firms dominate their respective sectors, and such trend is largely owing to the network effects that create high barriers to entry. The Korean sharing economy is not an exception. While 49 sharing economy firms are registered on Sharehub, their presence in the Korean sharing economy is trivial. For instance, the conglomerate-backed Socar and GreenCar dominate the car-sharing sector, the most successful sharing

economy sector. The network effect is even more evident in the accommodation-sharing sector where the market share of Airbnb is close to 99%.

Figure 7.6. Sharing economy sectors in need of the most improvements

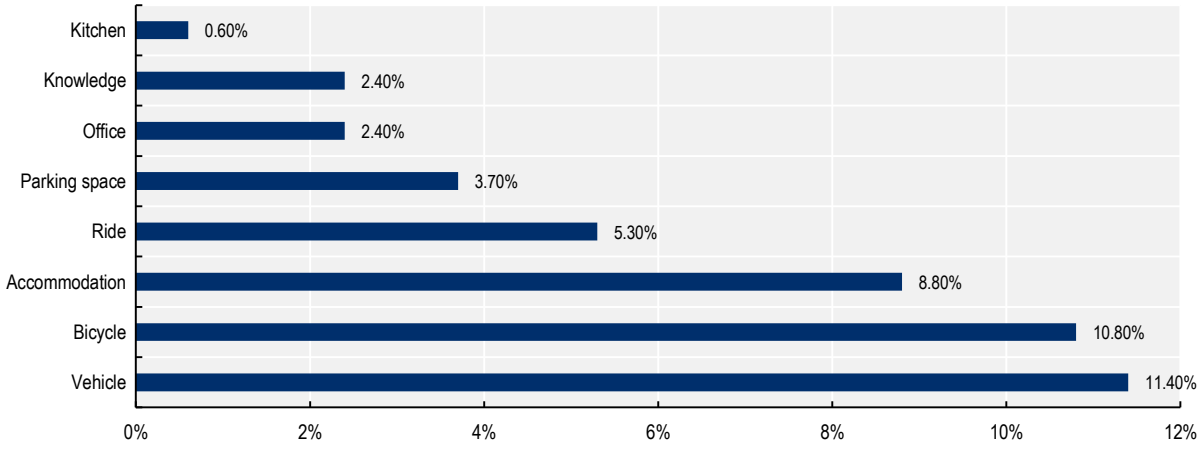


Source: (Korea Development Institute (KDI), 2019[18]).

Car-sharing

The car-sharing services have successfully responded to the fluctuating demands of various consumers on hour-to-hour basis. Since the introduction of Zipcar in 2010, the sector has experienced remarkable growth both globally and in Korea. Guidehouse Insights projects the global car-sharing market size to increase by CAGR of 21.8%. Such trend is also observable in Korea, where the car-sharing sector is by far the largest and the most representative sector of the sharing economy.

Figure 7.7. Expected growth of the car-sharing sector



Source: (Samjong KPMG Economic Research Institute, 2018[20]).

Although many associate the sharing economy only with start-ups, it is less likely to be the case in the car-sharing sector where incumbent companies have successfully entered the market via direct investments or acquisitions. For instance, instead of trying to use its existing business to compete with car-sharing services, Avis Budget Group acquired Zipcar for approximately 500 million USD in 2013 (Zipcar, 2013[21]). While most domestic start-ups face financial difficulties in the early stages, the two Korean car-sharing companies, Socar and GreenCar, have successfully landed in the market, thanks to large funds from major conglomerates. The domestic market leader Socar secured more than sixty-six million USD investments from SK until 2017, while its close competitor GreenCar has been acquired and operated by Lotte, since 2015. Market dominance and network effects are evident and expected to continue. As of 2018, the combined market shares of the two companies reached a record-high 87%.

Table 7.5. Status of the domestic car-sharing market (Socar & GreenCar combined)

	2013	2014	2015	2016	2017	2018
Registered users	172 340	1 020 000	2 700 000	4 400 000	5 800 000	7 700 000
Serviced areas	929	2 050	3 900	5 250	5 830	6 800
Number of vehicles	1 314	3 665	6 512	12 200	14 150	17 500

Source: (Kim, 2019[22]).

Unlike the classical commercial economy, the sharing economy is rather a dis-ownership model and values utilisation more than ownership. Thus, the sharing economy essentially puts greater social values in bringing significant economic and environmental benefits, including solving the issues faced by the wealthy population, protecting the environment, and creating jobs. (Cannon and Summers, 2014[23]) suggest that one benefit of the rapid growth of car-sharing services is a reduction in carbon dioxide emissions.

The social efficiency benefits of car-sharing have also been largely advertised in Korea. It is estimated that each shared vehicle effectively replaces 8.5 private vehicles (The Seoul Institute, 2015[24]). The domestic market leader Socar also claims that their 10 000 vehicles have reduced the need for purchasing about 75 000 vehicles in Seoul. As previously discussed, Stephany's definition of sharing economy includes a model that reduces the need for ownership of under-utilised assets (Stephany, 2015[11]). Consequently, the social benefits that Socar and GreenCar have brought to the Korean society make the car-sharing platforms fundamentally different from traditional rental car businesses.

Ride-sharing

In Korea, the perception that ride-sharing is essentially illegal is rampant among the public. If an activity does not fit perfectly into the existing regulatory framework, or if there are apprehensions that it may negatively affect the incumbent businesses, it is usually subject to the existing regulations. Ride-sharing platforms such as Uber and Tada, whether global or domestic, stand officially banned from the Korean market, as the court ruled that they illegally used private vehicles for commercial purposes. Since its introduction to the domestic market in 2013, Uber has faced significant resistance from the taxi industry that accuses the service of regulatory arbitrage and unfair competition. Domestic ride-sharing platforms introduced after the suspension of Uber X service in 2015 have also been subject to controversy.

Launched in October 2018 by the car-sharing platform leader Socar and mobile application developer Venture Creators & Company, Tada started its application-based van-hailing service using 11-seat Kia Carnival vans and outsourced drivers. Only a year after its establishment, Tada became a leading domestic ride-sharing service with 1 500 vehicles and 9 000 drivers as of December 2019.

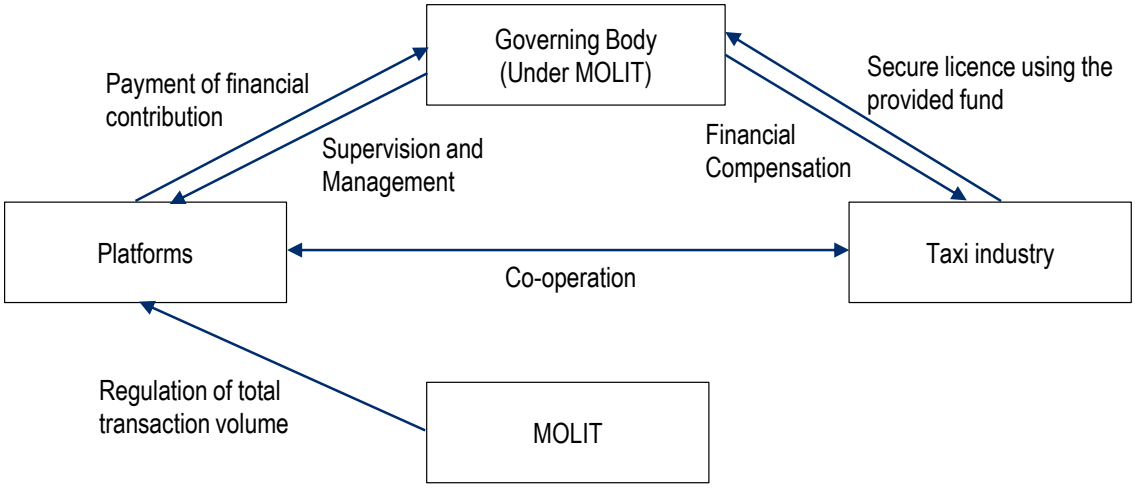
As summarised in Table 7.6, Tada claims its service complies with the Transportation Law that permits companies to provide drivers for rental vehicles with 11 seats or more. However, it has faced enormous setbacks from taxi drivers who called Tada illegal because the company transports passengers for profit by hiring drivers who do not hold appropriate taxi licenses.

Table 7.6. Contentious clauses between Tada and the taxi industry

Act	Content
Passenger Transport Service Act Article 4	Any person who intends to engage in passenger transport business prescribed by the Presidential Decree shall prepare a business plan and obtain a license from the "Mayor/*Do* Governor" or register with the Mayor/*Do* Governor, as prescribed by Ordinance of the Ministry of Land, Infrastructure and Transport.
Passenger Transport Service Act Article 34	No person who rents a commercial motor vehicle from a car rental business shall use such motor vehicle for transport with compensation or sublet the motor vehicle to any third party, and no person shall arrange such activities.
Enforcement Decree of Passenger Transport Service Act Article 18	Exceptionally, a person who rents a commercial motor with 11~15 seats from a car rental business entity may sublet the motor vehicle to a third party.

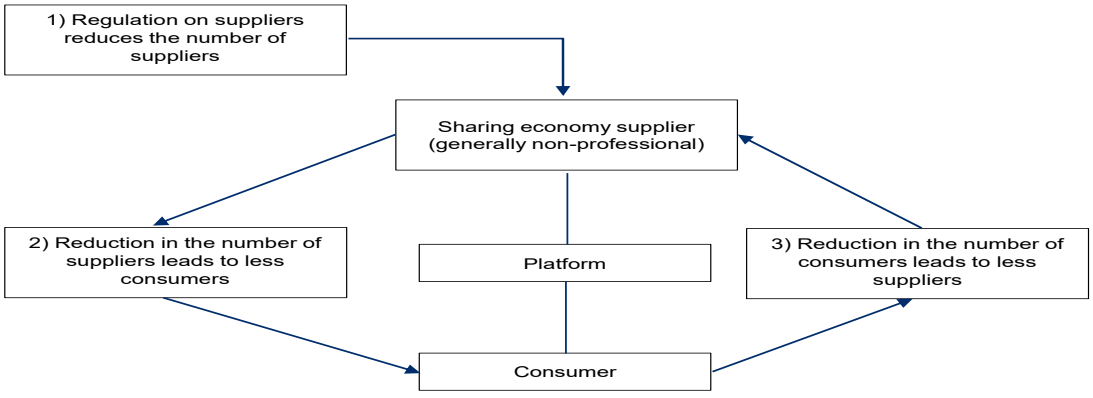
Source: (Korean Passenger Transport Service Act, 2021[25]).

Figure 7.8. Operation status of Tada



Source: Venture Creators & Company.

Figure 7.9. Operation structure of Tada



Source: Authors.

While Articles 4 and 34 of the Passenger Transport Service Act apparently prohibit the use of a rented motor vehicle for transport with compensation, Tada took advantage of the regulatory loophole specified in Article 18. This generated dramatic reactions from local taxi drivers. While Tada gained popularity among consumers, the ultimate result has been gloomy for the ride-hailing service. In March 2020, the National Assembly passed a law that effectively banned operations of services like Tada.

Box 7.1. South Korea passes bill limiting softbank-backed ride-hailing service Tada

Reuters, 7 March 2020

South Korea's parliament on late Friday passed a controversial bill to limit the ride-hailing service Tada, dealing a blow to a company that has been a smash hit since its launch in late 2018 but faced a backlash from taxi drivers angry over the new mobility services.

South Korea's National Assembly passed a revised passenger transport service act requiring rental vans with 11 to 15 seats for tour purposes to be used for at least six hours and stipulated that they be rented or returned at airports or seaports.

The current law bars rental car services from offering drivers, with the exception of vans with 11 to 15 seats – which are provided by Tada.

South Korea restricts ride-hailing to only licensed taxis and bans the use of private cars for the purpose. Tada has been exploiting a rule that allows the rental of chauffeur-driven 11-seaters to operate its ride-hailing services, drawing fierce opposition from the taxi lobby and regulators.

The passage of the bill comes after Tada was cleared of charges of transport law violations in court in mid-February. Prosecutors had sought one-year jail terms for executives of Tada and its parent firm Socar, arguing Tada was a de facto unlicensed taxi service.

Following the passage of the bill, Lee Jae-woong, an entrepreneur and head of Tada's parent company, said on Facebook he would halt Tada's services and apologised to users, while asking who would dare to take on challenges and nurture innovative startups in the country. The revised law is set to take effect 18 months after it is proclaimed.

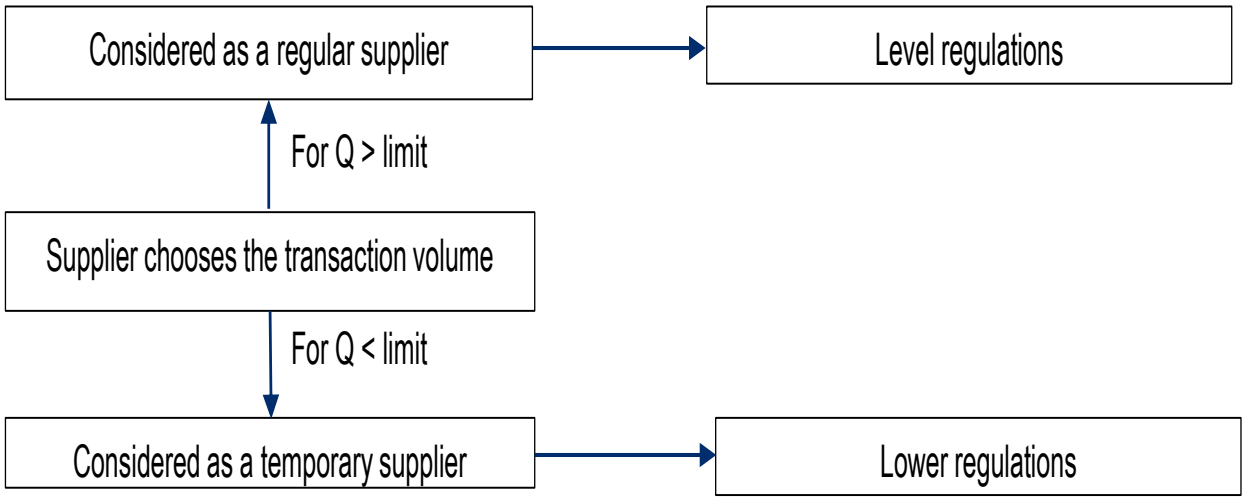
Tada, launched in October 2018, has won 1.7 million users as it capitalised on growing demand and the funding muscle of its Japanese backer SoftBank Group Corp.

Source: (Chung, 2020[26]).

Accommodation-sharing

Accommodation-sharing is also gaining popularity in the Korean market. Yet, unlike the car-sharing sector where domestic platforms excel, the Korean accommodation-sharing sector is entirely dominated by Airbnb, an America-based platform. This is mainly due to current regulatory arbitrage that ironically makes it very difficult for domestic start-ups to enter the market and make profits. In 2018, Airbnb hosted more than 2.9 million customers and created domestic economic ripple effect worth USD 1.3 billion.

Figure 7.10. Increase in the number of Airbnb listings and customers



Source: (Airdna, n.d.[27]).

Airbnb dominates Korea's accommodation sharing market. The platform reports that more than 2.9 million tourists booked accommodation in Korea through Airbnb in 2018, up 56% from 1.9 million in 2017. The market shares of domestic accommodation-sharing platforms cumulatively account for less than 10%. This is due to the utilisation of regulatory arbitrage, provided by the current Tourism Promotion Act. The Act prohibits accommodation-sharing service providers in urban areas from hosting domestic tourists, significantly limiting business opportunities for both Airbnb and domestic platforms.

Box 7.2. Airbnb calls for law revision in Korea

The Investor, 15 October 2018

Airbnb launched a campaign on Oct. 15 to call for a revision of the law to allow South Koreans to share their homes with domestic travellers in the country's major cities, it said.

Under Korea's Tourism Promotion Act, residents in urban areas, excluding rural communities defined by law, can only share their homes with foreign tourists.

The global room-sharing platform said it has sent an email to more than 100 000 of its members to sign up for a petition calling for a change in the law.

Source: (Song, 2018[28]).

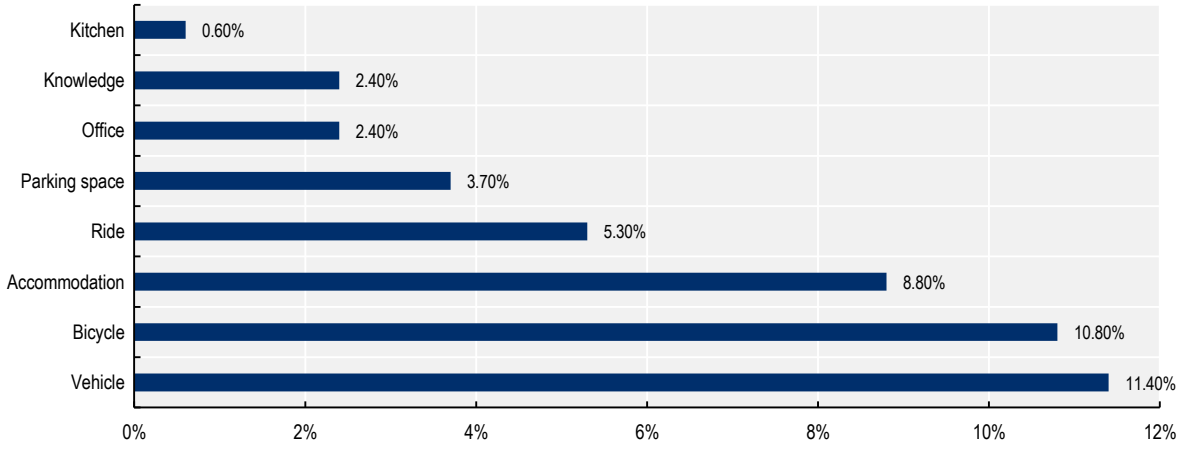
The situation, however, is slightly more positive for the US-based platform. As international inbound guests are more familiar with Airbnb, the majority of tourists rely on the global platform when searching for accommodation-sharing opportunities in Korea.

Cases of failure: sharing of intangible assets and government-run sharing

Not all sharing economy models have been popular or successful in Korea. The domestic emergence of the sharing economy is mainly due to the growth of B2C type sharing businesses, and consequently, those with fewer economic resources find themselves in a difficult situation. Particularly, the sharing of intangible

assets, such as knowledge, has been noticeably unpopular in the Korean sharing economy. The results of a KDI survey show car-sharing to be the most commonly used sharing economy service in Korea, followed by bicycle-sharing, accommodation-sharing, and ride-sharing services. In the meantime, sharing of spaces (parking space, office, and kitchen) and intangible assets (knowledge) are less common.

Figure 7.11. Experience with sharing economy services



Source: (Korea Development Institute (KDI), 2019[18]).

Sharing economy platforms require the thorough support of feasible revenue generating business models. From a theoretical perspective, sharing economy platforms must possess certain values in order to differentiate themselves from incumbent business models. However, they can sustain these values only when they are able to operate in the market. The business models of Zipbob, Wisdom, and Passion University, well-known intangible asset sharing platforms, were highlighted for their innovative ideas. The three platforms aimed to make meaningful changes in the society through active sharing of knowledge, talent, and time.

Eventually, the three platforms faced termination in 2018. The first-generation social ventures suffered due to the inability to find profitable business models and lack of adequate funding. Under the Korean sharing economy, intangible asset-sharing start-ups are usually faced with difficult financial situations and the public's indifference.

Table 7.7. Terminated intangible asset-sharing platforms in Korea

Company	Platform / service	Establishment	Termination
Zipbob	Social dining	2012	2018
Wisdom	Human-library	2012	2018
Passion University	Career searching	2012	2018

Source: (Park, 2018[29]).

Cases of failure: government-run sharing

The public sector's contribution to the expansion of the sharing economy in Korea is also compelling. While the central government has been hesitant to promote potentially innovative services, the local governments have driven the expansion of sharing economy in Korea. In fact, more than fifteen cities have implemented their own version of the sharing economy policies. The capital city of Seoul, in particular, has been

operating various sharing services since 2012 under its 'Sharing City Seoul' project. The project is designed to restore reliable relations and to reduce the wasting of resources with a view to resolving urban economic and environmental problems. Seoul promotes sharing economy as a key to solving numerous social issues related to transportation, parking, and environment, and proposed a plan to support 300 sharing economy entrepreneurs by 2018 (The Seoul Institute, 2015[24]).

In addition to supporting the sharing economy ecosystem and platforms, the local governments have turned themselves into active participants. The front-runner among such cases is Seoul Bike, the capital city's government-run public bicycle-sharing service. As a part of the aforementioned Sharing City Seoul project, the City of Seoul has managed and operated Seoul Bike since 2015. The service has received overwhelming support from the public, with more than 50 000 daily transactions.

Table 7.8. Seoul bike statistics

Category	2015	2016	2017	2018	2019
Total rentals	114 000	1 612 000	5 031 000	10 062 000	14 177 000
Average daily rentals	1 000	4 000	14 000	28 000	52 000
Registered users	34 000	211 000	597 000	1 093 000	1 664 000

Source: (Jang, 2019[30]).

However, the public-driven sharing economy also has boundaries. The so-called tragedy of the commons may easily occur in the absence of rules and penalties. (Ostrom, 2002[31]) suggests the principles that are indispensable to making the sharing economy sustainable. First, clearly defining who may utilise the shared assets is imperative. Furthermore, it is necessary to establish standards to determine the specific time and place for exchange of workforce, tangible assets, or technology. The toughest obstacle to preserving the government-run sharing economy is the users' lack of responsibility. From 2016 to 2019, 156 803 Seoul Bikes have broken down. The irresponsible behaviour of some users causes inconvenience to other participants and the public. In fact, the majority of Seoul Bike users chose damage and breakdown as one of the biggest inconveniences of the bicycle-sharing service (Kim and Kim, 2018[32])

Box 7.3. One in Four Rented Bike Helmets in Seoul Missing or Stolen

The Korea Herald, 25 July 2018

Around 25% of helmets provided by the Seoul Metropolitan Government for cyclists were stolen over a four-day period, according to the City on Wednesday.

The City of Seoul operated a helmet rental system on a trial run from Friday to Monday at 30 stations in Yeouido for cyclists who ride the City's bikes in preparation for the mandatory use of helmets that will start on 28 September.

However, the helmet rental system hit a serious roadblock as 218 of 858 helmets disappeared, deepening the concerns of the City. The helmets were placed in the bike's carrier baskets or storage boxes, allowing anyone to use them.

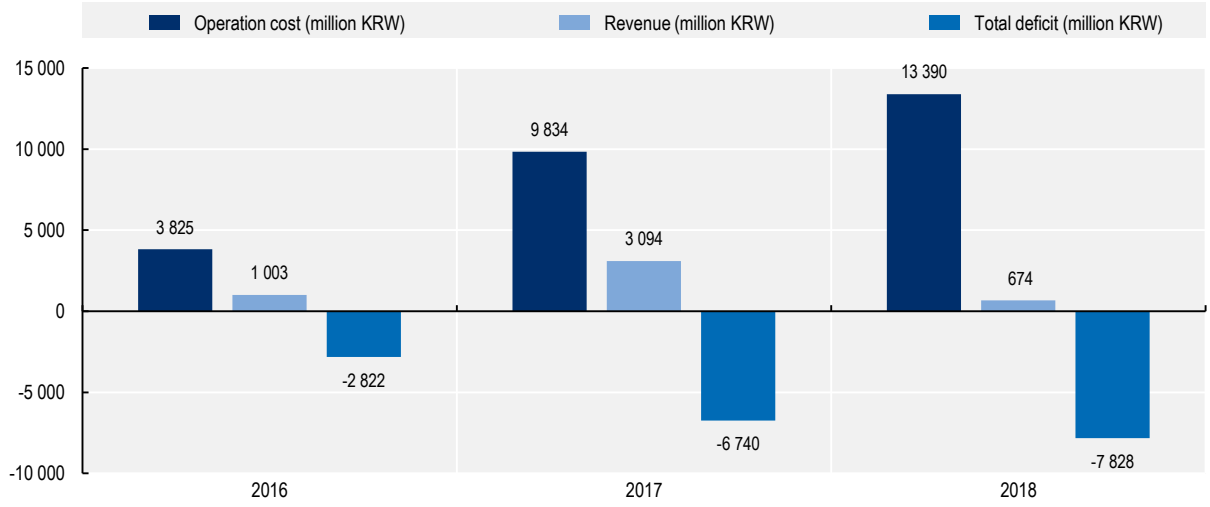
City officials did not put tracking chips on the helmets because of the limited annual budget set at around WON 1.2 billion (USD 1.07 million).

The City will continue to operate the helmet rental system and see if measures can be taken to prevent helmet theft or if they will have to scrap the rental system altogether.

Source: (Chyung, 2018[33]).

Yet, the deficit from operating Seoul Bike significantly increased from 2.8 billion KRW in 2016 to 7.8 billion KRW in 2018. By 2018, more than 150 thousand bikes were damaged and repaired. In 2018, Seoul Bike's helmet rental system also faced a serious setback, as 218 of the 858 helmets were lost or stolen over a four-day period. Seoul Bike has proved to be another example of the well-known tragedy of the commons, a situation in a shared-resource system where individual users act independently according to their own self-interest and behave contrary to the common good of all users by spoiling the shared assets.

Figure 7.12. Deepening deficits of managing Seoul Bike



Source: (Kim, 2019[34]).

Another issue is the government's presence in the micro-mobility market. The City has been acting as a monopoly and essentially creating network effects in Seoul's bicycle-sharing sector. Ultimately, Seoul Bike is deterring the entrance of other bicycle-sharing start-ups and competing against other domestic micro-mobility start-ups such as Lime. Whether it is appropriate for the government to run its own sharing economy business model, despite enormous deficits, must be subjected to further discussion.

Issues around sharing economy in Korea

Conflicts with incumbent businesses

One of the major issues in the process of introducing sharing economy in Korea is continuous conflicts with incumbent business sectors. As sharing economy transactions substitute certain incumbent transactions providing similar services, they are likely to reduce the profits of incumbent businesses. According to a survey conducted by (Kim, 2019[35]), utilisation of the sharing economy services is highly likely to reduce the use of incumbent services.

Table 7.9 shows the impact of sharing economy on incumbent businesses. When asked which type of existing transactions consumers reduced to use sharing services, nearly 90% of accommodation-sharing consumers and car sharing consumers answered that they did reduce some type of existing transaction models. While the reaction of the hotel businesses and the taxi industry is perhaps exaggerated, the Korean hotel industry is certainly expected to experience negative impacts due to the growth of the accommodation sharing services. In an empirical study conducted using Korea's real data, there was a loss of approximately 0.16% in the room sales of the hotel industry for every 10% increase in the supply of accommodation facilities via Airbnb.

Table 7.9. Impact of sharing economy on traditional transactions

Which type of existing transaction did you mainly reduce for sharing transactions?

Accommodation-sharing consumers		Car-sharing consumers	
Type	Percentage	Type	Percentage
Hotel	33.6	Public transportation	29.8
B&B / pensions / guest house	31.6	Taxi	23.2
Motel / Inn	12.4	Own car	23.0
Resort / condominium	11.2	Rental car	12.0
No change	11.2	No change	12.0

Source: (Kim, 2019[35]).

Table 7.10. Estimated impact of accommodation-sharing on the incumbent hotel industry (2010-14)

Analysis object	Room sales	-0.16**
	Room price	-0.13***
	Room occupancy rate	-0.04

*, **, and *** denote significance levels of 1%, 5%, and 10%, respectively.
Source: (Kim, 2019[35]).

While it is still controversial, Tada can be considered a business utilising a new technology. Potentially, other ride-sharing services that exploit regulatory grey areas may continue to emerge. A complete revision of current regulations is therefore necessary, in order to prevent further social discord. In 2018 for example, Kakao Mobility, a Korean mobile giant, officially delayed the formal launch of its carpool service due to fierce protests by the taxi industry. However, Kakao, with its financial capability to stack up taxi licenses, eventually secured nearly 1 000 taxi licences by acquiring taxi companies to operate a Tada-like service, Kakao Venti.

Box 7.4. Kakao Mobility launches van-hailing service in a compromise with the taxi industry

MK, 12 December 2019

After folding its fledgling ride-sharing business due to opposition from die-hard taxi drivers, Kakao Mobility Corp. this time engaged the taxi industry to launch a van-hailing service in a compromise to avoid a clash with the existing car-hailing service and regulations.

The mobility business unit of Korea's messenger app giant Kakao Corp. launched hybrid ride hailing service on vans dubbed "Kakao T Venti" on Wednesday, with an initial fleet of 100 large vans running within Seoul. The beta version has gone into service through the company's existing taxi-hailing app Kakao T, with the new service offered through a pop-up message for users to hire a van taxi. The company will decide on the official launch based on the response to its trial service.

Kakao T Venti is offered together with licensed taxi drivers and can avoid the legal contradiction Tada has faced for arranging van drivers for its ride-hailing service, according to the company. After its initial launch was stopped due to a series of taxi drivers' suicides, Kakao Mobility has engaged the taxi industry by purchasing seven legitimate taxi operators along with over 600 taxi licenses. It already has its app-based taximeter authorised by the Provincial Government of Seoul.

Source: (Oh, Hong and Cho, 2019[36]).

Platform labour workers in regulatory grey area

A greater issue related to sharing economy arises when it goes beyond the increase in the utility of consumption. In fact, regulatory loopholes and regulatory arbitrage led to the creation of digital platform monopoly and platform workers. The sharing economy platforms externalise their workforces through indirect employment and/or in the form of a sub-contract.

In fact, the sharing economy platforms are expanding employment opportunities in ways that were neither easy nor safe under the existing criteria. There exists controversy over the working conditions sharing economy platforms impose on their workers. Some argue that the sharing economy platforms are essentially shifting their risks to platform workers.

Box 7.5. Long working hours, falling wages threaten S. Korea's gig economy workers

Yonhap News Agency, 15 January 2020

Platform workers, the lifeblood of the country's emerging gig platforms that offer delivery, ride-hailing and housekeeping services, are often exposed to dire working conditions such as low pay and long working hours, a study showed on Wednesday.

In contrast to the notion that the lifestyle would give workers the freedom to choose their work schedules, a study by the National Human Rights Commission showed that gig economy workers often worked as much as full-time employees but faced job uncertainties and low wages.

A majority of the surveyed workers said they opted for their careers on hopes they could freely choose the hours they work. However, the study showed that gig economy workers on average worked 8.22 hours daily, five to six days a week. Their working hours could be longer given the "hidden working hours" in which they stay on the platforms or in mobile chat rooms to find new gigs, the study said.

The study hinted that the gig economy workers, mostly in their 40s and 50s, had few options over choosing the type and scope of their work and relied heavily on piecemeal jobs.

The average ages of those providing housekeeping services and driving services were 55 and 50, respectively, while the age of cargo drivers averaged 46, according to the survey.

A total 64% of the surveyed workers did not have second or third jobs and were key breadwinners for their families, with their earnings accounting for 79% of their household income. Their monthly income averaged WON 1.52 million (USD 1 313).

Despite the not-so-favorable working conditions, 90% of gig drivers and 80% of parcel delivery workers said they could not refuse certain gigs on fears it would hurt their job prospects. The study, meanwhile, highlighted that the rapidly growing platform industry and the fresh inflow of new workers is forcing the workers to work for less. There were roughly 500 000 gig economy workers in Asia's fourth-largest economy in 2019, accounting for around 2% of all employed workers, according to the Korea Employment Information Service.

Source: (Lee, 2020[37]).

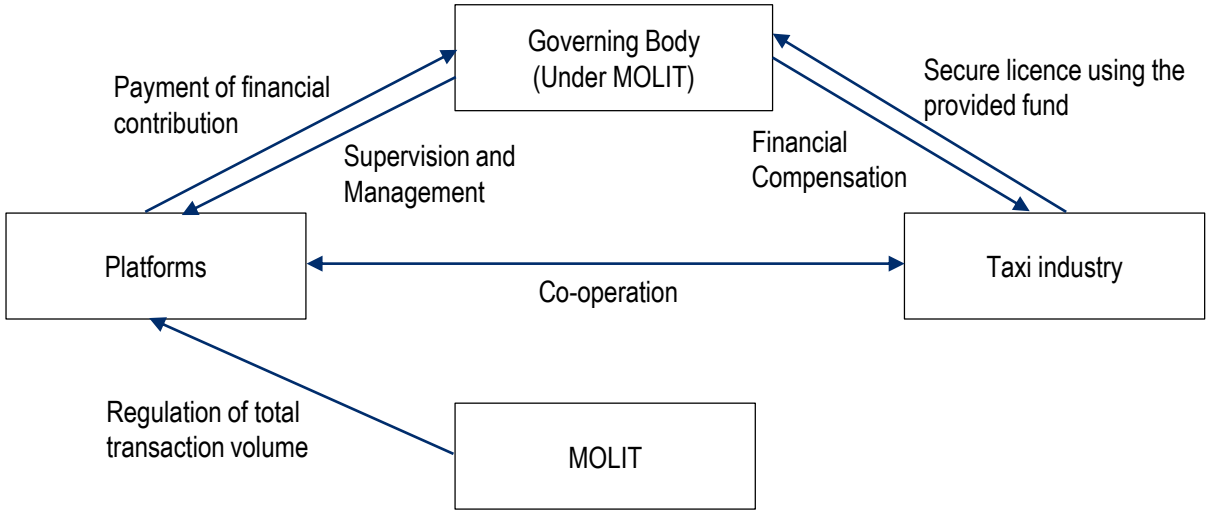
The lack of protection is particularly evident in the Korean ride-sharing businesses. As demonstrated in Figure 7.13, Tada drivers are not employed by the platform. In other words, the platforms are circumventing the current regulations. Meanwhile, courts in a number of jurisdictions worldwide are ruling against the likes of Uber by imposing the reclassification of platform-based drivers (see case study 4 for more details).

This consequently raises the necessity of proper regulatory frameworks specifically targeting the professional platform providers.

Government efforts towards social compromise

In order to resolve the issues surrounding the introduction of sharing economy, in early 2019 the Korean government prepared a plan to vitalise the sharing economy. According to the plan, the Ministry of Land, Infrastructure, and Transportation (MOLIT) will set up a governing body to manage transportation service providers. Suppliers of platform transportation services will contribute to fund the existing taxi industry. The government will also regulate the total number of platform providers.

Figure 7.13. Visualisation of revised government plan for platform transportation services



Source: Authors.

In the accommodation-sharing sector, the Korean government is planning on implementing a form of transaction-volume-based regulation, allowing domestic tourists to avail accommodation sharing services while limiting it to 180 days per year.

Table 7.11. Current legal framework for accommodation-sharing

	*Hanok**-sharing	Rural	Urban	Government Plan
Domestic Tourists	Allowed	Allowed	Not Allowed	Allow up to 180 days
International Tourists	Allowed	Allowed	Allowed	Allow

* Houses built in traditional Korean style.
Source: (Yang, 2018[38]).

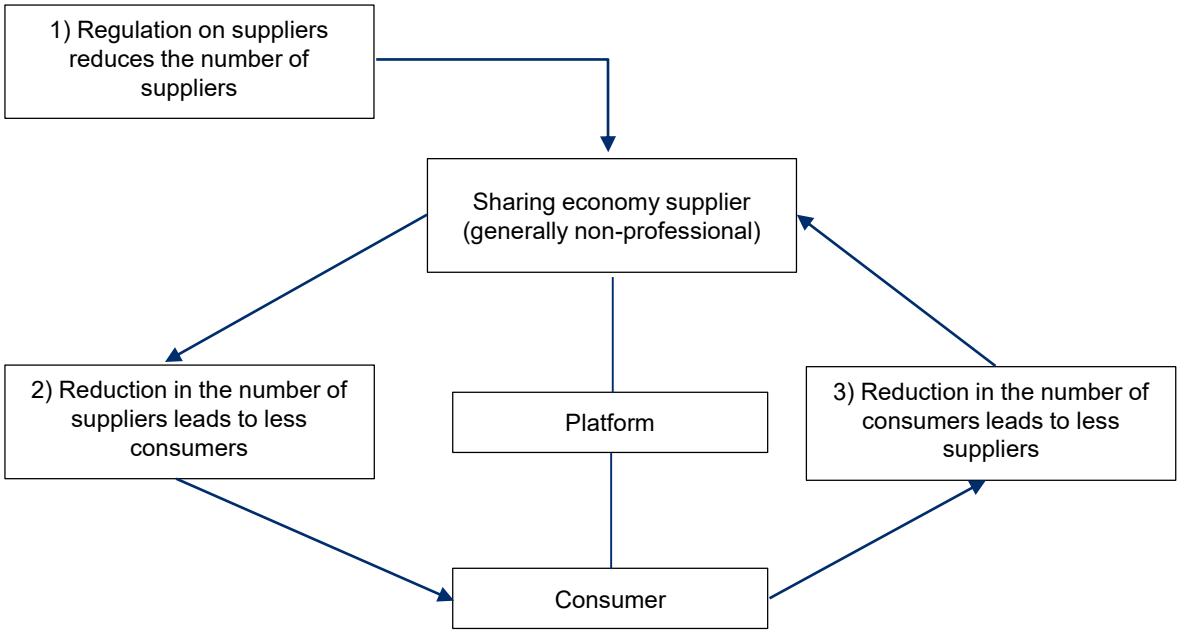
A Need for alternative regulatory strategies

What conventional regulations can do to the sharing economy

Sharing economy is a relatively new economic phenomenon that has developed recently. Consequently, appropriate regulations remain to be prepared. 'The Basic Act on Sharing Economy' was proposed at the National Assembly in 2018, but it is yet to be enacted. The problem rises as the current law fails to regulate

the sharing economy at a desirable level. As previously identified, it is not yet clear which statute can be applied to the sharing economy. Under the current law, for example, accommodation-sharing does not completely belong to any industry classification, and therefore, the regulation fails to provide clear direction for those who wish to enter the accommodation-sharing business. A similar issue in the ride-sharing sector has caused even greater social discord. Conflicts between incumbent industries and ride-sharing platforms have occurred in numerous other economies such as the United States, the United Kingdom, Germany and Australia. However, controversy over accepting ride-sharing services is particularly severe and seemingly perpetuating in Korea. While Uber withdrew its Uber X services in 2015, domestic start-ups such as Tada and Kakao Mobility have been forced to terminate operations or to abide by conventional regulations.

Figure 7.14. Vicious circle under conventional regulations



Source: Authors.

The purpose of regulatory alternatives

The sharing economy, with its platform services or third party intermediary, has entered a number of existing markets. In this process, it is inevitable for the sharing economy firms to collide with the incumbent businesses that have already been operating in the market. For example, ride- sharing services share the market with the existing transportation businesses such as taxis, while accommodation-sharing services share the market with the existing accommodation providers such as hotels and motels. Since the sharing economy firms and the incumbent businesses compete for limited demands in a similar market, it is imperative that both the incumbent businesses and the sharing economy firms comply with virtually the same level of regulations. The complaints raised by the incumbent businesses may be reasonable. In fact, a number of firms self-proclaim themselves to be “sharing economy firms” even though their business models are not essentially different from those of the existing businesses.

Under current regulations, however, it is not easy to distinguish which sharing economy models require regulatory improvements, and which models can operate under the existing regulations. Socar, for example, owns vehicles and rents them to consumers on an hourly basis. However, the company still

considers itself a sharing economy firm, while some argue that its business model is nothing more than a short-term rental car.

The problem with the modern sharing economy is that it involves some professional suppliers. While sharing economy is based on the utilisation of idle resources, the professional suppliers generally secure resources in order to conduct business. In such case, it is not possible to consider the resource as idle because it is purchased and managed solely for rental purposes. Even if the professional suppliers utilise idle assets, they still cannot fit the definition of sharing economy firms if they continuously and repeatedly conduct such businesses for profit. Thus, there exists no reason for regulators to provide regulatory arbitrage for professional suppliers.

Yet, there are also non-professional suppliers in the sharing economy. These non-professional suppliers usually lack expertise and capital to properly abide by the current laws, which are designed to regulate businesses operating in a Business-to-Consumer (B2C) format. In ride sharing services, for example, current regulations mandate that all suppliers acquire license and complete some degree of safety training. While platform operations are not directly subject to these regulations, the suppliers specifically come under the scope. However, it would be nearly impossible for all non-professional suppliers to acquire licenses and complete mandatory training. Further, in the case of accommodation sharing, forcing all non-professional suppliers to equip themselves with foreign language services and/or training in traditional cultural experiences ultimately raises entry barriers. If such non-professional suppliers face increased costs and excessive entry restrictions, it is highly likely that they lose the desire to participate in the sharing economy.

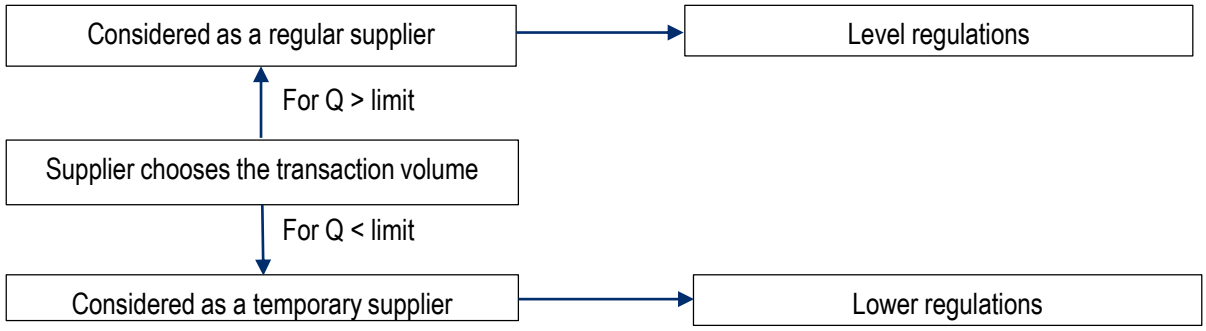
Some participants will be professional and some will be non-professional. Classical regulations on suppliers will therefore affect the non-professional suppliers first, followed by professional suppliers through indirect network externalities. Consequently, it is difficult for the participants of the sharing economy to predict whether they are subject to the existing regulations and how they apply. It is therefore important and necessary to provide regulatory schemes specifically targeting the sharing economy suppliers, in order to ensure stability and economic viability for the participants.

The issue of stability and predictability due to regulatory arbitrage is not only the problem of the platform operators and suppliers. Indeed, incumbent businesses may become the victim of the sharing economy firms potentially taking advantage of the market through regulatory arbitrage. While incumbent businesses are already subject to certain regulations, sharing economy firms may take undue advantage of lack of proper regulations. The incumbent businesses must pay the costs before the regulatory bodies introduce appropriate regulations for the new entrants. The purpose of regulatory alternatives should therefore be to assure fair regulation of both incumbent business and sharing economy firms, and to facilitate the advancement of a potentially more flexible and efficient economic paradigm.

Alternative 1: Regulation-in-proportion (transaction-volume-based regulations)

In order to respond to the concerns regarding conflicts with existing businesses properly, the regulator must guarantee regulatory equity. This will provide a level playing field in which incumbent businesses and sharing economy suppliers can compete based on fair terms. In view of the unique characteristics of sharing economy, regulations must be linked to the volume of transactions, as proposed by Kim, Lee and Hwang (2016). In other words, a transaction limit should be determined in order to categorise those who exceed such limit as “professional and regular operators”, and subject them to traditional supplier regulations. Likewise, entities that do not exceed the limit are categorised as ‘non-professional and temporary operators,’ and are subject to lower regulations.

Figure 7.15. Visualisation of regulation-in-proportion



Source: (Kim, Lee and Hwang, 2016[10]).

Existing suppliers that wish to operate under fewer regulations can opt to reduce their transaction volume, and new suppliers wanting to become regular operators can do so by meeting the traditional regulatory requirements. Transaction-volume-based regulations guarantee autonomous right of choice to respective suppliers, while demanding that they pay the price for the benefit of lower regulations by a reduced transaction volume.

By tailoring the level of regulation to the volume of business activity, regulation-in-proportion can respond to the fairness concerns that a classical regulation may unduly burden small-scale suppliers. At the same time, the transaction-volume-based regulation can ensure that the impacts on small-scale businesses are distributed proportionally. By raising the costs of engaging in the activity, the transaction-volume-based regulation requires the suppliers to internalise some of those costs. Additionally, from the regulator's perspective, because the transaction-volume-based regulation depends on quantifiable measurements, it can offer the prospects of certainty and efficiency to both regulators and the regulated parties.

Alternative 2: Platform regulation (delegated implementation)

The implementation and actual enforcement of the transaction-volume-based regulation involves evident difficulties. In order to ensure the practicality and effectiveness of the proposed framework, information about the transaction volumes of the respective suppliers must be properly provided to regulators. In order to benefit from eased regulations, however, sharing economy suppliers have an incentive to under-report their transaction volumes. The quality and sustainability of imposed regulations would be another issue. Given the number of suppliers, it would be difficult for regulators to identify false reports and violations. Consequently, obtaining the data necessary to develop and enforce the transaction-volume-based regulation will be a challenge without the co-operation of platforms that hold the data. In order to respond to this concern, certain obligations will have to be imposed on the sharing economy platforms. Since such platforms possess detailed data on transactions and, compared to suppliers, have a relatively low incentive to report falsely, it should be made mandatory for the platforms to submit and report required transaction information on a regular basis.

While platform operators play a central role in the sharing economy, they do not own products nor do they make direct transactions with consumers. However, despite such characteristics, platform operations are the main pillar of the sharing economy. First, platform operators introduce and engage in all transactions that take place between suppliers and consumers. Consumers must go through the platform in order to find the suppliers who can meet their demands. After signing up on the platform, the consumer selects the desired supplier by reviewing the information provided by the platform. At the same time, the platform provides the consumer's information to the supplier in order to help the supplier decide whether to accept the consumer's demands.

Table 7.12. Potential Issues with transaction-volume-based regulations and countermeasures through delegated implementation

Issue	Counter-measure
Incentive to under-report transaction volume	Platforms report on behalf of suppliers
Taxation and registration	Platforms register on behalf of suppliers and withhold the registration of offenders
Insufficient regulations on non-professional suppliers	Platforms provide regulatory measures for suppliers

Source: Authors.

In addition, payments for the use of shared goods and services are, in most cases, made through platforms. By linking the suppliers and consumers, the platform operators help both parties significantly reduce the cost of searching. Further, the platforms play an important role in fostering trust between the participants.

The role of the platform operators as the main pillar is not only limited to that of an intermediary. So far, platform operators are the only participants in the sharing economy who can regulate the other parties. They can impose certain obligations on the suppliers and consumers in exchange for providing linkage services. Thanks to the presence of the platform operators, suppliers are able to find reliable consumers easily. This is partly because the platform operators take over the transaction costs and issues of information asymmetry. In turn, it is platform operators that have enabled non-professional and temporary suppliers to participate in the sharing economy.

Co-regulation: an ideal way forward

Platforms such as Airbnb and their participants are working together to regulate consumers and suppliers voluntarily and to reduce transaction risks significantly through various means. The most representative of these standards is the reviews and reputation system. Some even conduct self-operated ex-ante screening or engage third-party verification agencies. However, such co-regulation model is yet incomplete and imperfect without appropriate government intervention.

Software platforms largely attempt to assure quality through reputation systems. For example, a defective vehicle is likely to be rated poorly and removed from the platform or brought to the platform administrator's attention. Similarly, Airbnb guests review hosts, alerting others to potential shortcomings. This approach tends to be more flexible. One key question is how well ratings actually work. By all indications, customers hesitate to provide negative ratings, and Uber itself has indicated that in San Francisco, only 1% of Uber drivers received one or two stars. Moreover, when ratings are optional, they may be unrepresentative: Airbnb's analysis indicates that those who left no reviews tended to have worse experiences than customers who submitted reviews.

In this context, when dealing with these risks, government policies need to play a supplementary role while focusing on regulating platforms rather than the other participants. Thus, regulatory intervention may be desirable in such cases as users or service providers may be unable to assess the risks properly and may thus fail to take appropriate precautions.

Conclusion

The practices of exchanging and sharing goods and services have been observed in nearly all societies. Such practices tended to be completed within an intimate group of trusted individuals. However, the potential pool of people to share is growing exponentially, thanks to the ICT-enabled platforms that connect new members from around the globe. Sharing of assets that once required years of trust now takes place

instantly. The ICT-based sharing economy activities, through real time matching of supplies and demands, offer enormous potential for economic growth, sustainability, connectivity, and equity of access.

The rapid growth of the sharing economy in Korea suggests that sharing economy firms are providing a unique and valuable platform to connect service providers and consumers. This study discussed a number of benefits, challenges, and social issues introduced by sharing economy. The benefits include potentially lower transaction costs of services, leveraging of excess capacity, improved customer experiences, and potential for stimulating new types of consumption. However, the introduction of the sharing economy firms is not without potential problems. These drawbacks include issues around regulatory equity, crowding out of existing transactions, potential transaction risks, and social safety problems.

While the Korean government is actively involved in efforts to settle conflicts between the incumbent industries and new platform companies for their mutual and sustainable growth, the sharing economy business models are bound to cause social discords as they expand rapidly into the existing businesses. A long-term and durable regulatory framework is therefore necessary. In such context, this paper recommends two regulatory frameworks.

The transaction-volume-based regulation will categorise professional suppliers based on the designated level of transaction. This gives professional suppliers additional leg-room to decide how much to supply based on their capability to abide by the regulations. In the meantime, non-professional and temporary suppliers may benefit from eased regulations and reduced costs. The ultimate aim of the proposed regulatory framework is to provide regulatory equity by giving an option to suppliers whether to participate as a professional supplier. Moreover, the regulation of platforms will resolve difficulties in enforcing the transaction-volume-based regulation by delegating implementation to platforms.

The sharing economy in Korea is unique in its character, in the way that it has faced particularly severe opposition from the existing businesses. An effort to promote the innovative sharing economy models without abandoning important aspects of the current industrial organisation is urgent. Setting up an appropriate regulatory framework would be vital to fostering innovation in the country's new growth engines.

References

Airdna (n.d.), *Research Overview: Seoul*, https://www.airdna.co/vacation-rental-data/app/kr/default/seoul/overview. [27]

Ayre, J. (2015), *Navigant Research: Global Carsharing Services Revenue to Surge to $6.5 Billion in 2024, CleanTechnica, 2015,*, https://cleantechnica.com/2015/09/29/navigant-research-global-carsharing-services-revenue-surge-6-5-billion-2024/. [39]

Bank of Korea (2017), *통계의 디지털 및 공유 경제 반영 현황 및 향후 개선 계획 (Improvement Plan for Capturing Digital and Sharing Economies in GDP Calculation). Press release*. [16]

Botsman, R. (2015), *Defining the Sharing Economy: What is Collaborative Consumption and What isn't?*, https://www.fastcompany.com/3046119/defining-the-sharing-economy-what-is-collaborative-consumption-and-what-isnt. [9]

Botsman, R. (2013), *The Sharing Economy Lacks A Shared Definition*, https://www.fastcompany.com/3022028/the-sharing-economy-lacks-a-shared-definition. [6]

Cannon, S. and L. Summers (2014), *How Uber and the Sharing Economy Can Win Over Regulators*. [23]

Chung, J. (2020), "South Korea Passes Bill Limiting Softbank-backed Ride-hailing Service Tada", *Reuters*. [26]

Chyung, E. (2018), "1 in 4 Rented Bike Helmets in Seoul Missing or Stolen", *The Korea Herald*. [33]

iPropertyManagement (2020), *Airbnb Statistics. iPropertyManagement*, https://ipropertymanagement.com/research/airbnb-statistics. [2]

Jang, M. (2019), "서울 공공자전거 따릉이 4년…대여 건수 3000만건 돌파 (Seoul Bike Celebrates Its 4-year Anniversary)", *Asia Today [in Korean]*. [30]

Jiang, J. (2019), *More Americans are Using Ride-hailing Apps, Pew Research Center Fact Tank, 2019, Retrieved from*, https://www.pewresearch.org/fact-tank/2019/01/04/more-americans-are-using-ride-hailing-apps/. [1]

Kang, D. (2021), *Lotte Rental's IPO scheme adds appeal with unit GreenCar drawing $135 mn funding*. [13]

Kim, H. and S. Kim (2018), "A Study on the Direction of Public Bicyle Development in Korea: Focused on Ttareungyi and Nuviza", *Journal of Digital Convergence*, Vol. 16/8. [32]

Kim, M. (2019), *Benefits and Concerns of the Sharing Economy: Economic Analysis and Policy Implications,*. [35]

Kim, M., H. Lee and S. Hwang (2016), *공유경제에 대한 경제학적 분석: 기대효과와 우려요인 및 정책적 함의 (An Economic Analysis of the Sharing Economy: Benefits, Concerns, and Policy Implications), KDI Research Monograph, 2016-11 [in Korean]*. [10]

Kim, S. (2019), "따릉이 이용 늘수록 서울시 적자도 늘어 (Seoul's Deficit Deepens as the Number of Seoul Bike Users Hike), M-economy News [in Korean], 2019.", *M-economy News [in Korean]*. [34]

Kim, Y. (2019), "지난해 카셰어링 이용자 교통사고 1만9천여건 (Car-sharing Users Involved Accidents Mark 19,000 Last Year)", *Yonhap News Agency*. [22]

Korea Development Institute (KDI) (2019), *공유경제 활성화 방안에 대한 국민의견조사 (Public Survey on Plans to Revitalize the Sharing Economy) KDI Research Brief. No. 5 [in Korean]*. [18]

Korean Passenger Transport Service Act (2021), , https://elaw.klri.re.kr/kor_service/lawView.do?hseq=56571&lang=ENG. [25]

Lee, J. (2021), "최영우 올룰로 대표 - 교통수단의 미래, 킥고잉으로 갑니다 (Interview with Olulo CEO)", *MoneyS [in Korean]*.. [14]

Lee, M. (2020), "Long Working Hours, Falling Wages Threaten S. Korea's Gig Economy Workers", *Yonhap News Agency*. [37]

Lessig, L. (2008), *Remix: Making Art and Commerce Thrive in the Hybrid Economy*, Penguin Books. [7]

OECD (2015), *OECD Digital Economy Outlook 2015*, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264232440-en. [8]

Oh, D., S. Hong and J. Cho (2019), "Kakao Mobility Launches Van-hailing Service in a Compromise with Taxi Industry", *Pulse by Maeil Business News Korea & mk.co.kr*. [36]

Olson, M. and S. Kemp (2015), *Sharing Economy: An In-Depth Look at Its Evolution & Trajectory Across Industries*. [5]

Ostrom, E. (2002), *The Drama of the Commons*. [31]

Park, H. (2018), "접느냐 끌고가느냐…1세대 소셜벤처, 기로에 서다 (First Generation Social Ventures are Standing at the Crossroads)", *The Chosun Ilbo [in Korean]*. [29]

Samjong KPMG Economic Research Institute (2018), *미래 자동차 권력의 이동 (Shift in Future Automobile Industry Landscape)*. [20]

Seoul Metropolitan Government (2021), "서울시 따릉이, 3백만 돌파 (Seoul Bike reaches 3 million subscribers)", *Press release*. [15]

Socar (2021), "Company Introduction July 2021". [12]

Song, S. (2018), "Airbnb Calls for Law Revision in Korea", *The Investor*. [28]

Statista (n.d.), *Ride-Hailing & Taxi: Worldwide*, https://www.statista.com/outlook/368/100/ride-hailing-taxi/worldwide#market-marketDriver. [3]

Stephany, A. (2015), *The Business of Sharing: Making It in the New Sharing Economy*, Palgrave Macmillan UK. [11]

Telles, R. (2016), *Digital Matching Firms: A New Definition in the "Sharing Economy" Space. U.S. Department of Commerce Economics and Statistics Administration (ESA) Issue Brief, No. 01-16*. [17]

The Seoul Institute (2015), *공유서울의 대표사업, 나눔카의 효과와 운영방향 (Car-sharing, Seoul's Flagship Sharing Economy Business), Seoul Institute Policy Report, 197 [in Korean]*. [24]

United Nations Department of Economic and Social Affairs (2020), *Does the Sharing Economy Share or Concentrate?*. [19]

VVAA (2021), *Socar(2021), Choi, Y.(2020), Lee, J.(2021), Seoul Metropolitan Government Traffic Archives(2021)*. [40]

Yang, S. (2018), ""지방관광 활성화"…공유민박 합법된다 (Accommodation-sharing is Legalized)", *The Seoul Economy*. [38]

Yong, P. (2019), *The Rise of Home Sharing Platforms: Friend, Foe or Frenemy? DBS Insights Sector Briefing, Vol. 79*. [4]

Zipcar (2013), "Avis Budget Group to Acquire Zipcar For $12.25 Per Share In Cash", *Press release*. [21]