

Sharing Economy: Definition and Measurement of its Value-added

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Outline

Key characteristics, definition and scope of sharing economy

Method of measuring the value-added of sharing economy

Results of China's value-added of sharing economy

Some definitions by official statistical agents

Sources	Definition
National Development and Reform Commission, China	Sharing economy refers to a new economic form that optimizes the allocation of dispersed resources through the Internet platform , improves the utilization efficiency, and emphasizes the separation of ownership and use rights.
Office for National Statistics, UK	the sharing of under-used assets through completing peer-to-peer transactions that are only viable through digital intermediation , allowing parties to benefit from usage outside of the primary use of that asset.
Department of commerce, US	use Internet and smartphone-enabled apps to match service providers with consumers, help ensure trust and quality assurance via peer-rating services, and rely on flexible service providers who, when necessary, use their own assets .
Statistics Canada	The sharing economy can be defined as an activity facilitated by digital platforms where people rent their skills (such as, driving or computer skills) and make their resources (such as properties or cars) available for money .
Australian Tax Office	The sharing economy is economic activity through a digital platform (such as a website or an app) where people share assets or services for a fee .

Shared objects: naturally idle assets vs. professional assets

Disputes: Can professional assets be qualified objects in sharing economy?

- Opinion 1 : the shared objects must be “naturally idle assets” and can't be those specially acquired for sharing. (Richardson, 2015; Frenken & Schor, 2017; Wan et al., 2017; Xiang, 2021)
- Opinion 2 : the aim of sharing is to increase the utilization of assets, and the professional assets specially acquired for sharing are also qualified objects in sharing economy. (Belk, 2014b; Dellaert, 2019; Tu & Yang, 2020)

Our viewpoint: It's of practical significance to include professional assets in sharing economy.

- Reason 1: The nature of the idleness in the two types of assets are the same, i.e. the under-usedness of assets, and the sharing can facilitate the utilization ;
- Reason 2: It's difficult to separate the two types of assets.

Shared objects = naturally idle assets + professional assets

Sharing intention: for free vs. for profit

Disputes: Can sharing economy be for profit?

- Opinion 1 : The key intention in sharing is not granting or gaining access, but helping and making human connections. (Benkler, 2002; Belk, 2007, 2014a)
- Opinion 2 : The sharing economy enables people and organizations to earn profits from underutilized resources. (Bardhi & Eckhardt, 2012; Jin, 2017)

Our viewpoint: Both intentions can coexist in sharing economy.

- It's hard to sustain the sharing of large scale in the long run only by altruism, while the commercial intention can provide support. Most sharing share the two intentions.

Sharing intention = for free + for profit

The output of sharing : leasing vs other services

Disputes : Should the shared objects only be the tangible assets?

- Opinion 1: Yes. (Jiang & Tian, 2016 ; Frenken & Schor 2017) .
- Opinion 2: Not only the tangible assets but also the knowledge and skills can be shared. (Woskow, 2014; Li, 2017; Song et al., 2018) .

Our viewpoint: Both the tangible assets and skills can be shared, and the output of sharing is the kind of services.

- For the sharing of tangible assets, the owner provides convenience for users and may also provide necessary repair and maintenance for the shared assets, which belongs to the service of operating leasing under the SNA.
- For the sharing of knowledge and skills, the provider uses their own assets as a tool to share out human capital to provide services such as transportation, accommodation, medical treatment and education services, which we call general services.

Sharing intention= operating leasing service+ general services

Sharing mode: off-line vs on-line

Disputes: Is the digital platform necessary for sharing?

- Opinion 1: Yes.
- Opinion 2: The sharing may be local and face-to-face, or it may use the internet to connect, combine, form groups, and find something or someone to create “many to many ” peer-to-peer interactions. (Botsman & Rogers, 2010)

Our viewpoint: The digital platform is important but not necessary.

- Historically, the sharing economy existed before the emergence and rise of digital platforms.
- At present, there are still many sharing activities carried out offline, independently of the platform.

Sharing economy = off-line sharing + on-line sharing

The providers: employees vs self-employed

The providers should be independent worker.

- The word "sharing" implies reciprocity, both parties should be independent and equal; therefore, the providers should not be subordinate employees.
- Whether the services provided by the dependent contract workers belong to the sharing economy needs to be judged according to whether the core assets used in the service provision are owned by the workers themselves.

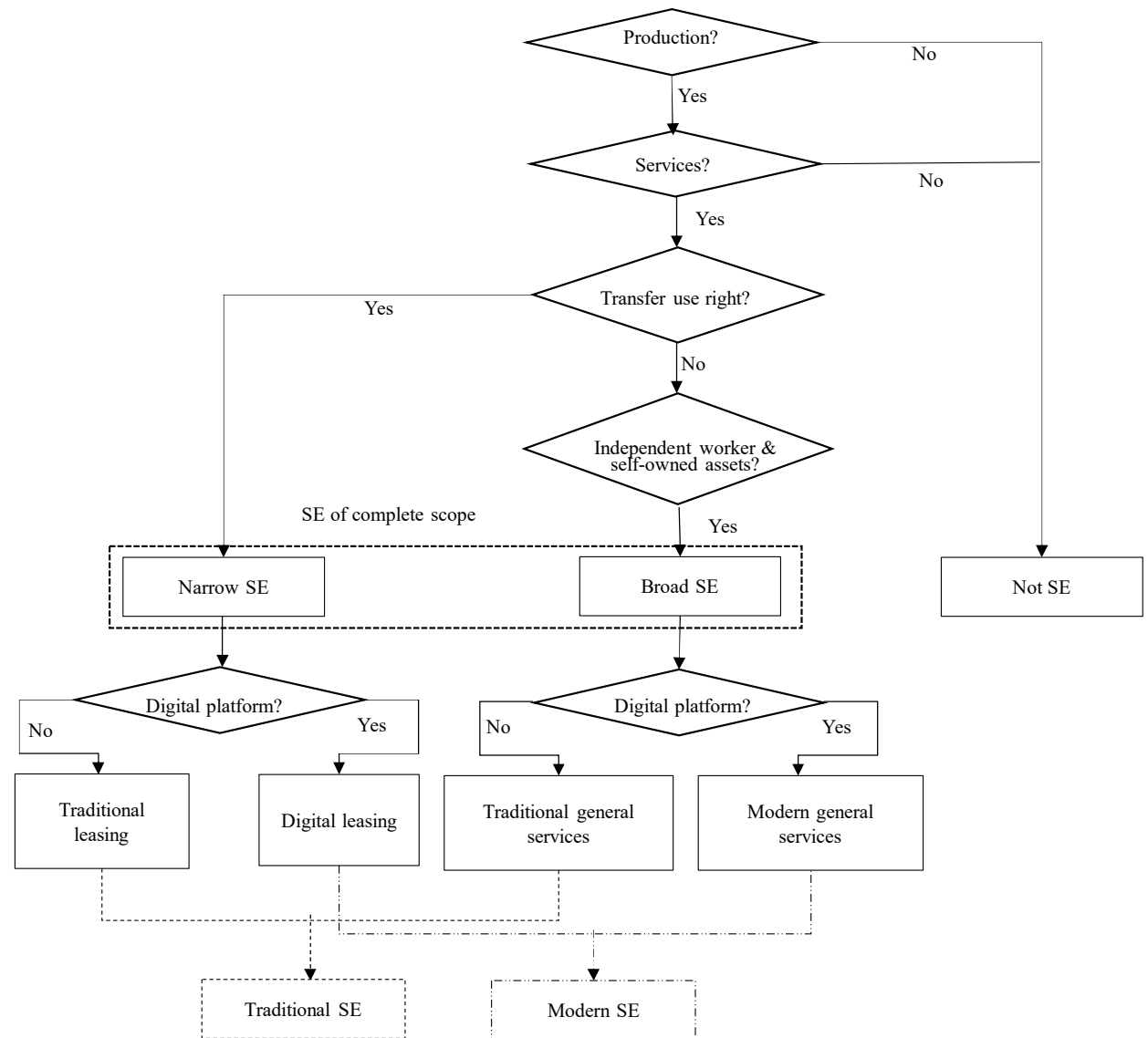
The definition of sharing economy

Sharing economy refers to an economic form in which the economic owners of assets including tangible assets and skills provide services either by transferring the use right of the assets or through independently work using their own assets.

Sharing economy in a narrow sense: Leasing services provided by individuals or businesses to other individuals or organizations by transferring the use right of physical assets.

Sharing economy in a broad sense : General services provided by independent workers using their own assets to other individuals or organizations.

Identification and scope of sharing economy (SE)



Basic ideas to measure value-added of sharing economy

- The value-added of narrow SE = the value-added of operating leasing industry.
- The value-added of broad SE = part of value-added of household sector
 - Excluding agriculture, mining, manufacturing, construction, wholesale and retail.
- In China, only the value-added of the overall household sector is released, and the value-added of each industry is not released. Therefore, it's impossible to filter the value-added of broad SE from the GDP data.

- Direct measurement:

$$\text{Value added of broad SE} = \text{output} - \text{immediate consumption}$$

- Hard! Need the data of operating incomes and costs of providers.
- Indirect measurement:

$$\text{Value added of broad SE} = \sum_i (\text{value added of industry } i) \times (\text{proportion of SE in industry } i)$$

The indirect measurement of value-added of broad SE

- Assumption: the labor productivity of sharing economy of each industry in certain region is the same as that of the very industry in the same region.

$$VABSE_{ij} = VA_{ij} \times \frac{\text{self-employed employment}_{ij}}{\text{employment}_{ij}} \quad (1)$$

Where, i = region i; j = industry j; VA =value-added, VABSE = value-added of broad sharing economy

- Drawback 1: The assumption may not hold, and the accuracy of estimation may not be guaranteed.
 - Since the sharing economy is of service industry, the labor productivity of sharing economy is mainly dependent on labor input. It is reasonable to assume that the labor productivity of individual practitioners approximates that of the respective industry.
- Drawback 2: Not all the non-employees are included which may lead to underestimation of value-added of sharing economy.
 - According to the 4th economic census in China, there are about 120 million self-employed in the sharing economy, over sixty percent of the total non-employees. Moreover, many non-employees other than the self-employed are dependent contract workers and may not be qualified sharing economy practitioners Therefore, the estimation based on formula (1) can capture the main body of the sharing economy.

Data sources

The data of the number of the self-employed are from the bulletins and yearbooks for 2nd, 3rd and 4th economic census. For some regions with only the number of licensed self-employed available in the 3rd census, the number of the self-employed for the year 2013 is estimated by smoothing the data of the 2nd and the 4th census.

The added value by industry are from the national and regional statistical yearbooks. For some industries whose data are combined together, the data for each industry is derived by splitting the sum according to the proportion from the input-output table.

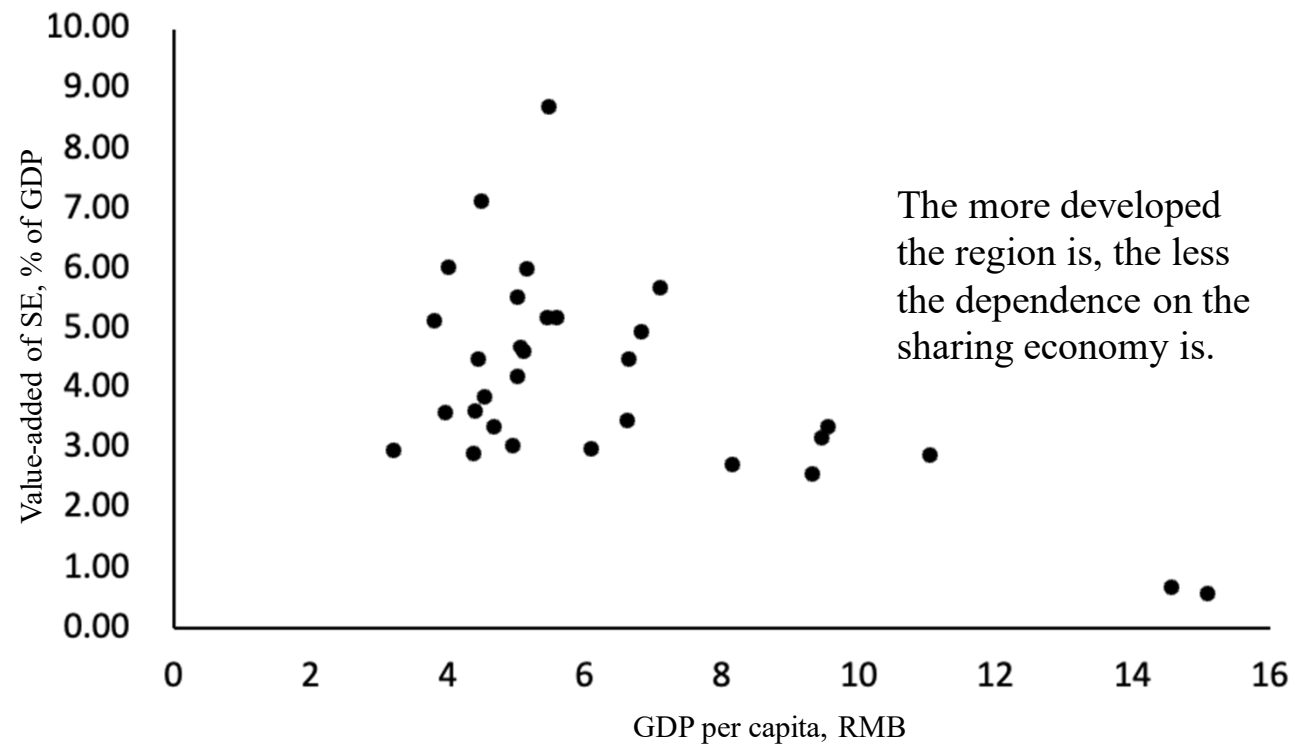
Limited by the data availability, the value-added of the transportation, warehousing and business services can only be estimated at the national level. Other broad sharing economy industries can be calculated at the regional level and summed up to obtain the national aggregates.

Value-added of sharing economy: scale and structure

Indicators	2018	2013	2008	Average annual growth rate (%)
Value-added, SE of complete scope (billion)	5440.4	3466.9	1815.1	6.8
Percentage of GDP (%)	5.9	5.8	5.7	—
Value-added, SE of narrow scope (billion)	319.6	95.4	22.2	24.9
Percentage of GDP (%)	0.3	0.2	0.1	—
Percentage of SE of complete scope (%)	5.9	2.8	1.2	—
Value-added, SE of broad scope (billion)	5120.8	3371.5	1792.9	6.2
Percentage of GDP (%)	5.6	5.7	5.6	—
Percentage of SE of complete scope (%)	94.1	97.2	98.8	—
Percentage of SE of broad scope (%)				
Transportation and warehousing	25.6	33.7	34.6	3.1
Accommodation and catering	24.0	23.4	23.7	6.4
Information technology services	3.0	3.3	4.8	1.2
Business services	5.9	4.9	4.5	9.2
Science and technology	1.5	1.2	0.5	18.1
Residential services, repair and other services	26.9	23.0	21.8	8.5
Education	3.2	2.2	1.4	15.3
Social services	3.5	2.9	4.4	3.9
Culture, sports and entertainment	6.3	5.4	4.2	10.7

Sharing economy by regions in 2018

In terms of scale, provinces of Jiangsu, Anhui, Shandong, Henan, Hubei, Hunan, Guangdong, and Sichuan are more active in sharing economy.



Main findings

From the perspective of added value, the sharing economy is far from becoming the main driver of China's economic growth.

Relatively, the less developed regions are more dependent on the sharing economy.

From the perspective of industries, the leasing industry is growing rapidly, while the growth of the broad sharing economy is relatively slow. Among them, the resident services is the most important area of the sharing economy.

Future research topics

To improve the measurement accuracy.

- Statistical agencies should improve the survey of the self-employed, obtain more detailed income and cost data, and directly measure the value-added of shared economy using the production method or income method.

To make up for the underestimation.

- It is necessary to survey non-employees other than the self-employed.

To follow the structural transformation of sharing economy.

- The data about online activities and offline activities should be collected in the survey.

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Thanks for listening!