PUTTING SHARING ECONOMY INTO PERSPECTIVES:

An Assessment of Sharing Economy in Mainland China

**A Thesis Submitted
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by

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ABSTRACT

Advances in information technology science prompt the creation of new economic models, and one of them in urban life is Sharing Economy. This new economic model has received high attention and has been applied to fields like transportation, hospitality, and other customer-based services in recent years. With the accelerating rhythm of people's life, shared economy flourished unprecedentedly and plays a significant role in business market. However, the overall impact of sharing economy on a country has been little considered. Therefore, the thesis develops an assessment of sharing economy's impacts in mainland China from varied perspectives. Based on the review of existing scholarly articles, databases, and industrial reports, the thesis discusses what are the impacts introduced by sharing economy to the national economy and relevant industries. While for public perceptions, it employs observations and interviews, with additional help from existing resources, to identify how individuals are being effected. The thesis demonstrates how sharing economy has challenged traditional industries with modified supply-demand relationship. It also illustrates the differences in people's daily choices in commuting, traveling, lodging, working, and minor behaviors, and public optimistic appreciation towards sharing economy. Yet, the thesis recognized the existence of issues like legality, safety, security, and sustainability, which require democratizing the ownership and governance of the platforms, with an effective and systematic design for long-term regulation and development.

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I.   INTRODUCTION

1.   Background

Following the scarcity of resources which was caused by the oil crisis that began in

October 1973, the concept of "sharing economy" was first time put forward as early as 1978 by

Marcus Felson. In fact, the sharing model isn't a new concept—as many rural communities

thrived off the same idea via bartering. (Miller 2018) However, thanks to the improved

accessibility of the internet and mobile technology in recent years, managing share-based

transactions has never been easier. In a narrow band of actual cases, which is already widely

accepted, the sharing economy refers to a business model in which "with a certain amount of

remuneration as the primary purpose, assets or services are shared between private individuals,

mostly strangers, either free or for a fee, typically employing the Internet." (8).

Gradually, the sharing economy has matured and become one of the essential forms of

the new economy models to sustain economic growth. (Murillo, Buckland, and Val 2017) The

sharing economic models have been successful in multiple industries, including transportation,

tourism, accommodation, and more. Various new modes of sharing economy are systematically

changing the lives of citizens, bringing advanced conveniences to citizens' lives and gradually

changing people's traditional consumption concepts. Consequently, a growing amount of people

have switched to use services offered by sharing platforms. Some chose to use sharing bicycles

or sharing new-energy vehicles as a means of transportation instead of driving cars or riding

public transit. Companies, typically small to medium firms and some startups also have chosen

to join co-work space as a way to reduce workspace rent cost as operating expenditures. Some

people also lent out their available but vacant units to others who need for short-term, inventing a new way of accommodation, besides the traditional relations between landlords and tenants.

The sharing economy has lately been introduced to most countries in the world. Since the Open-up policy in the 1970s, the market in China becomes open to foreign investors and small private economic activities. As the innovative technologies and internet became prevalent and widespread in public's daily use, enabling Information and Communication Technology (ICT), sharing economy has materialized by connecting different stakeholders "to create value by sharing their excess capacities, or to create new capacities for sharable products and services." (Ma et al. 2018, 1149). Given the principle that the sharing economy advocates a consumer society that shifts from emphasizing on "owning" to focus on "using", in the National Economic and Social Development Chapter in the Thirteenth Five-Year Plan that is aiming for the period 2016-2010, President Xi Jinping has proposed the concept of the "development of the sharing economy." Such designation officially incorporates the "sharing economy" into the principles of national-level policy-making, demonstrating the recognition of the sharing economy and its role as a strategic plan for the national development. Subsequently, the national plan has been gradually passed to and carried out by provincial and municipal levels. Learning from the lessons of those successful global sharing economy models, China's central government has decided to promote "sharing cities" by incorporating sharing economy to a city-scale development and meanwhile formulating "sharing city" development strategy plan for megacities.

In the book *China Internet Development Report 2017* (2018), since 2016, the first year of the Chinese sharing economy, sharing economy has already become a fresh national growth

point, because the enormous demand from the sharing economy market has created a large number of flexible employment opportunities. The report also suggests that the sharing economy in China has led to "the emergence of new patterns in transportation, smart APPs, and household life." (*China Internet Development Report 2017,* 64) Subsequently, sharing economy has been utilized in major industries, substantively centered in public consumption and service, particularly in transportation, housing, and medical care.

Besides the job creation bonus that was brought by sharing economy, which creates more job opportunities through changing the configuration of the job markets to "platforms + individuals," sharing economy also offers new development opportunities for many industries. (China Internet Development Report 2017) The sharing economy has been found to have a lot to do with human's lives. (M. Abdar and N. Y. Yen 2017) Realizing the changes brought out by sharing economy, researchers have noticed the relationship between sharing economy and human behavior, mainly looking at the evolution of behaviors while the sharing economy comes into our daily lives.

Compared to the global sharing economy's development, the impacts of sharing economy on China could be extraordinarily profound, by political support. A 2016 report of China's economy (Wheeler 2016) shows that the transaction volume of the sharing economy market has reached 34.52 billion and more than 600 million people are involved. Given the national enthusiasm towards sharing economy in China, the influence of sharing economy could be profound. The city was built for man, and not man for the city. (Porteous 1997) In the face of the dominate sharing economy, it is crucial to understand its general impact.

2. Research Question & Significance

Realizing the uncertainty of changes under the sharing economy and inspired by the importance of the potential change that sharing economy may have imposed, the research questions have been subsequently developed. The research questions that serve as the guiding principles for the entire work of this thesis, from its beginning to the end, then comes up: What are the changes that the sharing economy phenomenon and related activities have brought up to mainland China and its people, and how?

The primary purpose of this thesis is to validate whether or not sharing economy has changed mainland China, both industrial and personal experiences, and how that change happen as well as the implications of it. To make the discussion clear, the paper also explains the emergence of sharing economy in mainland China and explores the sharing services that are available to users by reviewing past relevant literature works. This paper also describes the configuration and features of sharing economy system and details with specific sharing activities. With a substantive knowledge and clear definition of sharing economy, the thesis then turns to the analytical part to investigate the changes that are caused by the rise of sharing economy and the all-pervasiveness of sharing services, to reveal the rationale of such relationship. The examination of the sharing economy's impact is composed of two levels of analysis, one from the industrial perspective that discusses sharing economy as a national trending phenomenon, and one using individuals as unit of analysis. Meanwhile, the paper also manages to examine whether such change may be constructive, not only to the users, sharing economy businesses, but also to the entire society and built environment. Later, the paper tries to make it clear that, if not a win-win strategy for all sides, who sacrifices when sharing economy spreads, where there is a debate on the nature of sharing economy. Therefore, the thesis will perform a critical assessment

of sharing economy's impact on humanbeing, both using primary data and objectively using secondary data, and comes to a conclusion on the answer to the research question and further implications on how that change may likely contribute to the built environment and should be captured by the planners for design a preferable living environment.

The significance of this thesis is explicit from various aspects of different stakeholders. First of all, the results of the study will be of great benefit to the ordinary people who are the audiences of sharing economy. It will make it clear how the users of the sharing economy have been modified, though they may not even be aware. In return, the public can also learn about, besides the significant advantages offered by sharing economy, the risks of sharing economy, to avoid being blind in front of the massive sharing economy technologies and the overspread of sharing economy advertisements. From this point, the paper fills the gap by disclosing what sharing economy is, to the general users and the general public, and detailing the changes and risks that have been brought up.

As for the sharing economy businesses, they would benefit since the study will provide deeper insights into the requests and needs of the service users, which gives the companies opportunities to develop their platforms further to refine their products and cater the potential customers more accurately. As for the planners' side, the result will make it clear whether the ongoing change of human behaviors is real and clarify the doubts and confusion on the sharing economy in China. Such a better understanding also will add to the better design and planning of the built environment, under the principle of creating a sharing society. The designers will be asked to keep alert to the changes in human-beings and industries the varying demand of city users. In the end, planners and planning agencies as well as governments will know how the

changes associated with sharing economy may be inter related to the built environment. In return, they shall be inspired on how their better design of built environment will the city be more livable and efficient.

II.   RESEARCH DESIGN & METHODOLOGY

1.   Research Design

In the beginning Introduction Chapter, the thesis first describes and explains the origination and development of sharing economy and clarify its definition and scope from a global perspective. The introduction part also briefly gives some background context on sharing economy in mainland China, and how sharing economy is considered to be associated with the change in human-being. Besides the introduction chapter, there will be mainly three sections of analysis in this thesis to provide a solid answer to the research question: literature review, by-industry analysis, and conclusion.

Following literature review in the second chapter that provides with solid essential knowledge of research subjects, the third and forth chapters of the thesis are the centerpiece of the work, which carry out the detailed research, from the data collection, explicit evidences, and data analysis, summary, to a thoughtful discussion. Owning to the fact that sharing economy is more densely concentrated in the urban area and for efficiency, not both part will cover the entire area of mainland China. Instead of doing so, this third chapter looks at the national level and performs industry analysis in a larger environment, while the forth chapter will use the city of Hangzhou as the study area and perform the human level analysis by different services, where the network techniques and sharing economy have matured quite well in comparison to most other cities in China. The ground of choosing Hangzhou will be explained precisely in detail this section.

The service of sharing economy has a wideband, and categorizing the services of sharing economy is important before evaluating the services. From Nadler's Ph.D. thesis, studying the sharing economy may look at the three industries: transportation, hospitality, and consumer-based services. Looking at these three categories of services that sharing economy has been matured in are sufficient to study the influence on the overall economy and established industries. The sharing facilities that are involved here in the interviews include all these three kinds of services.

In the third chapter, through rational discourse and visualization by using quantitative data and references, the paper will focus the usage and performance of sharing facilities from a national-level scale perspective, because most secondary resources available and accessible to use here were produced for the national report. By using the quantitative method, the chapter of national sharing economy analysis will provide more macroscopic and neutral scrutiny of sharing economy's general impact by industry.

Following the macroscopic analysis in the third chapter, the next chapter of individual experience is heavily tied to collecting primary data. Besides existing resources that provide information on the usage of sharing services in the study area, I also made use of various methods, namely observations and interviews, to understand the story of sharing economy in an individual's daily life. In this chapter, observations and interviews serve as two complementary tools to each other, to collect primary data for the goal to validate the change that the sharing economy has brought to everyday life in reality. The quantitative analysis, following the additional evidences from existing published data, enhance the credibility of this chapter.

The closing section of the analysis chapter is an integrative analysis, where I add up the results of the past two sections' analysis to draw a conclusion on whether and how citizens' behaviors have changed along with the rising and spreading of the economic sharing activities in the city of study, and how that may be correlated to the development level of the location. The previous two analyses more focus on the settings and the outcomes of the sharing economy, while this section compares the before and after of the sharing economy by building the comparison using both individual pieces of evidence from interviews and quantitative and factual reports. Since the interviews and the observations both take place in different urban settings, where the level and the amount of sharing services vary, the corresponding usage and attitudes provide a clue for understanding the distribution of sharing services and how that is tied to different, maybe even contrasting attitudes to sharing economy.

In the ending chapter, realizing the changes over time and the risks as well as advantages of the sharing economy from earlier research, the paper will discuss the sharing economy phenomenon in a comprehensive approach and penetrate the broader relations and impacts between users, technologies, corporates, built environment, the city and planning agencies. This chapter will recapitulate the earlier finding of sharing economy's impact and the justification of the influence. Following those major takeaways, the risks and the harmful byproducts of sharing economy will also further scrutinized here. More importantly, the discussion of how behavioral change that sharing economy caused may impact city development and built environment will also be carried out in the chapter, detailing the potential modification that requires more attention from planners and policy-makers, emphasizing on the contrasting interests among different stakeholders which may be one of the critical issues to be addressed.

2. Methodology

As the research goal is to validate the behavioral change under the influence of sharing economy, including the factors contributing to the change and the results of such change, the thesis will employ both quantitative and qualitative methods to produce a reliable conclusion. However, the purposes of the two approaches are different. The quantitative analysis relies on information collection by counting at sites and existing secondary statistics from published reports and books. The quantitative data collection is composed of two parts: observational analysis and secondary data analysis. Thesis resources provide information on how the sharing facilities are operated, maintained, and used by consumers, but from different perspectives. Given the natural settings of the three sharing economy industries of study, transportation, accommodation, are consumer-based services, are different, not all of them are covered in both analyses.

The quantitative part is designed not only the provide an intuitional answer to the research question, but also trying to investigate whether sharing economy is promoting equity among all neighborhoods in a city. As for observational analysis, the observations include observing and counting the usage of sharing facilities (including commuting, accommodation as a form of hospitality, and workspace sharing facilities as a customer-based sharing service) in Hangzhou—the city selected for closer observation. Besides quantitative observational data, in this case, I also tried to document and translate the interactions between users and facilities, and archive the users' experience as well as emotions while using the sharing services. To supplement the quantitative counting observational analysis, I also looked up multiple resources

FIGURE 2.1 OVERVIEW OF HANGZHOU CITY
(HTTPS://WWW.CHINA-BRIEFING.COM/NEWS/CHINA-REGIONAL-FOCUS-
HANGZHOU-ZHEJIANG-PROVINCE/)

to find relevant published/available data on sharing economy facilities in transportation,

accommodation, and other customer-based industries, to facilitate further exploration.

Hangzhou—The City for Closer Observation

To evaluate how sharing economy may have changed people, and given the scope of this

thesis, I chose to narrow down the study area by looking at the city of Hangzhou, as the study

city, instead of looking at the entire scale of mainland China. The rationale of locating on this

city to interpret the impact of sharing economy will be explained in the following paragraphs, to

provide a necessary context of the city's background and environment to help solve the data

collection procedures and later analysis in a more coherent way.

Hangzhou, located along Southeast coast of China, at the south wing of the Yangtze River Delta, is the capital of Zhejiang Province and functions as the center of politics, economy, science, education, and culture of the province (Chen 2012). As a critical national tourism and historical city, widely renown as "Paradise on Earth", "Home of Silk"and "Tea Capital", Hangzhou has been confirmed as a vice-provincial level city as by the State Council and the central CPC Government (the Communist Party of China (CPC)), which is the party in charge of the entire country. (Chen) It is a crucial central city in Yangtze River Delta and a traffic hub in Southeast China, with eight districts—Shangcheng, Xiacheng, Gongshu, Xihu, Jianggan, Binjiang, Xiaoshan, and Yuhang, and five counties—respectively Fuyang, Lin'an, Jiande, Tonglu, and Chun'an. All the districts and counties are under the governance of Hangzhou Municipal Government.

The total area of Hangzhou municipality is 16,853.57 Km^2 with a population of 9,806 thousand, according to *Hangzhou First Geographical Survey & Conditions*, published in February 2018. The hilly regions of the city account for 65.6% of the total area, the plains 26.4%, the rivers, lakes, ponds, reservoirs, etc. all together for 8% (*Hangzhou First Geographical Survey & Conditions* 2015). As for the climate, the city of Hangzhou seems to be a livable city for most people. By geography, the municipality is located in the subtropical zone with monsoon climate (*Hangzhou YearBook 2017* 2017). It has a clear distinction of four seasons and is mild and humid, plenty of sunshine and rainfall (*2*). The average temperature is 16.2°C around a year, 28.6°C in summer and 3.8°C in winter. (4) The city usually is not in front in 230-260 days per year, and the average rainfall is 1435 mm around the year while the average

relative humidity 76% (*7*). The climate over a year is nearly always habitable to human, and thus should be suitable for most activities.

Besides, the city also has a long history of development. The city of Hangzhou is one of the earliest cradles of Chinese civilization. There are two great cultures that were originated from the town: Kuahuqiao Culture and Liangzhu Culture. The Kuahuqiao culture is located in Hangzhou's Xiaoshan District, with a history of 8,000 years, and the Liangzhu Culture, located within Yuhang District, has been established with a history of 5000 years ("*Introduction to Hangzhou.*" 2009). Since Hangzhou has been initially set up as a county's capital city as early as Qin Dynasty (around 200 BC), the region has an extensive history of more than 2200 years as a city. The city used to be the capital of both Wuyue State during the Five-Dynasty-Ten-State Era in Chinese history and South Song Dynasty, during which Hangzhou served as the national capital city. (Wei 2005) The beautiful scenery of Hangzhou has continuously attracted visitors from other provinces in the country and foreign countries. In the 13th century, Marco Polo, one of the famous tourists in history from Italy, even praised Hangzhou as the Most Magnificent City in the World in his travel journal. (Humble and Hook 1990) The fantasy of the city has been historically boosted and continues its prosperity and renowned reputation into the current era.

The development level of Hangzhou is also considerably high among all cities in mainland China. Since the 1990s, the GDP (Gross Domestic Product) level of Hangzhou has been growing rapidly and substantially, with non-state-controlled economy counting for more than 70% of the total. (Wei and Li 2002) Under the Twelfth Five-Year Plan and Thirteenth Five-Year Plan, the city has achieved and maintained stable but rapid economic development. According to the World Bank income group classification, the development level of Hangzhou

has been elevated to be equivalent to the level of moderately developed countries. (*"Economic Development"* 2016) Since local private companies gained a lot of financial income and paid much taxes to the local government, most of the funding for development does not need to be approved and allocated by the CPC central government. Therefore, infrastructure development in the area has been maintained well.

Counting Observation

As Marshall & Rossman (2016) define in their book, observation is "the systematic description of events, behaviors, and artifacts in the social setting chosen for study."(79) By doing observations, the researcher could describe existing situations using the five senses that a person has, providing a "written photograph" of the situation under study.(80) The most compelling reason is that collecting data by observation will enable researchers to learn about the activities of people in the natural setting, by observing and participating in those activities, without any interruption. Such participant observation is a "process of learning through exposure to or involvement in the day-to-day or routine activities of participants in the researcher setting."(Schensul, Schensul and LeCompte 1999, 91) As an ordinary user, the observation will not lead to any favorable answer that may alter the credibility of the finding, and that completes the rationale of choosing quantitative observational analysis. The detailed process of observations and results are explained in the following paragraphs, and are explained by grouping of different industries.

I chose three locations in the city (as indicated by the map below) to conduct counting observations of sharing bikes' activities to interpret the impact of sharing economy on
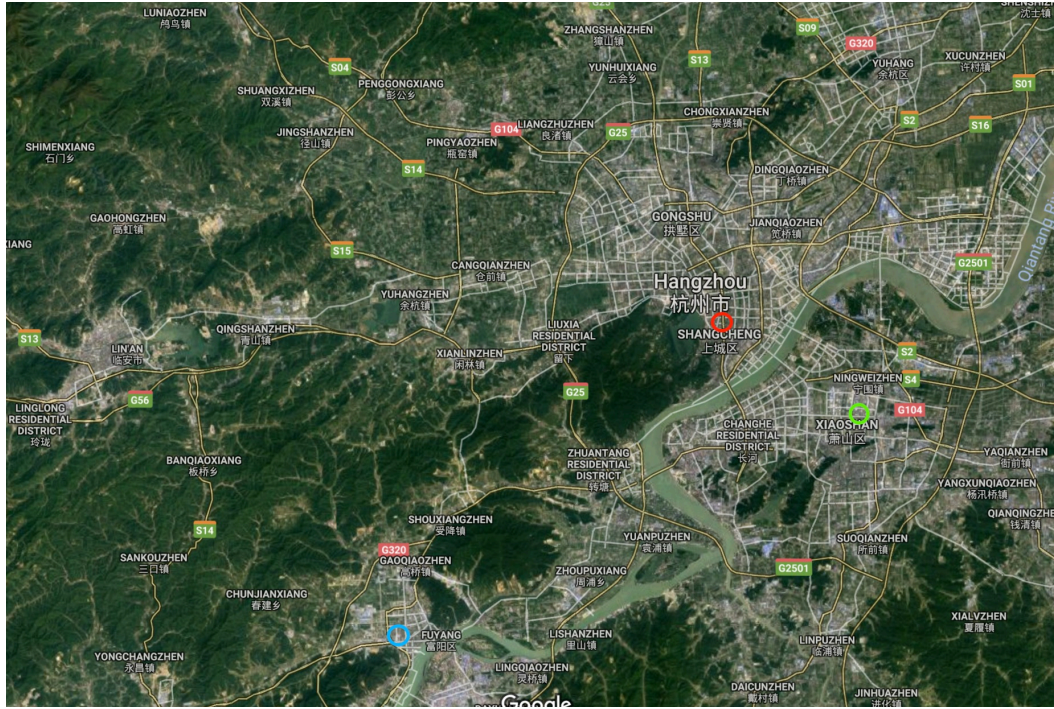
FIGURE 2.2 THREE LOCATIONS OF OBSERVATIONS AND INTERVIEWS.

transportation. These three locations are located in Shangcheng, Xiaoshan, and Fuyang District. They are all public plazas located near a popular local mall which is considered the central area of the corresponding district. However, these three districts are not equal in terms of development level. Shangcheng District, where the Southern Song Dynasty's Ruins was found, has been a traditionally prosperous area in the city since hundred of years ago. Xiaoshan District was first developed when the People's Republic of China was founded in 1949, while Fuyang District remained a county-level designation until it was incorporated to be part of the Hangzhou Greater Municipal Area no more than three years ago (Wei 2005). Hence, the sequence of development level of these three districts from the highest to the least is Shangcheng District, Xiaoshan District, and Fuyang District. To best ensure that the results of the observations for the selected locations are comparable, I performed the observations on December 19th, 20th, and

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21st of 2018, all of which are weekdays. The average temperature of these three days are all around 5°C and did not differ much among days. Since there was no rain or snow on these days, the usage of sharing bike are expected not to vary much. The time slots for observation are 10:00-10: 30 AM on these consecutive days, a busy period in weekday morning but not the regular rush hour when people are all on their way commuting so the user should be not hard for counting and observations.

In these half-hour slots, I did one thing in the first 15 minutes and another job in the second 15 minutes. In the first 15-minute slot, I chose a cafe shop next to the plaza and sat at a table next to the window so I could to able to focus on what was going on in the square. I counted the total amount of bikes that appeared in the study area in that period and grouped them by government-owned sharing bike, personal bikes, and private-company-owned sharing bikes. Then I wrote that number down on my observation report and move to the second 15-minute observation. In that second 15-minute observation, I walked around at the plaza with a cup of coffee in my hand, pretending I was there waiting for someone and made myself look like an ordinary person with no research purpose to avoid interruption. The primary observational goal for the second slot was to help the researcher identify the destinations or objects of the persons who were riding the private-company-owned sharing bikes by observing the users. It was hard to give a robust and accurate answer though, but that observation did help me to understand whether these people are used to this sharing service, and their attitudes towards and familiarity with that. I also documented my observation by writing those down. The second part of the observation will be more discussed in the qualitative section. In both 15-min observations, I was one of all participants who was using the plaza, making me well blended into the observation

environment, to add to the accuracy of the result.

I used the counting observation method again for analyzing sharing workspace, as one of the popular customer-based services in Hangzhou. I chose two buildings that offer sharing workspace but located in different districts that have varying levels of urbanized setting. One building is located in the new CBD area of the city, where there are all high-rise buildings and
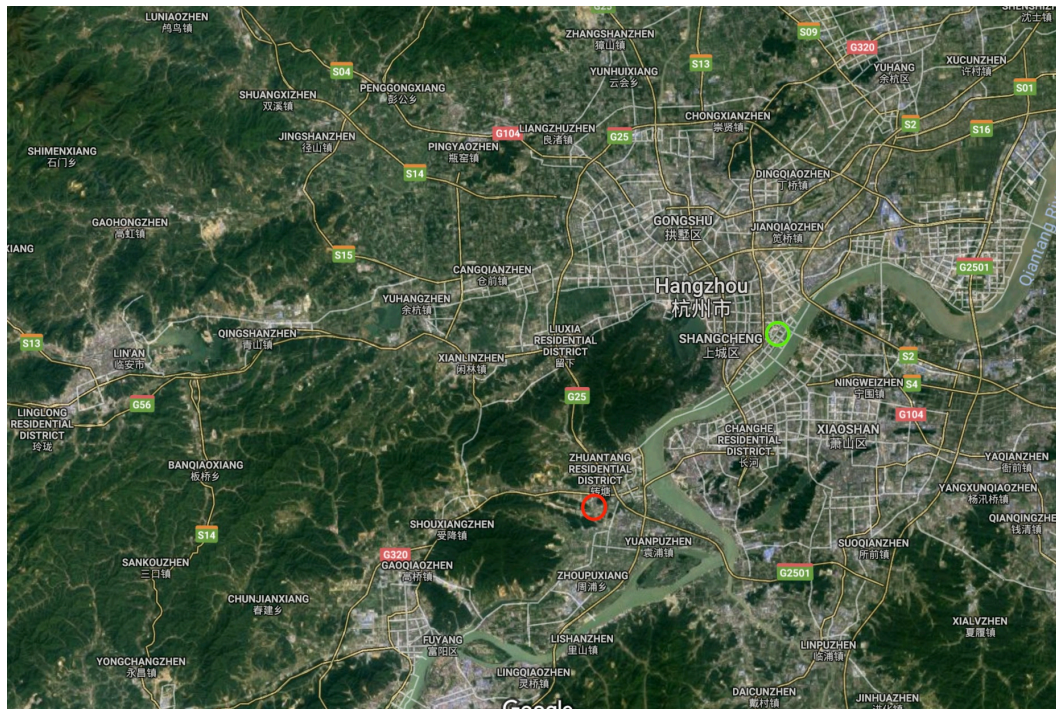
FIGURE 2.3 LOCATIONS OF TWO BUILDINGS FOR OBSERVATIONS. (GREEN ONE IS THE BUILDING IN THE CBD AREA)

expensive residential units and the street activities happen frequently; the other spot is located in a new district that had just finished its construction one year ago, so it was not a very populated area. For both buildings, I performed my observation by walking around the buildings in the same period, 3:00-3:30 PM, on December 19th and 20th. The goal of such observations was to observe the conditions and roughly estimate the usage of the sharing workspace in the buildings.

Qualitative Covert Observation

By conducting observations, the researcher can gather data by watching people, events, or noting physical characteristics in their natural setting. Although observations can be overt (subjects know they are being observed) or covert (do not know they are being watched), I chose to be part of the crowd in the plaza so that users can not tell whether I am just an ordinary person or not since people did not pay much attention to what I was doing. In doing the observations (individual progress of observations are explained in the previous quantitative data collection section), the goal was to collect information about the interaction, processor behavior of using sharing facility. To be specific, I looked at the faces of sharing facilities users, trying to figure out how their user experience might be and their attitudes towards sharing economy services are. The results of observations also give some clues to help understand the behavioral change under the sharing economy.

The covert observations of sharing transportation industry took places exactly where I did the counting observation. The observations of sharing accommodation, though did not get to happen for quantitative part, however, took place in another way to achieve qualitative data collection. Instead of choosing Airbnb accommodations for observations, I decided on two sharing residence buildings in Hangzhou: one in Binjiang District, and the other in Yuhang District. These are unlike sharing platforms such as Airbnb, but another way of sharing accommodation that is built upon the Business-to-Customers(B2C) platforms. Binjiang District was designed the CBD (Central Business District) area for the city, so the municipal and provincial government center, citizens' center, and also mixed-used shopping malls and residential communities are built here, making the area a bustling and trending district (Chen

2012). However, Yuhang District was, similar to Fuyang District, a county-level area where the development level is not comparable to the city center area (47). Therefore, the comparative counterpart of observation was constructed between a more urbanized environment and a less-urbanized environment. Before my observations, I have received approval on collecting observational information from both buildings' management office.

The observations of other consumer-based sharing services took place in the workspace and Sharing PowerBank in those three plazas, where the observations for sharing bike occurred. The telescopic observations of users who are in sharing workspace also did not find anything unsatisfied from people's faces. Since most of the workers in the sharing workspace are employees hired by higher managers or company's heads, therefore, their behaviors in choosing workspace cannot be determined in this observation, because they are not the people who can decide on the workplace's environment or the workplace's location.

Interview Procedures

There are a variety of methods available for data collection in qualitative research, including observations, textual or visual analysis (e.g., from books or videos) and interviews (individual or group). However, there are two most common methods of data collection used in qualitative research: interviews and focus groups (Gill et al. 2008). DiCicco-Bloom and Crabtree (2016) firmly argue that interviews are among the most familiar strategies for collecting qualitative data. As compared to focus groups, interviews can be used to explore the views, experiences, beliefs, and motivations of individual participants (292). When interviews are used, the researcher will be able to access areas not amenable to quantitative methods and where depth,

insight, and understanding of particular phenomena are required (Gill et al. 2008, 295). As a

qualitative analysis section, this part of the thesis is designed with expectation to "describe and

the meanings of central themes in the life world of the subjects by qualitative methods," (302),

which is, in this case, the users' comments, preferences, attitudes, and behaviors with sharing

economy services. Therefore, besides the qualitative observational analysis just used, the second

part of qualitative analysis relies on conducting interviews with sharing economy participants

and develop and produce interpretations based on the interviews' results.

When being used, a qualitative research interview often seeks to cover both a factual and

a meaning level, though it is usually more difficult to interview on a meaningful level (Flick

2018). In terms of organization, interviews range from the tightly structured format of

standardized survey interviews in which questions are asked in a specific order using the same

form to semi-structured interviews, in which the organization of topics is less tightly formatted.

(186). Structured interviews are, mainly, verbally administered questionnaires, in which a list of

predetermined questions are asked, with little or no variation and with no scope for follow-up

questions to responses that warrant further elaboration (DiCicco-Bloom and Crabtree 2016).

Consequently, they are relatively quick and easy to administer and may be of particular use if

clarification of specific questions is required or if there are likely to be literacy or numeracy

problems with the respondents (Gill et al. 2008, 291). However, by their very nature, they only

allow for limited participant responses and are, therefore, of little use if 'depth' is required

(291).Thus, the highly structured survey interviews and questionnaires are widely used in

epidemiology and most health services research (DiCicco-Bloom and Crabtree 2016).

Research questions formulate what the researcher wants to understand, and the interview questions are what the researcher asks people to gain that understanding. The interview question is not meant to be sensitive but only related to their usage and attitudes towards the facilities and can be found in the corresponding IRB protocol as well as at the end of the thesis. A sample list of interview questions is also attached in the chapter. By summing up the interview results and the observation outcome, the closing of this section concludes on how people's living looks like in a sharing community and how their lifestyles have changed, based on their answers and my observation. Also, as indicated in the interview question, participants' attitude towards sharing economy are also be studied and compared across different service and varying urban settings, offering a subjective viewpoint of whether people benefit from sharing economy or not and how. The thesis will also explore whether behavioral change happens voluntarily or under environmental pressure.

Therefore, I decided to use open-ended questions, as a form of unstructured interview question, to validate the sharing economy's impact on the public. The development of right interview questions (and observational strategies) requires creativity and insightfulness, rather than a simple translation of the research questions into an interview guide or observational schedule, and needs to be designed depending fundamentally on how the interview questions and observational strategies will work in practice in the interview environment and context. Based on these principles, I developed the five main interview questions as listed in the grid:

As long as the interview questions have been decided, then I need to confirm the locations where the interviews will take place, and select the participants whom the interviews should be conducted. First of all, the interview needs a definition of sharing economy and

1. How often do you use sharing service?
2. How using this sharing service helps you? Did it change your lifestyles (probably one aspect)?
3. What kind of sharing service do you like the most/the least, and why?(answering one side is enough)
4. What kind of sharing service that you do not like, and why?
5. From your understanding, is sharing economy a good thing for you and for the neighborhood? Why?

Five Pre-developed Interview Questions

sharing service. Therefore, I need to provide at least a clear and acceptable explanation for sharing economy, and correspondingly, sharing service. The definition I gave to the interviewees is: Sharing Economy is a term that is used when generally making reference to a new economic model in which a certain amount of remuneration is used for the primary purpose, based on a stranger and the right to use the item temporarily, whose essence is to integrate idle goods, labor, education and medical resources for better resource allocation. Since the interviews were carried out in mandarin, I translated the definition and also provided that to the interviewees before start. To be clear, the definition of sharing economy was also printed on the first rows of interview questions' paper, to make sure that the interviewees at least accurately understood what the objectives of the interview were.

The locations of the interviews—where the interviews took place, were those three plazas previously introduced in the quantitative section, where sharing services including ride-sharing, bike-sharing, power bank-sharing, and other services are all available nearby. Besides, as mentioned, these three plazas are located in different level of development level, so the results may also be indicative for interpreting whether development level has an impact on the extent of sharing economy's influence on human behavior. In return, whether people in different urban

settings may have contrasting perception towards the sharing economy and sharing service and relevant comments they would like to give may also be inferred from the interview results.

After the location's determination, the next step was to determine the sample size and then to select the interviewees. As for the sample size, to be realistic and feasible, I chose around 10 persons in each location, and try to diversify the age, sex, and educational background or work industry as much as possible, so that the distribution of the sample is similar to the entire local population, and therefore, the result will then be implicational for the whole of the local community. Hence, at the time when I chose interviewees, I tried the best to make sure to select interviewees from different age groups and industries, by their outlook. During the interview, I also asked for their consent to get their background information, if they were happy to, so I can examine the distribution of the sample size. Though it was hazardous by doing so, however, it was also the only way that could bother the interviewees least, but at the same time also meet the expected purposes of interviews to produce the most accurate and justified result. In the end, as decided, the total size of the sample will be three locations times ten persons in each location, making the whole sample size round up to around 30, which can be considered reasonable enough to produce a projection for the entire local population, based on the collected responses from the interviews.

Given the goals and guidelines of interviews that were previously constructed, I then subsequently carried out the interviews in the designated locations. As introduced in the previous observational progress, there was a 30 minutes site observation before the interviews took place in each site. As such, after the observations, I was then able to narrow down to a few appropriate people based on previous observations and then went to ask for their permission to become my

interviewees and participate in my sharing economy interviews. They were also offered the sample interview question paper with my contact information on the back side, so they had the researcher's topic clear in mind with a basic knowledge that why I was asking them those pre-structured questions.

After having their consent approved, I started the interviews, following the five questions stated before, and wrote down the responses in my notebook. Since the questions were all open-ended, the interview duration differs from person to person, based on their availability to talk. The interview time ranged from 3 minutes, at least, to 15 minutes, at most. The average interview length for the total of 36 interviews is 6.8 minutes. At the end of the interview with each participant, I expressed my appreciation to each of them orally and kindly had all participants informed that I would be happy to send them the result of my thesis once I have the thesis submitted to the school, depending on their willingness to provide their personal contact information. With all data collected, I have inputted the feedback all into my computer, and had them translated into English, following the original Chinese scripts and stored all together electronically in a secured folder, that is only accessible to me, the researcher in this case, and my thesis advisors. The stored interviews then enabled me to start the qualitative analysis for analyzing at least three aspects: the frequency of using sharing service, the sharing service that was liked/disliked the most by people, and whether users agree that the sharing economy phenomenon did have them changed their lifestyles and how. The last question, as designed, will directly lead to the correlation discussion that evaluates sharing economy's impact on human behaviors.

III.   **LITERATURE REVIEW**

Following the introduction and methodology chapter, the first section of analysis, also the third chapter of the thesis, will be the literature review part, which consists of three main topics: Definition, Emergence, and Service of sharing economy; Debate of Sharing Economy; Sharing Economy and People. The first part will provide a basis for understanding the sharing economy in mainland China, including its emergence, development history, definition, and key characteristics. Following these rudiments of sharing economy, this literature review will then clarify the meaning, concept, scope, and function of sharing economy in mainland China, as well as narrow down to the services that this thesis is particularly looking. This entire chapter mainly relies on analyzing existing secondary resources to provide a basis for understanding the phenomenon of sharing economy.

The second part of the literature review chapter will review the ongoing debate of sharing economy, to present a critical and comprehensive report on the service of sharing economy. To be specific, this part will be showing the users and services that are developed by sharing economy, make it clear to readers that what sharing economy is indeed providing, with a detailed explanation of what the advantages and drawbacks are. Later on, the third section of the literature reviews how the sharing economy may shape people's living, from the behavioral perspective. The definition of behavioral change and some accredited theories that study the rationales and procedures of behavioral change are studied. These theories may offer insights when explaining the behavioral change in this case. Meanwhile, the third section will also draw from previous researches' experiences, learning from their methodologies of conducting

behavioral change validation and data collection approaches. In the conclusion section of literature review section, the findings of the literature review will be summarized, to not only advance the understanding of the research topic but also provide important hints that also better structure this thesis's research design.

1. **Sharing Economy**

Even though people agree that sharing economy is about sharing and collaboration consumption, however, there is no explicit agreement on one definition that describes the sharing economy in its best way. People usually confuse the concept of sharing the economy with several other forms of economy, such as platform economy, access economy, digital economy. One widely accepted definition, from Görög's definition (Görög 2018), defines sharing economy as collaborative consumption to which financial or other compensation is one of its key elements. Moreover, according to Görög sharing economy is not about the financial settlement, but more likely re-use of underutilized assets.

The definition of sharing economy has changed several times since its initial concept as reuse of underutilizing assets. Mair and Reischauer (2017) define sharing economy as "a web of markets in which individuals use various forms of compensation to transact the redistribution of and access to resources, mediated by a digital platform operated by an organization" (Mair and Reischauer 2017, 125). In their theory, the core of economic activities in the sharing economy is those transactions. Zervas et al. (2017) suggest that the nature of the sharing economy was initially in the form of peer-to-peer markets. Zervas et al. argue that such markets evolved

collectively and became the so-called sharing economy, which was initially emerged as alternative suppliers of goods and services that were traditionally produced and provided by those long-established industries. In such markets, people have the opportunities to share their underutilized inventory through fee-based sharing, and on the other side, people who need those services or goods could benefit by paying a fee. Such markets have matured and many corporations, such as Airbnb, Uber, Lyft, and TaskRabbit, have taken advantages of providing a secured platform for customers. With the acquired transactions platforms that are protecting both sides of the market, consumers have so far enthusiastically adopted the services. From the report published by PwC in 2015, about 44% percent of US consumers are familiar with the sharing economy, and 19% of the total US adult population have participated in sharing economy transactions.

The emergence and adoption of the sharing economy have a couple of reasons. Nadler (2014) suggest several forces: technology innovations, economic conditions, and incentives, alleviating the financial burden of owning an item, enhancing individuals' earning potential, business incentives, environmental impacts, as well as community involvement. Accordingly, sharing economy is never a simple product for a particular cause. Instead, it is a confluence of these factors and a result of human development. Learning from these works, it can be said that although sharing economy was born as a grassroots' spontaneous activity, while it already gradually evolved as a well-formed market economy with specific sharing characteristics and financial compensation.

Simply defining sharing economy is not enough or clear. There are some other concepts of new economic systems that are confusing. Compared to the "collaborative

economy," (Botsman and Rogers 2010), "gig economy," (Friedman 2014), and "platform economy," (Kenney and Zysman 2016), sharing economy has several characteristics that should not be neglected. First, the sharing economy requires various forms of compensation used for transactions. Second, the market is the locus of transactions in the sharing economy. Third, the focus of transactions in the sharing economy is always center on the redistribution of resources and their accessibility. Fourth, individuals are the transacting initiatives in the system. The last point is that all transactions of the sharing economy occur via digital platforms that are established and operated by organizations. As Gansky (2012) claims, whether or not the sharing economy was created for economic gain or the benefit of society, "the unifying theme is improved use of assets, focusing the benefits of participation on access and not ownership, emphasizing efficiency and practicality overconsumption."

The services of sharing economy are available in most industries. Traditional industries are being affected by the sharing economy. The earliest industry that has been challenged might be transportation. Uber's ascension in the transportation industry is one of the best examples to illustrate the effect of the sharing economy in the traditional sector (Rowe 2017). In just New York City alone, there are roughly 4.5 times more Uber drivers than yellow cabs (Miller 2018). This increase in Uber drivers has caused the price of owning a taxi cab in New York City to drop from $1 million in 2015 to less than $200,000 today (24). The tourism industry has been altered since people got more options for accommodation rather than being limited to hotels. Later on, sharing economy business started to produce other consumers goods, besides sharing services. Online platforms became popular and gradually replaced the previous physical markets, for three reasons: affordability, convenience, and efficiency (64). Professional and personal services are

also available in sharing economy so that workers got more options, and the companies found it easier to locate an ideal candidate. Although the sharing economy has yet to take hold in the healthcare industry, many experts suspect it to be the next frontier for collaborative consumption. As argued, from telemedicine to group-consultations, the sharing economy is also destined to change the healthcare industry (43). In a word, sharing economy has spread to almost all sectors, and have changed their patterns of development.

2. The Debate on Sharing Economy

Since the initial emergence of sharing economy, the concept has been endorsed by many sectors of the society as the ultimate solution to many annoying and difficult problems including inequality and the scarcity of the resource. People were in favor of technology rise, believing that new technologies and big data will bring great opportunities to spur the economy. The benefits of having a sharing economy have been claimed from multiple perspectives, both industry, and consumers. It was argued that the big company became the first wave of sharing- economy business ("*That We Regret the Rise of the Sharing Economy*" 2019). The debate suggests that big companies, such as Google and Uber, who have an enormous amount of usage data first had the inherent information advantage that enabled them to track their customers so that they can understand the user portrait and capture their demand better. By arguing this, it was believed that the needs of the customers are fulfilled with higher-quality service in a much more efficient way, with sharing economy platform. The integrated model of sharing economy platform, as assessed in Hamenda's work (2018), indicates that the sharing economy platform provides better price

fairness and improved service quality have increased the customers' satisfaction. By these innovations, consumers can now get more for less. Therefore, thanks to the rise of sharing economy, customers have gained upgraded service at a lower price.

Not only to the customers but also multiple industries have been benefitted by implementing the sharing-economy as a new diagram. One evidence is the efficient use of idle resources. In the case of block chain technology that is a widely used method in economic development, block chain offers the sharing of resource information that "not only avoid the phenomenon of failure risk, but also reduce the cost of cost, and protect the privacy of consumers" (Huckle et al. 2016). As such, blockchain technology additionally encourages the creation and facilitates the prevalence of sharing economy. From the industrial perspective, the employment opportunities have been produced under the sharing economy platform. For example, in the tourism industry, sharing economy businesses, such as Airbnb, one of the most popular online sharing platform, expanded the market size of the tourism industry with the increase in the number of visitors as subsequently led to the growth of employment rate, by delivery job opportunities to local unemployed citizens. Meanwhile, that result also pacifies the unemployment chaos and enhance social welfare.

The benefits that were brought up by sharing-based business models are not limited to those discussed above. Besides the fact that sharing economy is creating a sizable amount of wealth, there are also environmental and social benefits. The advent of sharing platforms makes stranger sharing more acceptable that decreases the level of social stratification while exposing renters and owners to a more broader socio-demographic background (Frenken and Juliet 2017). While some idles sources became utilized at a higher frequency, some resources become less

used, and lowering environmental risks, adding to the sustainability of long-term ecological development. The rise of ride-sharing APPs reduce the usage of personal vehicles and make people less dependent on ownership by using other alternatives to share well (Botsman and Rogers 2010). Such platforms have promoted more equitable and sustainable distribution of resources by reducing: the costs of accessing products and services; and, consumer demand for resources (68). Correspondingly, making cars accessible to non-owners reduces the total number of vehicles required for a given mileage (Bates and Liebling 2012). As a result, the total pollution produced by car-driving is diminished. However, the congestion level was also elevated (Botsman and Rogers 2010). Hence, sharing economy provides development opportunities to big and small companies by data-sharing technology, and improves an individual's living condition, while help reduces environmental pollution and promotes social welfare, at the danger of causing more intense congestion.

As traditionally theories assert from an optimistic perspective, low-income people are most likely to benefit from a shared economy (Wheeler 2016). If one's financial ability is not capable of paying for a car loan, then the best option may be that he can borrow a neighbor's car when he needs at a reasonable price. Sharing economy was introduced as such a platform that provides those services in a security-controlled transaction environment. Since its initial installation, people believed in that sharing economy is of great help to reduce the gap between the rich and the poor. However, now it becomes a debatable topic, realizing the outcomes that sharing economy have brought out. It is unclear that who is served by it and how, and to the contrary, who is neglected.

Therefore, unfortunately, at the same time of growing sharing economy, the debate on sharing economy also has been turned up among scholars. As the sociological review of literature works on sharing economy developed by Arcidiacono, Gandini, and Pais (2018) conclude, academic research on the sharing economy has expanded significantly since 2013. Though the traditional voice advocates that sharing economy brings out many benefits and return to improve the society and elevate the living environment with added technic support, some scholars remain skeptical and predict the vigorous invasion of sharing economy will cause more intractable problems and nuisances than its advertised welfare.

First of all, many argue that the sharing economy has caused legal problems. By this, scholars say that the inherent logic of sharing economy is not clear and sometimes self-contradictory. Yoon (2017) uses the case of Korea to assess the development of sharing economy and concludes that sharing economy can lead to breaches of current laws and further result in consumer protection, privacy, worker protection, and taxation problems. She suggests that Uber is violating the Korean passenger transport business while Airbnb is another violation of the Tourism Promotion Act which requires pre-registration to accommodate tourists at private homes. As a market of neoliberalism, the terms and conditions established by the platforms, have not been constructed well (McKee 2017). McKee proposes that such designation of internal regulations need to "include not only corporate law, contract law, employment law, and so on, but also—crucially—intellectual property law." (110). Hence, the system of sharing economy has not been comprehensively well evolved and need to be improved to be incorporated to existing legal ordinations.

Following the argument that sharing economy has flaws in its legal part, the loudest opposing voice surrounds on the issue of customer protection. Since the sharing economy is based on Information and Communications Technology (ICT), due to the absence legislation of personal information protection, it is unquestionably possible that "users personal information and location information can easily be abused." (Yoon 2017, 54). Therefore, consumers became more disadvantaged than in traditional transaction environment. The privacy concern also arises among consumers. By the definition in Stanoevska-Slabeva et al.,"privacy concerns not only include the use of data, but also social relations and approval, such as status, reputation, and stigma." (Stanoevska-Slabeva 2017, 13). The security of customer information needs to be well stored, instead of easily access by any public for commercial use (Xiao 2018). As such, scholars have been advocating that sharing economy platforms have to deal with the urgent problem in related to user privacy and reputation by crafting necessary new rules, and meanwhile consider whether revised provisions will be appropriate and positive for competition (Malhotra, Kim, and Agarwal 2004). Therefore, the advertised benefits for consumers need to be carefully re-assessed with more awareness paid to protect the demand side, especially the vulnerable social groups need to be thoroughly addressed and taken care.

Furthermore, one should not assume that these markets under the sharing economy are efficient. Those free market are more compatible with many forms of inefficient behaviors and distributive conflicts (McKee 2017, 108). Indeed, the distributive issues arising from peer platform markets are largely a function of the way private law rules interact with the informal norms established by the platforms themselves (McKee 2017, 112). For example, in order to use the platforms, one generally needs a credit card as well as internet access; in the case of

transportation platforms like Uber, a smartphone is necessary as well. At least in wealthy

countries, such prerequisites may be within reach of the vast majority of consumers. They

nevertheless have the effect of excluding consumers whose financial situation is more precarious.

In these cases, either deregulation or self regulation provides an appropriate response. They may

be in the sorts of externalities, and as a conclusion, self-regulation may not be the default

response to achieve efficiency. While the small businesses had the chances to develop, the

shortage of professionals in the workforce, which is due to the result that in a sharing society the

pool of skilled workers who are willing to commit to fit into a structured office schedule

becomes smaller, and thus will subsequently inhibit their growth (Orenburg 2018).

The critiques of sharing economy are not limited to the impacts on business, market, and

consumers, but also surrounding the inclusive development of society. For example, racial

discrimination may be exacerbated in a sharing economy. In an experiment on Airbnb, Edelman,

Luca, and Svirsky find that "applications from guests with distinctively African American names

are 16 percent less likely to be accepted relative to identical guests with distinctively white

names." (Edelman, Luca, and Svirsky 2017, 1). That being said, sharing economy platforms,

such as Airbnb's current design choices, indeed facilitate discrimination, and violates Title II of

the Civil Rights Act of 1964. The environmental value of sharing economy also remains

questionable. It is likely that sharing initiatives will have only a very limited or even no impact

on overall total emissions. The aggregate effect on entire emissions depends on the

environmental policy instruments used (Skjelvik, Erlandsen, and Haavardsholm 2017).

Therefore, those widely claimed benefits of sharing economy should not be confirmed yet

without long-term assessment, careful implementation, and timely rectification.

Based on the reviewing the past literary works that have performed a critical and objective evaluation of sharing economy from a different range of perspectives, it is clear that, since the existence and growth of sharing economy has not been long enough, the debate of sharing economy on the society continue to exist. Capturing the lessons learned from the debate of Sharing Economy, there still remains a question whether the sharing economy is more targeting on the more affluent areas or it is more used by the youth, or it is a friendly system to everyone in the society. However, in any case, the organization and regulation of sharing economy need to be revised to avoid and alleviate negative influences on consumers, market, sharing economy businesses/companies, and the entire community.

3. Sharing Economy and People

As its name indicates, behavioral change, describes how one's behavior in doing something or a routinely behavior has changed. In recent years, there have been growing interests in explaining behavior changes and evaluating such change. Those theories have also been applied into various fields, including health, education, criminology, and other fields, in the hope that understanding the behavioral change in a given study area/condition will improve the study services offered in the study area. Many behavioral change theories have emerged, trying to explain why behavior change happen, citing environmental, personal, and behavioral characteristics to determine and identify behavior change. The arguments of behavioral change offer different perspectives to diagnose the reasons for behavioral change that enable people to predict the changing trend of future behaviors. Scholars have used various methodologies to

assess and analyze behavioral change, and they will be discussed in this part.

The sharing economy has been found to have a lot to do with human's lives. A sign of sharing economy's impact could be behavioral change. Human behavior is always crucial to society's development. Behavior is the most critical factors in the urban environment (Porteous 1977). Porteous suggests a triangle model for the relationship between planning, behavior, and environment. According to his theory, there is an interaction between behavior and environment, while planning is the environment control tool that manages the change in context to make sure that it is in correspondence to human behavior. As for the interaction between human behavior, it is theorized that the physical and social environments will influence one's overt behavior, while human behavior provides a response to and further revises the built environment.

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                    ┌──────────────────────┐
                    │   PLANNING CONTROL    │
                    └──────────────────────┘

  ┌─────────────┐      Response      ┌──────────────┐
  │  BEHAVIORS  │  ───────────────▶  │ ENVIRONMENT  │
  │    Overt    │  ◀─Interaction───  │  Phenomenal  │
  │   action    │  ◀───Stimulus────  │   Personal   │
  └─────────────┘                    │  Contextual  │
                                     └──────────────┘
```
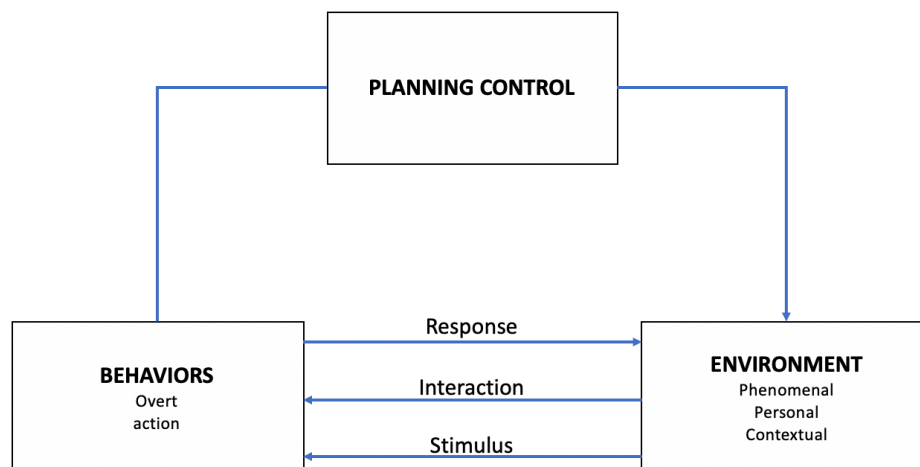
FIGURE 3.1 INTERACTIONS OF ENVIRONMENT, BEHAVIOR, AND PLANNING. (PORTEOUS 1997)

The city was built for man, and not man for the city (15). Before we modify configuration

of the world system, we should first understand the people, who are also the users and core of the city. Planners need to understand the behavior of the users of the environment as an essential input to design the built environment. Knowing that the national policy is proposing a sharing society for the country of China, studying citizens' behaviors' transformation under the sharing economy is for sure one of the most urgent tasks for planners to optimize the urban built environment as the living environment for city residents.

Wheeler's 2016 report of China's economy shows the enormous size of transaction volume of the sharing economy market which indicates that such impact in human behavior may be influential. As demonstrated, the sharing economy phenomenon has significantly shaped the country, especially taken a crucial role in the economy, and some sense that the technologies are retouching citizens' behaviors. The rising of sharing activities, including sharing manufacturing (business share their manufacturing costs and produce with shared resources), sharing living space, sharing office space, sharing transit modes, and other sharing facilities, have already significantly advanced living environment but also brought up other unsolved uncertainties.

Some previous studies have already attempted to quantify and qualify the existence of behavioral change under sharing economy. M. Abdar and N. Y. Yen (2017)'s study emphasizes on impact of sharing economy on human behaviors using the case of Airbnb, identifying the change on preference on travel destination; and choice on the type of accommodation, caused by the application of sharing economy.Though traditionally the principle that sustainability, enjoyment, reputation, economic benefits as primary factors, and consumer attitude as a separate factor, are contributing to customer behavior, was accepted, Buda and Lehota (2016) adds credibility and quick response to this list, because their study results demonstrate that two factors

also affect customer behavior to a large extent, especially under sharing economy. Though not confirmed, the topic of whether sharing economy has an impact on human behavior has been proposed.

There is a wide range of theories in explaining behavioral change. One of the most popular hypotheses is called Learning Theory, also known as Educational Theory. By Learning Theory, learning is the acquisition of a new behavior through conditioning and social learning (Phillips and Jonas 2009). Learning Theory proposes the concept "Transfer of Learning," which explains that one learns from school or other environments will carry that knowledge over to different situations from that particular time and setting and gradually incorporate that knowledge into their mind and ultimately changes his or her behavior (Kliebard 1975). According to the Social Learning/Cognitive Theory, behavioral change is determined by environmental, personal, and behavioral elements (Bandura 1977). Bandura's definition clarifies that each factor affects each of the others, so they are mutually influenced and connected. The core of the Social Learning Theory is that the reciprocal interactions between environmental factors, personal factors, and behavioral elements, altogether lead to behavioral change. One trending theory currently in behavioral change is the BJ Fogg Behavioral Change Model. This model's premise is that behavior is composed of three single characters: motivation, ability, and triggers. All these factors need to be present to incur a behavioral change. In other word, Fogg Behavioral Model suggests that one's behavioral change needs to be motivated, to be capable of performing the behavioral change, and of having a trigger to take place (Eijk 2015). All these theories or models have evidence of successful cases and provide a clue to understand, analyze, and predict behavioral change in a given environment.

To define and understand the existence of behavioral change, there are mainly two ways: quantitative analysis and qualitative approach. By the Suen and Ary's book *Albert Analyzing Quantitative Behavioral Observation Data* (1989), observation is one of the most accurate and convenient methods to measure behavioral change. Behavioral Observation Research is carried out following three stages: sampling, measurement, and statistics, all of which will further validate and substantiate the accuracy of the result, regardless of the potential confusion that may be generated. (*Albert Analyzing Quantitative Behavioral Observation Data* 1989, 8) In a quantitative observation study, the research usually breaks down a complicated phenomenon or behavior into some measurable and observable behavioral variables, which are later grouped and translated to the statistics to quantify the behavioral study change (*Albert Analyzing Quantitative Behavioral Observation Data* 1989, 5).

Instead of observation, conducting quantitative measurements for validating behavioral change may take place by using indicators that are reflective of the behaviors studied from existing datasets. For example, Mullaly (1998) uses the quantitative summary data of home energy use to measure home energy use behavioral change. Mullaly uses the usage data as an indicator to inspect the home energy use behavior, while using bank data and demographic data to analyze the quantifiable savings, building the correlation between the factors in her project. This is also called multivariate statistic approach, which is strongly recommended by McKenzie-Mohr & Smith (1999). The quantitative approach provides a numerical value of the extent of behavior change and can be easily replicated, while can be inaccurate especially when the data collected are misleading and too rough.

As for the qualitative approach, observation can also be used to collect quantitative and descriptive data for behavioral change measurement but used a different way. The qualitative approach usually offers the investigator a more in-depth understanding of the study behavior. (McKenzie-Mohr & Smith 1999) The observation of that behavior takes place without prior judgments, hypothesis, or preconceptions (6). The most recommended qualitative observation is that the observer to be a participant of the social group being observed. By using qualitative observation, the interpretation stage is the most critical step (Geertz 1973). Biased interpretation can lead to the failure of the whole project. Therefore, the observer is supposed to have a comprehensive knowledge of local ethnography as well as local anthropological information, to be able to understand the local culture. Only, in this case, the researcher will be objective in observation result interpretation and produce correct conclusions.

Qualitative resources of behavioral change may also come from interviews and other descriptive documents. Interviews can take at the most public area with participants and can collect detailed responses from participants. The pros of doing an interview are obvious and supplementary to the observation method because the interview questions can be something hard to observe but necessarily needed to understand the behavioral change (Podesva and Sharma 2016). The interviews can also be specific to specific service, behavior, or focus group. (155) Also, descriptive documents can be used to provide historical information for the study, as used in Mullaly's research.

However, interviewing can be inaccurate sometimes because it is likely to promote behavior change and result in inaccuracy of interview responses. It is possible that conducting interviews with participants will evoke their thoughts and ideas, empowering the participants to

achieve favorable behavior change autonomously (McNeil et al. 2017). Therefore, how to set appropriate interview questions that will only reflect the real thoughts of the individuals is the crucial step to conduct successful interviews without promoting any change in participants.

Learning from these works and previous case studies on exploring and measuring behavioral change, both quantitative and qualitative methods are available and can be accurate in different situations. Observation seems to be the most prevalent approach used in identifying behavioral change. Given the nature and requirements of observation, it is also the most suitable approach for almost any environment. If necessary, the researcher may choose to collect and utilize use other statistical data, conducting interviews, looking up historical, descriptive information, and further incorporated them into the study to additionally endorse the accuracy of a behavioral change study.

4. Summary

The literature reviews past works including the concept and development of sharing economy, the evaluation of human behavior and behavioral change, and the interaction between human behavior and built environment. The previous review has provided a solid basis for understanding the sharing economy and shed light on various methods applicable when collecting human behavior data and validating the behavioral change. That story of human behavior and built environment will remain a continuous unclear story. Although there exists plenty of resources focusing on how sharing economy has changed people's behaviors in certain aspects, such as commuting and traveling, or how sharing economy has altered traditional

industries, very few work connect the general behavioral change happening among crowds with the sharing economy phenomenon in a encyclopedic way. Hence, this thesis will advance the knowledge of sharing economy by studying the aggregate influence of sharing economy on human behavior.

IV.   A NATIONAL-LEVEL INVESTIGATION

Sharing Economy has penetrated into every aspect of life. Its explosive growth has astounded even optimistic market pundits. By far, there have been many thousands of sharing economy platforms operating in almost every sector and activity around the country. On the upside, the sharing economy is increasingly seen simply as part of "the economy", which may be the ultimate sign of the sharing economy's success. We can also expect to see increased regulatory awareness and, occasionally, even sophistication. By far, China's sharing economy clocked up $500 billion in transactions by 600 million people last year, according to official figures, around nine times U.S. user levels (Campell 2018). And with officials predicting a 40% growth rate, the sharing economy should comprise 10% of China's GDP by 2020, rising to 20% by 2025 (25). Understanding the national development trend of sharing economy is necessary to understand how the sharing economy, the major impetus for the nation's development, may have shaped people's behaviors and whether such impact will continue to burgeon in the future.

Therefore, it is critical to take a look at the national-level sharing economy in China first. Secondary data analysis is used with existing data to investigate to respond to the research questions. As the published work argues, the main advantages of studies that rely on existing data as secondary resources for analysis are speed and economy (Campell 2018, 192). As for the sources of such information, the secondary data sets may come from a wide range of work, including published reports, public database, and many other sources, including researches studies, which is usually one of the most abundant sources of secondary data (193). The specific resources used here will be described in detail before they are being referenced here as

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supportive pieces of evidence in the following paragraphs. The analysis is carried out by industry, in corresponding to the three divisions of sharing services—transportation, hospitality, and customer-based services.

1. **Transportation**

Globally, the transport and mobility sector is undergoing a holistic transformation, due to technological innovation, new business models, changing customer demands and political pressure to tackle environmental challenges. One possibly very sustainable development has been the growth of ride- and car-sharing services within the last years. In China, car ownership rate is still very low, e.g. when compared to Germany (Schipper, Ng, and Chen 2010). Their study found that, although car density in China was only about a fifth of that in Germany, it does not mean that Chinese roads were not jammed (Schipper, Ng, and Chen 2010, 8). According to the 2017 Tom Tom Traffic Index (2018), 10 of the 25 most congested cities in the world were in mainland China: Chongqing, Chengdu, Beijing, Changsha, Guangzhou, Shenzhen, Hangzhou, Shijiazhuang, Shanghai and Tianjin. To solve the severe traffic issues, the Chinese government promotes the development of a low carbon and "green" transport sector, of which shared mobility is a key to ensure more sustainable transportation systems (Huang 2018). Hence, the ride sharing has been accepted widely in the country and have been gradually integrated into the transit system.

To understand the shared mobility in China, I looked at the usage of DiDi Chuxing, which is the company in the country that operates the largest sharing platform to match drivers

and riders to provide ride-sharing alternatives in addition to traditional transit modes (Lopez 2016). Didi Chuxing was launched by Beijing Xiaoju Technology Company which was established in June 2012, and officially launched operations in Beijing in September

FIGURE 4.1 A USER HOLDING A SMARTPHONE WITH A DIDI CHUXING APP.
(HTTPS://WWW.CNBC.COM/2018/08/29/UBERS-CHINA-COUNTERPART-DIDI-CHUXING-FACES-SOCIAL-MEDIA-BACKLASH.HTML)

(Lopez 2016, 6). Since Uber was abandoned in China, Didi started to spread by providing nearly identical ride-sharing services. The DiDi platforms are known as Peer-to-Peer (P2P) platforms. By the year 2015, the total amount of orders for DiDi platform has reached 1.43 billion, which is even equivalent to nearly twice the total orders of all taxis in the United States in the year of 2015 (5). Till recently, Didi has fully grown from a taxi-hailing software to a one-stop travel platform covering taxis, carpooling, chauffeur, car rental and other mobile transportation services, and have a large amount of loyal customers across the country (6).

To boost the development of the company, the institute called DiDi Labs - Intelligent Transportation Technology & Security, was later founded for the hope to make use of the data from all DiDi Trips, to gain better understanding of the urban development, transportation demand and behaviors, as well as to study other information of urban environment from a new perspective. According to the *Didi Chuxing Corporate Citizenship Report 2017* that was released

by Didi Labs last year, the company had provided diversified transportation options to 450 million users in more than 400 cities. The amount of daily rides has reached up to 25 million, and 1.05 billion seats were shared by DiDi's two core carpooling services, Hitch and ExpressPool. The report forecasts the future of the company as well as the ride-sharing environment in China, arguing that they are providing valuable services to the country by proving 6.2% of employment opportunities in China's tertiary industry in 2016. Given the fact that Didi is inviting new green emission cars, the ride-sharing industry that has been growing rapidly is anticipated to expand continuously under government's support for eco-friendly traffic environment.

Biking has been a traditional commuting mode in China since last century. Bicycles were such a vital part of everyday life that in the 1970s, owning one was a prerequisite for marriage the way an apartment and a car are for Chinese men today. As introduced, Chinese metropolises nowadays have some of the worst traffic gridlocks in the world, which may be attributed to the fact that the government created bicycle-reduction policies in order to encourage the growth of the auto industry and usage of the mass transit infrastructure from 1995 to 2002. Subsequently, local authorities struggling with traffic have been trying to put residents back on two wheels. In the last decade, bike-sharing have come in shape, which seemed seemed poised to be the solution. As early as 2007,
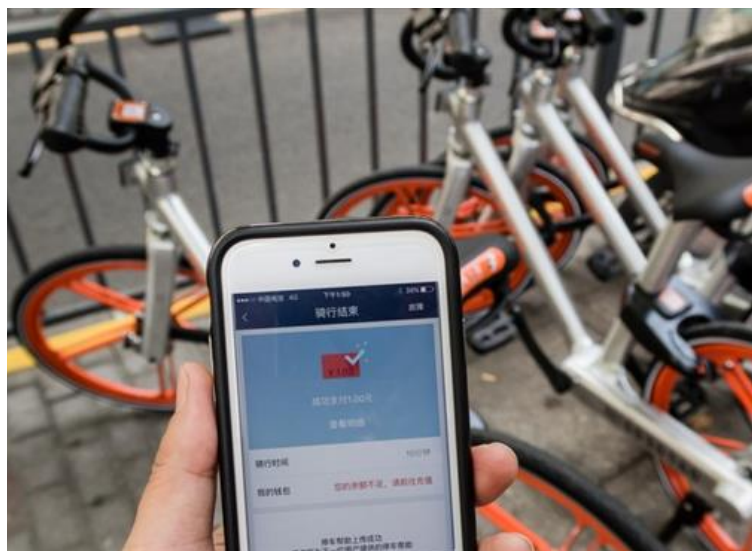
FIGURE 4.2 A USER HOLDING A SMARTPHONE WITH A MOBIKE APP. (HTTPS://WWW.PRESSTV.COM/DETAIL/ 2017/02/07/509459/CHINESE-STARTUP-BIKESHARING- APPS)

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docked bike-shares were introduced by municipal governments to alleviate mobility issues in cities such as Beijing, Hangzhou, and Wuhan, but users found accessing bikes via docking stations to be inconvenient, and the services failed to thrive (Huang 2018).

In the past three years, thousands of hundreds of bikes were poured into China's streets by the private sector. Bike-sharing became a heated topic and more investments have been put on that. Different from traditional mostly leisure-oriented bike rental services, bike-sharing systems are innovative programs of providing rental of free bicycles in inner urban areas. It was believed that sharing bikes were helping to solve the "last mile" problem: getting people between public transport hubs and home (Kwon and Yoo 2013). According to Campell (2018), around 60 firms have put 16-18 million bicycles onto Chinese streets. Zhang (2017) founds that, sharing bike characteristics in China used in the morning peak and evening peak hours. In addition, she argues that the demand for sharing bike is the highest "where population density is the highest and urban activities are concentrated." (24). Although there is no specific orientation of trips found, Zhang concludes that the bike trips are short distance trips within or between adjacent zones, which confirms that public bike trips have already largely substitute for walking trips, compared to car trips or other public-transport trips (25). It is at least safe to draw a conclusion that sharing-bike provides a popular alternative to cars or other modes of transportation, particularly for the last-mile trips, and is changing people's preferences for transit, at least short-distance trips, due to the nature of biking.
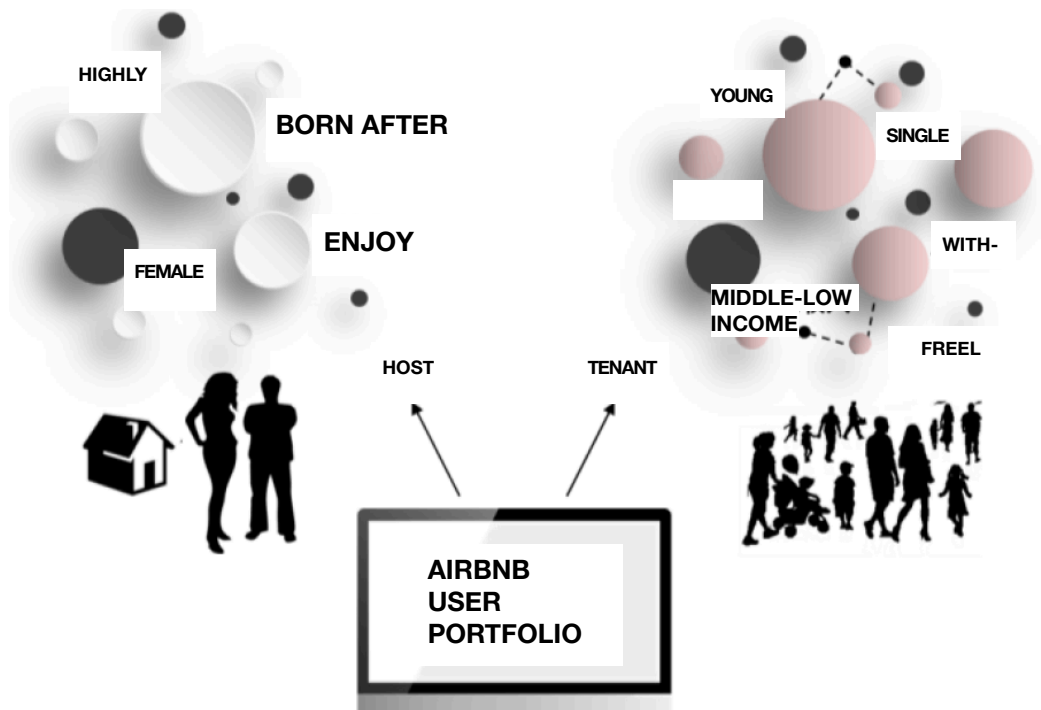

2. **Hospitality**

	Amount (2017)	Change% Compared to Last Year
Transaction Volume	145,000,000,000 CNY	70.6%
Number of Units	3,000,000	/
Orders (Airbnb)	3,300,000	205%
Participants	78,000,000	320%
Financed Amount	54,000,000 USD	180%

Table 4.1 Facts of Sharing Accommodation in China (data from *China Sharing Accommodation Development Report 2018)*

After looking at the means of transportation under sharing economy, I then look at Airbnb data for sharing accommodation as a form of hospitality industry. The primary statistic data comes from the *China Sharing Accommodation Development Report* (2018). According to this report, in the year of 2017, the size of sharing accommodation transactions was about 14.5 billion yuan for the entire country. As for the study city Hangzhou, there was an increase of 70.6% in the total volume of sharing accommodation in 2017, over the previous year 2016. By the end of 2017, the amount of financing for sharing accommodation has already achieved almost three times the amount during the last year. The result of the report also briefly describes the user profile in sharing accommodation. The landlord who participated in the sharing housing is usually younger and have higher education. Also, The main force of the landlord is female. As for the tenants, the report suggests that tenants are mainly students, office workers, and freelancers. Among all tenants, more than 70% of the tenants are aged between 18 to 30 (*China Sharing Accommodation Development Report* 2018, 84). The traditional industry of accommodation has been largely challenged, in fact of the rising sharing accommodation.

The Airbnb case study in the *China Sharing Accommodation Development Report* further interprets the change of sharing economy on the users as well as the local community. As the

feedback collection from the guests living in Airbnb indicates, it shows that 84% prefer Airbnb

for the more authentic local touristic experience and much better convenience than hotels. (10) In

terms of improving the local neighborhood, the report finds that it shows that more than 40% of

the tenants' spending when stay at the Airbnb accommodation goes to the local community, and

more than 50% of the tenants spend the money they saved by choosing Airbnb Accommodation

instead of hotel lodging in the district. (13) In other words, the sharing service provides more

return to the local economy that can be used for future community improvement and

infrastructure development. Given the advantages of convenience, economy, and less carbon

emission, more than 66% of the tenants agree that they would continue to choose Airbnb for their

next trip destination. (15) Therefore, the demand for sharing accommodation is expected to rise,

HIGHLY

BORN AFTER

ENJOY

FEMALE

YOUNG

SINGLE

WITH-

MIDDLE-LOW INCOME

FREEL

HOST

TENANT

AIRBNB
USER
PORTFOLIO

FIGURE 4.3 AIRBNB USER PORTFOLIO FOR CHINA. *(CHINA SHARING ACCOMMODATION DEVELOPMENT REPORT)*

and it is the time that the hotel needs to consider other motivations to attract tourists to come back and stay in hotels.

Furthermore, the sharing accommodation that is the most prevalent in current Chinese city is the rising sharing apartment among young working professionals. More and more people switch to sharing accommodation instead of signing contracts with landlords or agencies. (22) The sharing accommodation agencies make use of the idle resources of residential units by building online communication and trading platforms where users can book their stays, usually long-term stay that is longer than a month, in a more straightforward way. The feedback of the users also suggests that the users do prefer such sharing accommodation because they feel it is more friendly and cost-effective to stay in these sharing accommodations. (27) Therefore, there has seen an increase in the sharing accommodation units available in Hangzhou, and more working professionals may switch to this trending option.

3. **Customer-based Sharing Service**

Sharing workspace is one of the most popular customer-based sharing service. *China's Sharing Workspace Industry Market Prospects Research Report 2018* points out that there are currently more than 300 sharing office platforms in China. The total number of workspace locations has already exceeded the threshold of 6,000, and the entire operating area is about 12 million square meters and offering more than two million job opportunities. In the end, the report also emphasizes on that the popularity of sharing workspace will continue, and the entire market size is expected to exceed at least 60 billion at the end of 2018, and will even go over to more

Chart 4.1 2013-2018 Sharing Workspace Market Size in China
(China's Sharing Workspace Industry Market Prospects Research
Report 2018)
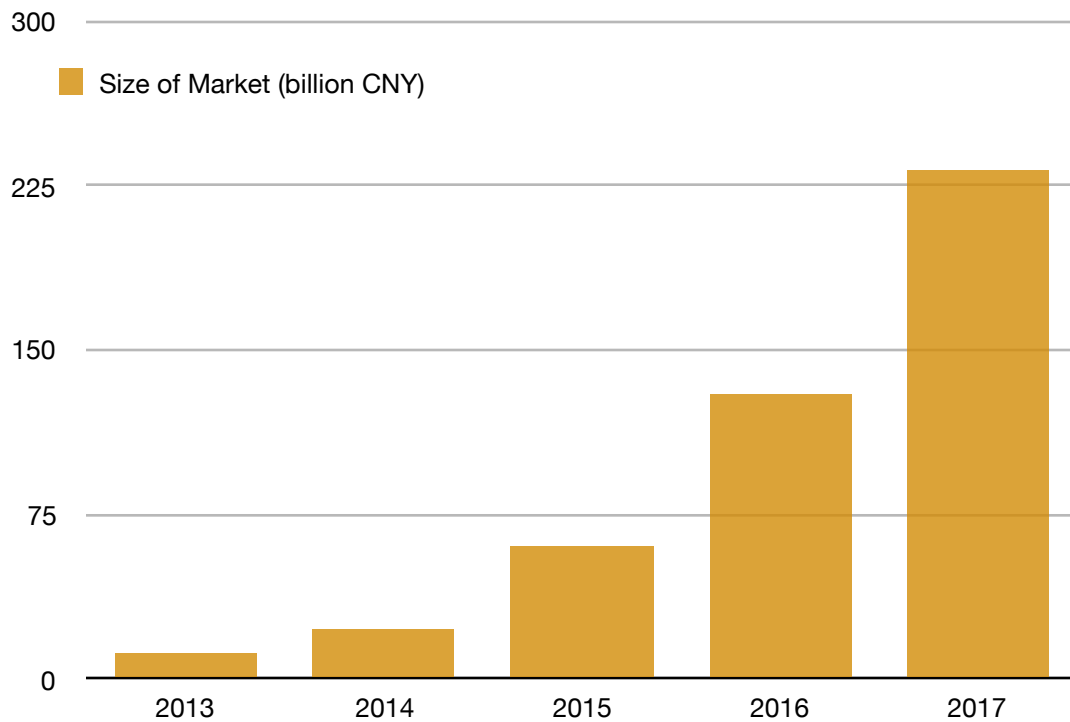
than 230 billion no later than 2020. (see chart 4.1) Although by far the sharing office is

developing rapidly in first-tier cities such as Beijing, Shanghai, Guangzhou, and Shenzhen, the

report shows that second-tier cities such as Wuhan, Tianjin, Qingdao, Chengdu, Hangzhou,

Suzhou, and Nanjing will be the critical areas for the future expansion of sharing office space

(*China's Sharing Workspace Industry Market Prospects Research Report* 2018, 18). From the

report, the prospect of sharing workspace is very appealing, and its growth will shift the current

designation of work space and corresponding leasing contract, and ultimately lead to the change

in demand for work space and the human behavioral change as well in the long term.

Moreover, it is found that people born after 1980 do prefer this kind of work

environment, who has a spirit of the Internet and looks for a sense of equal and collaborative

working environment. (*China's Sharing Workspace Industry Market Prospects Research Report*

2018, 35) As for the future of sharing workspace, for traditional real estate companies, sharing office means higher volume of people flow, indicating an upgraded development options for real estate projects. From this sense, sharing workspace will also spawn new business models. As the report proposes, it is like that there will be intelligent unlocking system, non-inductive punching, intelligent membership systems, and even supporting facilities, which demonstrates the imaginary space for the future development of related industries.

4. Issues

Other sharing services are also prevalent in major cities in China. However, there are many problems associated with the trending sharing services. In the case of sharing umbrella, just like sharing bike, the user only needs to use the umbrella by scanning the QR code on the terminal

FIGURE 4.4 OTO SHARING UMBRELLA IN SHANGHAI (HTTP://WWW.SOHU.COM/A/152192296_313480)

machine to obtain the password according to the page prompt, then take the umbrella after the deposit is recharged and finally return it to any other terminal. Unfortunately, things did not go well as expected. In Shanghai, one of the top metropolitan city in China, at the beginning of June, OTO who launched the first shared umbrella program with 100 shared umbrellas in Shanghai, did not find any umbrella return back at the end of the day (22). This case taught the

sharing service providers a lesson on how to ensure the circulation of sharing facilities for sustainable use. Learning from this story, the government also should be aware of the need to support education to advance people's quality. It also suggests some potential risks of implementing sharing services universally in the country.

At the same time, the sharing economy has also resulted in some unintended consequences. While the sharing economy has grown by leaps and bounds in China in recent years, it hasn't been without challenges. There have been reports of opposition from taxi groups and hotel organizations to transportation and housing sharing economy companies. (宋静丽 2019) It is possible that some parts of the sharing economy are involved in a form of creative destruction. Many concerns have emerged from the water, such as the safety problems of ride-sharing, and the management of airbnb short-term rentals in private communities. Therefore when the Chinese government legalized Didi, it asked that the company meet certain conditions — including seeking permission in each city where it wants to operate. While there are still many issues that need to be resolved in China's growing sharing economy, especially in terms of legality and security, sharing projects still seem to be promoting job growth and providing a robust platform for workers and entrepreneurs from various professional backgrounds, and that provides a ground for the further spreading of sharing economy in the country. As such, it is clear that it is necessary to understand the traps in sharing economy and to avoid them in order to optimize the utility for both users, providers, and the country as a whole.

5. **Conclusion**

Obviously, Sharing economy in China has become a national trending phenomenon that penetrates into every aspect of one's daily life. People have been offered sharing services with much more advantages than the services they used to rely on, and such strong bonus certainly has convinced a large number of users to shift to use sharing facilities. The sharing furor is also enabling more judicious use of private and public resources. Regarding the collected data and the secondary resources used, it is evident that sharing economy does have successfully infiltrated into most aspects of a person's everyday life. Effects of sharing enthusiasm are already evident. Most prominent is the boom in the service sector. Mobility is evolving with ride-hailing, hospitality is transforming with accommodation-sharing, and startups are succeeding by using facilities provided by established manufacturing units.

To be specific, although all these traditional industries have been challenged by the emerging sharing economy due to the more intense competition, the specific impacts on different industries vary. For the transportation industry, a very positive sign is that the previously under-used vehicles are more efficient than before. It is also much healthier than before since the new modes will pollute less and be more green to the environment. Sharing bikes particularly save people's time and efforts for their last-mile trips, and altered the travel patterns for short-distance trips. As for hospitality aspect, sharing accommodation has offered more opportunities to local community development and more integrative travel experience, which makes the traditional hotels on the hazard. The other customer-based sharing services offer more services which give more options to people to live the way they want, with an emphasis on lower cost and convenience that is very appealing to the middle and young aged users. Overall, the traditional industries have been placed at a dangerous spot where they have to evolve to change to cater

better the various needs of users and to compete with the new businesses. From the market perspective, sharing economy adds more vitality to the field since it promotes the small and new businesses to join and share the market with the traditional providers.

Besides the fact of traditional industries being challenged, one thing that is worth mention here is that sharing economy totally changes the previous relation between supply and need, between the service providers and customers, as a result of a more open market environment. As said, small and new businesses have emerged to take a share of the spoils, which indicates that small-scale investment in those industries become possible. Previously, customers have been more limited to the products that are offered by the suppliers, even the products are not exactly what the customers were looking for. However, competition become more intense now, and with the small-scale investments in the game, there will be many possibilities of different products. The previous large dominant firms will need to really capture and understand the real need of end users and adjust their products correspondingly, which promote the efficiency and quality of products. The market will become more healthy under the competitive rivalry among businesses. Such impact further emphasizes on the profound challenge in front of the traditional industries. Yet, such impact could be positive to the society as it will not only provide a larger pool of varying products but also encouraging business to be creative and more attentive to the needs of customers.

Moreover, small-scale investments are more innovative which make the economy more lively. Sharing economy satisfies the needs of the market to optimize resource allocation, and deepens the fields of food, clothing, housing, transportation and etc. With the implementation of regulatory policies, the reshuffle of the sharing economy has ended, and the market has gradually

entered an orderly growth period. From the national perspective, an economy with more players are for sure more strong to resist external shocks. Hence, confidently speaking, the coming of sharing economy will adds to the stability of the country's economy, with the more flexible capital and creative ideas. At the same time, the rapid development of the tertiary industry and the expansion of service-oriented consumption under sharing economy reflect that the comprehensive technical services backed by service-oriented consumption, such as logistics, information technology, financial insurance, and legal services, have also achieved significant development. Such healthy technical environment will further be conducive to speed up china's economic restructuring.

However, there are also some issues that need to be addressed. In addition to the maintenance and implementation of certain sharing services as discussed, the phenomenon of homogenization in the sharing economy is more sever. In some industry, the characteristics and advantages of the enterprises are not obvious, and the threshold of platform technology is low. Thus the market competition may evolve into a capital game. The lack of competition barriers will bring instability to the formation of the shared economic industry, and may also exacerbate the phenomenon of vicious competition.

Moreover, at present, some sharing economy enterprises are still in the development stage of burning money, and the operation relies on financing to maintain its operation. The business model of some industries remain not clear, and the lack of diversified profitability is a common problem in the sharing economy. Consequently, whether it can be separated from the capital "transfusion" is the key to the ultimate success.

As the usage of the previous services that were either services or goods which are provided, owned and maintained by private companies or municipal government, or belongs to the individual, have been confirmed to decrease, while at the same time, the usage of sharing service was in the trend of growing and is now expected by industrial experts that this growth will at least last for the upcoming 5-10 years. Consequently, it is without a doubt that when China is turning into a global pioneer and innovator of sharing economy, the sharing economy has already changed its people by attracting them to the services provided by the sharing platforms and make them abandon their previous preferences on services and goods. Knowing that the growing trend of sharing economy will not stop in the near future, the need of capturing the impact of sharing economy on general public is eminent.

V.   INDIVIDUAL BEHAVIORAL CHANGE IN HANGZHOU

Sharing economy, as a new form of economic development, has been later accepted and encouraged by local governments, including Hangzhou Municipal Government and Zhejiang Provincial Government. Both governments have established supportive policies to attract sharing economy businesses to promote sharing economy, as well as to encourage the integration of information technology into every aspect of city development. As the center of electronic commerce in China, the information technology is another advantage of the city (Qin 2014). Alibaba Group, specializing in e-commerce, retail, Internet and technology, one of the largest Internet and AI companies, one of the biggest venture capital firms, and one of the biggest investment corporations in the world, is established, developed and headquartered in Hangzhou (Clark 2018).

In corporation with governments and multiple companies including Alibaba with specialities in AI technologies and other information technologies, the urban living environment in Hangzhou has been greatly enhanced by information technology support. Since sharing economy is tightly related to and supported by information technology, subsequently the city has seen the quick growth and emergence of sharing economy business in the area (Sun 2018). Till now, Hangzhou is deemed as one of the cities in China that have the most active and large amount of sharing economy activities (Dong 2018). Hence, choosing the city of Hangzhou as the study area will at least allow the thesis to be able to perceive and analyze the sharing economy activities, where there should be enough information that can be be solid enough to discuss

whether or not sharing economy has changed human behaviors and lifestyles, as the sharing economy market has been quite stable, active and fully developed.

Since the data collection and analysis of sharing economy will be conducted from three aspects—transportation, hospitality, and consumer-based services, it is necessary to have some basic knowledge of these three fields in the study city Hangzhou. The primary transportation modes available to users in Hangzhou include public bus, subway, public sharing bicycles (owned and maintained by the government since 2008), boats, walking, airplane, train, and personal vehicles (including private cars, bikes, and motors). (*Hangzhou Yearbook 2017*) As one of the top popular travel domestic destinations with growing popularity among world travelers, the tourism industry in the city has been promoting significantly, as one of the industries that provided the most taxes. (Jia 2018) As a result, the quality and quantity of accommodation under the theme hospitality available to tourists have been primarily elevated.

As for consumer-based services, thanks to the prevalence of information technology in everyday use, there have developed many sharing economy businesses that focus on providing consumer-to-consumer (C2C) and business-to-consumer (B2C) services, providing convenience to residents. (Chen 2010) Those services provided cover from health care, workspace, personal goods, and other industries. Sharing economy from listed industries and fields will be carefully investigated and assessed in the following sections using quantitative methods to validate if the sharing economy imposes a change on people's lifestyles by modifying human behaviors.

1. **Transportation**

- *Counting Observation*

FIGURE 5.1 PUBLIC BICYCLE OWNED BY GOVERNMENT IN HANGZHOU
(HTTP://WWW.WORLDWIDECYCLINGATLAS.COM/INITIATIVES/HANGZHOU-PUBLIC-BIKE-SHARE-SCHEME/)

As for transportation services using sharing platforms, I decided to look at sharing bike in Hangzhou. There are mainly two kinds of sharing bikes in major Chinese cities, including Hangzhou: one is operated and owned by government and is accessible to all user with a residence card or a prepaid card, another is operated and owned by a company and is available to all users as long as they borrow the bike by using the company's APP on their phones. Since that kind of service is unqualified as sharing economy's service due to its government-ownership, by the definition of sharing economy, and is not much relied on information technology, I conducted counting observations of sharing bikes' that are owned by private companies and build on the sharing platform on the internet.

FIGURE 5.2 A PERSON RIDING MOBIKE IN HANGZHOU, A PRIVATE COMPANY OWNED SHARING BIKE.
(HTTP://WWW.WORLDWIDECYCLINGATLAS.COM/INITIATIVES/HANGZHOU-PUBLIC-BIKE-SHARE-SCHEME/)

The counting results of the study from these three study locations are different. For the three sites, I have the counting summary of all bikes used spotted during the observation time: 300 in Shangcheng, 221 in Xiaoshan, and 200 in Fuyang. The total number of bike usage here indicate that the study location in Shangcheng District is probably the busiest location among the three. The total amount of private-company-owned sharing bikes used is the highest in Shangcheng District with a total number of 213, where the development level is also the highest compared to the other two (168 in Xiaoshan District and 144 in Fuyang District). Moreover, the counts of government-owned sharing bikes in these three locations also follow the same highest-lowest sequence(38 in Shangcheng, 11 in Xiaoshan, and 5 in Fuyang). Still, there are still people

who use their bikes: 49 in Hangzhou, 42 in Xiaoshan, and 51 in Fuyang. The amount of individual bike usage in the three study locations are similar, but the percentage of riding a personal bike is the highest in Fuyang District, which counts for 25.5% of all bike usage.

	Bikes Spotted	private-company-owned sharing bike	government-owned sharing bike	Personal Bike
Shangcheng District	300	213	38	49
Xiaoshan District	221	168	11	42
Fuyang District	200	144	5	51

Table 5.1 Counting Results of People Riding Bikes in Hangzhou

Similarly, my takeaways from the second try of observation share the same result with the counting observations' output. Opposed to my previous assumption, not only people in suits use private-company-owned sharing bikes to use, there are a considerable amount of senior people and students using private-company-owned sharing bikes. During my entire observation progress, I did not catch any crash of shared bike, nor did I find anyone finds his or her bike broken. Therefore, it may be interpreted in that way that private-company-owned sharing bike users are all satisfied with their user experience. The detailed observational results will be elaborated in the qualitative section later.

- *Covert Observation*

The observations of the sharing bike activities, as introduced in the previous data collection progress, did find something interesting between sharing bike and sharing biker users. The most important finding was that most of the users identified in the observation period did not have any problems in riding their sharing bikes. There were more than hundreds of people

starting or ending their sharing bike trips from or at the plaza, but neither their renting procedures nor their returning procedures seemed to take longer than two minutes. People were quite familiar with the sharing of bike rent-return procedures, which also confirms that these users have been using sharing bikes for a while so that they were already used to the sharing facilities. Also, since they were still using sharing bikes, instead of other transit modes, we can at least argue that their experience with sharing bikes was satisfying so that they have abandoned previous transit alternatives to ride sharing bike for transit.

- *Existing Resources Analysis*

In terms of car-sharing industry in the city, according to the published analytical report *Didi Big Data Report: Hangzhou* by DiDi Labs in 2016, using the data from 2016.1.1 to 2016.6.30, for the first half of 2016. The utility rate of sharing a car, which is calculated as the total volume of DiDi sharing car travel trips by the region's total population of current residents,
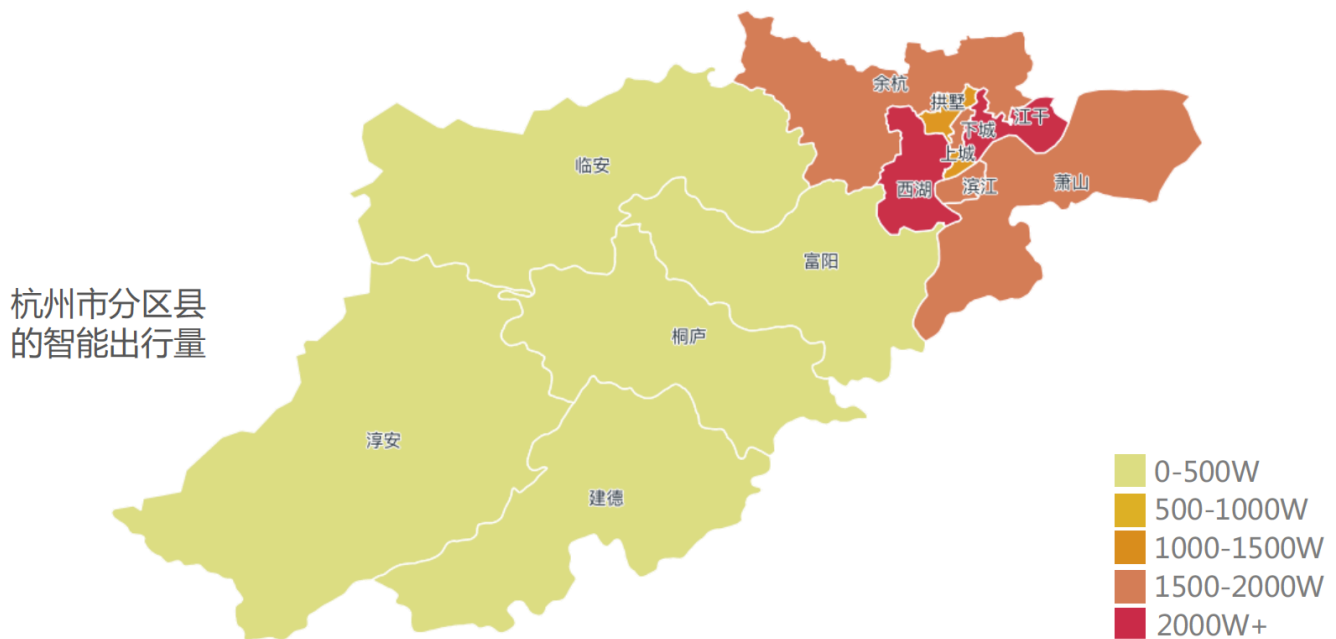

FIGURE 5.3 DIDI USAGE BY DISTRICTS IN HANGZHOU, 2016. *(DIDI BIG DATA REPORT: HANGZHOU 2016)*

ranked Hangzhou the highest with the percentage of 80% in all cities in China. (*Didi Big Data*

Report: Hangzhou 2016) This result by the DiDi Labs is also in consistency with the previous

discussion that the sharing economy has been the most widely used in Hangzhou. As the user

profile picture of the report indicates, more 70% half of the consumers are people born in years

later than 1980, and the majority of the sharing-ride users are internet practitioners, software

developers, workers from the service industry, real estate professionals and financial industry

experts.

Chart 5.1 Age Distribution of Didi Trips in Hangzhou
(2016.1-2016.6) Didi Big Data Report: Hangzhou
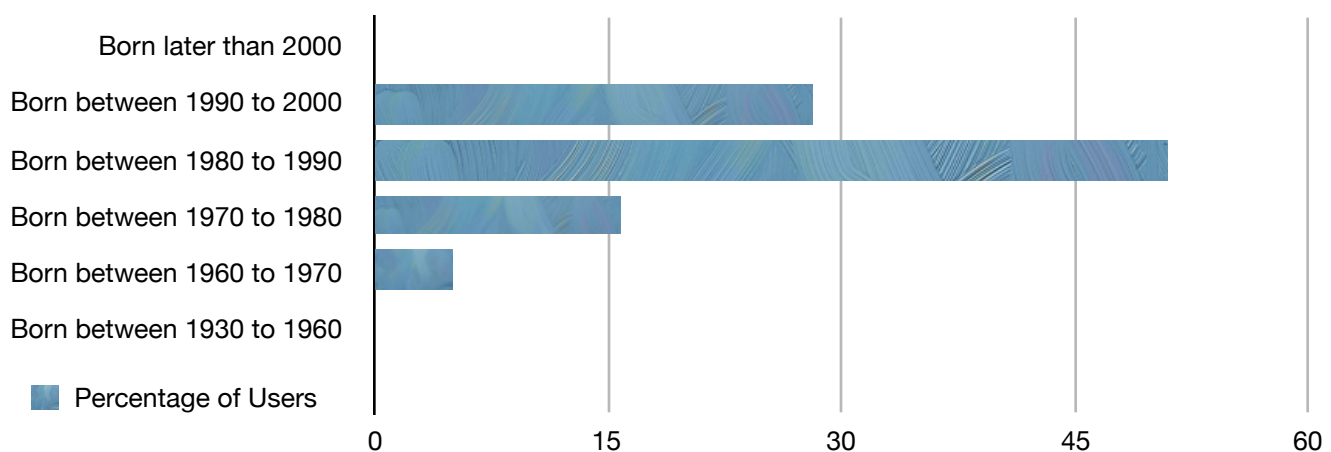
Similarly to the sharing bike usage distribution across the districts in the city, the report

also points out that rider-sharing is mainly distributed in the central area of the city, namely Xihu

District and Jianggan District, where the amount of car-sharing ride is the highest. (*Didi Big*

Data Report: Hangzhou 2016). The map showing the daily ride-sharing trips in Hangzhou

further supports this idea, because the areas that are the most visible are also the most urbanized

area. However, given the much denser population distribution in those central districts, this

evidence may not be strong enough to support whether higher level of urbanization necessarily

FIGURE 5.4 DIDI SERVICE AREA IN HANGZHOU. *(DIDI BIG DATA REPORT: HANGZHOU)*

directly encourage higher level of sharing service use, because higher level of urban development will have higher population who generate higher demand for sharing facilities.

The convenience provided by DiDi Chuxing saves one's time of waiting to be picked up from around 20 minutes to no more than 6 minutes. According to the *Didi Big Data Report: Hangzhou*, in peak hour (7-9 in morning and 17-19 in evening), it finds that residents in the study area became more and more relying on ride-sharing, which make the total trips by Didi (902 thousand) even exceeds the total trips of Taxi (867 thousand) in a year. Also, such a gap is predicted to become even more significant in future years since there will be more supply of ride-sharing and a higher rate of successful car-sharing, as advertised by Didi Chuxing. Other advantages of car-sharing are also mentioned and validated in the report, including the advertised reduced carbon emission and increased employment opportunities in the labor market.

2. Hospitality

- *Counting Observation*

As for hospitality, unfortunately, the method of counting observation was not used for quantitative purposes because sharing communities' management did not allow me to do counting or quantitative observations. However, I did receive some information from the management offices, and those statistical data will supplement the quantitative data analysis of sharing accommodation in Hangzhou in the next upcoming section.

- *Covert Observation*

The findings of observations for sharing accommodation as a form of hospitality are contrasting from the two residential buildings. I asked for the pricing of accommodations in both residence buildings for the similar-size and similar-layout units and found that, as expected, the cost was higher in the Binjiang one, which is reasonable given the prime and convenience of the location. Moreover, as the management office told me, the income level in the Binjiang sharing residence building was also higher. The living environment in the Binjiang sharing residence was also much better than the sharing accommodation in the Yuhang District. The common area in the Binjiang sharing accommodation was kept clean and organized under daily clean service which was hired by the building's management office. Even though both offices were not definite on the background of the sharing accommodation residences, but they believed that the building in Binjiang had attracted more white collars, while the one in Yuhang has attracted more students. Last but not least, the length of stay in the sharing accommodation was also different: it

is shorter in the Binjiang residence hall. This might have indicated that the fluidity of the population was higher in the urban area than the non-urban environment, as white-collar working professionals may have more opportunities to be relocated or get on business trips to another place for a multiple-week-long short-term stay, and thus have to move frequently.

The management office of the Binjiang sharing residence community kindly told me that there was a short of supply in the sharing accommodations, due to the trend that more white-collars now prefer to stay in this sort of B2C sharing accommodation community, instead of hotels for short-term lodging. He explained that this is probably caused by the lower cost and more amenities provided in such sharing accommodation community, which usually include the cooking ware as well as washer/dryer that will require a surcharge if the tenants chose to stay in a hotel. Therefore, the companies operating sharing accommodations also suggest that there would be a growing demand for sharing accommodations as the market was still increasing. As for the goal of business development, they anticipated improving the existing environment in their buildings, to attract not only short-term users for business purposes, students for a semester or holiday use, but also the other consumers for varying purposes. As they advertised, living in the sharing accommodation community will make people feel back in the 1990s when people living in a society were more like a large family that shares not only personal physical properties but also emotions, including both happiness and pressure, with each other. The principle of sharing accommodations was more than making use of the idle resources for profit, but also bring people together to create a sharing utopia, as the ultimate goal of building the sharing communities. (*China Sharing Accommodation Development Report* 2018, 3)

3. Customer-based Sharing Service

- *Counting Observation*

The results of counting observations of sharing workspace tell different stories in the two selected buildings (see previous map in Research Design Chapter) from different settings. I looked at the floor guide and distribution plan in both buildings, finding that the building in the CBD area is nearly thoroughly occupied, while less than 50% of the available workspace in the other building was in-contract. Moreover, the frequency of elevator usage was also much higher in the CBD sharing workspace building, about eight cycles of up-and-down in one minute. Although there was no definite evidence on people's preference for sharing workspace that I can draw from the observation experience, my direct observation did provide that the CBD area's sharing workspace is much more efficiently utilized than the sharing workspace in that less urbanized area.

Though observational data can only provide limited information for sharing economy's impact on behavioral change, it is clear that sharing economy has already been widely accepted to users and well integrated into the city. Moreover, the observation does shed light on the assumption that the usage of sharing facilities depends on the area's environmental setting, aka the level of development and urbanization. Here, we may suggest that the more urbanized the study area is, usually the more usage of sharing facilities will be identified there.

- *Covert Observation*

As for consumer-based sharing services , I did my observations for Sharing PowerBank in those three plazas where sharing bike observation took place. Sharing PowerBank was quite popular in large shopping malls. Therefore I chose to perform observations in the shopping

malls, attached to that three plazas, to understand the behaviors of using Sharing PowerBank in association to different urban development level. However, even though the observations in three malls did not find much difference in people's usage of and users' attitudes towards Sharing PowerBank, there did happen something worth mentioning. First of all, since the first hour of using Sharing PowerBank was usually free or at a little cost (less than 2 RMB in the first hour), according to *2017 Quarter 1 China Sharing Mobile Power Bank Market Research Report* (2018), most users only borrow the Sharing PowerBank for less than an hour. The second finding is that most of the users, as observed, as young aged people, looking like aged between 10s and 35s, and most of which are female.

Chart 5.2 Growth Rate of Sharing Powerbank in Hangzhou (iiMedia Research)
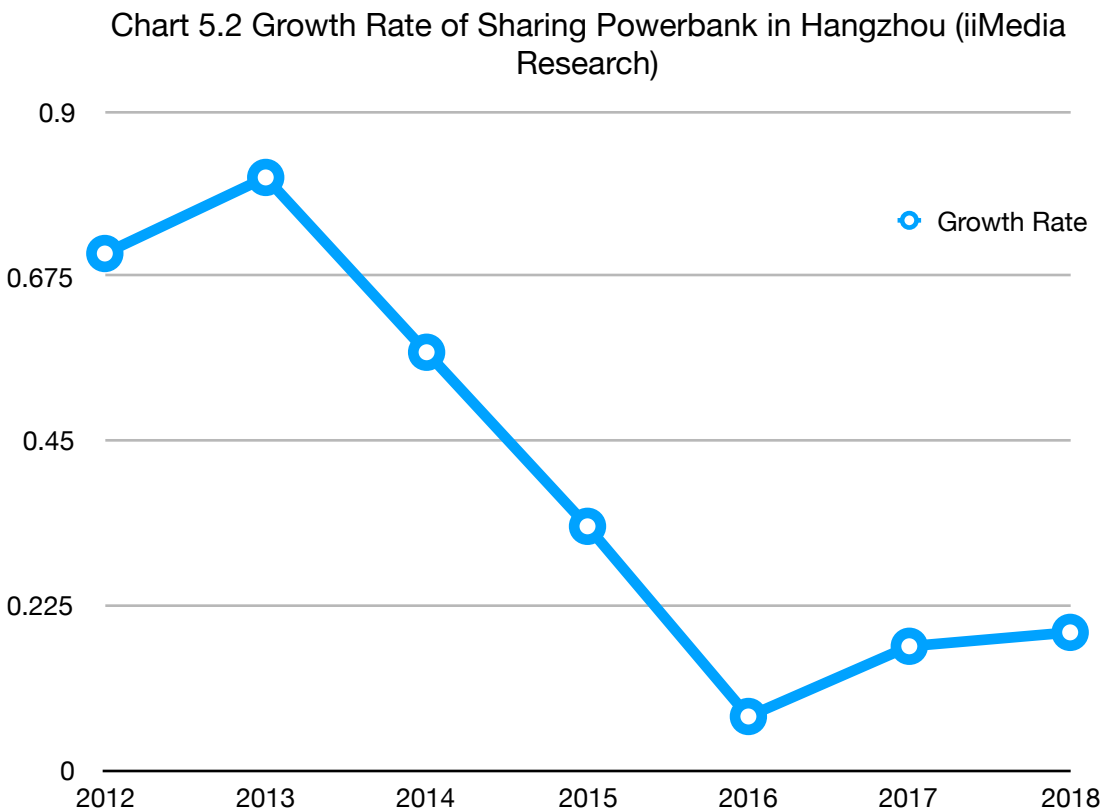
Third, I did find that not many people now brought their PowerBanks with them when going out. At least among all the people spotted with PowerBanks in use in their hands in the

three malls, nearly all of them were using the PowerBanks from the sharing service, instead of bringing their ones. The above graph shows that the growth rate of sharing PowerBank in Hangzhou was reduced during 2012-2016, which was a result of unsupportive investors, but now the market is steadily increase after the sharp decrease.

Given the knowledge that many people need to charge their phone more than once a day according to the *2017 Quarter 1 China Sharing Mobile Power Bank Market Research Report*, the final summary of the observation may come to a conclusion: People have changed in their behaviors by not bring their PowerBanks since they have the options to use the sharing service when their phones' power is insufficient. Moreover, this finding can be used as evidence of sharing economy's impact on human behavior.

- *Existing Resources Analysis*

The customer-based sharing facility reviewed in this chapter uses existing secondary quantitative reports for sharing PowerBank, also known as Street-Electricity ("街电" in Chinese), and sharing office space. Hangzhou is one of the six cities in the first phase of "Street Electricity." (Yoo 2018) According t*o 2017 Quarter 1 China Sharing Mobile Power Bank Market Research Report*, iiMedia suggests that the usage of Street-Electricity has increased at a rate of 7.3% since 2016. However, the report's projection for future use of Street-Electricity in Hangzhou is not always very optimistic. It is concluded that the growth rate of Street-Electricity's Usage will remain low till the last quarter of 2017, but will remain at more than a growth rate of 15% from the beginning of 2018. For the long term, the estimated amount of users in 2020 will be more than 100 million, because their data shows that more than 50% of phone users charge their phones more than once, which indicates that there is a high demand for phone-

charging service when away from home and office. Moreover, nearly 50% of users using sharing-charging are optimistic about the market, which will greatly promote the existing sharing market to a true "shared economy" development.

As for sharing office space, according to an existing comparative study (证券时报网 2019), besides that there are some areas that are found to be very busy and lively, there are also some quiet zones in sharing workspace. There are food leisure zones and "sleeping units" in the sharing office space. There are also some sharing workspace in the form of traditional office buildings, where each company is independent of each other and the overall environment is quiet. It seems that the improvement of office efficiency in sharing workspace may not be the same story for all different companies. It was proposed that the emergence of sharing workspace does provide a solution to small start-up companies who did not expect to develop so rapidly at the time of the start-up, and the practitioners quickly expanded from a few to dozens and hundreds of people, which meant that the office space needed to be accommodated at the same time. As such, the use of sharing office space avoids the hassle of frequent moving or renting too much space. The more and more functions added to the sharing work space indicate the strong ambition and the sharing office space is targeting on providing a new work-life balance, rather than a pure work environment.

Moreover, some studies found that the sharing workspace in Hangzhou is growing quickly for additional reasons. Chen Kunyu (经理人网 2018) believes that there are three primary and direct reasons. From the perspective of internal features, Hangzhou has a large number of science and technology enterprises, and the marketing environment is suitable and has promoted the vigorous development of sharing work office. As for external factors, in recent

years, many sharing office brands have attracted VCs and started to enter Hangzhou in a big way, including SOHO under Pan Shiyi. 3Q, as well as Naked Society (which has been merged with WeWork this year), Debley, etc. The third reason is that, the quality of sharing office space has been largely improved in quality and expanded in size.

Quick Wrap-up

Observations, though not very objective and the most accurate, did identify that people's behaviors or lifestyles have been altered by the sharing facilities under the sharing economy environment. People now have other options that they did not have before the sharing economy had emerged. Sharing services have brought them many advantages, including low-cost, convenience, better-quality, and community-sense, which persuade them gradually change their previous lifestyles, particularly those young aged people who are less than 40 and familiar with phone APPs and information technologies.

The subsequent quantitative statistic reports, in addition to the observational data collection and analysis, additionally supports the argument that sharing economy is widely used in every aspect of public's daily life, and has so far gained a fair reputation among users and investors. People have forbidden some of their previous routines and chose to get used to the sharing service that not only saves their money with improved experience but also provides development opportunities for their community. However, not much information is provided to support whether the usage of sharing service is tied tightly to the development level of the area because the more urbanized the neighborhood is, there expect to be a higher amount of population and thus, a higher level of usage.

4. Integrative Interview Data Analysis

I was able to collect a total of 36 responses by doing the interviews in those three locations. Fortunately, the total amount of responses are over the total amount of 30, which was my initial expectation. Among the 36 interviews, 16 of the interviewees are female, making closing to half of the total sample. Therefore the sex ratio was entirely fair, similar to the actual situation. (*2018 Bulletin of the Main Data for Population in Hangzhou* 2018) As for the age, nearly 80% of interviewees are under 40, of which the majority are in their 20s and 30s. The age distribution was also achieved well. (*2018 Bulletin of the Main Data for Population in Hangzhou*) Though not precisely evenly distributed among these three plazas, basically 14 of them are conducted in the Shangcheng District's plaza, 11 in Xiaoshan District's plaza, and 11 in Fuyang District's square. Hence, given that the interviewee sample mirrors the age and gender distribution of the local population, it is confident that the results of the interviews should be relatively convincing for understanding the entire community by taking a more in-depth look and interpretation of the collected interview data.

The results of the interviews are also divided into those three aspects as discussed. The findings of the interviews were quite interesting, as some of their responses are contradictory to the others. First of all, a large proportion of the sample size, round up to nearly 80%, have mentioned that they used to use other service or other products before switching to using sharing service. Their frequency of using sharing service is likely around three to four times every week, while the service is not limited to a particular industry and thus could be either transportation,

accommodation, or other customer-based services. According to 34 of the total 36 interviewee's feedbacks, they have gradually become used to choose sharing services, and they also mentioned that sharing economy has already become an inseparable part of their daily life.

Second, the preferences over different sharing services and the emergence of sharing economy vary, depending on the interviewee's habits and characteristics. More than 90% interviewees did like the emergence of sharing economy and the spreading sharing services all over the city, for the much lower fare and improved user experience. Among all the advantages realized by users, many seemed to be most attracted to sharing services for the eliminated ownership cost and convenience. This may be because that now that users could get comfortable and convenient access to the services they need anywhere and anytime, in a some-what urbanized environment, such as those plazas which were my interview locations that have populated in all districts of the city. As for the sharing services, the sharing bike seemed to be the most paradox existence, because 22 interviewees (counting for around 60%) liked it while there were, as well, many people (around 40% of total) who disliked it. The reasons for hating sharing bike were also understandable, because the existence of sharing bike, which is unregulated, have deteriorated the beautiful environment and landscape of the city. Some participants also appraised some sharing facilities, including sharing Powerbank and umbrellas, are great solutions to some emergencies anyone may encounter, such as when one does not bring his umbrella when there is rainfall. Some people (six out of the total 36) did not provide their answers on which service they hated the most, but all of the 36 participants have some preferred sharing service, which indicates that the sharing economy and sharing service are considerably highly popular among the public.

	Amount
Total Interviews	36
People indicated they have switched to using sharing service from other traditional means	30
People mentioned they have abandoned what they previously used	28
People mentioned sharing economy becomes an inseparable of life	36
People mentioned that they chose sharing economy for lower cost and better experience	33
People mentioned that they liked sharing economy	22
People that are positive towards the future of sharing economy as promoting sharing community	28

Table 5.2 Interview Results Wrap-up

Finally, the attitudes towards whether the sharing economy has changed their lifestyles

and routine behaviors also vary from person to person, while more than half people stated that

they enjoyed the emergence of sharing economy and would encourage the development of

sharing service, to support its development under a more regulated supervision to follow

standardized industrial guidelines. Moreover, 28 (77.8%) of the 36interviewees also mentioned

that they had abandoned some of their previous customs by getting used to sharing environment.

Another significant finding is that, during the interviews, I did not find any one who was

resistant to the sharing economy or sharing service. It seems like all participants were very open-

minded and welcome to the emergence of sharing community, and are more than happy to help

improve the sharing service by offering their suggestions. They also believed that their changing

lifestyles are towards a better living environment since around 72% of the total sample

population held positive and optimistic expectation for sharing economy.

As a result, based on the interviews that were carried out with reasonable sample size and

presentative population, the sharing economy does have an impact on human behaviors and

modified some people's lifestyles (at least more than half, according to the interview results). Moreover, though not yet clear, most people believed such impact was positive, which can be a sign that it expects to see a more profound effect of sharing economy on a larger population, in the city of Hangzhou.

5. Discussion

From the previous information regarding people's experience and lifestyles under the shock of sharing economy, it is now confident to draw a conclusion that sharing economy does have a profound impact on people. First of all, The usage transfer from traditional industry to these emerging services is intensive, as the statistics in the qualitative part have well presented the usage of sharing facilities, using real numbers for indicators of people's activities in the daily commute, working environment, travel accommodations, and other routine behaviors.

Second, it is necessary to understand whether such usage transfer can be the evidence of substantial change of people's lifestyles, to determine whether and how sharing economy have modified people's living, with individual as the unit of analysis. Therefore, we looked into the fifth question's interview responses, that interviewees answered how they perceived the sharing service they used. Based on the interviews, it is clear that people have been used to using shared services for their both routine and urgent demands, for the claimed benefits including lower cost and better convenience. According to the interviews, most of the interviewees have emphasized that their daily lives have been made easier with the development of a sharing economy, and they appreciated such technological improvement and sharing economy growth. Some interviewees

also mentioned that they had already switched to using sharing service, and modified their

patterns of commuting, accommodation when traveling either for leisure or for business, medical

care, and other aspects. From their scripts, it is definite that sharing economy has changed,

though to a different extent, more or less, the interviewees' previous daily routines or shopping/

commuting/medical care/accommodation behaviors.

To break down by industry, we found the level of impact on people vary. First of all,

sharing transportation may be the unicorn in the sharing world. It was the first to receive people's

attention, and is currently the most prevalent sharing service to end users, relying heavily on the

internet and mobile phone system. The interviewees also seem to be most impressed with sharing

transportation, either sharing bike or those ride-sharing applications. Sharing transportation

successfully reduced people's heavy dependence on public transportation and private vehicles,

with the new alternative to take a shared ride or take a bike to finish short trips. Moreover,

people also use the sharing transportation as supplementary means to existing transit system, like

taking a bike ride to finish the last mile distance from the public transit stop to his or her final

destination. It is without doubt that sharing transportation has brought up many convenient

features that have appealed people to choose their service, and it is at least certain that such close

connection between end users and sharing service does alter the previous people's preferences on

mode selection, as they have this newer and cheaper option. User experience is also improved to

some degree since the quality of the bikes or shared vehicles were guaranteed under supervision.

As for hospitality, particularly for sharing accommodation in this case, people also could

not resist such appealing attraction. Like the sharing transportation, the benefits of sharing

accommodation is similar. The most important information brought by sharing accommodation

might be the closer relationship among tenants, and also between tenants and hosts. This totally changes the previous distant contract relationship, but promotes more communication and the sense of sharing community. Either for work or leisure, people will have better experience of local environment with closer neighborhood. With the better living experience, people will also become more open-minded and careful to the new environment as well as the strangers. Such mindset change is concurrent with the behavioral change that is currently ongoing among sharing economy end users.

The customer-based sharing service might be a little different, as it is not merely offering one service, but a new living mode where people could have more opportunities to explore new ways of work-life balance and new lifestyles. Such new services are offering people innovative ways of thinking and living, not limited to a certain product. As a short conclusion, from the individual perspective, sharing economy has come to altered their ways of living and thinking, and already modified their behaviors or preferences over certain services, such as transportation and accommodation. The change will last and encourage people to be more open to the others and live more efficiently in an environmental way.

Still, besides the seemingly exciting changes, there are problems that need to be carefully addressed, form the end users' perspective. First of all, regarding sharing powerbank, some people reported that they are concerned with the potential risks of quality and information security, as well as the safety of using the sponsored powerbank facilities. Indeed, privacy is always a concern among sharing economy participants, as people have no idea if their information will be shared with other merchants or individuals, and have not been informed well how their personal information will be protected.

Safety issue follows next to the privacy issue. People are worried about their personal safety when using ride-sharing services, as there have been more than three cases of murder happened to DiDi riders when taking a sharing ride. Customers have argued and protested to urge the DiDi Company to take responsibilities to ensure its users' safety, while that still has a long way forward. Sharing economy as the integration of idle goods and time, and exchange of interests, can also be "human exchange". In the absence of strict supervision, the evil of human nature has also found a space to live. In the scene of ride-sharing, the commercial platform actually plays an important preventive role, with the law the punishment role, and the society the role of public enforcement, to achieve the ultimate goal of reducing crime. Unfortunately, as a new business model, sharing economy is extremely uneven in its growth, with its top-heavy form with sharp growth in volume. Till now, sharing economy still has not successfully established a corresponding sense of crime prevention.

Another impression some interviewees had with sharing economy is the "bubble". Some bubbles in sharing economy have created false prosperity. The rapid development of the market has led to capital competition, even using vicious subsidies to seize the market but neglecting the necessary improvement of technology, products and services, and scorning the integration between local management and local management. There are even some sharing economy services that have just a concept speculation with no substance, such as sharing clothes, is actually a "pseudo-demand" created by man-made. It is important that sharing economy needs to learn from the traditional industry, to avoid being too radical to result in "a castle in the air", as traditional industries also have their own characteristics and advantages.

Some interviewees also complained about the possibility of dominant service providers in the sharing economy, as they did not want to be limited to a certain merchant for that service. To overcome that, governments need to be involved to promote an equal competition environment to encourage all businesses to participate, instead of standing aside and allowing the larger companies to dominate. Following the advent of sharing economy, structural adjustment is a new economic driver to the current Chinese economy, and structural optimization is another driving force for economic growth. Making use of existing assets, or excess capacity, can save resources and energy for continued production, reduce urban traffic pressure, and increase the income of car owners. Nevertheless, this requires corresponding proper taxation and regulatory policies, as well as mutual trust and cooperation among members of society. All of these are inseparable, and only through technological innovation can we achieve overall optimization.

Implication

The interviews and observations further advanced the findings that were earlier drawn from a secondary quantitative investigation and explained those conclusions with comments and reasons which are provided by the interviewees, who are sharing service users with varying perspectives and background. Their responses have rationalized not only the contributive forces to the change, but also express the hope towards the future development which will change the current neighborhood's configuration to a sharing community under the help of sharing economy. According to the interview results, such change brought by sharing economy has gained positive feedback from users, and also have promoted society's development towards a more inclusive and integrated sharing community, where the efficiency of goods and services

will be largely enhanced, and the connection between people at that time will be more close than now.

In addition to the optimistic attitudes of the sharing economy users, who are represented by the interviewees, from the secondary resources, it is also apparent that the support from local governments and sharing facilities operating companies, as well as technology developers, have contributed and facilitate the impact that sharing economy shed on the users. In other words, not only the natural growth of sharing economy but also the additional force and support from the outside third-parties, have promoted the development of sharing service and speed the change among people, in the study city of Hangzhou. Therefore, as a conclusion, the development of sharing economy, and the subsequent outcome, which is the change of human behavior, were not only the result of the emergence of sharing economy but also the consequence of users' voluntary adaption to sharing a society and third-parties' additional supplement.

In the game of sharing economy, there are people who have gained many benefits, and also unsatisfied people. As for the people who praised sharing economy very much, some mentioned that it is more than ideal to live in a sharing residence building for a 20s young working professional who moves. There are also two interviewees arguing that sharing economy has brought them incredible benefits and convenience by eliminating some interim costs. However, some interviewees said that they dislike some sharing services, such as the sharing bike which was discussed above. Some remain hesitant and want to wait for further. While the private companies were claiming their gains, the customers also believed they were benefited, and so as the government. Therefore, according to the data, it seems that sharing economy is a win-win-win strategy for all three sides.

Regarding the distribution of the services and its availability across all the districts in Hangzhou, there was no definite correlation between the distribution and the income level of people. In other words, I did not find if sharing services are more likely to serve the more affluent districts. Moreover, people from different locations all show a similar level of welcome to sharing economy. By the interview results, we found that the level of sharing economy's popularity among people is more affected by the age of the people, but has nothing to with the geographical location. Therefore, sharing economy is quite an equity tool that does not add to the income gap by offering services to most people regardless of their backgrounds. Meanwhile, we expect that the future design of sharing facilities will have more features to facilitate the user's experience and alters the current lifestyle in a more profound way.

VI.   **CONCLUSION**

Sharing economy, a term that describes a new economic model in which a certain amount of remuneration is used for the primary purpose, based on a stranger and the right to use the item temporarily, whose essence is to integrate idle goods, labor, education and medical resources for better resource allocation, has been spreading to nearly every aspect of urban living in contemporary mainland China. Primarily promoted by the emergence and development of information technologies, the behavior of sharing has never been so easy as now. More sharing platforms have been established to provide a secured environment for sharing activities' transactions for not only business to customers but also customers to customers. Under the national support which was designated by the central CPC government of the People's Republic of China, the sharing economy has been well integrated into the local development, as it is believed to be a significant contributor to economic growth.

The facilitating environment of sharing economy in China is very promising for the development of sharing economy enterprises and innovations. The two unique features of sharing economy—outcome-agnostic and the small new ventures, distinguish it from analogues in the West. Reviewing the nature of sharing economy in the country makes it clear that the industry has been rapidly developing under the forces of internet, and provide people with more options for every possible need they may have than before. Sharing, on the other hand, provides numerous choices based on value for money, immediacy of the service's availability, and the performance history of the host. Whereas China was quick to embrace the sharing economy, some parts of sharing economy do face a precarious future. However, it is with no doubt that the

impact of sharing economy is profound. Competition has been tough yet profitable in the sharing sector, and the advent of technology has given rise to a phenomenon that is disrupting traditional business models. In the foreseeable future, Chinese society's massive adoption of technology will continue to drive the sharing economy, and such a modification on socioeconomic regime will inevitably have an impact on human behaviors.

I. Influence on Industry

The advent of sharing economy is a serious shock to the traditional industry. Peer-to-peer (P2P) applications such as Uber, Airbnb and many more are reshaping conventional business models and disrupting the major industries by cutting into their profits. The traditional business model, which has thrived for decades, had clear distinction between companies and customers where purchases of goods and services were facilitated through firms and middlemen. The biggest change the sharing economy has brought is eliminating the need for such companies merely acting as middlemen or facilitators by directly connecting producers with consumers. Relying on the "Person to Person" (P2P) model, the distinction between consumers and service providers is blurred as people share their assets with each other.The sharing economy has created markets out of things that wouldn't have been considered as valuable assets in the past by providing people with opportunity to monetize their free time and under used assets. It has shifted the balance of power to the point where someone with a spare room has the ability to create a peer-powered business with virtually no overhead.

The sharing economy challenges traditional notions of private ownership and is instead based on the shared production or consumption of goods and services. There is a new trend with people who don't want ownership of assets and prefer to "share" assets in an as-needed basis with the convenience of their smartphone or laptop. The value of a product is beginning to be seen in terms of its use, not in its outright ownership, as per traditional consumer models. There is also an increased level of acceptance of used products; due to the popularity of online platforms for buying and selling used goods.

Obviously, the success of the sharing economy has had a negative impact on traditional businesses across various industries that do not cater for these changing trends. Several p2p businesses, particularly Airbnb and Uber, have provoked protests and bans across the world for disrupting the hotel and taxi industries, respectively. Traditional businesses are now concerned and want to address the sharing economy disruptors from stealing their profits. Established firms are fighting to sustain their businesses with conventional business model for its high profitability. Hotels, taxi, and other industries threatened by the competition from the current sharing economy have an interest in keeping barriers to entry high so they can reap extra profit from a more captive market.

Currently as a result, major industries like these are not going to appreciate disruptors like Airbnb and Uber. The incumbents often use political and regulatory associations to restrict P2P businesses and protect their market position. However, as studied, the emergence of new small businesses and more investors in the market will make Chinese economy more healthier. Therefore, established industries should learn to evolve or adapt effectively to meet the modern technological realities, or risk becoming obsolete.

Technology has helped the sharing economy advance to where it is today—and, the trend should only continue as we become more connected digitally. While we've seen how dominant collaborative consumption can be in industries like transportation, consumer goods, and services, many other traditional sectors will soon experience changes because of the sharing economy. Although the level of influence on specific industry may vary, they all need to get on board with the consumer demands for improved services at lower price and move away from the traditional business models in order to sustain their market place and capitalize on sharing economy's potential benefits. Encouraging such development will further adds to optimize the utility and efficiency of good and transactions as the ultimate result.

In the foreseeable future, Chinese society's massive adoption of technology will continue to drive the sharing economy. New avenues of resource sharing will arise and people will find it increasingly beneficial to micro-rent. Business practices will, however, need a conceptual overhaul to give more power over to the consumer.

II. Influence on Individuals

From the evidences examined, even though it is hard to quantify the change in human's daily lives due to sharing economy, we do have identified some modified behaviors. First of all, sharing replaces some needs of owning a specific good, and most people that have been adapted to sharing economy have largely reduced their expenditures on product ownerships. There are a growing number of people that are attracted to this p2p model, compared to the traditional businesses, for personal, economic and environmental reasons. They are discovering that sharing

economy services are often more convenient and less expensive. For example, Instead of working for a taxi company or signaling for an available cab on the side of the road, people prefer the mutual benefits provided by apps like Uber—people can get a ride by the push of a button on their smartphones with cash-less payment and anyone can offer rides to people when they are available.

Second, certain behaviors have changed, and one of the most prominent changes is the way of commuting. The previous demand for public transportation and private vehicles have been absorbed by ride-sharing applications and other alternatives. Industries like hospitality were also altered due to people's new preferences for accommodations. Affordability, convenience, and efficiency are also three of the most influential factors in a consumer goods purchasing decision. As the traditional industries have been challenged, users are also offered overwhelming volumes of options which more or less transforms their behaviors in certain aspects.

Last but not the least, sharing economy has successfully introduced the sense of "sharing" to people. Not saying that "sharing" is new and created by sharing economy, but "sharing" has been made more accessible, plausible and turning into scaled industries with the advent of sharing economy. With the increased level of accepting used goods, people are adapting to collaborative lifestyles, in which not only goods are shared but people also share their time, space and expertise. P2P services also tap into the social aspect of consumerisation, which makes it more appealing to today's customers. With the popularity of applications such as Uber and Airbnb, it is evident that people like simplicity and personalization. With Airbnb, people get a more unique and enhanced experience staying at others' home that come with personalized touches and even opportunities to socialize with other guests and owners. These days, people

tend to prefer purchasing a product or service from a person as opposed to a large corporate brand. Sharing economy takes advantage of this dramatic shift in consumer behavior over the past few years and has contributed to the success of p2p services worldwide.

III. Influence on Society

Not surprised, sharing economy has a profound impact on society. Sharing economy is transforming Chinese society, and making China a global pioneer and innovator of sharing economy. By focusing on the sharing of underutilized assets in ways which improve efficiency, sustainability and community, sharing economy provides a potential pathway to sustainable societies. Urban sustainability is also considered to be likely byproduct of sharing economy. The sharing economy has positive environmental impacts, through a reduction in the total resources required and it helps reduce pollutants, emissions and carbon footprints. Moreover, sharing economy spreads via decentralized networks and with a focus on building community, as a new evolution of society. Likewise, the national goal is also to build towards a sustainable, community-driven sharing economy for the long-term.

IV. Critique

The sharing economy supported by the network platform as a key technology has outstanding cross-domain and cross-industry characteristics. First of all, it has become increasingly difficult for traditional government regulatory systems and means to adapt to the

needs of shared economic development. Some problems of sharing economy have surfaced and become concerns of society to further promote sharing economy.

First of all, the advantage of easy access to the market may be a huge drawback. The problem for the sector is that low barriers to entry will mean that markets for sharing services may eventually become oversaturated. Smaller firms will then go bankrupt due to increased competition. This is already happening in the bicycle-sharing sector where firms are vying for market share rather than earning real profits.

Second, the current regulation and policy-making is not ideal for long-term sustainable development. Chinese authorities appear to be steering the sector toward an oligopoly to make it easier to supervise, as well as taking steps to exert authority over major companies. That has created a tendency for companies to focus on pleasing authorities, rather than competing on services for customers, in order to beat their rivals. Corruption has long been a problem in Chinese politics, and need to be carefully prevented in this case.

Third, there are still many issues that need to be resolved in China's growing sharing economy, especially in terms of legality, privacy, and security. Before sharing economy became popular, there was little to no regulation over how the sharing economy operated. As it grew, however, lawmakers and established industries began to take notice. There are legal pressure comes from ride-sharing drivers, who have held labor disputes all around the world. While privacy has been defined as a fundamental right for humans, the mere existence of a sharing economy brings about questions of privacy as it involves the simultaneous sharing of consumer data (in exchange for participation on sharing platforms) and consumer-owned goods, spaces, and services. Given the scale and distributed nature of sharing-based services, traditional

approaches to security in which organizations try to build walls around their data and users have become invalid. The complex exchange that takes place within the sharing economy, which involves data, goods, and services, makes privacy a particularly multifaceted concept and tough question. Therefore, the conflict between privacy protection and good services has become also a big opportunity as well as a knotty problem for the regulators.

Above all, the sharing economy is built on trust between the customer and the host or driver. Unfortunately, there are those who take advantage of this trust. Customers have been harassed, threatened, and assaulted. Drivers have had their vehicles damaged by rowdy passengers. Hosts have had their properties trashed by inconsiderate guests. There are even murders where passengers got killed by drivers. While sharing economy companies do their best to ensure the safety of everyone involved, unfortunate things still happen. Therefore, the ordinary users have to exercise precaution when using sharing economy, which is one of the most serious dispute among users. The sharing economy revolves around trust, and this trust includes the belief that these services are both safe and legal.

V. Ending Remarks

Besides, looking at the evidence, it is clear that such change happens under multiple forces. Multiple factors have enabled expansion of the sharing economy in China. Foremost is people's willingness to rent rather than own infrequently used assets – thereby keeping the excess capital for more pressing needs. At the same time, they have embraced the idea of making purchases solely for the purpose of spawning proceeds through sharing. Though people were

voluntary to the spreading sharing services and even friendly to the sharing economy, as the advertised benefits have appealed them, however, the role of government should not be ignored. The government, in addition to the sharing business companies, actually promote and speed up the change, by rendering the advantages of sharing economy and providing a favorable environment for the sharing services to grow. Meanwhile, media and supplementary communication agencies, also add to the prevalence of sharing economy. Therefore, the designation and configuration of the sharing economy in Hangzhou, China, was not a simple character, but a complicated organization under government's control. The impact of sharing economy on human is, in some way, promoting the new sharing lifestyles that are favored by the government, though also found acceptable to most users. As the ultimate goal of the Thirteen Five-Year Plan suggests, such a change of people lifestyles will eventually succeed in creating a sharing community and a more inclusive national development. However, even though it is specific to confirm people's responses, it is still hard to examine the extent of such change. The thesis was not capable of producing a comprehensive summary on the scale of sharing economy's impact in the study city, which is also the limitation of the work, and maybe the future topic for further investigation.

Realizing the potential outcomes in changed human lifestyles and modified industry, it is necessary to go one step further at least to project the possible impact on the built environment, as to make the city ready to accommodate its residents whose living pattern and attitude have been modified by sharing economy. The goal is to provide the residents with a better living environment and experience, and also for the planners, to better manage and deal with the potential pressure on existing built environment structure. According to the survey's final

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question, which asks for interviewee's perception on whether sharing economy will lead to a change in their community, more than half (75%) have suggested that they expect to see a sharing economy's expansion which will modify the existing community, which may be gated and exclusive, to a sharing neighborhood. Also, citing the previous study that people have much less demand now for traditional industries, the existing facilities and infrastructures may need to be revised, to accommodate sharing service. For example, people rely less on the current cabs, which may suggest that the existing taxi zones may be altered to be friendly to both cabs and ride-sharing vehicles. Moreover, the mall designer may add a corner or a small place where the sharing facilities can be easily accessed. Though not comprehensively examined the outcomes of such adjustments, planners and responsible planning agencies should better be aware of the trend of change among people and industry and respond quickly to that change to avoid infrastructural waste and unpleasant complaints from residents. If the sharing economy can be well integrated into the built environment, which is expected to expand at least for decades, the quality of living will be largely enhanced, and the community will also be more inclusive in harmony, adding to the development of healthy, comprehensive, and just development.

At the same time, the government needs to be really careful watching the development of sharing economy. In this case, China have seen the economic potential of this industry, predicted to contribute 20 percent of the country's GDP by 2025, according to its state council. Currently, Chinese government still demonstrates its willingness to embrace the sharing economy and how it actively play a role in the national development. Since the year of 2017, the government issued that it will continue encourage innovation in sharing while regulating the sector in a tolerant and

prudent manner, according to the National Development and Reform Commission and other seven government departments.

However, at present, issues such as sharing economic regulation and responsibility have become the primary focus of public attention. At the mean time, in other areas of the sharing economy, the negative impact on public resources and the environment has become increasingly prominent. Infringement of consumer rights and other issues also have become heated topics among users. At the end of the thesis, it is necessary to mention that Chinese government really should avoid using the old method to regulate a new format of business and should step up regulatory control and increase policy transparency in the case of sharing economy development. The regulation of sharing economy should be tolerant while prudent, as there is still much yet to be learnt about new business models. Local policymakers have to crack down on intellectual property right violations, better protect consumer rights, and enhance contract workers' social security. It is necessary to ensure the sharing economy is healthy, conducive and sustainable. Therefore, regulators should strengthen guidance and policy support, and emphasize on better protection of individual privacy, stricter punishment for misbehavior, information sharing between companies and governments, and integrated online and offline supervision.

The sharing economy still faces a variety of different challenges moving forward, including major litigation issues, legal regulations and social misunderstandings, among others. In a conclusion, the new sharing economy has potential to promote the needed shifts in collective consumption behavior, but better governance models are urgently required.

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