以參與動機分析台灣共享經濟的成長潛力

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摘要

在共享經濟架構下，應用線上應用程式來促成住屋、汽車、工具與設備，甚至是共乘、煮飯與居屋清掃等之分享行為，是相當普偏可見的模式。因此本研究旨在以參與者之觀點，檢視台灣國內於共享經濟的成長潛力，以便評估參與者對於共享模式的經驗值。本研究透過新技術、社會價值、環境價值、個人購買優先順序、線上商譽，以及文化動機等構面，作為評估從事共享經濟行為經驗的變項，所得之匿名問卷透過 SPSS 軟體執行變異數分析、T 檢定以及複迴歸分析。所得之分析結果顯示，六個假設僅成立二個：IT 技術的提供對空間的共享有顯著影響，而對於服務與財務的共享行為較其次；社會價值則顯著影響在財務與物品的分享動機，其次則是服務與空間；至於環境價值、個人購買優先序、信任與與線上商譽，以及文化價值，則未影響共享行為的顯著性。

關鍵詞：新興技術、社會價值、環境價值、文化價值、購買優先序、信任與線上商譽、共享經濟

A Peer-to-Peer Motive Analysis for Potential Growth of the Sharing Economy in Taiwan

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Abstract

In the Sharing Economy, people use online apps to facilitate the sharing of homes, cars, tools and equipment, as well as services such as rides, meal preparation, and domestic housekeeping. This study examined the potential for growth of the Sharing Economy in Taiwan, monitoring participants based on their past and current use and awareness of various sharing apps and services. Participation in the Sharing Economy was observed and analyzed with the constructs of new technologies, social values, environmental values, personal purchase priorities, online reputation, and cultural motives. Collected data remained anonymous and SPSS analysis for ANOVA, T-test and Multiple Regression were conducted. Results confirmed 2 of 6 hypotheses, showing that Use of Technology has a significant influence on Sharing Space and a lesser significance on Sharing of Services and Money in Taiwan. Social Values significantly influence participant's Sharing of Money and Goods, and, to a lesser extent Services and Space. It was found that Environmental Values, Personal Purchase Priorities, Trust and Online Reputation, and Cultural Values have no significant influence on Sharing Behavior.

Keywords: Emerging Technologies, Social Values, Environmental Values, Cultural Values, Purchase Priorities, Trust and Online reputation, Sharing Economy

I. Introduction

Sharing has long been considered a defining characteristic of human behavior (Wang et al., 2019; Yin et al., 2018; Pruetz, 2011). Such behavioral tendencies were evident millions of years ago when Neanderthals shared mainly food and tools. Today's world of smartphone sharing apps allows lenders/borrowers or servicer/client to post instantaneously, review each other's online reputations, exchange price, and location info, and create solutions with less waste. The earliest internet-era peer-to-peer sharing economy companies were ebay.com and Amazon.com, which offer peer-to-peer marketplaces where anyone could post a product to sell. This new emerging economy has affected traditional transportation, hospitality, and dining industries, among others, in the process, including 80 million users in the US (Vision Critical, 2012). With 2015 net worth of US$26 billion (Economist, 2015), and annual growth of 25% in the US (Forbes, 2013), the Sharing Economy and key members Uber, AirBnB, Lyft, and others represent an expansion of the collaborative consumption movement. Sharing Economy companies are expected to grow for the coming years (Forbes, 2015). Regarding potential growth, the market cap of the collaborative consumption industry is potentially a $110 billion market (Rong et al., 2019). To put this growth in perspective, consider eBay at 5-year-old when market penetration had reached 10% of the US population. The Sharing Economy as an industry where major players Airbnb and TaskRabbit launched in 2008 and 2009, respectively, at 5 to 6-year-old boasted 23% of US population being Neosharers, having recently used a sharing website (Vision, 2014).

What drives such rapid growth? Apparently, people prefer websites and apps to facilitate their sharing experiences. In a global sample, 71% of respondents would like to see brands act as guarantors of the products and services individuals sell online. Six in ten would like companies to act as intermediaries (Havas, 2014).

In the West, sharing websites and services have experienced growth in urban areas, where sharing peers live or work in close proximity. Due to Taiwan's high density of urban development, sharing has the potential to grow. Additionally, convenience and thrift, both characteristics of the Sharing Economy, are highly revered in Taiwanese culture. As an example, 711 stores are an icon of convenience, offering billpay, event ticket purchasing, postal and laundry services, and many Taiwanese save money by living, eating, and working with their family until middle-age.

Across the strait, mainland China has experienced more growth in sharing, notably Yongche, an UBER-like ride-sharing taxi service that is operating in 78 major Chinese cities. Airbnb has lodging across China, including second and third-tier cities, but still doesn't have an office in the country. The closest homegrown competitor to Airbnb is Beijing-based startup Tujia, which was founded in 2011, raised $100 million in 2014, and is accompanied by short-term rental share companies, Mayi and Xiaozhu, both with bigtime venture capitalist backers. Good signs for the sharing economy, but in a 2012 study, only 11% of 160 respondents had heard of Yongche, although three quarters expressed interest in using the taxi service. One reason for this is that the sharing economy spreads by word-of-mouth and via social networking websites rather than traditional advertising.

The current research intending to explore sharing economy might consist of sharing behavior (Hamari et al., 2015; Liang et al., 2018; Wang et al., 2019), system framework for sharing economy (Teubner, 2014; Yin, et al., 2018), influencing factors (Firnkorn and Muller, 2011; Frenken, 2017), etc. However, to our knowledge, very little literature had addressed the sharing activities and related issues in Taiwan. Amongst them, due to the controversial issues of Uber raised in Taiwan, trust-related issues of sharing-economy-platforms (Huang et al., 2017; Chiu and Tsai, 2018), and customers' sentiment analysis through social media (Tao and Jian, 2016; Tung and Chiu, 2019) were explored. Besides, the public-mobility-issues, such as stationless-bike-sharing (Chen and Lu, 2016; You, 2018), public-bike-system (Chung and Huang, 2016), and parking-space-sharing (Liang et al.,

2019), had also been discussed. Even all of them had addressed the related issues on sharing economy in Taiwan, however, the existence and potential for growth of the entire Sharing Economy in Taiwan were not yet being discussed, which forms the main motivation of this research. All of the above examples have posed many questions and necessitate further research about Taiwanese consumers to assess the viability of Sharing Economy businesses.

Therefore, the main objective of this study is to identify and analyze the levels of influence of the various potential motivational factors. Discovering which factors are positively or negatively correlated to participation in the sharing economy will help indicate what factors potential customers would care about the most when considering a sharing transaction. Additionally, the findings of this research could help management professionals to better design marketing campaigns to expand the sharing economy from its origins in the United States to Taiwan society. Optimally, this research will not only guide entrepreneurs to create sharing economy businesses that cater to Taiwanese but also inspire average people to lend, borrow and share to/from their neighbors, their community, and strangers.

II. Related Literature

1. Sharing Economy

Sharing has long been considered by scholars as a defining characteristic of human behavior (Pruetz, 2011). The Sharing Economy brings together people with underused assets and people who would like to pay to use those assets, from spare rooms or seats in cars to sporting equipment or hand tools. Several fast-growing companies from the US and EU are leading the industry, designing websites and mobile apps to facilitate peer-to-peer sharing experiences. Lyft coordinates donation-based carpooling, Relayrides facilitates car lending, Airbnb manages bookings of homes and rooms, Boatbound offers boat rental, DogVacay coordinates kennel services, TaskRabbit allows taskmasters and those with tasks to do to find each other.

Such companies provide a forum for peers to exchange goods and services, acting as guarantor in a mediating capacity. Individuals doing the lending and borrowing (sharing) are per diem contractors, not employees. Peers conducting a sharing transaction are not required by the sharing company to carry certifications and licenses required by traditional job titles; Lift drivers do not need a taxi medallion, Taskrabbit handymen do not need a contractor license, Airbnb hosts do not need a hotel license, Fitmob personal trainers do not need certifications. Replacing certifications, sharer's online reputations-made of an accumulation of testimonials from past peer-to-peer transactions- are the credibility that establishes trust between strangers, who can find each other with one of many mobile apps in their pocket.

The Sharing Economy, by definition, includes companies with a business model based on accessibility to a product, where the specific value-added involves peer-to-peer exchange, matching of peers that own a certain resource to peers that are in need of that resource (Bo and Yang, 2018).

Businesses using tech platforms, website, mobile app, relying heavily on social dynamics, digital equivalent to word-of-mouth, many online platforms not controlling the actual sharing at all. Instead of development being led by the platform (website) administrators, social dynamics such as enjoyment and self-marketing of a community are what multiply sharing membership in the sharing community (Yin et al., 2018; Wasko, 2000). Market Allotment of Sharing Economy businesses, viewable in the following table:

Table 1   Mapping of 254 Sharing Economy services

Mode of exchange	Trading activity	Monetary transaction	Market allotment	Example
Access over ownership	Renting	Yes	131 platforms	Renttherunway.com
	Lending	No	60 platforms	Couchsurfing.com
Transfer of Ownership	Swapping	No	59 platforms	Swapstyle.com
	Donating	No	59 platforms	Freegive.co.uk
	Purchasing used goods	Yes	51 platforms	Thedup.com

(Hamari, 2015)

In some cases, traditional businesses are embracing the sharing trend. Cross promotions are one way for traditional buy/sell modeled businesses to incorporate sharing into their business model. Westin Hotels has offered New Balance shoes for guests to rent instead of having to pack bulky fitness shoes into their luggage. Uber partnered with Cosmopolitan Hotels in Las Vegas to offer all-inclusive accommodation and transportation to elite guests (Vision, 2014).

"Alternative economies," often include the aim to relocate agency from the realm of the capitalist system to that of human. Although both 'individual and collective' aspects of human development are essential to alternative economies. In one past study, interviewed respondents stated that they highly valued consumption and possession of physical things, buying and owning being very meaningful and rewarding. "Great value is seen in both having own money, homes, and furnishing, and being able to give to others." (Daya and Raksha, 2011)

Respondents to a study in several countries found that 46% of respondents would rather share than own them, while only 22% disagreed. Scores varied widely by country: the lowest of 18% in Japan, to the highest of 75% in Indonesia (Havas, 2014). Two-thirds of global respondents would be willing to rent at least certain categories of things they own to a stranger; most likely to share inexpensive, impersonal, and easily replaced (e.g; tools, sports equipment) least likely to share expensive items (e.g; car, home) and highly personal items (e.g; clothes) (Havas, 2014).

Daya (2011) argues that consumption is not opposed to human development but part of it. More research is needed to observe the linkage between the ownership of tangible material things and intangible benefits of alternative economic participation such as empowerment, dignity, knowledge-sharing, and care for others. Cohesive communities and individual autonomy are needed to make the cooperative work. Daya concluded that consumption was not found to be superficial, trivial, or damaging to their human development, on the contrary enables the women to become autonomous and establish rich social and familial relationships.

2. Motivational factors

Past literature provided some successful accounts of various measurement constructs that have been used to predict and explore sharing behavior (Geissinger et al., 2019; Rong et al, 2019; Wang et al., 2019; Liang et al., 2018; Bo and Yang, 2018; Yin, 2018; Frenken, 2017; Kooti et al., 2017; Zhang et al., 2016; Teubner, 2014). However, due to the novelty of the sharing economy, few literature intended to explore the factors or constructs on assessing sharing economy, but, however, most of them employed those similar factors used for measuring online consumer behavior, such as trust, sustainable environment, culture, etc. (Hamari et al., 2015; Firnkorn and Muller, 2011; Frenken, 2017; Kooti et al., 2017; Liang et al., 2018; Geissinger et al., 2019). Liang et al. (2017) also explored the influencing factors of participation behavior, the mediation effect of sharing intention, which also considered social values and sustainable issues. Therefore, all the factors possessing impacts on an individual's behavior in the above literature were explored with literature and determined for use in this research.

(1) Use of Technology

In 1988, Russell Belk theorized that you are what you own (Belk, 1988), though his more recent research came to the conclusion that the internet has given many people a variety of new ways to express their identity without ownership (Liang et al., 2018). Belk observed that the change to a Sharing Economy encompasses two practices: 1) the use of temporary access non-ownership models of utilizing consumer goods and services and 2) their reliance on the Internet, and especially Web 2.0, to bring this about. Web 2.0 refers collectively to websites that allow users to contribute content and connect with each other (Carroll & Romano, 2011)

In one example, technical systems, software design, and search algorithms enable members of Couchsurfing.org to engage in a moral economy built on the non-commodified accommodation to strangers and personal relations of trust and intimacy (Molz, 2013). One Canadian Couchsurfer explained that chances are 'slimtonil' that a traveler would randomly meet a local and be invited to their home for dinner. Couchsurfer guarantees this experience to happen, 100%.

In past research into collaborative consumption, Garrett Hardin stated that "Tragedy of the Commons," the case in which freedom for all to use the common resources inevitably leads to depletion of the resource, was averted by private property (Hardin, 1968). However, the private property solution to protecting oneself from The Tragedy of the Commons has transformed into what Rachel Botsman coined "hyper-consumption" in the developed world (Botsman & Rodgers, 2010). What makes the new wave of asset-sharing enterprises revolutionary is not the service itself, but the ability to leverage these assets with maximum efficiency using networked technological systems (Zhang et al., 2016; Geissinger et al., 2019).

(2) Social Values

Social Value refers to a form of intangible capital given and received when individuals are introduced and initiate a social exchange, which builds trust that becomes the basis for further interaction, and the capital for further social transactions. Furthermore, social capital refers to 'features of social organizations, such as networks, norms, and trust that facilitate action and cooperation for mutual benefit (Putnam, 1993; Zhang et al., 2016).

There are few industries that will be left unaffected by the disruptive change of the Sharing Economy. Universities were slow to embrace creative commons principles where many scientists kept discoveries secret, boosting their own esteem while preventing fellow scientists from benefiting from communal gains. Rather than rushing to patent secret discoveries, scientists now often participate in shared knowledge platforms. (Bo and Yang, 2018; Yin, 2018; Frenken, 2017; Zhang et al., 2016).

Airbnb markets itself on the idea that the world is an inherently exuberant and welcoming place. So, Airbnb CEO rebranded self, from a room rental service "online marketplace for accommodation to a, "we believe in a world where all 7 billion of us can belong anywhere." Airbnb strategy in new markets was to identify and encourage the outliers, service adopted by risk-takers, and then normalized over time. (Corbett, 2015). Characteristic of such outliers; all spoke at least a little bit of English, and more importantly, everyone had some defining experience with outsiders. Respondent stated the difference between going to a hotel and Couchsurfing, the former being a commerce exchange involving money, the latter involving a human exchange. The Couchsurfers believed that moral encounters characterized by care, intimacy, and authenticity are more likely to occur outside of monetary exchange (Molz, 2013).

(3) Environment Values

Environmental Values pertains to how much importance individuals put on developing a more sustainable relationship with the environment (Dietz, 2005; Zhang et al., 2016). Sharing, in comparison to consumption based on owner, uses few material resources and is, therefore, more sustainable. One European car-sharing study

estimated the reduction in the average user's carbon dioxide emissions ranged between 39 to 54% (Shaheen, 2006).

University of Ulm researchers pushed the concept of a car-sharing organization to another level by eliminating fixed stations, used by companies such as Flexcar and Zipcar. In a survey of the hypothetical car-sharing company car2go, Firnkorn found that a free-floating car-sharing network could potentially decrease CO2 emissions per average car2go-user. Additionally, static land consumption would be reduced as well, along with the reduction of the total number of vehicles in the city (Firnkorn, 2011). Due to car2go's higher market penetration, people that live too far from the fixed stations of traditional car-sharing systems would have convenient access. As a result, they could forego buying a car, and free-floating fleets of cars could reduce car ownership in cities.

Firnkorn subdivided and measured three processes included in the product lifecycle, including(1) the production, (2) the operation, and (3) the decomposition. Parameters of each were then measured for having an effect on the environment. Akos Kriston found that 58% of potential users of the hypothetical hydrogen-powered car-sharing companies would pay more for a zero-emissions traffic service. The same conclusion was drawn by Lines (Lines, 2008). Only 10% of participants said they 'do not care much' about the harmful environmental effects of the vehicle they use (Kriston, 2010).

(4) Personal Purchase Priorities

Factors possessing impacts on purchasing behavior could be many. However, many people make purchases for distinctly unique reasons. In one example, men and women differed in what factors were of the highest priority when making a purchase. Whorten (2007) found that women preferred to have a good reaction with sales representatives, while men preferred to find their desired product and flee the store as soon as possible. Men prioritize convenience and expediency over other factors, while women prefer a personal connection from the service staff.

Zipcar participants fail to feel any sense of attachment to the organization, the cars, or fellow Zipcar members: don't want to meet other members, fail to return other's possessions left in vehicles, and operate on selfish, pragmatic motives, (Bardhi and Eckhardt, 2012) They appreciate Zipcar's "Big Brother" intermediary role offering penalty upon members who return cars late, dirty, or with no gas. They don't trust other members to behave responsibly. Altruistic, environmental, or concern for the collective good is not motives for participating in Zipcar.

Table 2　　Personal Purchase Priorities

Percentage	First Priority Purpose
75%	Share for convenience
60%	Share for a better price
36%	Share for product quality
29%	Recommendation
27%	Sustainable lifestyle

(Vision, 2014)

(5) Trust & Online Reputation

The tasksharing service Taskrabbit buffers the quality of its service providers by requiring full background checks, while such extensive verifications of character are unnecessary (and too expensive) for the power tool sharing service Zilok. Pew Center found that active Facebook users are three times as likely as non-internet users to believe that most people are trustworthy (Trustcloud, 2012).

Jensen et al. (2002) found that the types of information users find valuable for determining the trustworthiness

of strangers varied. The most valuable piece of information was found to be similarity of interests, followed by; rating by friends, rating by community, interacts with friends, and rank in community, when making value judgements about strangers in a chat room environment. Due to the personal nature of sharing a home or car with a stranger, as in sharing services Airbnb or Uber, Jensen's findings about the influence of online reputation in chatrooms is insightful.

The online Reputation Economy, which is made of users personal digital reputations being distilled, aggregated, and monetized, is inaccessible to most people, but is a dream sold to aspiring online personalities (Hearn, 2010). It is one thing to use an individual's online reputations to improve the trust between strangers conducting a sharing transaction, but it is quite another to ensure that digital identities reflect real-world identities. This reputation built on one platform could ultimately have value in places other than where the reputation was created; an ebay rating could help an individual find guests for their Airbnb account. Every person, moves through the internet, creating a "reputation trail" a reflection of their trustworthiness. Botsman(2012) predicts that individuals will be able to take ownership of this "reputation capital," and gain access to power, goods, and influence-- as money did for those who had much in the 20th century.

(6) Cultural Values

Due to the similarity of Taiwanese and Japanese culture, and the only 5-decade-old Japanese occupation of Taiwan, an examination of the sharing economy in Japan is relevant. Global Entrepreneurship Monitor, which collects data on business growth, reported that Japan has among the lowest levels of startup activity in the world, with roughly 3.7 percent of the adult population engaged in entrepreneurship — as compared with about 13 percent in the United States. Regarding Airbnb expansion in Tokyo, Japan is less than expected. With 13.4M people, Tokyo only has 2,500 Airbnb listings; less than half of that in Madrid and less than 1/5 of Paris, and about the same number as Edinborough, which has only half a million people. On the other hand, Japan has a tradition of individuals' renting rooms to students or short-term visitors, called "minpaku," as well as daily use of "Sentou," communal bathhouses, however many are foreigner-averse due to the island location and two centuries of isolationist government policy(Corbett, 2015).

To measure the Hofstede Metric at the Individual Level, Yoo designed the CVSCALE, addressing one cultural dimension at a time, Individualism and Collectivism. From these observations, Erdem measured Individualism by questions such as the following: "I prefer a superior who consults with me before reaching a decision" (Erdem, 2006). Collectivism by questions such as the following: "Individuals should be judged on their own merits, not on the company they keep." To measure what Erdem classifies as "Confucian work dynamism," questions concerning "thrift" and "personal stability" were formatted as follows: "How important do you feel (value x) is to you?" (Yoo, 2011)

All findings derived from individual respondents' views of culture must be interpreted under the following premise: Vouclair and others have stated that culture is by definition, a group phenomenon, so any individual cultural observation can only be attributed to the individual. By this philosophy, cultural values only exist to the extent that individuals of the same group share the beliefs of the majority, which warrants more research into the extent to which individuals are influenced by the beliefs of the majority (Vouclair, 2009).

(7) General Information

Typically, when conducting a customer segmentation in online market research, survey dimensions are often represented by questions based on the most valuable information. With regard to this, demographic items included were: gender, nationality (Taiwanese/foreigner), age, income, occupation, preferred leisure activities, and primary internet device.

Gender: was observed due to the valuable information encoded. For example, Elkind found that female shoppers were more valuable than male shoppers due to large orders and higher repeat rates (Elkind, 2014).

Nationality: The importance of measuring Nationality is illustrated in one anecdotal case; a middle-aged Taiwanese mother commenting that "foreigners will sell anything, a cup for 20NT," on a Facebook buy and sell page called Tainan Bulletin. Whereas Taiwanese people would just throw it out and buy a new one. Buying new and name brand is a common choice in Taiwan, enabled by the fact that families live together rather than separate, affording all family members a higher level of disposable income. In the case of Airbnb, the site attracts diverse travelers; 90% from abroad (Airbnb, 2013).

Age: is always a valuable dimension when considering how to predict the "lifetime value" of customers. Sharers are young, 48% of Neo-Sharers are 18-34 years-old, indicating long term growth (Vision, 2014) **.** Age was observed, Vision Critical found that younger Americans are more often Neo-Sharers, more likely to have kids at home, and be married, educated, home-owning, and active online. Elkind observed that both younger and older customers are often found to be more valuable, the former due to their comfort with e-commerce transactions, the latter due to their affluence and brand loyalty (Elkind, 2014).

Income: was observed for its representation of participants' disposable income. This information is often used to determine the most relevant inventory to present to the customer in emails. Income was observed, Vision Critical found that Sharers and Neo-Sharers are more likely to be affluent, and less likely to be low-income, 27% of Neo-Sharers have an annual income of $50,000-$100,000. You travel by couchsurfer while you are young. Affluent people are no more/less likely to be neo-sharers (Elkind, 2014).

Occupation: Home sharing people are regular people who depend on the extra income to pay their rent or mortgage, save money, and pursue dreams. Average host annual income is $2,568; 48% spent on essential living costs (rent/mortgage payments), 45% of hosts live in single-income households, 44% of hosts are freelancers, entrepreneurs, or self-employed (Airbnb, 2013).

Leisure Activities: Lifestyle data enables the inclusion of people's *interests, opinions, and activities* and the effect these have on buying behavior in our analysis.

Device type was observed for its potential to proxy for affluence, age group, or seriousness of purchase intent (Elkind, 2013). In one case, a daily deal site found that iPad users are worth twice as much as desktop customers, leading to an informed change in the way that these customers were targeted and communicated with.

Considered, yet omitted demographics included:

a. "Acquisition path" was found to be the most valuable. However, this is inappropriate for an industry-wide survey, because each customer's path is often website specific, including specific links used to access an e-commerce site.

b. Geography was omitted, due to the online focus of the sharing economy. Additionally, the small size of Taiwan. The limited number of advertising channels, less than 10 major television outlets nationwide, makes for easy market access.

c. Household size and marital status also omitted.

III. Methodology

The research method applied in order to conduct this study is represented with the following theoretical framework, research hypothesis, sampling and data collection methods, and questionnaire design.

1. Theoretical Framework and Hypotheses

This research is quantitative in nature, using a questionnaire to collect data from respondents. Data rendered were then easily analyzed. This research is descriptive in nature as well, measuring the causes for variance in participation in an already known western economic phenomenon as it exists in Taiwan.

Foreign-based Sharing Economy companies have operated in Taiwan since 2010, starting with Airbnb.com, and more recently UBER arrived in 2013. Due to the nontraditional nature of such companies, each has faced regulatory hurdles to operation. Airbnb.com handles online bookings for the short term rental of private residences, most of which do not pay hotel taxes or meet fire and safety codes required of hotels. Uber is classified as a communications company that connects drivers and riders, however, the company has been fined by the Taiwanese government due to its capacity as an arranger of payment-for-rides, activity that qualifies it as a transportation company, but without the proper licenses (Geissinger et al., 2019; Rong et al, 2019; Wang et al., 2019; Liang et al., 2018; Yin, 2018; Frenken, 2017; Kooti et al., 2017; Zhang et al., 2016).

For dealing with the purposes of this research, the main research question of this study is, to what extent do the independent variables; use of new technologies, social values, environmental values, personal purchase priorities, trust and online reputation, and cultural values, influence the dependent variable; participation in the sharing economy in Taiwan. Therefore, the research framework is given in Fig.1.
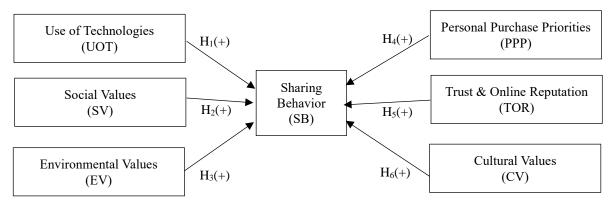

Fig.1　Research Framework

Use of the state of the art technology (UOT) is usually an obvious sign to reveal an individual could easily accept and try new stuff. That means the emergence of new technology could possess a positive impact on the intention of sharing. In 1988, Russell Belk theorized that you are what you own (Belk, 1988), though his more recent research came to the conclusion that the internet has given many people a variety of new ways to express their identity without ownership (Liang et al., 2018). In one example, technical systems, software design, and search algorithms enable members of Couchsurfing.org to engage in a moral economy built on the non-commodified accommodation to strangers and personal relations of trust and intimacy (Molz, 2013). Molz (2013) also concludes that "these meaningful interactions could not happen or are unlikely to happen if it weren't for the connecting power of technology." Thus, we propose the following hypothesis:

H1. The emergence of new technologies is positively related to sharing behavior in Taiwan.

Social Value (SV) is defined as a form of intangible capital given and received when individuals are introduced and initiate a social exchange. These exchanges build trust that becomes the basis for further interaction, and the capital for further social transactions. Social capital refers to 'features of social organizations, such as networks, norms, and trust that facilitate action and cooperation for mutual benefit (Putnam, 1993; Zhang et al., 2016). Moreover, Ajzen (1991) and Taylor and Todd (1995) proposed that subjective norms have a positive influence on the users' intentions. In other words, when the opinions of significant relatives tempt to support a certain activity, people would more likely to possess the intention to adopt similar behaviors. Thus, we propose

the following hypothesis:

H2. Social values are positively related to sharing behavior in Taiwan.

Environmental Values (EV) pertains to how much importance individuals put on developing a more sustainable relationship with the environment (Dietz, 2005; Zhang et al., 2016). Sharing, in comparison to consumption based on owner, uses few material resources and is, therefore, more sustainable. Sharing in comparison to owning vehicles is a prime example for further examination, due to the burning of finite fossil fuels and the resultant air pollution. One European car-sharing study estimated the reduction in the average user's carbon dioxide emissions ranged between 39 to 54% (Shaheen, 2006). Environmental issues then do possess potential impacts on the new technology adoption or activity involvement. Thus, we propose the following hypothesis:

H3. Environmental values are positively related to sharing behavior in Taiwan.

Personal Purchasing behavior and priorities (PPP) can be influenced by many factors. Actually, many people make purchases for distinctly unique reasons. Whorten (2007) found that women preferred to have a good reaction with sales representatives, while men preferred to find their desired product and flee the store as soon as possible. Men prioritize convenience and expediency over other factors, while women prefer a personal connection from the service staff. Therefore, anyone who wants to launch any purchase would possess his/her purchase priority to lead to different consequences eventually. Thus, we propose the following hypothesis:

H4. Personal purchase priorities are positively related to sharing behavior in Taiwan.

In the context of the Sharing Economy, trust and online reputation (TOR) plays a vital role in the success of the Sharing Economy companies, especially in the acceptance of the websites and apps. Jensen et al. (2002) found that the types of information users find valuable for determining the trustworthiness of strangers varied. The most valuable piece of information was found to be similarity of interests, followed by; rating by friends, rating by community, interacts with friends, and rank in community, when making value judgements about strangers in a chatroom environment. Furthermore, the online Reputation Economy, which is made of users' personal digital reputations being distilled, aggregated, and monetized, is inaccessible to most people but is a dream sold to aspiring online personalities (Hearn, 2010; Botsman, 2012). It is one thing to use an individual's online reputations to improve the trust between strangers conducting a sharing transaction, but it is quite another to ensure that digital identities reflect real-world identities. Thus, we propose the following hypothesis:

H5. Trust and online reputation is positively related to sharing behavior in Taiwan.

Whenever an emerging technology is introduced into a new society, culture value (CV) is usually a good indicator (McCoy et al., 2007; Tarhini et al., 2017). Moreover, Vouclair (2009) had stated that culture is by definition, a group phenomenon, so any individual cultural observation can only be attributed to the individual. By this philosophy, cultural values only exist to the extent that individuals of the same group share the beliefs of the majority, which did warrant more research into the extent to which individuals are influenced by the beliefs of the majority. Thus, we propose the following hypothesis:

H6. Cultural Values are positively related to sharing behavior in Taiwan.

As a result, based on the framework above, this research raised H1-H6 hypotheses for exploring sharing behavior in Taiwan, in order to study for whether the motivational factors can represent their impacts on sharing behavior in Taiwan.

2. Sampling and Data Collection

This research uses convenience sampling, meaning a non-random sampling of the respondents. Post sample, six measurement instruments (factors) were used to predict participant behavior in the sharing economy: availability of new technologies, social values, environmental values, personal purchase priorities, trust and online reputation, and cultural values. The minimum sample size was determined by multiplying the number of items in the factor carrying the most items by 20. The measurement instrument that possesses the largest number of items is sharing behavior, containing 8 items; therefore a minimum sample of >120 is necessary (6 x 20 = 120). For a more accurate study, with less than 0.10 error, total respondents beyond the required 120 were sought, amounting to a total of 250, the majority of which were of the age 21-30 years old.

Data were collected via Facebook, using word-of-mouth, "share it with your friend" messages, as well as targeting various student, activity, and event-based groups. Questionnaires were also distributed at totally 10 shopping malls in Taipei, Taichung, Tainan, and Kaohsiung. Participants were approached regardless of age, gender, dress, or other aesthetic appearance. Most mall visitors walked in groups of 2- 4, and were happy to stop and fill the survey. About 1 in 7 would be participants who declined to help fill the survey said that they had no time, or continued to walk away instead of listening to a foreigner's poor Chinese. Survey length was a minor deterrent according to some, taking at least 5, but less than 10 minutes. Some participants asked to shop first and then honored their promise to return and fill the survey after their purchase.

3. Questionnaire Design and Pilot Test

The questionnaire uses a 5-point Likert scale (from 1 = Disagree to 5 = Agree) to measure each item. The majority of items were taken from the prior research literature, while some were modified to suit the unique needs of this study. Due to the lack of research on this emerging field, much of the prior research is qualitative and investigative, having no questionnaires. This being said, some of our questionnaire items are based on prior study observation and interview data but have not been proven valid and reliable in past studies. The survey contained both Chinese (for Taiwanese respondents) and English (for foreign respondents). The initial pilot survey questionnaire was translated into Chinese, and corrected by native speakers.

The questionnaire consists of eight parts, which are listed in Table 3. The independent variables used for exploring sharing behavior are listed at the top six factors, whereas the dependent variable, sharing behavior, and the respondents' general profiles follow.

Particular, in Personal Purchase Priority, the questionnaire intends to ask respondents to express in their most recent sharing transactions, how to rate the impact of each factor on their purchase decisions. In "Trust and Online Reputation ", it intends to identify when giving/receiving payment for sharing, what the preferred characteristics of the targeted people would possess are.

A pilot test was conducted to determine the validity (understandability) and reliability (consistency between multiple factors) of the questionnaire. To determine the reliability of the pilot questionnaire, Cronbach's alpha was calculated. Cronbach's Alpha was designed by Lee Joseph Cronbach to measure the consistency of variables within each factor. Results were used to compare the existing Cronbach alpha, shown in the table "Reliability Statistics," to the potential Cronbach's alpha if item deleted, shown in the table "ItemTotal Statistics." Items with Cronbach's alpha >0.6 are considered acceptable, while <0.3 is unacceptable.

Table 3　Questionnaire Design and related literature

Factors	Coding	Question	Source
Use of Technologies (UOT)	UOT1	You currently share information or media online.	Liang et al., 2018; Havas, 2014; Wu and Wang, 2000
	UOT2	You currently share physical objects and space offline.	

(continued)

Factors	Coding	Question	Source
	UOT3	You prefer to use Web and mobile technologies to arrange your offline sharing experiences.	
Social Values (SV)	SV1	Because you use social networking sites, you are more open to sharing with strangers	Zhang et al., 2016; Russell, 2013;
	SV2	Your social class is determined by what you own/share	Taylor and Todd, 1995
Environmental Values (EV)	EV1	Sharing is better for the environment	Zhang et al., 2016; Firkorn, 2011;
	EV2	I am concerned about harmful environmental effects from production, operation and decomposition of things I buy	Kriston, 2010
Personal Purchase Priorities (PPP)	PPP1	Convenience	Visioncritical, 2014; Whorten,
	PPP2	Better Price	2007
	PPP3	Product/Service Quality	
	PPP4	Recommendation	
	PPP5	Sustainable Lifestyle	
Trust and Online Reputation (TOR)	TOR1	Has a high rank in the community	Botsman, 2012;
	TOR2	Has similar interests as me	Hearn, 2010;
	TOR3	Interacts with my friends	Jensen et al., 2002
	TOR4	Has a high rank by my friends	
Cultural Values (CV)	CV1	It is acceptable for employees to break the rules if it is in the best interests of the organization.	Tarhini et al., 2017; Vouclair, 2009;
	CV2	How long, once hired, do you plan to stay with your next employer?	McCoy et al., 2007; Hofstede,
	CV3	I am often stressed at school or work?	2001
Sharing Behavior (SBB)	SB1	Goods: Preowned, loaner and custom products; fashion items, handcrafts, tools	Visioncritical, 2014; Havas, 2014
	SB2	Services: Professional and personal; housework, chores, meal prep	
	SB3	Transportation: Taxi, shuttle or car loan	
	SB4	Space: work or living	
	SB5	Money: borrowing or investment	
	SB6	Are you willing to "share" or rent the following personal assets for financial gain?	
	SB7	How likely are you to utilize/rent products or services from a "share community"?	
	SB 8	I have no interest in the sharing economy.	
General Information (GEN)	GEN 1	Gender	Elkind, 2013; 2014
	GEN 2	Nationality	
	GEN 3	Age	
	GEN 4	Monthly Income	
	GEN 5	Occupation	
	GEN 6	Leisure Activities	
	GEN 7	Primary Internet Device	

Table 4　Levels of Reliability

Cronbach's α	Reliability
α ≥ 0.9	Excellent
0.7 ≤ α <0.9	Good
0.6 ≤ α < 0.7	Acceptable
0.5 ≤ α < 0.6	Poor
α < 0.5	Unacceptable

　　Results of the pilot test showed Use of New Technologies with an initial Cronbach's alpha of .483, and the potential alpha of .588 if item 4 were deleted. This significant increase in alpha score was reason enough to delete item 4. Results showed Personal Purchase Priorities with an initial Cronbach's alpha of .572, and the potential alpha of .634 if item 6 were deleted. This significant increase in alpha score was reason enough to delete item 6. Results of the following factors were shown to be reliable, negating deletion of items; Social Values with a Cronbach's alpha of .627, Environmental Values with a Cronbach's alpha of .577 and Trust and Online Reputation with a Cronbach's alpha of .746. This showed sufficient reliability, however further literature review showed more reliable items for measurement of consumer trust. For this reason, TOR factor was replaced with questions that measure how important peer (stranger) reputation is to participants in the sharing economy. New TOR items ask what aspects of a stranger are most important; (a) rank in community, (b) common interests (c) interacts with friends, and (d) high rank by friends (Jensen, 2002).

　　Results showed Cultural Values with an initial Cronbach's alpha of .243, and the potential alpha of .492 if item 5 were deleted. This significant increase in alpha score was reason enough to delete item 5, however this item represents a significant factor when measuring the relationship between culture and purchasing decisions of consumers in Japan (Hofstedt, 1970). For this reason, CV factor was replaced with questions that measure only the Hofstedt "Uncertainty Avoidance" factor, which was found in an internal study by Airbnb to be especially important, and potentially important to other sharing economy companies. The left column shows the coding done for each item of the questionnaire, to improve the convenience of running a followup analysis using SPSS (Statistical Package for the Social Sciences).

4. Data Analysis Method

　　Collected data were analyzed using SPSS software. Initially, demographic and descriptive statistics are used to present quantitative descriptions in a summarized format, using tables, etc. Conducting demographic analysis gives us a perspective of who the respondents are, in terms of gender, age, income level, occupation, among other criteria.

　　Additionally, descriptive statistics give a more extensive view of each respondent as they compare to the mean (average of the responses given per item) and the standard deviation (dispersion from average). A low standard deviation indicates that data points are close to the mean, while a large standard deviation indicates that data points are spread away from the mean, in some cases an indication of outliers.

　　Next, checking the reliability of the variables is used to assess the degree of consistency among multiple measurements of a construct. Reliability is measured by Cronbach's α (Alpha), shown on the ItemTotal Statistics table, and more specifically the Corrected ItemTotal Correlation. Values < .03 indicate a very low-level correlation with the other items within the factor. The items that are too low, may be deleted to improve the Cronbach's α, if the substantial improvement will be rendered. However, items with reliability > .07 are considered reliable; no deletions necessary. A multiple regression analysis is then conducted to identify relationships between a

dependent and an independent variable (simple linear regression). Regression analysis makes it possible to predict the values of the dependent variable, give the values of the independent variable.

Finally, the oneway analysis of variance (ANOVA) enables the identification of significant differences between the means of 3 or more independent (unrelated) groups. ANOVA will be used to examine whether there is any difference in sharing behavior that is influenced by age, income or occupation of respondents.

IV. Analysis and results

The analysis of the questionnaire intends to offer answers and insights to the six research questions formulated in section 1. It also allows determining whether hypotheses are supported or not. Before starting any detailed analyses, demographic and descriptive statistics should come first in order to get an overview of the characteristics of the respondents and their answers. Checking reliability comes next, followed by regression analyses. The final section will focus on analyzing whether there is a difference in customer satisfaction among three different shopping malls.

1. Demographic Statistics of the Respondents

To gain a holistic perspective of respondent profiles, it is useful to run demographic statistics to obtain the frequencies for gender, nationality, age, monthly income, occupation, preferred leisure activities, and primary internet-connected device.

(1) Demographic Statistics for Gender

Of the 250 respondents who were willing to fill out the questionnaire, 125 (50%) were males and 122 (48%) were females. A 50:50, male:female split, was nearly achieved. However, the resultant sample size included slightly more males (f = 125) than females (f = 122).

Table 5　Frequencies for Gender

Gender	Frequency	Percentage (%)	Cumulative Percentage (%)
Male	125	50.0	50.8
Female	122	48.8	99.6
Missing	3	2	100
Total	250	100	

(2) Demographic Statistics for Nationality

Table 6　Frequencies for Nationality

Nationality	Frequency	Percentage (%)	Cumulative Percentage (%)
Taiwanese	196	78.4	81.2
Other	44	17.6	98.8
Missing	10	4	100
Total	250	100	

Concerning the dichotomous variable, age, out of 250 respondents, 196 were Taiwanese (78.4%) and 44 were of Other foreign nationality (17.8%). This research did not focus on maintaining a sample that is representative of the actual foreign population in Taiwan which is 3.8%. Instead, the survey targeted Taiwanese respondents, and attained a strong majority of Taiwanese respondents, while also including enough foreign participants to allow comparison.

(3) Demographic Statistics for Age

Table 7　Frequencies for Age

Age	Frequency	Percentage (%)	Cumulative Percentage (%)
Under 20	12	4.8	4.8
21-30	138	55.2	60.0
31-40	59	23.6	83.6
41-50	31	12.4	96.0
51-60	6	2.4	98.4
Over 60	1	.4	98.8
Missing	3	1.2	100
Total	250	100	

In regard to age, 12 (4.8%) respondents were under 20 years old, 138 (55.2%) were between 21 and 30 years old, 59 (23.6%) were 31 to 40 years old, 31 (12.4%) were 41-50 years old, 6 (2.4%) were 51-60 years old, and 1 (.4%) was over 60 years old.

Results showed that more than 1 in 4 participants were between the ages of 21- 40, which is the target age group for individuals who are both open to new types of consumption, and are approaching or within their highest years of consumption and income. A very small percentage (2.8%) of the sample size is over 50 years old.

(4) Demographic Statistics for Income

Table 8　Frequencies for Income

Income	Frequency	Percentage (%)	Cumulative Percentage (%)
Under 20,000	50	20	20
21,000-40,000	117	46.8	66.8
41,000-50,000	14	5.6	74.8
51,000-70,000	47	18.8	93.6
71,000-90,000	7	2.8	96.4
Over 90,000	7	2.8	99.6
Missing	8	3.2	100
Total	250	100	

For the Monthly Income measurement, 50 (20%) respondents make under NT$20,000 per month, 117 (46.8%) make 21,000-40,000 per month, 14 (5.6%) make 41,000- 51,000 per month, 47 (18.8%) make 51,000- 70,000 per month, 7 (2.8%) make 71,000- 90,000 per month, and 7 (2.8%) make over 90,000 per month.

Results show that 167 (66.8%) make either less than 20,000 per month or between 21,000- 40,000 per month.

(5) Demographic Statistics for Primary Internet：Device

Regarding Primary Internet Device, a majority of participants access the internet using a Mobile Phone, 156 (62.4%), while 77 (30.8%) use a desktop, and 17 (6.8%) use a tablet.

Results show that an overwhelming majority (62.4%) use mobile phones. To conclude, gender, a near 50:50, male:female split, was achieved, with slightly more males (f = 125) than females (f = 122). Nearly one-fifth of participants, 196 of 250, were Taiwanese (78.4%) by nationality. Participant age showed more than 1 in 4 between the ages of 21-40, while participant income showed that 167 (66.8%) make either less than 20,000 per month or

between 21,000- 40,000 per month. A majority (62.8%) of participants use mobile phones as their primary internet device.

Table 9　Frequencies for Primary Internet Device

Device	Frequency	Percentage (%)	Cumulative Percentage (%)
Mobile Phone	156	62.4	62.4
Tablet	17	6.8	69.2
Desktop	77	30.8	100
Total	250	100	

2. Demographic Statistics of Questionnaire Items

The purpose of descriptive statistics within the questionnaire is to provide a clearer view of the responses given by the respondents for a specific statement.

The majority of questionnaire items used a 5 point Likert scale, such as one of the following:

A. from Strongly Agree (5), Agree (4), Neutral (3), Disagree (2), to Strongly Disagree(1). If the mean is close to 4, then on average respondents agree with the statement.

B. from Often (5), Usually (4), Sometimes (3), Seldom (2), to Never (1). If the mean is between 3 4, then on average respondents participate in the item of question.

(1) Demo. Stat. for Items of Use of Technologies

Table 10　Means for items of Use of Technologies

	Items for Use of Technology	Mean	Standard Deviation
UOT1	How often do you currently share media online?	3.38	1.368
UOT2	How often do you currently share media offline?	2.30	1.334
UOT3	You prefer to use APPs to arrange sharing.	3.15	1.219

Descriptive statistics for items composing Use of Technology show that on average (M = 3.38) answered the question "How often do you currently share media online?" indicating that they usually or sometimes share media online. However, on average (M = 2.30) respondents answered the question "How often do you currently share media offline?" indicating that they seldom or sometimes share media online. Participants on average (M = 3.15) indicated neutrality to the statement "You prefer to use APPs to arrange sharing." Results showed that a majority of participants currently share media online, but a minority share media offline, while respondents showed no preference to using APPs to arrange sharing.

(2) Demo. Stat. for Items of Social Values

Table 11　Means for items of Social Values

	Items for Use of Technology	Mean	Standard Deviation
SV1	Because you use social networking sites, you are more open to sharing with strangers.	3.10	1.212
SV2	Your social class is determined by: (a) what you own, (b) what you share	2.85	1.051

Descriptive statistics for items composing Social Values show that on average (M = 3.10) indicated neutrality regarding the statement, "because you use social networking sites, you are more open to sharing with strangers." Additionally, participants on average (M = 2.85) indicated that social class is determined by (a) "what you own" more than (b) "what you share."

Results showed that participants feel that using social networking sites, such as Facebook, does not affect their openness to sharing with strangers. Respondents also believe that owning trumps sharing, with regard to social hierarchy.

(3) Demo. Stat. for Items of Environmental Values

<p align="center">Table 12　Means for items of Social Values</p>

	Items for Use of Technology	Mean	Standard Deviation
EV1	Sharing is better for the environment	3.98	.980
EV2	I am concerned about harmful effects from production, operation and decomposition of things I buy.	3.98	1.036

Descriptive statistics for items composing Environmental Values show that on average (M = 3.95) indicated agreement regarding the statement, "sharing is better for the environment." Participants also on average (M = 3.98) indicated agreement regarding the statement, "I am concerned about harmful effects from production, operation and decomposition of things I buy." Results showed that participants not only have concern for the environmental effects of their consumption but also believe that sharing can offer solutions to the world's environmental problems.

(4) Demo. Stat. for Items of Personal Purchase：Priorities

<p align="center">Table 13　Means for items of Personal Purchase Priorities</p>

	Items for Personal Purchase Priorities	Mean	Standard Deviation
PPP1	Convenience	4.18	.862
PPP2	Better Price	4.11	.928
PPP3	Product/Service Quality	4.41	.771
PPP4	Recommendation	3.62	.937
PPP5	Sustainable Lifestyle	4.14	.840

Descriptive statistics for items composing Personal Purchase Priorities, which measures the importance of various factors affecting respondent's purchasing decisions, shows that "Product or Service Quality," is the most important on average (M = 4.41). Convenience is the second most important on average (M = 4.18), followed closely by "Sustainable Lifestyle" (M = 4.14), and "Better Price" (M = 4.11) at 3rd and 4th place. Fifth, but still recognized as important by respondents, "Recommendation" (M = 3.62) .

Results show that participants believe that Product or Service Quality is either important or very important on average, although factors of Convenience, Sustainability and Price are all of the importance when making purchasing decisions.

(5) Demo. Stat. for Items of Trust and Online：Reputation

Descriptive statistics for items composing Trust and Online Reputation, which measures the respondent agreement with various statements about trust and online reputations of strangers, shows that respondents on average (M = 4.05) "Trust a stranger more if: he/she interacts with my friends." Respondents indicated agreement on average (M = 3.78) with the statement, "Trust a stranger more if: he/she has a high rank by my friends," and agreement on average (M= 3.73) with the statement, "Trust a stranger more if: he/she has similar interests to me." Respondents showed agreement on average (M = 3.49) with the statement, "Trust a stranger more if: he/she has a high rank in the community."

Results showed that sharing within a network of friends creates the most trust of strangers among respondents, while a stranger's rank in the community plays a lesser role in influencing trust.

Table 14　Means for items of Trust and Online Reputation

	Items for Trust & Online Reputation	Mean	Standard Deviation
TOR1	Trust a stranger more if: he/she has a high rank in the community	3.49	1.036
TOR2	Trust a stranger more if: he/she has similar interests to me	3.73	.941
TOR3	Trust a stranger more if: he/she interacts with my friends	4.05	.864
TOR4	Trust a stranger more if: he/she has a high rank by my friends	3.78	.945

(6) Demo. Stat. for Items of Cultural Values

Table 15　Means for items of Cultural Values

	Items for Cultural Values	Mean	Standard Deviation
CV1	It is acceptable for employees to break rules for good of their company.	3.71	1.041
CV2	How long, once hired, do you expect to work with your next employer?	2.22	1.160
CV3	I am often stressed at school or work.	3.03	1.091
CV4	I feel comfortable in ambiguous situations and with unfamiliar risks.	3.18	1.019

Descriptive statistics for items composing Cultural Values, which measures the respondent agreement with various statements that together measure aversion to risk. Respondents agreed on average (M = 3.71) with the statement, "It is acceptable for employees to break rules for good of their company." Respondents indicated that they would stay with their next employer for 3- 5 years on average (M = 2.22). Respondents indicated neutral (M = 3.03) answers regarding, "often being stressed at school or work." Respondents indicated slightly more agreement than neutral (M = 3.18) answers regarding, "comfort in ambiguous situations and with unfamiliar risks.

(7) Demo. Stat. for Items of Sharing Behavior

Table 16　Means for items of Sharing Behavior

	Items for Sharing Behavior	Mean	Standard Deviation
SB1	Goods: items of fashion, handcraft, handtools	2.76	1.183
SB2	Services: professional and personal, housework, chores, mealprep	2.74	1.208
SB3	Transportation: taxi or car loan; UBER, Zipcar, Sidecar	2.82	1.704
SB4	Space: work or living	2.62	1.197
SB5	Money: borrowing or investment	2.26	1.121
SB7	Likelihood to share	3.14	1.055

Descriptive statistics for items composing Sharing Behavior, which measures how often the respondent shares. Respondents indicated that they on average (M = 2.82) less than sometimes use "Transportation: taxi or car loan; UBER, Zipcar, Sidecar" type sharing businesses. Respondents indicated that they on average (M = 2.79) less than sometimes use "Goods: items of fashion, handcraft, handtools" type sharing businesses. Respondents indicated that they on average (M = 2.74) less than sometimes use "Services: professional and personal, housework, chores, mealprep" type sharing businesses. Respondents indicated that they on average (M = 2.62) less than sometimes use "Space: work or living" type sharing businesses. Respondents indicated that they on average (M = 2.26) slightly more than seldom use "Money: borrowing or investment" type sharing businesses.

Regarding their "likelihood to share," respondents indicated that they on average (M = 3.14) are slightly higher than neutral perspectives about sharing.

3. Checking Reliability

To determine the reliability of the pilot questionnaire, Cronbach's alpha was calculated. Cronbach's Alpha was designed by Lee Joseph Cronbach to measure the consistency of variables within each factor. Results were used to compare the existing Cronbach alpha, shown in the table "Reliability Statistics," to the potential Cronbach's alpha if item deleted, shown in the table "ItemTotal Statistics." Items with Cronbach's alpha >0.6 are considered acceptable, while <0.3 is unacceptable.

(1) Reliability of Use of Technologies

Table 17　Reliability for items of Use of Technologies

	Use of Technology	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha Based on Standardized Items
UOT1	How often do you currently share media online?	.529	.456	.651
UOT2	How often do you currently share media offline?	.422	.609	
UOT3	You prefer to use APPs to arrange sharing.	.440	.584	

Results of the reliability test on primary data showed Use of New Technologies with a Cronbach's alpha of .651, a significant improvement on the pilot survey reliability of .483.

(2) Reliability of Social Values

Table 18　Reliability for items of Social Values

	Social Values	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha Based on Standardized Items
SV1	Because you use social networking sites, you are more open to sharing with strangers.	.269	.372	.424
SV2	How often do you currently share media offline?	.313	.491	

Results of the reliability test on primary data showed Social Values with a Cronbach's alpha of .424, a substantial decrease from the pilot survey reliability of .627.

(3) Reliability of Environmental Values

Results of the reliability test on primary data showed Environmental Values with a Cronbach's alpha of .512, a slight decrease from the pilot survey reliability of .577.

Table 19　Reliability for items of Environmental Values

	Environmental Values	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha Based on Standardized Items
EV1	Sharing is better for the environment.	.344	.401	.512
EV2	I am concerned about harmful effects from production, operation and decomposition of things I buy.	.413	.532	

(4) Reliability of Personal Purchase Priorities

<div align="center">Table 20　Reliability for items of Personal Purchase Priorities</div>

	Personal Purchase Priorities	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha Based on Standardized Items
PPP1	Convenience	.582	.657	.742
PPP2	Better Price	.470	702	
PPP3	Product/Service Quality	.625	.648	
PPP4	Recommendation	.417	.724	
PPP5	Sustainable Lifestyle	.425	.717	

Results showed Personal Purchase Priorities with a Cronbach's alpha of .742, a significant improvement on the pilot survey reliability of .572.

(5) Reliability of Trust and Online Reputation

Results showed Trust and Online Reputation with a Cronbach's alpha of .683, a slight decrease from the pilot survey reliability of .746. TOR1 data was deleted from the final analysis to increase the reliability. To further increase reliability, TOR2 could be omitted as well.

<div align="center">Table 21　Reliability for items of Trust and Online Reputation</div>

	Trust and Online Reputation	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha Based on Standardized Items
TOR1	Trust a stranger more if: he/she has a high rank in the community	Deleted	Deleted	.683
TOR2	Trust a stranger more if: he/she has similar interests to me	.384	.732	
TOR3	Trust a stranger more if: he/she interacts with my friends	.609	.450	
TOR4	Trust a stranger more if: he/she has a high rank by my friends	.513	.567	

(6) Reliability of Cultural Values

<div align="center">Table 22　Reliability for items of Cultural Values</div>

	Personal Purchase Priorities	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha Based on Standardized Items
CV1	It is acceptable for employees to break rules for good of their company.	.130	-.065	.090
CV2	How long, once hired, do you expect to work with your next employer?	.061	.041	
CV3	I am often stressed at school or work.	.053	.054	
CV4	I feel comfortable in ambiguous situations and with unfamiliar risks.	-.065	.223	

Results showed Cultural Values with a Cronbach's alpha of .090, a significant decrease from the pilot survey reliability of .243. This item represents a significant factor when measuring the relationship between culture and purchasing decisions of consumers in Japan (Hofstedt, 1970).

For this reason, CV factor was replaced with questions that measure only the "Uncertainty Avoidance" factor, which was found especially important for Airbnb, and potentially other sharing economy companies.

(7) Reliability of Sharing Behavior

Table 23　Reliability for items of Sharing Behavior

	Personal Purchase Priorities	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha Based on Standardized Items
SB1	Goods: items of fashion, handcraft, handtools	.414	.550	.640
SB2	Services: professional and personal, housework, chores, mealprep	.480	.524	
SB3	Transportation: taxi or car loan; UBER, Zipcar, Sidecar	.260	.642	
SB4	Space: work or living	.458	.531	
SB5	Money: borrowing or investment	.340	.578	

Results showed Sharing Behavior with a Cronbach's alpha of .640, indicating satisfactory, but not strong inter item correlation within the variable.

4. T-test

To test the difference between the two conditions within the two dichotomous items nationality and gender, a T-test was run.

(1) GEN1 Male/female

Table 24　T-test for dichotomous variable GEN1

	df	t	Sig. 2tailed	Mean Diff.	Std. Error Difference
Goods	2.965	-.374	.709	-.056	.151
Services	2.705	.809	.419	.125	.154
Transportation	2.320	1.222	.223	.265	.217
Space	244	1.843	.067	.281	.152
Money	244	1.022	.308	.146	.143

If the Sig. 2tailed value is > .05, it can be concluded that there is no statistically significant difference between the two conditions. The differences between condition Means are likely due to chance and not likely due to the IV manipulation.

Results show that in the case of Goods (Sig. = .709), Services (Sig. = .419), Transportation (Sig. = .223) and Money (Sig. = .308), there is no significant difference between male and female respondents. The case of Space (Sig. = .067) was found to have the most difference in response due to gender, however not significant at the Sig. > .05 significance standard.

(2) GEN2 Taiwanese/foreigner

Results show that Services (Sig. = .001) have the most difference in response due to nationality. However, in the case of Transportation (Sig. = .998), Money (Sig. = .952), Space (Sig. = .390) and Goods (Sig. = .145), there is no significant difference between Taiwanese and Foreign respondents.

Table 25　T-test for dichotomous variable GEN2

	df	t	Sig. 2tailed	Mean Diff.	Std. Error Difference
Goods	236	1.462	.145	.282	.193
Services	234	3.511	.001	.692	.197
Transportation	235	.003	.998	.001	.199
Space	237	.861	.390	.174	.202
Money	237	-.060	.952	-.011	.187

5. Oneway ANOVA

To test the difference between the 3+ conditions within the independent demographic items Age, Income, Occupation, an ANOVA test was run.

(1) GEN3 Age

Table 26　ANOVA Test for (>3 conditional) variable GEN3

	Sum of Squares	Df	Mean Square	F	Sig.
Goods	5.208	5	1.042	.748	.588
Services	13.486	5	2.697	1.891	.097
Transportation	4.097	5	.819	.278	.925
Space	9.561	5	1.912	1.341	.248
Money	11.395	5	2.279	1.845	.105

Results show that Services (Sig. = .097) have the most difference in response due to Age, however insignificant at the < .001 level. In the case of Space (Sig. = .248), Money (Sig. = .105), Goods (Sig. = .588) and Transportation (Sig. = .925) there is no significant difference due to age of respondents.

(2) GEN4 Income

Table 27　ANOVA Test for (>3 conditional) variable GEN4

	Sum of Squares	Df	Mean Square	F	Sig.
Goods	14.344	6	2.391	1.744	.112
Services	15.637	6	2.606	1.828	.094
Transportation	384.963	6	4.125	47.494	.000
Space	18.812	6	3.135	2.247	.040
Money	9.795	6	1.633	1.322	.248

Results show that respondent Income has a very significant in influence on Sharing of Transportation (Sig. = .000), with most respondents selecting that they "often" share for transportation needs. Space (Sig. = .040) has the second most difference in response due to income, however insignificant at the < .001 level. In the case of Money (Sig. = .248), Goods (Sig. = .112) and Services (Sig. = .094) there is no significant difference due to the income of respondents.

(3) GEN5 Occupation

Results show that Space (Sig. = .277) has the most difference in response due to Occupation, however insignificant at the < .001 level. In the case of Services (Sig. = .291), Money (Sig. = .784), Goods (Sig. = .816) and Transportation (Sig. = .913) there is no significant difference due to occupation of respondents.

Table 28　ANOVA Test for (>3 conditional) variable GEN5

	Sum of Squares	Df	Mean Square	F	Sig.
Goods	2.141	4	.535	.389	.816
Services	7.238	4	1.810	1.250	.291
Transportation	1.385	4	.346	.244	.913
Space	7.461	4	1.865	1.284	.277
Money	2.244	4	.561	.434	.784

6. Multiple Regression

Performing a simple linear regression allows determining whether there is a causal relationship or not between an independent and the dependent variable.

The main objective of the research is to determine if sharing behavior can be explained by respondent's use of technology, their social values, environmental values, cultural values, personal purchase priorities, and view of trust and online reputation.

(1) Hypothesis Testing for Use of Technologies

Hypothesis 1: There is a significant and positive relationship between use of technologies and sharing behavior in Taiwan.

Table 29　UOT effect on Sharing Behavior

Model	Beta	R Square	Adjusted R Square	Std. Error	Sig.
Goods	.225a	.051	.039	1.156	.006
Services	.291a	.085	.073	1.153	.000
Transportation	.163a	.026	.014	1.708	.100
Space	.350	.122	.111	1.127	.000
Money	.290	.084	.073	1.083	.000

a. Predictors: (Constant), use of Apps for sharing, sharing offline, sharing online

A simple linear regression was conducted to predict sharing behavior based on use of technology. The R^2 value indicates how much of the total variation in the dependent variable can be explained by the independent variable. It expresses the explanatory power of the regression model. Use of Technology has a significant influence on Sharing Behavior of Space ($R^2 = .122$), which means that that use of technology can explain sharing behavior of space 12.2% of the time. UOT has a lesser, but significant influence on Sharing Behavior of Services ($R^2 = .085$) and Money ($R^2 = .084$), as well. These three results are significant as $p < .001$. On the other hand, both Goods ($R^2 = .051$) and Transport ($R^2 = .014$) have insignificant influence on sharing behavior, showing $p > .001$

(2) Hypothesis Testing for Social Values

Hypothesis 2: There is a significant and positive relationship between social values and sharing behavior in Taiwan.

Table 30　SV effect on Sharing Behavior

Model	Beta	R Square	Adjusted R Square	Std. Error	Sig.
Goods	.310	.096	.089	1.133	.000
Services	.269	.072	.064	1.167	.000
Transportation	.188	.035	.027	1.683	.014
Space	.265	.070	.062	1.163	.000
Money	.331	.110	.102	1.064	.000

b. Predictors: (Constant), social class is determined by, sharing with strangers

Social Values have a significant influence on Sharing Behavior of Money ($R^2 = .110$), which means that that Social Values can explain sharing behavior of money 11% of the time. SV has a lesser, but significant influence on Sharing Behavior of Goods ($R^2 = .096$), Services ($R^2 = .072$) and Space ($R^2 = .070$), as well. These four results are significant as $p < .001$. On the other hand, SV has an insignificant influence on Sharing Behavior of Transport ($R^2 = .035$), showing $p > .001$

(3) Hypothesis Testing for Environmental Values

Hypothesis 3: There is a significant and positive relationship between environmental values and sharing behavior in Taiwan.

Table 31　EV effect on Sharing Behavior

Model	Beta	R Square	Adjusted R Square	Std. Error	Sig.
Goods	.159	.025	.017	1.174	.044
Services	.148	.022	.014	1.197	.068
Transportation	.013	.000	-.008	1.713	.979
Space	.059	.004	-.005	1.192	.650
Money	.127	.016	.008	1.119	.141

c. Predictors: (Constant), concern about environment, sharing is better for the environment

In the case of Environmental Values having an effect on Sharing Behavior, all dimensions of SB have very low influence (R^2 = .025, .022, .000, .004, .016), which means that Environmental Values can explain Sharing Behavior from 0.0 to 2.5% of the time. These results are insignificant as p > .001.

(4) Hypothesis Testing for Personal Purchase：Priorities

Hypothesis 4: There is a significant and positive relationship between personal purchase priorities and sharing behavior in Taiwan.

Table 32　PPP effect on Sharing Behavior

Model	Beta	R Square	Adjusted R Square	Std. Error	Sig.
Goods	.159	.025	.005	1.170	.297
Services	.214	.046	.026	1.185	.047
Transportation	.083	.007	-.014	1.716	.898
Space	.161	.026	.005	1.185	.283
Money	.081	.007	-.014	1.126	.903

d. Predictors: (Constant), sustainability priority, recommendation priority, price priority, convenience priority, quality priority

In the case of Personal Purchase Priorities having an effect on Sharing Behavior, all dimensions of SB have very low influence (R^2 = .025, .046, .007, .026, .007), which means that Environmental Values can explain Sharing Behavior from 0.7 to 4.6% of the time. These results are insignificant as p > .001.

(5) Hypothesis Testing for Trust and Online：Reputation

Hypothesis 5: There is a significant and positive relationship between view of trust and online reputation and sharing behavior in Taiwan.

Table 33　TOR effect on Sharing Behavior

Model	Beta	R Square	Adjusted R Square	Std. Error	Sig.
Goods	.191	.036	.017	1.174	.119
Services	.173	.030	.010	1.193	.196
Transportation	.089	.008	-.012	1.822	.816
Space	.144	.021	.001	1.220	.386
Money	.177	.031	.012	1.113	.180

e. Predictors: (Constant), a stranger has high rank by friends, a stranger has similar interests, a stranger has a high rank, a stranger interacts with friends

In the case of Personal Purchase Priorities having an effect on Sharing Behavior, all dimensions of SB have

very low influence (R² = .036, .030, .008, .021, .031), which means that Personal Purchase Priorities can explain Sharing Behavior from 0.8 to 3.6% of the time. These results are insignificant as *p* > .001.

(6) Hypothesis Testing for Cultural Values

Hypothesis 6: There is a significant and positive relationship between cultural values and sharing behavior in Taiwan.

Table 34　CV effect on Sharing Behavior

Model	Beta	R Square	Adjusted R Square	Std. Error	Sig.
Goods	.210	.044	.024	1.169	.067
Services	.215	.046	.027	1.192	.056
Transportation	.097	.009	-.011	1.842	.767
Space	.209	.044	.024	1.206	.070
Money	.142	.020	.000	1.112	.416

f. Predictors: (Constant), comfort with risk, break rules for their company, stress at school or work, stay with next employer

In the case of Cultural Values having an effect on Sharing Behavior, all dimensions of SB have very low influence (R² = .044, .046, .009, .044, .020), which means that Cultural Values can explain Sharing Behavior from 0.9 to 4.6% of the time. These results are insignificant as p > .001. Sharing of Goods and Services has the lowest p value, so some significance lays there.

7. Analysis Results Interpretation

Results showed that Use of Technology has a significant influence on Sharing Space, meaning that use of technology can explain sharing of space 12.2% of the time. Additionally, UOT has an influence of lesser significance on Sharing of Services and Money in Taiwan. Social Values significantly influence participant's Sharing of Money and Goods, and to a lesser extent, a significant influence on sharing of Services and Space.

It was found that Environmental Values, Personal Purchase Priorities, Trust and Online Reputation and Cultural Values have no significant influence on Sharing Behavior.

Oneway ANOVA showed that the level of Sharing Behavior is different among various income groups. Concerning Income as a predictor of Sharing Behavior, results show that respondent Income has a very significant influence on Sharing of Transportation, with most respondents selecting that they "often" share for transportation needs.

Finally, a T-test was done to measure difference in the dichotomous demographic items, nationality and gender. As for Nationality, results show that difference in nationality has a significant influence on Sharing Services (Sig. = .001). Gender was found to have the most influence on sharing of Space (Sig. = .067), however not significant at the Sig. > .05 significance standard.

V. Conclusions

This research intends to explore major factors which do have impacts on the sharing behavior, especially for Taiwanese. Table 35 summaries the results after analyzing the questionnaires. Results confirmed 2 of 6 hypotheses, showing that Use of Technology has a significant influence on Sharing Space, and a lesser significance on Sharing of Services and Money in Taiwan. Social Values significantly influence participant's Sharing of Money and Goods, and to a lesser extent Services and Space. It was found that Environmental Values, Personal Purchase Priorities, Trust and Online Reputation and Cultural Values have no significant influence on Sharing Behavior.

Table 35　Summary of the hypotheses formulated with results

Hypothesis 1	There is a significant relationship between use of technologies and sharing behavior in Taiwan.	Supported
Hypothesis 2	There is a significant relationship between social values and sharing behavior in Taiwan.	Supported
Hypothesis 3	There is a significant relationship between environmental values and sharing behavior in Taiwan.	Unsupported
Hypothesis 4	There is a significant relationship between personal purchase priorities and sharing behavior in Taiwan.	Unsupported
Hypothesis 5	There is a significant relationship between view of trust and online reputation and sharing behavior in Taiwan.	Unsupported
Hypothesis 6	There is a significant relationship between cultural values and sharing behavior in Taiwan.	Unsupported

Based on the results and findings of this research, it shows that the sharing economy as an industry remains in its infancy in Taiwan, however such sites have received attention and are popular among a small minority of more internet savvy Taiwanese. Moreover, the growing maturity of technologies, such as APP and social media, can encourage the behaviors for sharing working or living spaces, preparing meals for young couples' families, sharing the expense of housekeeping, etc. Social Values also exhibit the impact on the sharing behavior of investment, housekeeping, meal preparation, preowned luxury goods and fashion items, which means society from different social statuses would possess different attitudes towards sharing economy. Even though these results were inspected from Taiwanese' experience, but still could offer a good reference and standpoints for future development of sharing economy. In other words, the main contributions of this research serve for marketing purposes, to determine the status of Taiwanese sharing behavior, their awareness regarding such websites, their level of interest in using such services and their motives for participating in such behavior. Online sharing websites can then better design and market their services to the Taiwanese population.

According to results found, companies that wish to enter into the Sharing Economy in Taiwan should focus on transportation and space, targeting consumers according to their income. Additionally, companies should focus on marketing to those consumers according to their Use of technologies, such as mobile phone Apps, when marketing a space sharing service. However, further research may benefit from initial qualitative interviews, and a focus on research that is exploratory in nature, involving interviews with those Taiwanese who have already embraced sharing websites. This could be done by contacting highly active users on the sites Airbnb.com and UBER.com. This would allow a marketing campaign customized to the sensitivities, or factors, of Taiwanese culture, lifestyle, and personal preference that are most likely to influence sharing behavior.

Moreover, due to the lack of research on this emerging field, much of the prior research is qualitative and investigative, having no questionnaires. This being said, some of our questionnaire items are based on prior study observation and interview data, but have not been proven valid and reliable in past studies. The future research might be able to overcome this research limitation with the growth of related literature exploring the sharing economy.

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