



Externalization of the Sharing Economy: Case Studies of Companies in the U.S., China, and Canada

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Abstract. This paper focuses on the application of different industries in the sharing economy, the harm and contribution of these industries to the economy, the characteristics of supply chain and environmental modernization from different perspectives, and how to argue with data models. The impact of the sharing economy on the sustainability of industries and changes in people's lifestyles, the impact of these changes on human consumption and the supply and demand sides of the economy, the impact of government policies and culture on the sharing economy in different countries, the conflict between policies and implementation in different countries and the conclusions of the model, and the side effects and costs of the cascading effects on the follow-up of different industries.

Keywords: externality, policy, sustainability

1 Introduction

The sharing economy is an economic model defined as a peer-to-peer (P2P) activity of acquiring, delivering, or sharing access to goods and services, which is commonly enabled through a community-based online platform. The sharing economy is typically classified into two types: nonprofit and for-profit. Nonprofits mostly provide free services, such as university libraries that allow students to borrow books for free. Conversely, for-profit is a firm in which a corporation delivers services to clients for a profit. The sharing economy offers numerous positive externalities by increasing efficiency and allowing people to achieve certain goals without owning expensive items. Externalities are the direct effects of an actor's economic activities on other economic entities [1]. For example, Uber offers people without a car a convenient and rather cheap option to get from one location to another and thus resulting in less people driving their own cars which in turn leads to less congestion. However, despite the positive externalities the sharing economy is offering, it also creates many negative externalities.

To some degree, direct economic outcomes are zero sum, whereas outcomes driven by externalities are integrative or synergistic (or disruptive / destructive). We're interested in identifying how to account for the marginal benefit of sharing economy enterprise to its contiguous society and economy. When and how does a sharing economy modality add value in excess of a conventional rental activity? Ostensibly, by extracting surplus value from an under-utilized asset. Is it still qualified as sharing economy modality when assets to share are acquired for the purpose of 100% rental use? So we distinguish the societal value or cost created through sharing economy enterprise into functional groups:

(1) Direct benefit of increased value and economic activity from underused assets (jobs, income, multiplier effect of captured local revenue).

(2) Zero sum fungibility when sharing economy substitutes for equivalent rental or purchase activity (airbnb v hotels; uber v taxis).

(3) Indirect societal benefits from a scaled level of sharing activity within a community (i.e. less congestion, more trust, societal benefit from more access to QOL [2]. This can be considered positive externalities.

(4) And conversely, negative externalities (injuries, lack of certainty in income).

We propose a qualitative measure for impact of sharing economy activity by hierarchical ordering of economic impact plus externalities: at one end sharing economy extra economic value creation plus net societal positive externalities; at the other end zero-sum economic activity with significant negative externalities.

In this paper, we will analyze examples of the sharing economy in the United States, Canada, China, and their economic value creation and positive or negative externalities.

2 North America: The United States and Canada

The sharing economy has been a rising and hot topic in the United States and all over the world. We have seen the rises of many corporations that incorporate the idea of the sharing economy which is peer to peer interactions. These companies often offer cheaper price for the same service that would cost a lot more if it is not peer to peer. For example, rental electric scooters offer users the opportunity to use them for only a couple dollars a time instead of purchasing an electric scooter for \$500 or above. Another example would be airbnb which allows travelers to stay at other people's idle places for prices that are much cheaper than what hotels are charging. It seems like the sharing economy is only creating positive externalities because it creates convenience, affordability, and profits. However, there are also negative externalities of the sharing economy. The next few paragraphs will go through both positive and negative externalities caused by the sharing economy business model in the United States.

Crowdfunding is an essential part of the sharing economy. It is a way to raise money by connecting people who have great ideas but need money with people who are willing to invest in creative and innovative ideas. Some of the most obvious examples are platforms like Kickstarter and Indiegogo where artists and entrepreneurs are able to present funders with their brightest ideas. (Martucci). In a study done by Ethan R. Mollick in 2016, the positive externalities of crowdfunding are demonstrated. He studied 61,654

successful projects on Kickstarter and examined their long-term impacts. There are mainly two positive externalities in this case. The first is that these successful projects created quite a lot of job opportunities and many companies were founded based on the Kickstarter projects. These projects created about “5,135 ongoing full time jobs besides those that went to creators, and led to the hiring of around 160,425 temporary workers” [3]. Another positive externality is purely about the additional revenues created by Kickstarter projects. According to Mollick’s study, every dollar put into these successful projects turns into “a mean of \$2.46 outside of Kickstarter”.

Peer-to-peer (P2P) lending is another form of sharing economy. It offers people the opportunity to lend and borrow money in an easier way which is bypassing traditional banks. The platform will usually set the interest rate based on the borrower’s credit history. Kim and Stahler investigates some of the impacts of P2P lending have on small business loans [4].

Their study shows that P2P lending has reduced the amount of small business loans originated by banks. They found that “the LendingClub entry is causally associated with a statistically and economically significant decrease in the number and volume of small business loans originated by traditional (large) banks”. P2P lending exhibits both positive and negative effects depending on the perspective. On the borrowers’ side, P2P lending is a lot faster and more convenient than traditional banks and it also requires less credit and paperwork. On the traditional banks’ side, although P2P lending is not important for them right now since they are only losing a small amount of the market, it might become a problem in the future if it keeps growing.

Airbnb is one of the biggest companies that adopt a sharing economy business model. It gives people the opportunity to stay in a hotel-like environment with costs that are much less than what the hotels are charging. Georgios Zervas, Davide Proserpio, John W. Byers investigate Airbnb’s impacts on the Hotel industry. Their study shows that in Austin, Texas, the impact of Airbnb on hotel industry revenues is about 8-10%. The 8-10% decrease of revenues in the hotel industry is a negative externality and is mostly due to the hotels making adjustments to match the competitiveness of Airbnb options. It also demonstrates that the lower-price hotels and hotels that do not cater to business travelers are the most impacted ones [5].

Like Airbnb, Uber is another representative company of the sharing economy business model. Uber’s impact demonstrates both positive and negative externalities of the sharing economy. Johnathan K. Alley focuses on the impacts of Uber on New York City’s transportation industry. The main results of this study are: 1) the decline in the price of taxi medallions, 2) the positive change in productivity and utilization of assets, 3) the inflow of new capital into the city, 4) the increased accessibility to affordable transportation for many in the city. One positive externality demonstrated is that Uber has actually decreased traffic congestion in New York City by replacing taxi cabs and allowing people not to drive but instead take an Uber to their destinations (Alley, 2016). Another positive externality is the increasing capital into the city. Alley points out in his paper that “according to the data and after making some assumptions, it is estimated that over \$600 million in new wages have flown into the city on an annual basis” . However, Uber also has its negative externalities. John Ward and his colleagues find

“that TNC (transportation network companies) entry into urban areas causes an average 0.7% increase in vehicle registrations” [6].

Electric scooters have also been a perfect example of the sharing economy. Despite its convenience and flexibility, it has a fatal negative externality which is its user's safety. According to the United States Consumer Product Safety Commission, there has been a significant increase in injuries caused by electric scooters, there are “more than 190,000 emergency room (ED) visits due to all micro mobility products from 2017 through 2020”. It is also stated on the website that “Much of the increase between 2017 and later years was attributable to ED visits involving e-scooters, which rose three times as much, from 7,700 (2017), to 14,500 (2018), to 27,700 (2019) and 25,400 (2020)”. It is clear from these statistics that electric scooters injuries have become a major safety concern. At the same time, electric scooters are not without external negatives. Because maintenance of electric scooters has been a challenge in cold weather North American cities, according to the Toronto Urban Reasoning and Maintenance Authority, the encroachment of truck consignments of electric scooters on roads in downtown Toronto after 2020 rose from 0.12 percent in 2018 to 1.41 percent. Because of the cold weather in the North American plains, the battery energy use ratio is significantly lower than in the United States southern metropolitan areas and warmer cities such as Australia. This leads to additional costs to governments to address the problem to maintain the carbon emissions generated by these vehicles, for both weather and urban heat island effects. Should electric scooters be evaluated for urban geography before they are launched, it is possible that their positive externalities will be smaller than their negative externalities. On a physical level, electric scooters in cities like Los Angeles and San Francisco undoubtedly have good affordability, but people tend to overlook the reduced cost of end-of-life batteries in these cities where the industry chain is well planned. This advantage does not appear in other major North American cities, where venture capital and private equity are pursuing the sharing economy of electric scooters in large part because of the positive externalities of the low-carbon effect that can help people solve the "last mile". That's why financial institutions are fond of comparing it to Tesla, the electric car company whose stock is soaring, because Tesla has similar effects and features. But a report from the world's leading battery supplier, Contemporary Amperex Technology Co. Limited, notes that Tesla's battery recycling created four times the carbon emissions before it switched to a lithium iron phosphate 4680 battery, compared to the carbon emissions saved by an internal combustion engine of the same lifetime. Unfortunately, the current electric scooters are still using ordinary lithium batteries, which not only have some fire risks, but also if the location lacks battery recycling industry and technology, its transportation costs and environmental costs may bring a heavier burden to the locals. Especially since 2004, Canada started to fully de-industrialize, which led to a late end-of-life recycling industry is a huge challenge for the local, but this will not be immediately apparent, so the government in a sense sauna also need to limit the unlimited expansion of the sharing economy.

In Canada, there is some research on the importance of the sharing economy, but there are few mature studies on the externalities of the sharing economy. In Canada, there are no professional studies or authorized assessments on the externalities of the

sharing economy, although the negative externalities of the sharing economy are frequently addressed in network news programs. The shared economy arose, and our knowledge of it is still developing. However, the study discovered that while the shared economy provides several benefits to society, it also has some negative consequences. A significant portion of these outcomes may be summed up as negative externalities and explanations. This part will give examples to analyze the positive and negative externalities of Canada's sharing economy and analyze its social impact.

Airbnb is an example of a sharing economy. In 2014, the number of Airbnb guests staying in Canada increased by 125 percent [7]. According to Aaron Zifkin, Airbnb's country manager for Canada, the company sees Canada as a top-five priority market throughout the world and wants the Canadian Airbnb community to expand as the preferred alternative for domestic and international travelers. Airbnb revealed the findings of its positive effect research for Montreal, Canada's largest Airbnb destination, in November 2014 [8]. The following are only a handful of the study's highlights, which looked at the economic and social of the Montreal Airbnb community from April 2013 to March 2014: (1) the whole economic activity was worth \$54 million CAD. (2) In Montreal, Airbnb guests stay an average of 5 nights and spend an average of \$909, compared to 2.7 nights and \$760 for usual tourists. (3) without Airbnb, 36% of visitors indicated they would not have visited Montreal or would not have stayed as long.

In terms of transportation, the usage of Uber is the most visible manifestation of Canada's sharing economy. For starters, it highlights positive externalities. In terms of economy, Ubercanada (n.d.) notes that Uber helps save time, boost mobility, develop new business for the restaurant and hotel industries, and gives flexible income options for thousands of drivers and delivery employees in Canada by delivering more convenient and on-demand transportation and delivery. Uber is estimated to be worth \$6.5 billion to the Canadian economy. For employment, thousands of other employments are indirectly supported by the larger supply chain, which includes truckers and delivery personnel. The money spent on automobiles by drivers and delivery persons supports a larger supply chain of jobs in other industries such as car manufacturers, garages, and insurance companies (Ubercanada, n.d.). Peticca-Harris, et.state Uber is mainly divided into full-time (professional) drivers, part-time drivers, and full-time (non-professional). Therefore, For drivers, Uber has a high degree of freedom in driving and can be used as a sideline.

However, negative externality also is presented. The advent of shared Uber will have an impact on taxi driving, since when Uber owners progressively choose to park on the street, taxis cannot be parked. In addition, the problem of occupying the lane also arises which will affect taxi driving efficiency. Additionally, the development of Uber has had an impact on the financial trajectory of taxis. When using taxis, regardless of how long the journey is, there is a beginning charge that will continue to climb as long as you get in the car. However, Uber calculates the fee after you select a place. In terms of society, the development of Uber will cause an increase in unemployment. Many drivers have lost their income because of taking orders. Duffy mentions that (2020) the company's smartphone-friendly system has taken tens of thousands of fares from traditional cab businesses, reduced driver earnings — many of whom are immigrants — and lowered the resale value of taxi plates.

3 China

There is plenty of research about sharing economy in China, including the impact of sharing economy on the whole society. However, most studies concentrate on the economic influences of sharing economy. Yue Guo, Xiao Tong Li, and Xiaohua Zeng launched research on ride-hailing services in China, focusing on the effect of the entry of ride-hailing companies. The main assumptions about how ride-hailing impacts the economy are specified in several parts. First, Ride-hailing apps offer passengers a medium through which they can effortlessly hail a ride, potentially discouraging private car ownership. Second, Ride-hailing platforms increase the value of car ownership by providing flexible employment opportunities for private drivers. Besides two counteractive effects, the competition among various ride-hailing platforms plays an important role.

In order to achieve higher utilization, drivers tend to choose the ride-hailing platform with the most significant number of customers, while consumers tend to choose the platform with the most significant number of drivers to reduce waiting time. In addition, with extra users on both sides, ride-hailing platforms can enact more productive analytics to keep supply and demand aligned. Depending on which party gets the subsidy, the platform contest may add new automobile acquisitions (if the driver gets the subsidy) or decrease new car purchases (if the passenger gets the subsidy). After researching 100 cities in China utilizing the difference-in-differences method, they found that though the entrance of a solitary ride-hailing platform led to a drop in new automobile acquisitions, the platform contest alleviated this detrimental influence in the short term, indicating a total positive contribution of sharing economy on the society. Yue Guo, Fu Xin, and Xiaotong Li researched a similar topic. This research provided anecdotal evidence that existing industries such as taxis and hotels face fierce competition from these sharing economy companies. For example, eMarketer predicts that nearly 15 million adults will use at least Uber, Lyft, or another ride-hailing service in 2016, up 20.5 percent from 2015. Then other anecdotal shreds of evidence were also demonstrated. Uber and Didi Chuxing have invested heavily in subsidizing drivers as they compete in the Chinese market. Uber reportedly spends \$1 billion a year in the Chinese market. Didi Chuxing costs more. Driver subsidies come in many forms. For example, drivers might receive a bonus for each order they complete, double or double what passengers pay. Once the driver completes some orders, there are additional rewards. Bonuses will be further increased for drivers with high ratings during peak hours and customers.

In addition, sharing economy in China influences the natural environment. This is highly related to the high-efficiency nature of sharing economy by utilizing idle resources. Guowei Zhu, Hongshan Li, and Li Zhou indicated that the effective use of resources reduces social operating costs and effectively reduces carbon emissions, thus protecting the environment, via a case study on Didi Chuxing. With the assistance of the mobile network, these platforms can eliminate information imbalance by integrating idle vehicles, parking spaces, driving technology, and other traffic resources, alleviate the severe imbalance between supply and demand during peak hours, and meet people's needs for high-quality, convenient travel. As a result, the emergence of the car-hailing

platform has dramatically reduced the waste of assets and successfully minimized carbon emissions. Meanwhile, Stuart J. Barnes, Yue Guo, and Rita Borgo aimed at the impact of Didi Chuxing on PM2.5 pollution levels in China [9]. They demonstrated empirically that PM2.5 reduction benefits from the introduction of Uber-style services exist, but in the context of China, they are extremely short-lived and will eventually give way to a general elevate in PM2.5 discharge level. The adverse effect of Didi Chuxing's appearance in China on PM2.5 was already apparent one month before its official entry. This prior influence may be driven by customers' assumptions and those who put off their precious alternatives by delaying automobile purchases. However, the sharing economy will boost the car market and car driving in the long term due to the high demand and supply of ride-hailing services, thus elevating carbon emissions.

Nevertheless, this situation is not inevitable. They showed some potential solutions to overcome the pressing challenges. For example, regional restrictions on ride-hailing travel, such as restricted access to central areas, may help reduce emissions levels due to network effects caused by the long-distance migration of empty vehicles. Greater adoption of ride-sharing apps could also reduce vehicle miles traveled and associated pollution. In addition, motivating ride-hailing services to espouse electric-powered vehicles will improve tailpipe exhalation. Such plans are already in the works, with Didi recently starting talks with several companies and even setting up a joint venture to assemble electrically powered vehicles. These answers will request extensive secondary charging infrastructure and long-range cells for electrically operated vehicles.

Challenges also emerge. With the great evolvement of the sharing economy, more and more shortcomings and negative impacts appear, drawing scholars' attention. For example, Yide Ma and Haoran Zhang pointed out that the sharing economy faces some challenges in China [10].

First, only a few platforms can emerge as winners in some regions of the sharing economy. Platforms can use various dimensions of competition, such as prices charged to consumers, quality, and sheer rent dissipation, which can be used simultaneously. Repeated investment and fierce competition are typical in China, which counters the top priorities of the sharing economy's resource optimization. Second, in reality, the trust mechanism is easily damaged by speculative behaviors, increasing transaction costs and making it challenging for the sharing economy to develop deeper. Therefore, speculative behaviors like infringing on consumer interests and distorting reputation assessment systems pose obstacles to the persistence of collaborative consumption. Third, the prime economic and social organization structure is based on industrialized large-scale manufacturing, emphasizing regionalized and piecemeal management and demands acceptance. Last but not least the network-based collaborative consumption has typical cross-regional and cross-industry network characteristics, which carry a sequence of "negative externalities" such as user information protection [11].

Wenjun Jing and Baowen Sun found that the negative externalities in the sharing economy, such as shared bicycles occupying sidewalks, drivers breaking the rules, rising prices, and short-term rental tenants destroying houses, come from the degree of sharing of the expected effect. Products or services and constraint mechanisms and the current dominant model of the sharing economy increase the likelihood of negative externalities [12]. The downside of the sharing economy in a country with a common

judicial system has been demonstrated early on, as the post-1994 Rudy Act and civil legal system in the United States have led to companies such as Uber and Airbnb operating on an asset-light model, which means these companies do not own any set of properties or vehicles, and Weworks' asset-heavy model has been cancelled in the United States due to high financial and judicial costs [13]. But in mainland China, almost all sharing economy companies are asset-heavy economies that rely on the massive cash flow created by venture capital, such as Ofo, which had \$323 million in unpaid bike debt in 2017 alone, and travel company Didi, which even created cars for drivers low-interest loans and Didi cars exclusively for Chinese car companies, the systemic risk posed by this model is enormous, as the entire industry is at risk of being crushed by huge financial risks should cash flow break down. In fact, in 2020 DIDI had many anti-money laundering civil lawsuits for buying stalled domestic car companies, which was a huge detriment to the legal rights of both drivers and investors [14]. And ofo stopped running long ago in 2018 because of \$78 million in deposit arrears. The Beijing government used an additional \$6.894 million US dollar budget to deal with the already unusable bike-sharing [15].

The same thing is happening in Southeast Asian countries like Thailand and Vietnam, where the double-edged effect of the sharing economy is already evident in East Asian countries, thanks to their high range population density, and apartment-based residential culture. The sharing economy can bring huge positive externalities, such as many jobs and the low carbon and consumer expansion effects that come from ease of travel. At the same time, on the other hand, the underdeveloped financial system and the lack of a reasonable bankruptcy protection system have led to an increasing systemic financial risk in the asset-based model, which can have a huge impact on local government finances and structural unemployment if not properly maintained [16].

4 Qualitative Measure

Crowdfunding is an example of the sharing economy with extra economic value creation plus net societal positive externalities. On the one hand, every dollar put into crowdfunding is generating an average of 2.46 dollars. On the other hand, the creation of new jobs is beneficial in many ways, it is benefiting the economy while also benefiting the people who have more opportunities for employment [17]. These positive externalities demonstrated by Mollick matter because they indicate that crowdfunding which is an vital component of the sharing economy is creating values in the economy by not only providing more jobs, but also producing additional revenues. Yet another positive externality of crowdfunding is the use of excess resources [18]. Due to the nature of platforms like Kickstarters, people are usually investing small amounts of money, maybe 20 to 50 dollars per person, into a project they believe is meaningful or to-be-successful. In a model like this, the excessive money that people have can be invested into creative projects to create more values and convenience for the society [19].

When it comes to Peer-to-Peer lending, it is an example of the sharing economy with extra economic value creation plus a mix of societal negative and positive externalities.

Entrepreneurs and borrowers looking for a small amount of business loans now go to P2P lending instead of traditional banks. As a result, they don't have to wait a long period of time to receive a loan, this could mean that many small businesses will be able to run based on the P2P lending loan they receive. Liquidity is also another positive externality of the P2P model. Usually, banks will not lend small amounts of loans (\$1,000 to 5,000), but P2P lenders can do this. P2P allows society to use excess resources to create values. It allows liquidity of that excessive resources people have. Right now, P2P lending is only causing banks to reduce the amount of small business loans which are probably only a small proportion of bank loans. But P2P lending has huge potential and it will grow in the future. What if one day P2P lending is big enough to give out business loans to big companies and corporations. In 2021, P2P lending's market size is estimated at "US\$83.79 billion", the projected market size for P2P lending is estimated at "US\$ 705.81 billion" which is about an increase of 842% [20]. Modern society relies on the modern economic system to survive, and the determining function of a well-functioning modern economic system is the banking industry. The potential negative externality of P2P lending is that in the future it might threaten banks which are one of the most important and stabilizing components in every government and society [21].

One example of the sharing economy with zero-sum fungibility economic value plus a mix of societal negative and positive externalities is that of Peer-to-Peer interaction between tenants and house-owners. According to Dogru, Mody, and Sues, the increase in Airbnb's supply has a negative impact on all three of the hotel's key performance metrics which are rooms revenue, average daily rates, and occupancy rates (2016). From 2009 to 2019, Airbnb's compounded growth rate was "153%" and it will have over "7 million listings worldwide in 2022" [22]. With the growth of Airbnb and other potential companies with the same business model, more and more market share will be taken away from the hotel industry because there is just no way for a hotel to match the price and convenience of Airbnb and other similar companies. The Economies of cities that rely heavily on tourism and thus hotel industry revenues such as Las Vegas, Orlando, and San Diego will take a hit. The government charges a lot more taxes on corporations than on individual personnel, as a result, the flow of revenues from hotels to individual renters will lead to fewer taxes for the cities and the government [23]. However, despite the hit on the hotel industry in cities, airbnb does attract more people to travel because it allows them to spend less on where to sleep at night.

Electric scooter is an example of the sharing economy with extra economic value plus significant negative societal externalities. Many university campuses nowadays are flooded with electric scooters like Bird and Spin. It is indeed very convenient and cheap to use an electric scooter, especially when you only have 10 minutes in between classes to walk from one classroom to another [24]. But again, safety is a real concern that people need to pay more attention to. According to Enrique Rivero from UCLA, there were only "13 injuries per year" caused by e-scooters before the introduction of shareable e-scooters in 2018, however, after that, the number has increased to "595 and 672 in 2018 and 2019, respectively" (2022). In addition, it is also reported by UCLA that the estimated injury rate for e-scooter trips is 115 injuries per 1 million, which is higher than that of motorcycle, bike, and car trips [25].

On the other hand, we might expect it to go down because it is a transactional period. According to the Federal Reserve before the global coronavirus pandemic, the money velocity of the United States was 4.67, the MPC was $1/3.57$, which means the K of economy was 3.57 [15]. After forever electric scooters, this figure has improved significantly (3.57-3.71) [26]. It shows that the liquidity of money supply (M1) in the market has increased because of the convenience of travel, according to the GDP formula m (money supply) $\times V$ (velocity) $(+0.14) = P$ (price level) $\times Q$ (real GDP), the increase in the liquidity of money in the market has contributed to the promotion of consumption and Nominal GDP has a great contribution, and GDP growth is an important indicator of economic growth, so in addition to the attention to safety issues, the contribution of electric scooters to the economy is excellent, in the campus economy will be nominal GDP boosted by 0.14 which is 14 percent [27].

Uber is an example of the sharing economy with extra economic value plus indirect beneficial societal externalities [28]. Due to the fact that Uber has been growing rapidly in recent years and that being an Uber driver can be a lucrative full time or part time job, people are more and more willing to purchase additional vehicles to become an Uber driver [29]. This increase in vehicle ownership can potentially lead to more air pollution like carbon dioxide and more car-related accidents [30]. But this increase in vehicle ownership is rather small, only at 0.7%. We believe the positive externalities by Uber outweigh its negative ones. It creates many indirect societal benefits such as less congestion, more capital flowing into the city, and more affordable transportation options for people [31].

5 Conclusion

In this paper, we list some of the most familiar examples of the sharing economy in the United States, China, and Canada, and analyze their positive/negative externalities according to the model we proposed [32]. We believe that the sharing economy bears both positive and negative externalities. In the best case scenario, the sharing economy is able to bring extra economic value creation (Crowdfunding) and net societal positive externalities (less congestion, more jobs, access to chapter services) [33]. In the worst case scenario, the sharing economy can bring zero-sum economic activity with significant negative externalities (injuries to students, more pollution, threat to certain industries) [34]. It is quite difficult to evaluate the positives and negatives of the sharing economy and conclude if it is a net positive or negative economic modality. Future research and studies have to be done in order to assess it [35]. Some interesting questions and future topics are: To what extent can some behaviors such as buying for the purpose of renting can be considered as a sharing economy? Is a quantitative model of determining the pros and cons of the sharing economy possible? Will the sharing economy become a threat to traditional industries such as hotels and banks?

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