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**CAN SHARING ECONOMY SAVE ENVIRONMENTAL
DEGRADATION
AND FIX THE CAPITALIST ECONOMY?**

Małgorzata Runiewicz-Wardyn

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CAN SHARING ECONOMY SAVE ENVIRONMENTAL DEGRADATION AND FIX THE CAPITALIST ECONOMY?

Introduction

The ongoing problem of environmental degradation and climate change, and the impacts of the recent pandemic have caused many people to reconsider and reprioritize their styles of consumption and living habits. These include buying fewer clothes, eating better quality food, spending more time at home with families and appreciating the nature. These trends have not always been well noted by all the manufacturers and firms. Driven by more strict regulations Europe is in front center in the shift towards more sustainable business. Still, according to the Eurobarometer (2022), the collective share of small and medium size companies (SMEs) in total emissions is high and reaches 63% of all CO₂ emissions by companies. Despite of the efforts to implement cost-cutting measures in energy consumption, packaging, and transportation, most companies continue their manipulation tactics to convince consumers to purchase tones of articles they do not need, leading to over-consumption, resource exploitation and environmental damage. The global failure of capitalist economy to keep the balance between the environmentalism and consumerism put into question of the future of capitalism– will it lead to the end of it or the beginning of a new - digital and eco- friendly capitalism, driven by the environmental awareness, digital and Artificial Intelligence (AI) technologies?

The unexplored possibilities of digital and AI technologies give rise to new forms of exchanges of resources and assets which are more sustainable and environmentally efficient. As a result we may transit from the linear to circular economic growth models, grounded in sharing and collaborative consumerism or a “crowd-based capitalism” (Sundararajan, 2016; Chase, 2015; Demailly and Novel, 2014; Cockayne, 2016). The concept of sharing and collaborative consumerism is not new. It links back to the traditional systems of bartering, renting, sharing, and swapping goods and services within the peer communities. While bartering and swapping in the traditional way required double coincidence of wants and physical exchanges, in modern times with goods and services having digital form, it gets easier through the interconnected digital network structures. According to Statista Research Department (2022) a total global revenue from sharing economy platforms in 2022 is expected to reach 40.2 billion U.S. dollars. Uber, being the most associated with the sharing economy, allowed the company to generate 11.3 billion U.S. dollars in revenue in 2018. Airbnb

generated 8.3 billion U.S. dollars revenue in 2022 (a 40% year-on-year increase). The sharing economy, even though, has high potential should not be presumed to become a common global trend. Moreover, the empirical evidence on their driving mechanisms and impact on the environment is still limited and must be further explored. The objective of the following research paper is to discuss the impact of sharing and barter economies on the modern capitalist economies. The paper addresses the following research questions: *How does sharing and barter economy create value? How do sharing and barter economies affect the capitalist economy pricing, supply and demand mechanisms? What are major drivers and challenges of sharing and barter economies for the society, policies and business sectors? Do they lead to the sustainable growth and the reduction of the environmental damage?*

Global trends in the production of waste and carbon dioxide emission

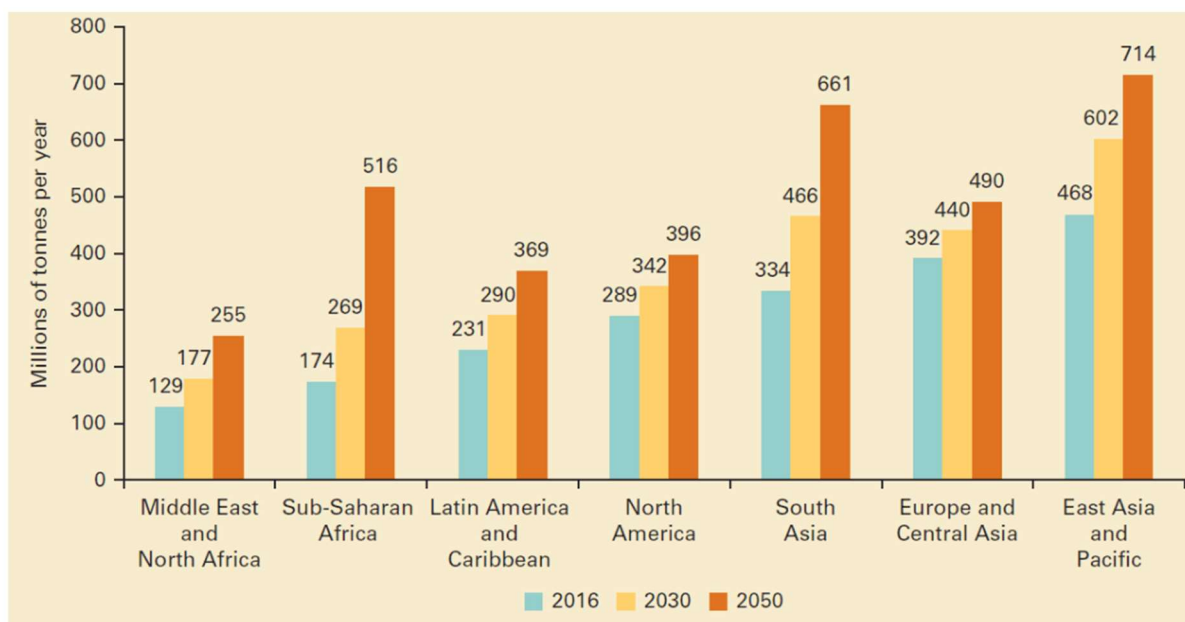
The overproduction or producing more and faster than required, using large batch sizes, unstable schedules, working to forecast and not actual consumer demand, is the biggest contributor to the global waste. According to the World Bank (2023) in the year of 2020 the world has generated 2.24 billion tonnes of solid waste, which is a footprint of 0.79 kilograms per person per day. Taking into account rapid population growth and urbanization, the waste generation is expected to increase by 73% annually up to 3.88 billion tonnes in 2050. Almost three-quarters of emissions comes from the energy sector, one-fifth from agriculture and land use (which increases to one-quarter when the whole food system, packaging and transportation is considered) and the remaining 8% comes from the industry and waste.

Moreover, the mass production, low prices and high sales volumes driven by the so called ‘fast fashion industry’ is the reality of capitalist way of living, is the biggest contributors to the environmental damage. The fashion industry business model blueprint, is the third largest manufacturing industry, producing 8% of global carbon emissions, more than international aviation and shipping combined (Vasarhelyi, 2020). Three out of five fast fashion items end up in the landfill. Most of the fast fashion brands use ‘open-loop’ production cycles, which means that the waste they produce is dumped straight into water and land. In terms of consumption and consumer spending clothing has the fourth highest impact on the environment of all categories of the EU consumption. The fashion industry uses 93 billion cubic meters of water which rounds up to 4% of freshwater globally and is enough to meet the consumption needs of five million people (*Sustainable Fashion*, 2021). Just in the EU, the amount of clothes bought per person has increased by 40 % in just a few decades. According to the European Commission estimates textile industry

is responsible for about 20% of global clean water pollution from dyeing and finishing their products. The laundering of synthetic clothes accounts for 35% of primary microplastics released into the environment (for example one single laundry load of polyester clothes discharge approximately 700,000 microplastic fibres, with the majority of microplastics from textiles released during the first few washes) (European Commission, 2020).

The textile industry, along with the municipal solid waste such as food and organics, paper, cardboard, plastic, styro-foam, metal and glass have all been identified as a major contributor of plastic entering the ocean (www.bbc.com). The projection for the waste generation is worrisome, especially for the South Asian and East and Pacific Asian economies (Figure 1).

Figure 1. Projected waste generation, by region in millions of tonnes per year



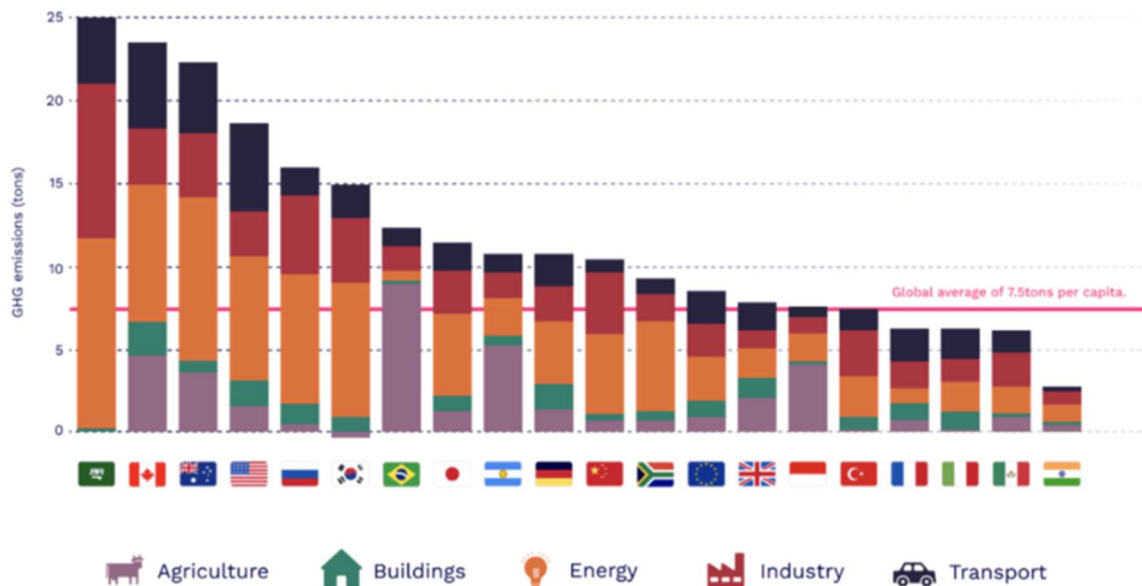
Source: World Bank, 2022.

The landfill disposal of waste causes loss of land area, contributes to methane emissions into the atmosphere, contaminates soil, pollutes underground and surface water sources. The World Bank reports that without improvements in the production of solid waste, the related emissions will likely increase to 2.6 billion tonnes of CO₂-equivalent by 2050 (What a Waste 2.0., 2023).

The independent economic policy and research institute - Brookings Institute - reveals that Global greenhouse gas emissions for 2022 will be 58 gigatons, the largest annual level ever recorded. If current economic growth, demography, and emissions intensity trends continue, the level of emissions will continue to rise, reaching 62 gigatons 2030, with the major contributors of the five sectors (energy, industry, transport, buildings, and agriculture and forestry) and advanced countries, like Canada, Australia, the United Kingdom, and the United States, having per capita emissions far

above global averages. When tracking emissions by country and by sector Saudi Arabia and Russia are the largest exporters, while the United States biggest consumer of energy domestically (<https://www.brookings.edu/articles>, 2022).

Figure 2. Per capita emissions of selected countries broken down by major sector



Source: *Tracking emissions by country and sector*. World Data Lab. Brookings Institute, 2022.

The largest sources of transportation-related greenhouse gas emissions include passenger cars, trucks, sport utility vehicles, pickup trucks, and minivans. These types of vehicles account for over half of the emissions from the transportation sector. The remaining greenhouse gas emissions from the transportation sector come from other modes of transportation, including commercial aircraft, ships, boats, and trains, as well as pipelines and lubricants. Yet, the transport and energy sectors are linked to the continued internationalisation of the world's economy, regional integration . For example, One study, using a cross-section of 63 countries (and correcting for trade intensity and income) concluded that a 1% increase in trade leads to a 0.58% increase in CO₂ emissions for the average country (Globalization Transport and the Environment 2000). Other studies also find openness raises CO₂ emissions, but the detrimental impact disappears when corrections are made for income levels. Similarly, the 'fast fashion' is bad for the environment and in many cases links to the exploitation of human resources, such as work for long strenuous hours under poverty wages and suffer violent treatments from employers. Nevertheless, it also provides meanings to live. It is a labor intensive industry with 1 in 6 people in the world working in a fashion related jobs, and 80 percent of the labor force throughout the supply chain are women (www.fashionunited.com).

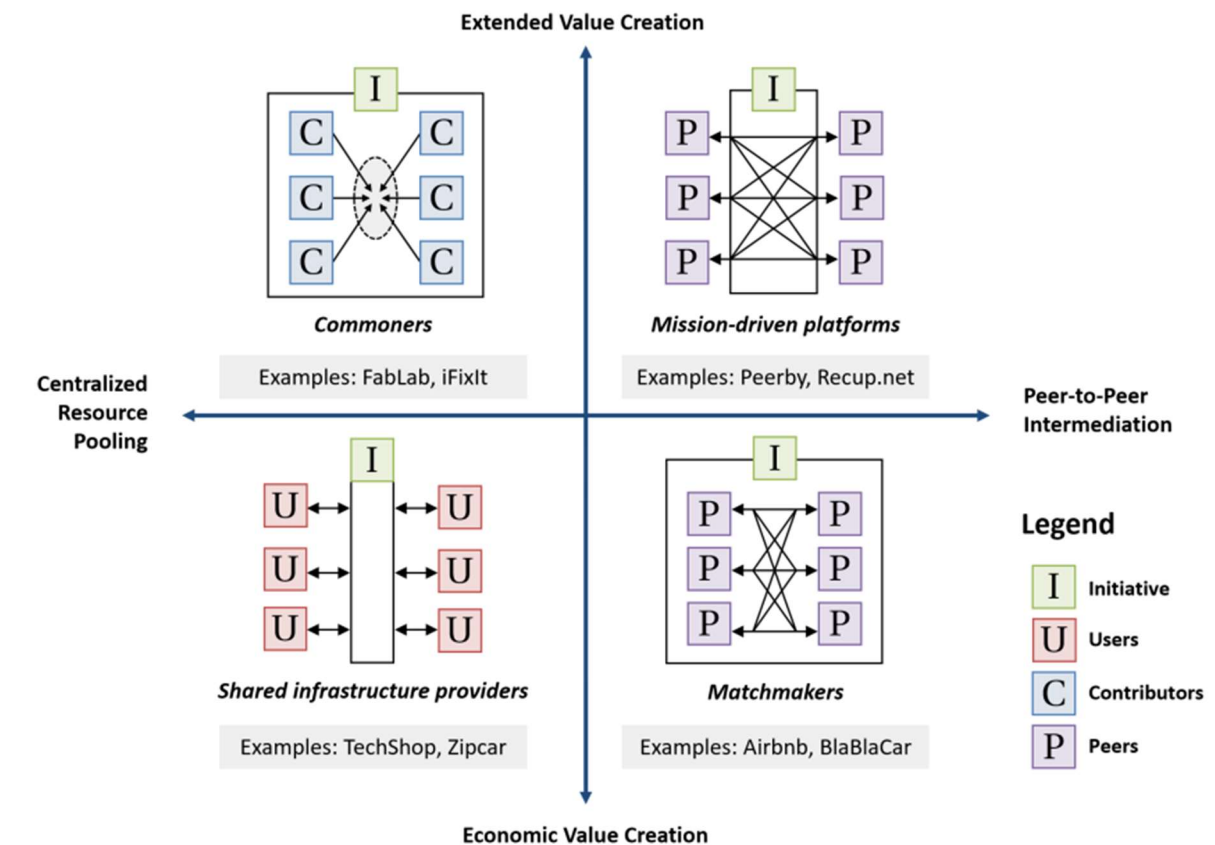
Even though, capitalism and democracy have different conceptual backgrounds (first one is responsible for the efficient allocation of resources, technological dynamism, and individual choice, while the second one for preserves cultural diversity, pluralism and respect for the human rights) in order to save the planet and survival of humankind ‘both’ need to collaborate. The mutual inter-dependence between human and environmental wellbeing and capitalism’s success means it needs to shift from the concern about the resource allocation to the resource efficiency and from the cost-driven to sustainable consumption. In short, the future of capitalism doctrine depends on its ability to reinvent itself and transform into capitalism with the human face (Kołodko, 2006; 2014).

Sharing economy as a sustainable form of value creation

In the last decade, there has been a considerable interest in the sharing economy as a mean of promoting sustainable consumption and a more sustainable and responsible form of capitalism – ‘eco-capitalism’ or ‘shared-capitalism’. In simple terms, the sharing economy is an economic model defined as a peer-to-peer (P2P) based activity of acquiring, providing, or sharing access to goods and services that is often facilitated by a community-based online platforms. Many subject related studies conclude that the system of sharing economy not only creates value for the companies but also improves resource efficiency and promote sustainable growth (Merino-Saum et al., 2023; Owyang, 2014; Stokes et al., 2014; Heinrichs, 2013; Botsman and Rogers, 2010). In the classical capitalism, the dominant model of economic value creation endorses the for-profit activity, shareholder value maximization, and monetization of services (Kenney and Zysman, 2016). The sharing economy business model is based on the non-profit or limited-profit logic, ‘shared’ value creation and distribution. The sharing economy business models enable enhanced value creation as goods and services are shared only for the time needed (Belk 2014; Hamari et al. 2016). Botsman and Rogers (2010), Owyang (2014) and Stokes et al. (2014) state that sharing economy enables people and organizations to make money from under-used resources, such as parked vehicles and spare bedrooms, which can be leased out while not in service. Physical assets are thus exchanged as services and the economy creates new economic value by providing access and intensifying the use of under-utilized assets. There are two principal value-creation mechanisms in the sharing economy (Acquier et al. 2019): 1) peer-to-peer intermediation (by organizing decentralized peer-to-peer transactions) and 2) centralized resource pooling (by creating and providing a centralised infrastructure for short-term rentals). The OECD (2015), even though does not present a definition of sharing economy, refers to online sharing economy platforms and

identifies three types of them: a) P2P selling (eBay and Etsy); b) P2P sharing (Airbnb, Uber, TaskRabbit); and c) crowdsourcing (Mechanical Turks, Kickstarter, AngelList). Acquier et al. (2019) derive four types of sharing economy business models: shared infrastructure providers (1), commoners (2), mission-driven platforms (3), and matchmakers (4) (Figure 1).

Figure 1. Four types of value creation business models in sharing economy



Source: Acquier et al., 2019.

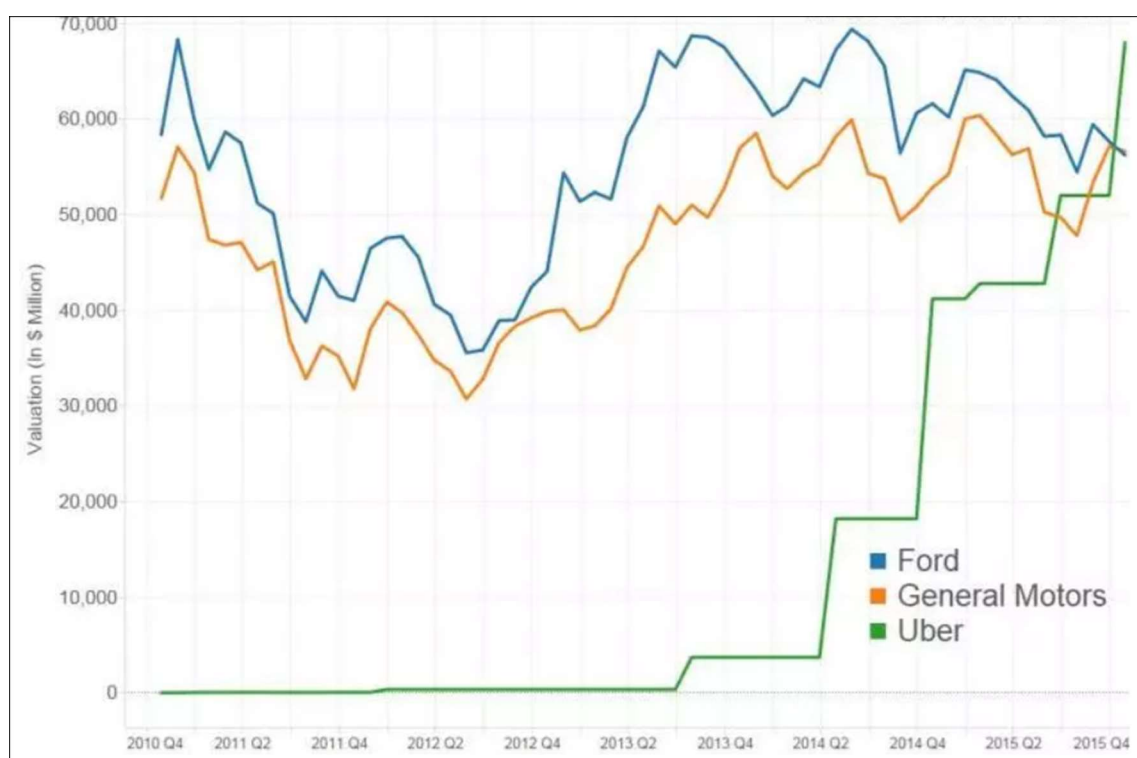
In case of shared infrastructure providers are for-profit initiatives that create value by providing monetized, temporary access to a centralized pool of proprietary resources (Zipcar (US), Cambio (Belgium), Communauto (Montreal), Car2go (Europe, US, Canada), etc.). These initiatives form strategic partnerships with similar organizations, e.g. in 2007, Zipcar (being world's largest car-sharing company) merged with Flexcar (second-largest car-sharing company in the US), to be finally acquired by Avis Budget Group rental company in 2013. According to critics, the shared infrastructure providers companies do not always keep their environmental or social claims and facilitate big-business capitalist logics (see example of Zipcar) (Acquier et al., 2019).

The Commoners type of initiatives are non-profit, generating social and/or environmental value, initiative that pool resources and skills in order to make them publicly available (such as open-knowledge Wikipedia or circular economy initiative Fixit). In practice, such initiatives may face

difficulties related to copyright laws or free access to knowledge, and therefore introduce complementary for-profit activities to financially support their mission. Mission-driven platforms are non-profit, for-profit, or hybrid structures aiming to introduce new practices in the areas of consumption or exchange in order to reduce waste or build shared value for local communities (free online hospitality platforms like Couchsurfing, ShareVoisins, Peerby). The Duch Peerby enables each user to lend or borrow objects from other members in the same geographic area. Initially the membership was free of charge, yet in order to stimulate demand, the owners decided to launch monetary transactions as the demanders felt more comfortable borrowing for money. Finally, Matchmakers is a for-profit digital type platform that connect individuals who can conduct transactions for goods or services in the physical world on a peer-to-peer basis acting as brokers (Uber, BlaBlaCar, Airbnb). Established in 2006, the BlaBlaCar platform is one of Europe's best-funded startups with the business value at 1.6 billion of US dollars at the end of 2015. It is now present in more than 20 countries.

The sharing economy comprises all activities related to sharing or granting access to goods and services through the sharing community networks platforms (Hamari et al. 2016). In 2016, Uber was valued at \$68 billion, having taken just 6 years to surpass the valuation of 100-year-old companies like General Motors and Ford, as well as "traditional" transportation companies like Hertz and Avis (Petropoulos, 2016).

Figure 2. The valuation of Uber in comparison to traditional transportation

































Source: Forbes in Petropoulos (2016).

Claiming to generate positive impacts on economic value, greenhouse gas emissions and energy use, its social aspects cause serious controversies related to labour and social welfare of independent contractors (Casilli, 2019). Notwithstanding the company rapidly evaluating, with new initiatives being introduced, such as Uber introducing autonomous self-driving cars. The latter would mean a significant shift from a ‘matchmaker’ configuration to that of a ‘shared infrastructure provider’.

Besides typical examples such as Uber, Bolt and Airbnb, the sharing economy models have also been incorporated in the content and musical entertainment (i.e. Spotify) and textile industry. The EU fashion resale second-hand market is currently growing 11 times faster than traditional retail. It is projected to double in the next five years (2025), reaching a total of 34 billion euro (Top 10 sustainable market places operating in Europe, 2020).

Figure 3. Top 10 sustainable market places operating in Europe

| | N° vs 2020 | Parent company | Company | | Country | Category | Sector | |
|----|------------|-------------------------|----------------------|---|---|-----------------------|--|----------------------|
| 1 | ↑ Up | Vinted | Vinted |  |  Lithuania | C2C Pure Player |  Fashion - Jewelry - Baby | Resale / Second-hand |
| 2 | ↓ Down | eBay Inc | eBay |  |  USA | B2C & C2C Pure Player |  Mass Merchant | |
| 3 | ↑ Up | Vestiaire Collective SA | Vestiaire Collective |  |  France | C2C Pure Player |  Fashion - Jewelry - Baby | |
| 4 | ↑ Up | StockX LLC | StockX |  |  USA | C2C Pure Player |  Fashion - Jewelry - Baby | |
| 5 | ↑ Up | Etsy Inc | Depop |  |  UK | C2C Pure Player |  Fashion - Jewelry - Baby | |
| 6 | ↑ Up | Artpal | Artpal |  |  USA | C2C Pure Player |  Art, Craft & Gifts | |
| 7 | ↓ Down | Etsy Inc | Etsy |  |  USA | C2C Pure Player |  Art, Craft & Gifts | |
| 8 | ↑ Up | Rubylane | Rubylane |  |  USA | C2C Pure Player |  Art, Craft & Gifts | |
| 9 | ↓ Down | Amazon Inc | Amazon (+handmade) |  |  USA | B2C Pure Player |  Mass Merchant | |
| 10 | ↑ Up | Spoonflower Inc | Spoonflower |  |  USA | C2C Pure Player |  Art, Craft & Gifts | |

Source: TOP 100 Cross-Border Sustainable Marketplaces Europe, 2020.

The second edition of “TOP 100 Cross-Border Sustainable Marketplaces Europe” (2020) predicts that by 2030, the resale market will be twice as big as the fast fashion market.

Sharing economy - the supply-demand mechanism

In the sharing economy platforms - providers and consumers - connect, exchange information, and coordinate sharing activities without restrictions of time and space. As a result the sharing economy model has changed the ways in which people engage in a variety of supply-demand activities, including travelling, trading, working, and lending or borrowing money. It allowed customers to

have access to rather than own tangible and intangible assets (Vaughan and Hawksworth, 2014; Hartl et al. 2016; Richter et al. 2015). Many sharing-based business models differ from current platform business models in that they match not only supply and demand for digital but also physical goods that require 'real world' logistics.

Even though the idea of sharing economy can potentially translate to lower prices for the same service than traditional providers, it also prove the subjective and irrational character of pricing based on the patterns of consumer behavior. Airbnb as opposed to traditional economy platforms such as Booking.com and Tripadvisor, can be a good example. The large-scale quantitative study aiming to reveal the Airbnb guests feedback and reviews and understand what participants in this hospitality service care the most (Quattrone et al. 2022). Interestingly, factors such as location, facilities, and communication with the hosts were consistently found to be particularly important, while price was rarely discussed in reviews. Moreover, such traditional factor as physical aspects of the Airbnb service, such as interactions between hosts and guests, steadily lost importance over time (Quattrone et al. 2020). The study by Xu (2020) based on the extensive evidence from online reviews in the accommodation sharing platforms, reveal somewhat different findings, with both the social (physical interaction, neighbourhood) and economic (price) properties of the exchange between buyer (i.e., guest) and supplier (i.e., host) are equally important.

The rapid development of sharing economy information platforms facilitated also collaborative consumption through the bartering and swapping initiatives (Facebook group communities, <https://www.shareable.net>; <https://www.homeexchange.com>; <https://www.swapsociety.co>, etc.). The platforms allow to swap most of the articles such as clothing, books, toys, sports and gardening equipment, and even homes. The latter give evidence to a subjective value of products in the eye of the product's beholder. Since people value objects differently, they can each share or swap a less-preferred item for a more-preferred one, in a win-win trade or a demand-supply mechanisms, in which all parties are satisfied with the result. It is worth noting that the phenomenon of individualism and subjectivism in the supply-demand mechanism was already examined by Austrian economic school representatives, mainly Carl Menger (Principles of Economics, 2007). The bartering and swapping have especially been popular during the times of recession, i.e. the Great Recession and Covid recessions. In the latter one, examples include professional and personal services such as Taskrabbit, Airbnb or healthcare providers like Doctor on Demand.

Drivers and barriers of the sharing economy

In terms of drivers fostering the participation in sharing economy, studies by Möhlmann (2015) and Kim et al. (2015) show that the practical aspects such as utility, cost savings, as well as trust and familiarity were the most essential in both studies. Several other authors Hamari et al. 2015 and Matzner et al. 2015 point to the opportunity for gaining extra income, while Hennig-Thurau et al. (2007) reveal that many cases participation and collaboration in online sharing platforms was influenced by environmentally friendly attitudes, socio-economic concerns or a preference for greener consumption.

Negative factors, or barriers can impede and even prevent participation in the sharing economy. The studies of Matzner et al. (2015) show that major barriers to sharing economy may be linked to both economic, social, as well as psychological factors. In the group of the first factors is the requirement for the sharing economy platforms to popularise and assure mass participation or achieve a critical mass of consumers and providers (Matzner et al. 2015; Täuscher and Kietzmann 2017; Chasin et al. 2018). After all, with few successful examples, many ventures of sharing economy emerged but failed to develop successful platforms. Spindeldreher et al. (2019) studied the barriers to participation in the sharing economy using the semi-structured interviews and identified nine barriers that have a negative impact on participation in the sharing economy: effort expectancy, exploitation, inflexibility, lack of trust, performance risk, physical risk, privacy risk, process risk, and undesired social interaction. More comprehensive and detailed studies are needed to understand the mechanisms of supply and demand interactions in the sharing economy.

Sharing economy and its environmental impact

Overproduction and the related problem of excess product stocks and waste disposal may have a significant environmental impact and economic costs. More resources and raw materials than necessary are used in production more undesirable pollution arise. By increasing the use of goods sharing economy reduces the number of goods that must be produced and so the resources and raw materials required for the production of these goods. As a result it reduces industrial pollution. While, Heinrichs (2013) remarks that sharing economy is a “potential new pathway to sustainability”, the latest study by Merino-Saum et al. (2023) provide more convincing evidence for the sustainability potential of the sharing economy. The authors conducted a systematic review of sharing economy related literature, analysing the bibliometric, epistemological and substantive meta-data from 175 papers. In the 85 cases the most frequent environmental impacts linked to

sharing activities included a decrease in the consumption of natural resources, the development of more sustainable patterns of consumption and production. The other authors like Hawlitschek et al., 2018; Sung et al., 2018 come to similar conclusions, stating that sharing practices is environmentally friendly and reduce environmental pollution (Lee and Chow, 2020; Christodoulides et al., 2021). Yet, other authors like Christodoulides et al. (2021) show that in some cases like sharing of luxury products and services, do not have much influence on the environmental state. Unfortunately, the available empirical evidence on the subject is still very fragmented. The common conclusion for the existing studies is that model of sharing economy (including bartering and swapping) has a high potential improving resource efficiency, save production resources, reduce consumer and manufacturing waste to the environment and promote sustainable growth.

Summary and conclusions

‘Access over ownership’ principle contradicts the main pillar on which capitalist economy is built - private ownership, and yet allows capital owners to produce more value. Hence, sharing economy contribute to a sustainable economic wealth accumulation. Moreover, by shifting to ‘access over ownership’, the responsibility falls to manufacturers to make longer lasting, higher quality and more efficient products that are designed with repair and reuse as primary considerations. It also brings new risks to the capital owners and manufacturers, while reducing the risks (financial risk) for the consumers (especially with lower income). The capital owners may to face the burden of possible businesses interruptions and supply chain failures, cyber threats, privacy breaches, property damage and IP rights violations. Nevertheless, from the social perspective sharing economy contributes to building more developed and bonding/bridging social inclusive communities, promotes circular economy and “circular awareness of consumers”, which further induce more sustainable business models and sustainability policies. Even though the sharing economy platforms may not sort out all environmental problems they have high potential to reinvent the capitalism doctrine (via disruption of the unsustainable practices of over-consumption).

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