

Identification of consumer trends in the sharing of things

Natalia Kireeva^{1*}

¹Plekhanov Russian University of Economics, Stremyanny line, 36, 117997, Moscow, Russia

Abstract. Relevance. The development of digital technology has given a strong impetus to the development of consumer goods sharing and the emergence of numerous online platforms that provide goods for temporary use. **Research objective.** This paper aims to establishing user preferences and identifying consumer trends in the sharing market in Russia, in the USA and in the UK. The study also examines the scientific literature regarding the development of the market for sharing things. **Data and methods.** The material for the study were the statistical data of the Google Trends service on search queries originating from the territory of Russia, the USA and the UK over the past 10 years and data on the date of creation and visiting the most popular online platforms for sharing things in these countries. Analysis of their variance was used to study the relationship between the indicators. **Results.** Consumer interest in sharing things in Russia, the US and the UK is increasing. There are similar trends in the market for rented items in all three countries, in particular a rapid increase in the popularity of tool and equipment rentals. The popularity of demand for rented goods in all selected countries has a pronounced annual seasonality. The leaders in the Russian sharing economy are young companies, in contrast to the USA and the UK. Website traffic of Russian sites on sharing things is low, and it lags far behind that of retailers and is much lower than in the US and the UK. In all three countries there are not only rentals according to the classic scheme, but other formats: services, the business model of which is based on the P2P principle, rent of things provided by large trading and manufacturing companies, the Try & Buy format, through which consumers can try products before buying them. **Conclusions.** Consumers in Russia, in the US, and in the UK are gradually moving away from owning things towards using them. The rent of things markets in Russia, the US and the UK show similar trends. At the same time, in the US and the UK, the sharing economy is more developed than in Russia, especially rent of things under the classic scheme. In all three countries, new formats for rent of things are developing.

1 Introduction

The rapid development of information and mobile technologies has led to the emergence of a new socio-economic model, which changes the attitude to property and consumption, i.e. the model of sharing economics. This model is based on that owners provide other users with

* Corresponding author: nskireeva@gmail.com

temporary access to their property through online platforms (12, 2013; Botsman and Rogers, 2010; Trenz et al., 2018).

Sharing is a phenomenon that has long existed, both in the form of renting goods from organizations and in the form of informal exchange (Belk, 2007, Ertz et al., 2016a).

Coordinating and distributing goods and services to other people can receive economic, hedonistic, as well as social benefits such as membership in communities and communication with other people through sharing (Hamari et al., 2016; Ostrom, 1990), developing a reputation among like-minded people (Habibi et al., 2016; Van de Glind, 2013).

In the last decade, the development of digital technologies has given a powerful impetus for the development of sharing. Advances in information technology have expanded the scope of sharing from individual interactions within a close social group to a global level, allowing people who did not previously know each other to exchange goods and services (Ritzer, 2015; Ertz et al., 2016b). The share economy has been growing for over a decade (Acquier et al., 2019; Frenken and Schor, 2017; Zvolaska et al., 2019).

The advent of online platforms, mobile devices and electronic transactions has made consumer goods much more available for temporary use (Belk, 2014; Frenken, 2017) and the list of rented goods has expanded significantly.

This was due to a significant reduction in transaction costs when making deals between strangers. Economists mean by transaction costs all costs incurred in an economic transaction (Williamson, 1981). This is especially true of the costs associated with the search for counterparty and the conclusion of a contract. They were high before the advent of the Internet, because there was little information on supplies, reliability, and contract forms (Benkler, 2004). This is one of the reasons why exchanges of goods have usually been limited to friends and family.

Digital platforms, which are mainly driven by the expansion of mobile devices, make it easier for users to find products and services. Transactions are governed by standard contracts and online payment systems. In addition, there is information about the past user behaviour (ratings, reviews) on most platforms within the economy, which can be used to judge its reliability. Such platforms include, in particular, the worldwide private rental market Airbnb (Zekanovic-Korona and Grzunov, 2014), the world's largest diversified one-stop travel platform DiDi (Shao and Yin, 2018), tool rental sites (for example, SnapGoods), cars and bicycles rental sites (e.g. RelayRides, Wheelz) (Zhang et al., 2019).

Sharing platforms transform production and consumption systems in cities around the world (May et al, 2017; McLaren and Agyeman, 2015).

The sharing economy volume is growing rapidly. It is expected that by 2025 revenues of the five main sectors of the sharing economy (home sharing, car sharing, finance, media streaming, and stuffing) will grow to \$ 335 billion from \$ 15 billion in 2015 (PwC, 2015).

The sharing economy rooted in the logic of service sector dominance (Abdul-Ghani et al., 2019, Ertimur and Venkatesh, 2010), has pioneered new ways of market exchange (e.g., open innovation, co-creation of value, sustainable development practices) (Blasco-Arcas et al., 2014; Botsman and Rogers, 2011; Hajli and Lin, 2016).

There are also signs that the sharing economy is affecting consumer behaviour more broadly: ride-sharing apps (car-pooling) are changing the way people move, and short-term private rental sites are encouraging a new generation to travel more frequently and to different locations (Bae et al., 2016; Zervas et al., 2017).

The sharing economy has changed not only consumer buying and using behaviour, but also influenced the producers of goods. They can choose to promote their products on both P2P and B2C online platforms depending on the perceived value of the product and the marginal cost (83).

The paper is structured as follows: first, we research the scientific literature regarding the development of the market for sharing things. Then we collect data on the markets for things

in three countries (Russia, the US, and the UK) and put forward hypotheses. After that, we examine the findings and discuss the results. In conclusion, we draw theoretical and practical conclusions.

2 Theory

2.1 Definition of the sharing economy

There is still no unified and clear definition of sharing economics in the scientific literature (Curtis and Lehner, 2019; Ertz and Leblanc-Proulx, 2018; Gurău and Ranchhod, 2020). In addition to the term “sharing economy”, the terms “collaborative consumption”, “access-based consumption”, “collaborative economy”, “peer economy”, which were introduced into scientific circulation in the middle of the last century, are also used (Felson and Spaeth, 1978).

Difficulties faced by scientists in trying to conceptualize this concept stem from the fragmented and disparate foundations of the sharing economy (Botsman, 2013; Jenkins et al., 2014; Möhlmann, 2015). The ambiguity and opposition of concepts in marketing theory and practice has led to an ambiguous interpretation of the sharing economy and its defining characteristics (Ritter and Schanz, 2019).

In addition, although the concept of the sharing economy is not entirely new (Chen and Wang, 2019), it is relatively little studied, as its researches are often narrow and arbitrary (Weng, 2020). They focus primarily on the digital aspects of the sharing economy, relying heavily on classical marketing concepts and theories in their explanation (Kumar et al., 2018; Lamberton and Rose, 2012).

In the scientific literature, there are several trajectories for definitions of sharing economics. One of them focuses on temporary access to tangible and intangible resources as an alternative to permanent ownership (Frenken et al., 2015; Kathan et al., 2016; Lamberton and Rose, 2012; Narasimhan et al., 2018).

Consumers provide each other with temporary access to underutilized physical assets (“unused capacity”). Shared goods are goods that, by their nature, provide owners with excess capacity, giving their consumers the opportunity to rent their goods to other consumers. There is surplus capacity for a consumer good when its owner does not consume the good all the time. These items include homes, cars, boats, clothing, books, toys, appliances, tools, furniture, computers, etc. Many items have excess capacity by default, such as car seats for everyday passengers (Frenken and Schor, 2017).

Belk (Belk, 2007) describes sharing as the process of distributing property among others for a limited period of time without obtaining legal rights to this property. “Sharing is an alternative to private property that matters both on marketplaces where exchanges take place and on those where donations are made. When using a thing together, two or more people can enjoy the benefits (or costs) of owning it” (Belk, 2007, p. 127). This definition implies that sharing includes several components from an economic point of view: balancing available resources and consumer needs.

Another trajectory of definitions of the sharing economy focuses on digital technology.

Perren and Kozinets (Perren and Kozinets, 2018, p. 21) define the sharing economy as “A market that is formed through an intermediary technology platform facilitating exchange in a network of peers.”

Chen and Wang (Chen and Wang, 2019) examine the sharing economy through the lens of digital data: “An important type of digital economy in which data is used as a key production factor to provide users with temporary access to tangible and intangible resources to effectively meet their individual needs.”

Another perspective on the sharing economy is concepts related to business value (Zervas et al., 2015).

Some authors suggest that the sharing economy should be distinguished from the second-hand economy, where consumers provide each other with permanent, rather than temporary access to their goods, both for money and for free (Frenken and Schor, 2017).

2.2 The opportunities offered by the sharing economy

The concept of sharing economics is controversial (Cohen, 2016; Schor, 2014; Sundararajan, 2016).

On the one hand, the sharing economy empowers consumers and organizations to collectively innovate, create value, and participate in sustainable development practices (or improve economic, environmental, and social well-being) (Weng, 2020). In particular, the sharing economy allows resources such as finance, human capital, and technology to conveniently pool together in physical and digital spaces, thus connecting many users, overcome resource constraints by pooling unused capacity and demand, and leverage technological and digital advances to facilitate collaborative innovation and value creation, and to meet collective needs (Dellaert, 2019; Ferrell and Ferrell, 2017).

Moreover, shared access to diverse and disparate resources reduces duplication and waste of these resources (Belk, 2014; Hamari et al, 2016; Pomeroy, 2017; Zervas and Proserpio, 2015), which lowers economic, environmental and social costs. For example, the sharing of tools or equipment consolidates the needs of users to purchase those items and also saves the resources required to produce them.

The argument in favour of the sharing economy is also that it has the potential to strengthen social cohesion by involving new users through digital technologies and by stimulating entrepreneurship (Botsman and Rogers, 2010).

Proponents of the sharing economy argue that it can help mitigate the effects of the ongoing economic recession, tight savings of governments, widening inequalities between different sectors of society and growing environmental problems caused by consumption (Agyeman et al., 2017; Botsman and Rogers, 2011; Gansky, 2012).

Several studies support the environmental benefits caused by the sharing economy (Botsman and Rogers, 2011; Demailly and Novel, 2014; Tukker, 2015), in particular the reduction in greenhouse gas emissions (Amasawa et al., 2020).

On the other hand, there is little evidence to support claims that the sharing economy provides resilience (Cohen, 2016; Schor, 2014).

Critics of the sharing economy warn that it can pose threats to professionalism, public safety, privacy and health, and also to labour rights (Vith et al., 2019).

In addition, it creates the risk of increased consumption and a related increase in environmental pressure (Martin, 2016; Voytenko et al., 2017).

2.3. Challenges generated by sharing economy

In addition to the potential environmental issues discussed above, the sharing economy creates opportunities and threats in economic and social terms (Demailly and Novel, 2014).

In particular, the rapid penetration of services provided by multinational platform giants such as Airbnb and Uber has taken governments by surprise leaving them unprepared for the challenges that may arise (Davidson and Infranca, 2016; Ferreri and Sanyal, 2018; Finck and Ranchordás, 2016; Gyódi, 2018; Voytenko et al., 2017). As a result, many national and local governments have begun to regulate the practice of sharing economics (Voytenko et al., 2019).

Along with the benefits, the rapid development of the sharing economy carries potential risks associated with unclear or underdeveloped legislation that diminishes user confidence in online platforms (Horton and Zeckhauser, 2020; Huurne et al., 2017).

Regulatory regimes that are effective in the traditional market may be outdated or less effective in sharing markets, leading to the emergence of gray areas in the sharing economy (Katz, 2016; Koopman and Mitchell, 2014; Ranchordás, 2015). Instead, the institutional arrangements implemented by the online platform can play a greater role in building customer trust and facilitating their ongoing participation in exchange transactions (Shao and Yin, 2018). Given these risks, it is important that platforms themselves establish effective institutional arrangements that foster a secure transaction environment (Mittendorf, 2017).

To properly assess the impact on the sharing economy, access to user data that are currently stored on digital platforms is a key point. However, the platforms provide access to this data in a limited and selective manner, referring to protection of personal data and trade secrets. Limited access to user data also makes it difficult to comply with regulations. Although sharing platforms have appeared relatively recently, their activity is already quite high and continues to grow exponentially. Therefore, calls for regulation of this area are becoming louder, given the negative externalities caused, including unfair competition between platforms and traditional operators in such sectors as tourism, restaurants, short-term accommodation, transportation, and home appliances.

Moreover, there is a reason to believe that some platforms avoid paying taxes or even do not know that they should pay taxes for certain activities (Frenken and Schor, 2017).

For the development of the sharing economy, a critical mass is needed to create the necessary network effect. This effect is able to scale up sharing practices to the point where there is a reliable and sufficient supply and demand for resources to be shared (Forgacs and Dimanche, 2016; Key, 2017). The widespread availability and rapid diffusion of technology can help meet this challenge (Rayna and Striukova, 2016). And its solving is hampered by insufficient infrastructure and digital literacy of the population. As a consequence, some areas (such as transportation) of the sharing economy have gained more acceptance among certain types of target markets (such as college-educated millennials, which are tech-savvy and urban-dwellers) than other areas (such as housing) and types of target markets (such as rural residents with a low level of education and digital literacy) (Lampinen et al., 2015; Wagner et al., 2015).

Thus, it should be recognized that the degree of scientific elaboration of the issues on motivation of users in sharing things and the directions of development of sharing things do not correspond to the intensity of its growth.

Since most of the research is conducted in economically developed countries, it is also necessary to understand how, in what form and with what consequences the sharing economy arises in the developing world (Retamal, 2019; Yuana et al., 2019).

3 Material and methods

To study the sharing economy, we can use user data that online platforms accumulate in their activities. However, companies are extremely reluctant to share this data, referencing to confidentiality rules and trade secrets (Frenken and Schor, 2017).

Therefore, researchers turn to other methods, for example, bibliometric analysis of publications (Ertz and Leblanc-Proulx, 2018) analysis of social networks (Geissinger et al.,

2019), interpretive content analysis of interviews with sellers, service providers and users (Gurău and Ranchhod, 2020).

One of the possible sources of data for researching the sharing economy is search query statistics.

The level of interest of Internet users in information on various topics is often considered as indicators of the characteristics of any economic processes. They are used, for example, in the study of the promotion of new products to the market (Chumnumpan and Shi, 2019), the unemployment rate (Simionescu and Zimmermann, 2017), and cryptocurrencies (Kristoufek, 2013).

The most convenient tool for researching user's search activity is Google Trends (<https://trends.google.com>). Google Trends provides access to a sample of valid and unfiltered search queries performed by Google users.

This public service shows the popularity of keywords among users of the Google search engine on various topics, in different languages and in different regions of the world.

User search data can be used to develop more timely, informed and effective solutions for the benefit of society (Askitas, 2015).

The advantages of this method include the fact that it allows us to identify the most stable popular queries and obtain a wide range of information about users with a high update rate (Askitas, 2015).

When using this method for research, it is necessary to take into account its disadvantages. Among them, the geographic distribution of search data may not be accurate because IP addresses may not always be correctly located; the meaning of the keyword can change over time and in different regions, which reduces the suitability of the data for analysis; Google search engine rankings change over time, which can distort data, as well as various forms of censorship (Askitas, 2015).

In our opinion, the Google Trends service can also be used as a data source for researching one of the promising topics, which is the sharing economy, in particular the sharing of things.

The main objectives of the study are to make the following, based on Internet users' queries, website traffic data and the dates of creation of sharing companies sites:

- 1) Determine the most popular user queries;
- 2) Explore the dynamics of the popularity of these queries;
- 3) Assess the degree of development of the market for the sharing of things.

The study was conducted in May 2020. The material for the study was statistical data from the Google Trends service on search queries originating from the territory of Russia, the United States and the United Kingdom for 10 years: from May 2010 to May 2020. The first step was to identify the fastest growing search queries related to the words "arenda (rent)", "prokat (hire)", "rental" and "hire". Then statistics were collected and analysed for each query. Queries for renting real estate and vehicles were excluded from the list of queries generated by the Google Trends tool. Similar queries include: "Top" - the most popular topics and "Trending" - queries, the number of which has grown most noticeably since the previous time period.

At the second stage, data was collected and analysed on the date of creation of the most popular sites providing services for renting things in Russia, the USA and the UK. Those most popular sites were selected that were in the top 10 of Google searches for "arenda (rent)", "prokat (hire)" (Russia), "rental" (USA), "hire" (UK) and similar queries, excluding queries for renting real estate and vehicles. We excluded from the study those sites for which the rental of things is not the main activity: Internet services for posting advertisements for the sale of goods, sites of government agencies, sites of help systems and sites of trade and

manufacturing companies. The top includes 165 sites that provide services for rental of things. The source of the site registration data was the tool <https://www.nic.ru/whois>.

At the third stage, data on the traffic of the most popular sites that provide rental services in Russia, the USA and the UK were collected and analysed. The material for the study was the data of the services <https://www.similarweb.com/website> and <https://2ip.ru/site-statistics> for April 2020.

Comparison of the three groups in the analysis of quantitative indicators was carried out using nonparametric Kruskal-Wallis analysis of variance. The homogeneity of variances across groups was compared with the Leuven test. Paired comparisons of samples were performed using the Tamhane test.

4 Results

The first phase of the study identified the rapidly gaining popularity search queries related to the words "arenda (rent)", "prokat (hire)" in Russia and "rental" and "hire" in the US and UK. The list of these queries obtained using the Google Trends service is shown in table. 1.

Table 1. Search Queries.

Russia	USA	Great Britain
hire	rental	hire
suit for hire	party rental	bouncy castle hire
suits for hire	textbook rental	dress hire
dress for hire	pressure washer rental	suit hire
suits for hire	tool rental near me	bike hire
hire of wedding dresses	rental equipment	boat hire
ATV for hire	stump grinder rental	chainsaw hire
skate for hire		tool hire near me
bicycle for hire		
ski for hire		
snowboard for hire		
rental		
tool hire		
rental equipment		
tool rental		

As we can see from the table 1, the fastest growing interest in Russia is the rental of clothing, sporting goods, tools and equipment, in the USA the rental of tools and equipment, in the UK the rental of clothing, tools and equipment, bicycles and boats.

Based on the data in the table 1, it can be concluded that in all three countries, consumers prefer to rent goods that will be used one-time (tools and equipment, trampolines, boats, holiday goods). In Russia and the UK, the popularity of renting premium items that users cannot afford to buy (suits) is growing, as well as goods which use has a pronounced seasonality (bicycles, snowboards, skis).

Let's look at how users' interest in sharing things has evolved based on the popularity of related queries on the Internet over the past ten years.

The data obtained were displayed on graphs, where the level of interest in the topic is indicated on the ordinate axis in relation to the highest indicator in the table for a specific region and time period. 100 points mean the highest level of popularity of the query, 50 - the level of popularity of the query half as compared to the first case.

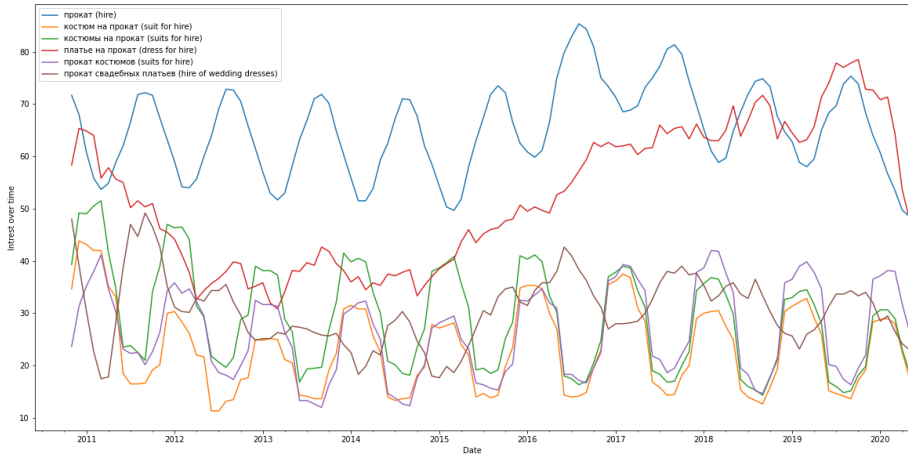


Fig. 1. Graph of moving averages for the popularity of search queries in Russia (Kireeva, 2021).

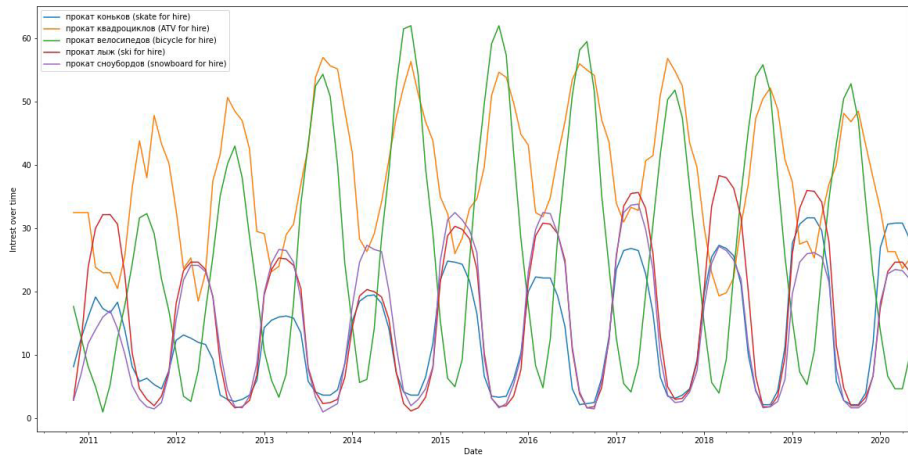


Fig 2. Graph of moving averages for the popularity of search queries in Russia (Kireeva, 2021).

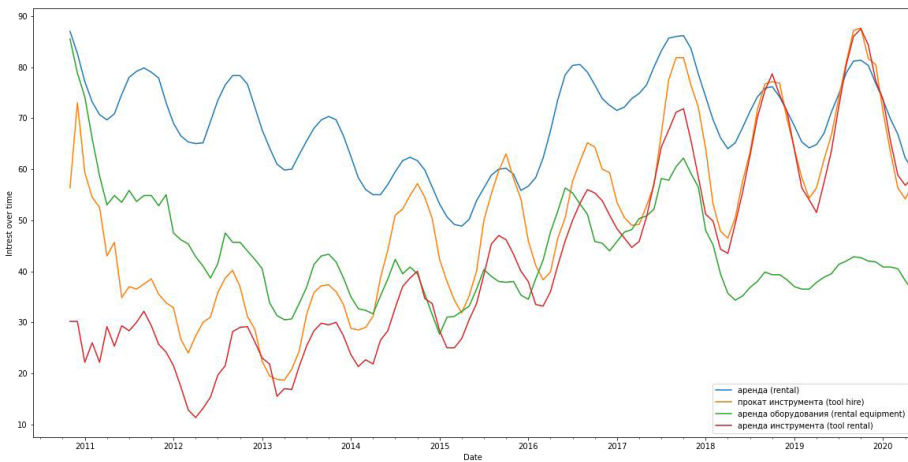


Fig 3. Graph of moving averages for the popularity of search queries in Russia (Kireeva, 2021).

It can be seen from graphs 1-3 that in 2016-2017 in Russia there was an increase in the popularity of the query "rental", and in 2015-2016 – the query "hire". Then the trend changed to negative (Kireeva, 2021).

The interest of users in "bicycle for hire" grew up to 2015, in "ATV for hire" - until 2016, in "snowboard for hire" - until 2017, in "ski for hire" - until 2018. Then the trend went down (Kireeva, 2021).

The popularity of the queries "tool for hire", "skate for hire" and "tool rental" has a positive trend since 2014. Since 2016, interest in "dresses for hire" is steadily growing (Kireeva, 2021).

The popularity of the queries "wedding dresses for hire", "suit for hire", "suits for hire" has a neutral trend (Kireeva, 2021).

The reasons for the decline in popularity of some queries related to the rental of things (including high-frequency queries "rent" and "hire") may be different. It can be assumed that the reason is the decrease in the number of new users or those users who use sharing from time to time. In contrast, regular users of sharing make lower-frequency queries or use the application. So, the application of the Moscow city bike rental Velobike and the application of the URent bicycle and scooter hire service were downloaded to GooglePlay more than 100,000 times each (Kireeva, 2021).

Another possible reason is that Russian users are reducing the rent of goods that can be dispensed with (ATVs and snowboards), which leads to a decrease in the popularity of these queries. At the same time, users are increasingly preferring to rent rather than buy goods that are difficult to do without (tools and dresses), due to a decrease in real income, which has led to the continued growth of relevant queries (Kireeva, 2021).

Thus, the decline in popularity of some search queries related to sharing things requires further research.

Graphs of moving averages for the popularity of search queries in the United States are shown in Fig. 4-5.

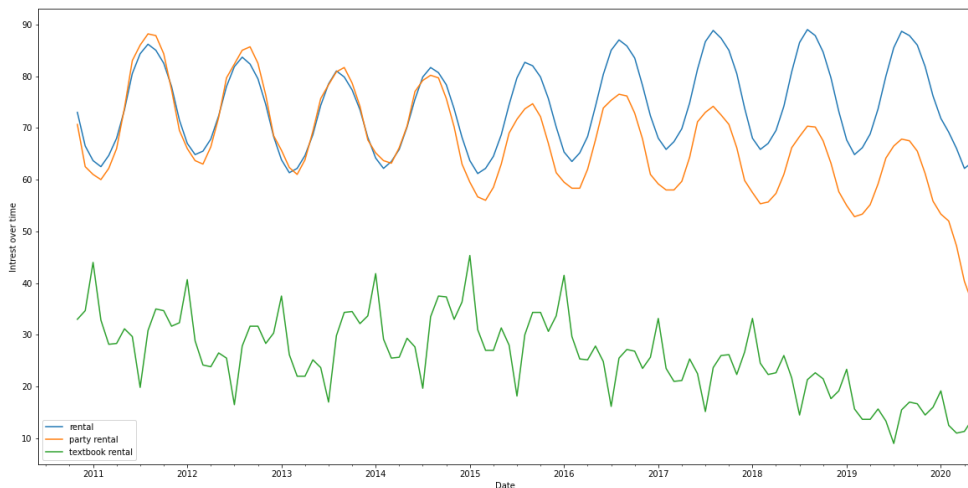


Fig. 4. Graph of moving averages for the popularity of search queries in the United States.

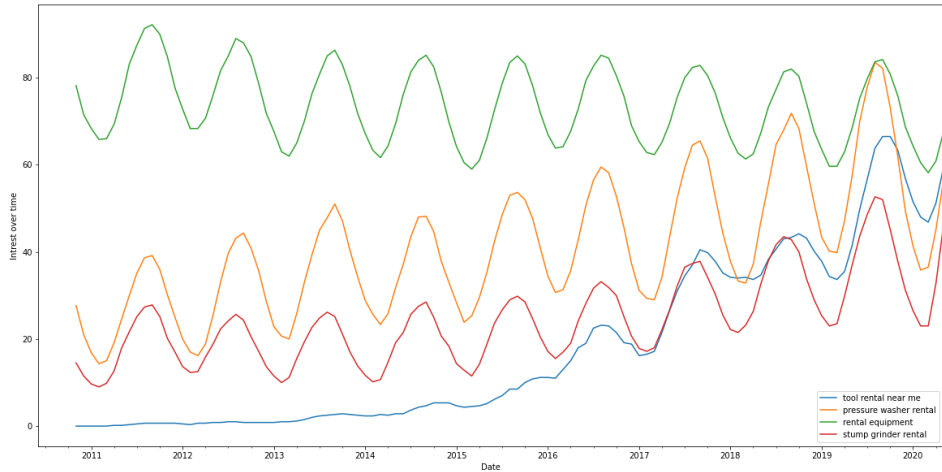


Fig. 5. Graph of moving averages for the popularity of search queries in the United States.

The interest in hire of instruments has been growing in the last ten years. The popularity of the query "pressure washer rental" tends to grow since at least 2011, the popularity of "tool rental near me" is growing rapidly since 2015, and the popularity of the query "stump grinder rental" is growing since 2016.

The popularity of the query "rental" and "rental equipment" in the last ten years has a neutral trend.

The demand for rental of textbooks and supplies for celebration has been declining over the past ten years.

Graphs of moving averages for the popularity of search queries in the UK are shown in Fig. 6-7.

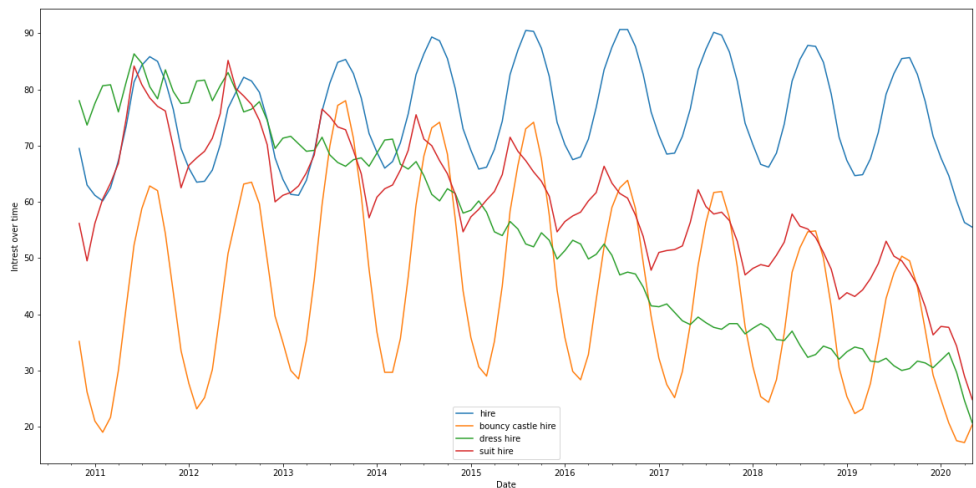


Fig. 6. Graph of moving averages for the popularity of search queries in the UK.

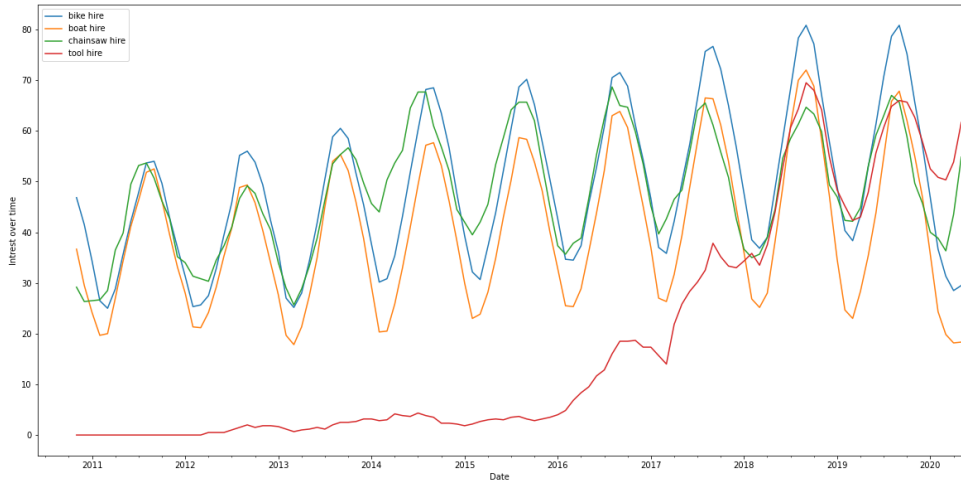


Fig. 7. Graph of moving averages for the popularity of search queries in the UK.

The popularity of the query "hire" grew until 2016; the popularity of the query "bouncy castle hire" grew until 2013, then the trend went down. The popularity of the queries "dress hire" and "suit hire" has been rapidly declining over the past ten years.

The popularity of "bike hire" and "boat hire" has grown slowly over the past ten years. The popularity of the "chainsaw hire" query grew until 2014 and in subsequent years remained at the achieved high level. Popularity of the query "tool hire" grew rapidly since 2016.

Thus, all three countries are characterized by a rapid increase in the popularity of the rental of tools and equipment. In the UK, unlike in Russia, interest in bicycle rental continues to grow. Interest in rental of dresses in Great Britain is falling, also in contrast to Russia.

According to the correlograms constructed for each sample, the popularity of the overwhelming majority of queries in all selected countries has a pronounced annual seasonality. The seasonality is most pronounced in queries related to the rental of sporting goods, for example, "ski for hire". Therefore, things sharing services should take into account the seasonality when forming the assortment of goods.

Fig. 8 shows a graph showing the dependence of the autocorrelation coefficient values on the lag value for the popularity of the query "suits for hire".

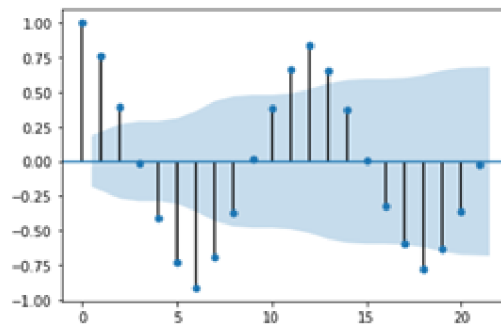


Fig. 8. Correlogram showing the popularity of the query "suits for hire" in Russia.

Analysis of the autocorrelation function values shown in Fig. 8 allows us to conclude that there is a linear trend in the time series and that there are seasonal fluctuations with a frequency of 12 months.

Let's analyse the data on the date of creation of the most popular sites that provide rental services. The sites selected as the most popular ones are those that are in the top 10 Google searches for “arenda” (“rental”), “prokat” (“hire”) (Russia), “rental” (USA), “hire” (UK), and similar queries, not including queries for renting real estate and vehicles.

The list of the most popular sites in Russia includes 64, in the USA - 47 sites, and in the UK - 54 sites.

The source of the site registration data was the tool <https://www.nic.ru/whois>.

The histogram for the distribution of the most popular Russian sites providing services for the rental of things by their registration date is shown in Fig.9.

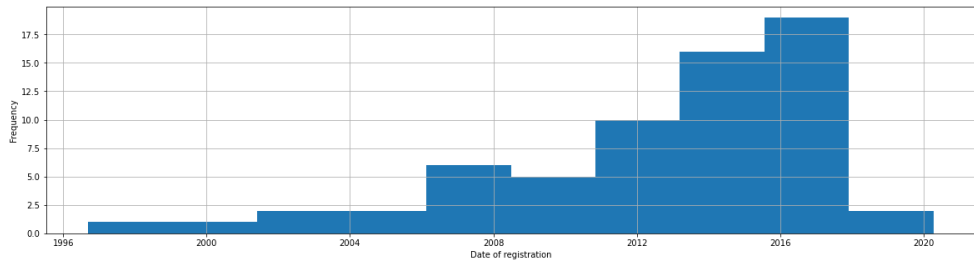


Fig. 9. Histogram of the distribution of the most popular sites that provide services for the rental of things, by date of registration (Russia) (Kireeva, 2021).

The overwhelming majority of the top 10 Google sites for the most popular searches related to sharing things were created between 2012 and 2017 (Kireeva, 2021).

Thus, we can conclude that the leaders in the market for sharing things are young companies, which confirms the results of a study conducted by RAEC and TIAR-Centre

A histogram of the distribution of the most popular USA sites that provide rental services by registration date is shown in Fig. 10.

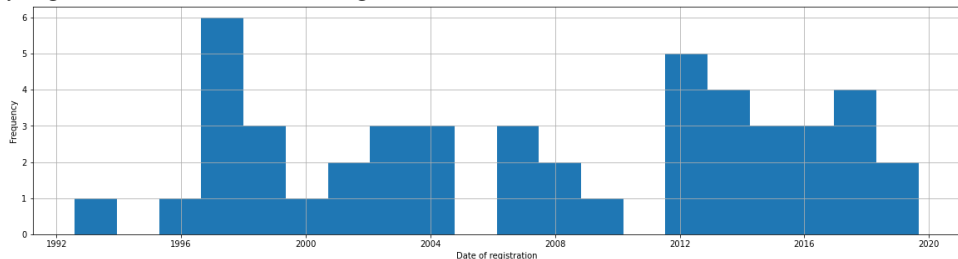


Fig. 10. A histogram of the distribution by the registration date (USA) of the most popular sites that provide rental services.

Compared to Russia, sites in the US were created much earlier. The vast majority of sites from the Google top or the most popular queries related to the sharing of things were created before 2012.

A histogram of most popular UK sites providing rental services on things by date of registration is shown in Fig. 11.

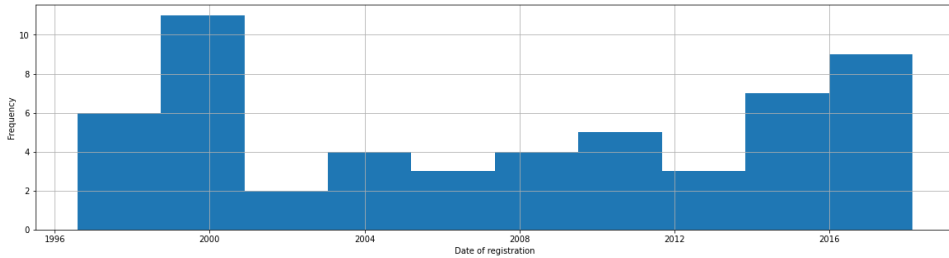


Fig. 11. A histogram for the distribution by registration date (UK) of the most popular sites that provide rental services.

Compared to Russia, sites in the UK were created much earlier. The vast majority of sites from the Google top of for the most popular queries related to the sharing of things were created before 2012.

Descriptive statistics indexes for the date of creation of the most popular sites are shown in table 2.

Table 2. Descriptive statistics indexes for the date of creation of the most popular sites.

	Range	Fashion
Russia	Since November 1996 to April 2020	August 2015
USA	Since August 1992 until August 2019	April 1997
Great Britain	Since June 1996 to February 2018	September 1999

As we can see from the table 2, in all three countries, the top sites include both those that have been working for a long time (more than 20 years), and those that were created relatively recently (no more than three years ago).

At the same time, the most common date of website creation in the US and UK is much less than in Russia. This means that the moment when most of sites providing services for the rental of things in Russia took place much later than in the USA and the UK.

Thus, young companies are the leaders in the Russian things-sharing market, while most of the most popular rental sites in the US and UK have a long history.

Rental of things according to the classical scheme is highly developed in the USA and Great Britain. At the same time, all three countries are developing new formats for renting things. Among them, there are services, the business model of which is built on the principle of P2P and rental of things from large trading and manufacturing companies (Banana Republic, Urban Outfitters, H&M, etc.). The Try & Buy tool is also growing in its popularity; its consumers can try a product before buying with it. For example, the company Thule offers a similar instrument for purchasing baby go-carts, and the company TOYRENT for toys. At various times, similar promotions were launched by M.Video, Svyaznoy, and Technopark hardware stores.

Let's analyse the traffic of sites that provide rental services. The sources of website traffic statistics were websites <https://www.similarweb.com/website> and <https://2ip.ru/site-statistics>. Observation period was April 2020.

The histogram of the distribution of Russian sites by the number of visits is shown in Fig. 12.

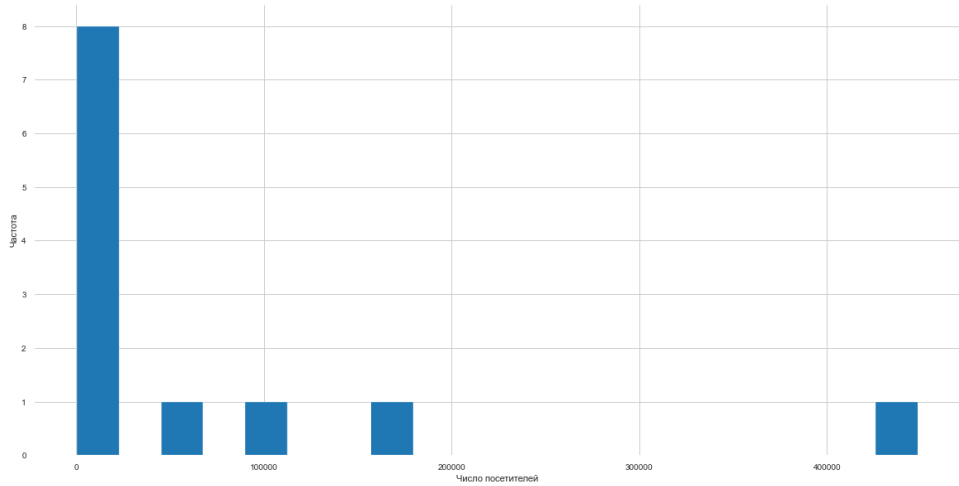


Fig. 12. Histogram of the distribution by the number of visits of the most popular sites that provide rental services (Russia) (Kireeva, 2021).

As seen from Fig. 12, the traffic of the overwhelming majority of sites does not exceed 100 thousand visits per month.

The traffic on Russian sites for the sharing of things is small and lags far behind the traffic on the sites of trading companies. Thus, the website traffic of the companies VseInstrumenty and Petrovich, which provide services for the sale of building materials and services for the sale and rental of tools, in April 2020 equalled, respectively, 16.4 million and 4.0 million visits (Kireeva, 2021).

A histogram of the distribution of American sites by the number of visits is shown in Fig. 13.

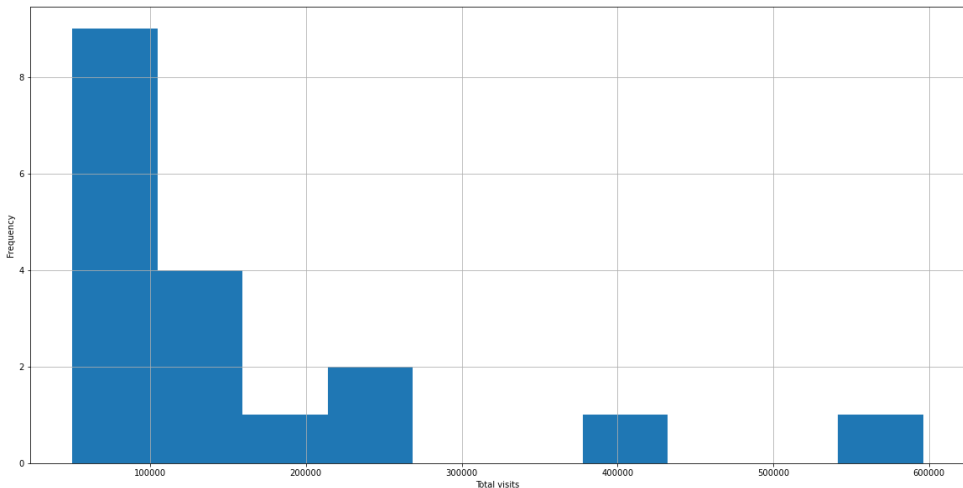


Fig. 13. Histogram of the distribution of the most popular sites that provide rental services by the number of visits (USA).

As seen from Fig. 13, the traffic of most American sites does not exceed 160 thousand visits per month.

A histogram of the distribution of British sites by the number of visits is shown in Fig. 14.

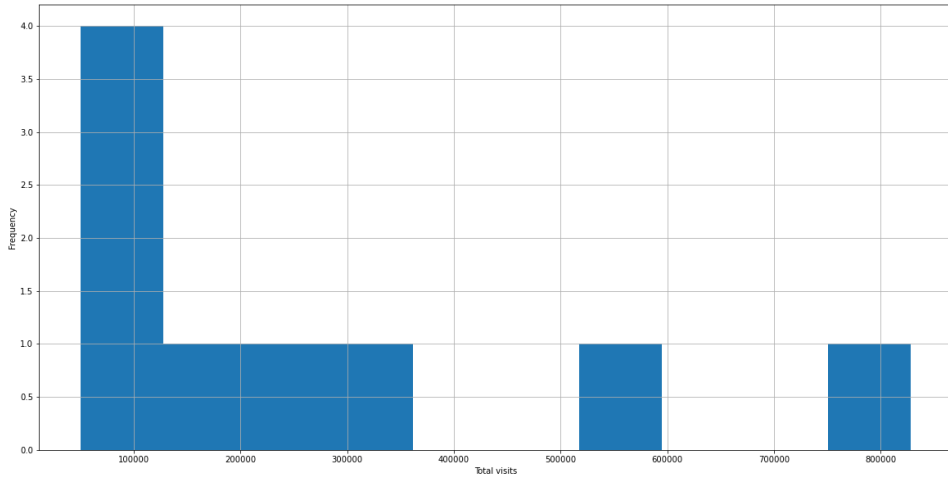


Fig. 14. Histogram of the distribution by number of visits of the most popular sites that provide rental services (UK).

As seen from Fig. 14, the traffic of most British sites does not exceed 325 thousand visits per month.

Comparison of statistical indicators of website traffic in Russia, the USA and the UK is given in table. 3.

Table 3. Comparison of website traffic in Russia, USA and UK.

Index	Russia	USA	Great Britain
Average traffic, thousand visits per month	50	106	163
Median traffic, thousand visits per month	1.5	154	265

As can be seen from the table, the average traffic to sites engaged in the sharing of things in Russia (about 50 thousand visits per month) is much lower than in the USA and Great Britain (more than 100 thousand visits). Similarly, the median traffic in Russia lags far behind the US and UK levels. With the average and median traffic to sites for the sharing of things in the UK is higher than in the US.

Let's run a test to determine whether the three samples characterizing traffic to sites for the sharing of things in Russia, the United States and the United Kingdom have a different distribution. Since the distribution in samples does not obey the law of normal distribution, the Kruskal-Wallis test is applicable. The null hypothesis says that "the median values of website traffic in Russia, the USA and the UK do not differ"; the observed differences in the group median values of the samples are completely random. An alternative hypothesis is that the median values of website traffic in Russia, the USA and the UK differ.

The calculated value of the test statistics of the Kruskal-Wallis test turned out to be 14.32, the level of statistical significance (p -value) = 0.0008. As can be seen from the obtained result, the probability of obtaining such a high observed value of the H-criterion with the correct null hypothesis is extremely small and, therefore, the null hypothesis is rejected.

To check the equality of variances across groups, the Leuven test was calculated which results in 0.023; this indicates that the obtained differences in variances are unlikely to be obtained by chance.

Since the variance in the three samples is heterogeneous, pairwise comparisons of the samples were carried out using the Tamhane test. The results of pairwise comparisons showed that the achieved level of statistical significance (p -value) was less than 0.5 between the Russia-USA and Russia-UK samples. Thus, the average traffic is significantly from the

point of view of statistics different between Russia and the US, Russia and the UK. The hypothesis of equality of website traffic in the US and UK has not been refuted.

The research has shown that the Russian market is less developed than the British and American ones. If we assume that the Russian market will repeat the path followed by the US and UK markets, then we should expect a significant increase in the number of people using the service of sharing things.

5 Conclusions

Research has shown that consumer interest in sharing things in Russia, in the United States, and in the United Kingdom is increasing. It can be concluded that consumers are gradually moving away from ownership towards use.

There are similar trends in the rental market in all three countries, in particular the rapid increase in the popularity of rental of tools and equipment. In the UK, unlike in Russia, interest in bicycle rental continues to grow. Interest in rental of dresses in Great Britain is falling, also in contrast to Russia.

The popularity of demand for rented goods in all selected countries has a pronounced annual seasonality. The seasonality is most pronounced for sporting goods. Therefore, things sharing services should take into account the seasonality when forming the assortment of goods.

Young companies are the leaders in the Russian market of the sharing of things, while most of the most popular rental sites in the US and UK have a long history.

The traffic on Russian sites for the sharing of things is small and lags far behind the traffic on the sites of trading companies. The average and median traffic to websites for sharing things in Russia is much lower than in the United States and Great Britain. Average website traffic differs significantly from the point of view of statistics between Russia and the United States, and between Russia and the UK. The hypothesis of equality of website traffic in the US and UK has not been refuted.

Rental of things in the USA and in the Great Britain according to the classical scheme is highly developed. At the same time, all three countries are developing new formats for renting things. Among them there are services, the business model of which is built on the principle of P2P and rental of things from large trading and manufacturing companies. The Try & Buy tool is also growing in popularity, with which a consumer can try the product before its buying.

Thus, the Russian market is less developed than the British and American ones. If we assume that the Russian market will repeat the path followed by the US and UK markets, then we should expect a significant increase in the number of users of sharing things in Russia.

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