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MASTER THESIS

<b>VARTOTOJŲ POŽIŪRIO Į 12-TĄ DARNAUS VYSTYMOŠI TIKSLĄ ĮTAKA ATSAKINGAM VARTOJIMUI LIETUVOJE</b>	<b>IMPACT OF CONSUMERS’ ATTITUDE TOWARDS 12TH SUSTAINABLE DEVELOPMENT GOAL ON RESPONSIBLE CONSUMPTION IN LITHUANIA</b>
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## INTRODUCTION

In the beginning of 21<sup>st</sup> century a common person regarding the climate change was often doing not more than choosing the paper bag in the supermarket instead of plastic one, buying reusable straws or switching off the lights in his house for one hour due to the annual tradition on a specific day towards the end of March, which is known as 'Earth hour' (Earth Hour, 2021). Today, after crucial consequences of global pandemic challenge on businesses, people are becoming more conscious and the organisations worldwide are setting new regulations towards the rapidly growing problem, we must take heavier actions to solve it. Therefore, not only consumers need to consider their own consumption choices, but also companies need to revise their production ways. According to the United Nations, all countries are included in this worldwide situation and must behave in their best way to keep the planet safe (The United Nations General Assembly, 2015).

Sustainability is compared to development, modernism and accountability in recent years (VšĮ "Gamtos ateitis", 2021). Despite the consciousness of society and the pressure towards companies' social behaviour, but also the law of the local government and worldwide regulations pushes businesses and humankind towards more responsible behaviour. However, even though the problem of sustainable consumption and production is widely analysed, but the scope of topic's exploration in Lithuania is still minimal. Only few research is made regarding the responsible consumption and production, and the actual responsible consumption across different age groups in Lithuania (Jonkutė G. , 2015; Staniškis, Arbačiauskas, & Varžinskas, 2012; Jonkutė & Staniškis, 2019).

There still occurs a problem of greenwashing, when companies in Lithuania initiate environment friendly activities in order to create a better image of themselves instead of doing meaningful changes to help the global change (Green Genius, 2021). As greenwashing is global problem, it can possibly be stopped in Lithuania by making sustainability reports mandatory as well as implementing regulations regarding this kind of problem. To make this possible the market needs to be researched and understood.

Responsible consumption and production are two of the aspects, which can be affected by everyone. Even though consumers are concerned about the state of the environment, actual behaviour is changing very slowly and results sometimes can be seen only after few years (Sharma R., Jha M., 2017). Thus, marketers are encouraged to create sustainable variants of their existing brands by promoting companies' social and environmental activities. In which way, consumers

can get more knowledge about sustainability and become motivated to consume in responsible way.

**The problem of the Master thesis.** How perception about companies' social and environmental activities, knowledge about and motivation towards sustainability affect responsible consumption via influence on attitude towards 12<sup>th</sup> SDG in Lithuania?

**The aim of the Master thesis.** Evaluate and determine impact of consumers' attitude towards 12<sup>th</sup> Sustainable Development Goal on responsible consumption within different age groups in Lithuania.

**The objectives of the Master thesis:** 1) analyse sustainable development concept, why it is important; 2) describe 12<sup>th</sup> sustainable development goal, it's targets, how it is measured, the progress nowadays, what other researchers have analysed and what their findings are; 3) define companies' social and environmental responsibility, in which aspects these spheres can be divided, what is the input of companies are in those sub-spheres, how they can be reached, what they result; 4) explain the knowledge about sustainability and its importance to required practices; 5) characterize motivation and attitude towards 12<sup>th</sup> sustainable development goal, how it can be measured, what other researchers came up to, compare those aspects within; 6) analyse responsible consumption in Lithuania, what is the progress comparing to other countries, it's overall situation, what is done, achieved, how it was done, what are the possible solutions to make it even better, more efficient and sustainable.

**The research methods:** 1) scientific articles, reports, international legislation issued by the United Nations and the European Union were analysed in depth to get a greater understanding of 12<sup>th</sup> sustainable development goal and companies' social and environmental responsibility; 2) survey, convenience sampling of 384 respondents, selected from different age groups in Lithuania, was analysed in particular sections and interpreted via different cuts; 3) Based on the results achieved, suggestions were given, the research questions were answered and the formulated hypotheses were rejected or accepted.

**The description of the structure of the Master.** Firstly, in the sustainable development goals concept section, the meaning of the issue is described, goals are listed and the meaning of the problem is given. Secondly, in the 12<sup>th</sup> sustainable development goal section, targets and indicators are detailed and explained, consumption's progress and results are analysed and compared with the experience of other researchers. Then, in the companies' social and environmental responsibilities' section, before mentioned aspects are analysed, practices from real life are indicated. Afterwards, knowledge about sustainability is specified, how it affects stakeholders in the market, examples from life and other research are compared. Furthermore, in motivation and attitude towards 12 sustainable development goal section, mentioned aspects are

described and compared with real life experiences and other research on the same topic. Finally, responsible consumption in Lithuania is analysed, progress is defined and practical cases are given.

In research methodology section. Research model is described, hypotheses are risen, major variables are indicated, methods, techniques, procedures and tools used to collect the data are listed, data and it's collection are described, sample size and method are detailed, measures are characterized.

Finally, conclusions are made and references to research papers, scientific articles and reports are detailed.

# 1. THE ANALYSIS OF SCIENTIFIC LITERATURE

After long discussions in September 2015 the United Nations General Assembly approved the document “Transforming our world: 2030 Agenda for Sustainable Development”, which concludes all goals with intention to stop or minimize the ongoing process of climate change (The United Nations General Assembly, 2015). The General Assembly agreed that international relations from now on should be based on fundamental values such as equality, freedom, tolerance, solidarity, respect for nature, and common responsibility, which should translate into actions.

## 1.1. Sustainable development goals concept

The UN after seeing the situation around the world not only regarding environment itself, but also society, financial problems, generated the complex document in which Sustainable Development Goals are listed (see table 1 below):

**Table 1**

*Sustainable Development Goals*

No.	Goal
1	End poverty in all its forms everywhere
2	End hunger, achieve food security and improved nutrition and promote sustainable agriculture
3	Ensure healthy lives and promote well-being for all at all ages
4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
5	Achieve gender equality and empower all women and girls
6	Ensure availability and sustainable management of water and sanitation for all
7	Ensure access to affordable, reliable, sustainable and modern energy for all
8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
10	Reduce inequality within and among countries
11	Make cities and human settlements inclusive, safe, resilient and sustainable
12	Ensure sustainable consumption and production patterns
13	Take urgent action to combat climate change and its impacts
14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development
15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
17	Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

Source: The United Nations General Assembly, 2015



As mentioned before, listed goals connects more than just environmental aspects. For instance, Swedish people say that sustainability connects ecology, economics and social responsibility with balance within all of them, they also believe, that if they want to progress, have a successful business and decrease impact to the climate, people must trust people, encourage them and take responsibly natural resources (Telia Lithuania, AB, 2020).

## 1.2. 12<sup>th</sup> sustainable development goal: targets, indicators, progress

All products are made by using resources, whether they are renewable or not. However, some of those products end up on the city's pathways not finished using or not even started. In which way, bigger areas become polluted and sometimes there is a lack of needed resources. Therefore, to address the issues, some urgent actions need to be taken. 12<sup>th</sup> goal of sustainable development stands for ensuring sustainable consumption and production patterns. It is sorted into eight targets, which are measured by specific indicators, and other three main targets, which concludes the meaning behind before listed eight targets (see tables 2 and 3 below) (The United Nations General Assembly, 2015):

**Table 2**

*12<sup>th</sup> Sustainable Development Goal's main concluding targets and indicators*

No.	Concluding target	Indicators
1	Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production;	Amount of support to developing countries on research and development for sustainable consumption and production and environmentally sound technologies;
2	Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products;	Number of sustainable tourism strategies or policies and implemented action plans with agreed monitoring and evaluation tools;
3	Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities;	Number of fossil-fuel subsidies per unit of GDP (production and consumption) and as a proportion of total national expenditure on fossil fuels.

Source: The United Nations General Assembly, 2015

**Table 3***12<sup>th</sup> Sustainable Development Goal's targets and indicators*

<b>No.</b>	<b>Target</b>	<b>Indicators</b>
1	Implement the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries;	Number of countries with sustainable consumption and production (SCP) national action plans or SCP mainstreamed as a priority or a target into national policies;
2	By 2030, achieve the sustainable management and efficient use of natural resources;	Material footprint, material footprint per capita, and material footprint per GDP; Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP;
3	By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses;	Global food loss index;
4	By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment;	Number of parties to international multilateral environmental agreements on hazardous waste, and other chemicals that meet their commitments and obligations in transmitting information as required by each relevant agreement; Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment;
5	By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse;	National recycling rate, tons of material recycled;
6	Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle;	Number of companies publishing sustainability reports;
7	Promote public procurement practices that are sustainable, in accordance with national policies and priorities;	Number of countries implementing sustainable public procurement policies and action plans;
8	By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature;	Extent to which (i) global citizenship education and (ii) education for sustainable development (including climate change education) are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment.

Source: The United Nations General Assembly, 2015

However, the listed targets may be difficult to materialize when detailed plan or specific tasks are not given. It is complicated to do so, on behalf of complexity of natural reasons, such as the size of population involved, dynamics of daily acts, unmanageable situations and much more other aspects. For instance, sustainable consumption and production focus in developing and developed countries differs. In developing countries sustainable consumption and production focuses mostly about food, plastic, housing, energy use and mobility. Meanwhile in developed countries the factors expanded to energy use, materials and products (Wang, Ghadimi, Lim, & Tseng, 2019).

Climate change and ecology crisis requires not only solutions, but also actions towards them, as it is identified as a major problem affecting the globe (Rasaputra & Choon-Yin, 2015). Few areas in sustainable consumption sphere can be characterized as the most effective ones: reducing, reusing, recycling.

The food waste problem is crucial due to almost the third of prepared food worldwide is thrown away, which leads to huge quantities of methane gas and increased greenhouse effect (Valatkevičienė, A., 2021). European Union agreed on goals to learn how to consume the food that we bought and how to dispose it, only after when we understand how to properly recycle or reproduce paper and plastic (Green Genius, 2021). Sadly, but while population grows, naturally the demand of food increases likewise the consumption, which organically results in higher food waste (Wang, Ghadimi, Lim, & Tseng, 2019). Thus, food loss and waste problem could be managed by raising awareness, redesigning business process, integrating sustainable consumption models, redistributing, recovering and learning how to disposal (Lemaire & Limbourg, 2019). Furthermore, people can conserve energy by making simple, but valuable choices daily. For instance, instead of using elevators, use stairs, which would help person's health and reduce consumed energy. Another beneficial action would be less driving and more car-pooling with colleagues, using public transport, biking or simply walking. Some of these actions would give some peacefulness to mind, strengthen social relationships and of course, save some energy resources.

Consumers and producers both should take into account natural resource usage for today and in the near future through applying diligence and care in the assessment and analysis of every situation to understand their limitations and choose the consumption way that creates a balance between self-sufficiency and the limited resources (Vantamay, 2018) For instance, taking consideration into reusing, more often people tend to choose second-hand stores to buy used clothes, which are with history and usually has a better quality for a cheaper price, old furniture, which have the vintage look and can be the main design detail in the room, or just silverware, which can be transferred from generations as a memory. These activities may sound simple to do,

but it can create much more value to the world than it seems, by not polluting environment with production emissions or microplastics. Also, by purchasing food from local stores, people can help to keep their activities to local farmers and to reduce the impact on environment by helping to maintain lower supply distances (Lee, 2020).

Finally, the process, which turns waste materials into new products, recycling. It helps to cut down environmental damages, which are done while manufacturing products and saves the energy for making the new ones (Lee, 2020). Furthermore, recycling reduces pollution by minimising the necessity to collect raw materials, reduces greenhouse gas emissions that causes global climate change and through the reduction of the raw materials consumption saves natural resources (Jafari, Hejazi, & Rasti-Barzoki, 2017). Thus, companies not only can save natural resources by recycling, but also use recycled materials in their manufacturing processes or sell it if possible.

To conclude, the need of consumer awareness of reduce, reuse and recycle is the solution to saving natural resources and not creating more damage than it is done. It would not only help to the earth, but also improve personal social skills, health conditions and make manufacturing more efficient.

### **1.3. Companies' social and environmental activities**

In early days of sustainability era social and environmental activities were only the additions to the actual activities of companies but now they are integrated as necessary components within supplying chains, manufacturing, business expansion strategies, questions regarding risks and innovations of products or services areas (Swedbank, 2020). Nevertheless, in the long-term companies without strategies, which include sustainability, will get less investments due to higher risks in reputation and possibilities of decreased values of their assets, as their products can become not valuable for the market. Those companies, which integrate social and environmental aspects in its' main business activities and acts responsibly towards its employees, its customers, the environment, its suppliers, the local community, its shareholders and society, are called socially responsible (Öberseder M., Schlegelmilch B. B., Murphy P. E., Gruber V., 2014).

#### **1.3.1. Social**

Socially responsible companies should be accountable within six spheres: employee, customer, supplier, local community, shareholders and society at large (Öberseder M., Schlegelmilch B. B., Murphy P. E., Gruber V., 2014).

Towards employees, companies should focus more on labour standards, non-discrimination of employees or adequate remuneration. In other words, the observance of human rights, decent working conditions or fair business practices in companies should be new normal (Balderjahn, et al., 2013). Furthermore, it is crucial to listen and hear what employees have to say about the process, how they can be developed or become more efficient due to employees see processes daily and know their possibilities in effectiveness and optimization (Mujahid & Abdullah, 2014). For instance, often workers are motivated to work in corporate socially responsible company, which is not afraid of accountability, behaves in sustainable ways. Thus, the employees can be a part of this journey and feel proud of themselves (Telia Lithuania, AB, 2020).

Also, responsibility towards shareholders, companies have accountability on sustainable growth, long-term financial success and responsible investments. Organization has the responsibility to secure shareholders' investments and put all possible efforts to provide them maximum return on their investments while showing goodwill in the market (Mujahid & Abdullah, 2014). For example, there is a tendency if investments to the companies which acts in sustainable ways due to investors' willingness to behave properly or ethically by helping those companies which stands for human rights and empowers them (Swedbank, 2021).

When talking about customers, organisations should address topics such as fair prices, clear and comprehensive product labelling, safe and high-quality products, etc (Öberseder M., Schlegelmilch B. B., Murphy P. E., Gruber V., 2014). Furthermore, customer loyalty can be achieved by investing in minimizing systematic risk, which results in providing better products (Albuquerque, Zhang, & Koskinen, 2019). In result, customers come back for purchases and spreads good information about the organisation.

Companies should not forget their suppliers and consider fair terms and conditions, their selection and auditing. Also, by giving these conditions companies can demand nothing else but same circumstances, that suppliers maintain uniform environmental and human rights standards across the globe (John Wiley and Sons, Ltd, 2014). Which is fair, in this case the consumer knows, that his purchase is sustainably manufactured from very first steps, from resources until being in consumers hands.

Local community plays an important role in companies' social responsibility area due to obligation to preserve and maintain jobs for people living in community, source products and raw materials locally sourcing, and economic contribution to a region's development. According to Afrane S.K. and Adjei-Poku B., it is highly recommended that community members should be integrated into the planning and implementation phases of the company strategy (Afrane & Adjei-Poku, 2013).

Lastly, society large encourages companies to donate to social causes, employ people with disabilities and support social projects. According to Palacios-Gonzalez and Chamorro-Mera, the attitude towards the company and its social accountability has the impact on the consumers' behaviour (Palacios-González & Chamorro-Mera, 2020). Therefore, companies should more focus on society large sphere and their activities, in order to spread the message that companies actually care.

### **1.3.2. Environmental**

Environmentally responsible companies should focus on reduction of energy consumption, quantity of waste, emissions and investing in research and development regarding environmental protection.

As the demand of new products increases, more raw materials and large quantities of energy are required for the production (Lee, 2020). Which also creates the danger of running out of natural resources. One of the solutions for companies to make the most of resources is to apply circular economy model in their manufacturing processes (Qin, Harrison, & Chen, 2019). Circular economy is the economic model where resource flows in circle, by using them and afterwards reusing, in which way the usage of resources is optimised and the quantity of waste is minimised as much as possible.

The problem of increasing waste quantity is also highly important in growing economies. According to United Nations Environment Programme, approximately 2,12 billion tons of waste are created due to people throw away their 99% items bought within 6 months (United Nations Environment Programme, 2009). Accountable companies in order to minimize the produced amount of waste should reuse it or dispose it as effective as possible to stop the gigantic pollution problem.

Disposal of waste process releases harmful chemicals and greenhouse gases in landfill sites, which speeds up climate change (Lee, 2020). Therefore, the air pollution, which is also created by rapid increases in heavy industry, can result in sudden loss of natural environments, which are the big part of economic growth.

To become more environmentally responsible, companies usually invest in research and development, as long as financial returns exceed a floor they set. To be more precise, environmental investments are organisation resources dedicated to internal and external capabilities that result in environmentally friendly input components, internally manufactured parts and company activities (Azadegan, Golara, Kach, & Mousavi, 2018). According to researchers Kim Y. and Statman M., companies or organisations that increased their level in research and development towards environmental responsibility enjoyed increases in financial

performance, which exceeded those of organisations that did not change their level in innovations towards corporate environmental responsibility (Kim & Statman, 2012).

Although, the EU encourages companies to communicate their environmentally friendly activities to stakeholders, there is still greenwashing challenge that occurs. When publishing inside information about production or services, companies must not lie, hide procedures or paint a better picture than it is, because it can be understood as greenwashing (Valatkevičienė, 2021). Greenwashing is crucial and not understandable for companies, which perform in not environmentally friendly activities but still claims that saves natural resources. This problem is coming even from 1970, when first Earth Day was announced, some companies spent more than 1 billion USD on greenwashing, which was more than what they spent on green technology (Pimonenko, Bilan, Horák, Starchenko, & Gajda, 2020).

To conclude, social and environmental responsibility is highly important for the firms to achieve maximum in their financial performance and be within the most valuable brands in the market. By putting effort to not only gain profit from the manufacturing or providing services, companies also must to consider higher than existing values, such as fair conditions to all stakeholders, less pollution as possible and keep investing in research and development to implement more efficient ways into sustainable activities.

#### **1.4. Impact and scope of knowledge about sustainability**

Even though people are concerned about environment problems, they are not always committed to change their own behaviour, due to lack of knowledge, how it can be done in suitable ways for them and proficient way to the environment itself.

From the 1980s, due to a critical quantity of environmental disasters, the topic of environmentally safer business practices became much more important (Rasaputra & Choon-Yin, 2015). Therefore, the awareness had to be spread via reports of media of environmental disasters, various campaign carried out by non-governmental organisations, legislations by national governments and global bodies as well.

When consumers are provided with non-stoppable information regarding sustainability, it is meant to increase their knowledge and modify their thinking as if it is important if the advertisements about it are so common. For instance, influencers on social media platforms. Consumers can choose which people to follow and from which ones receive and collect the data that will possibly influence their decisions (Rasaputra & Choon-Yin, 2015).

Knowledge should also be collected not only from social media, advertisements, but also from educational institutions. Educators have responsibility for raising awareness and knowledge about sustainability through different age and social groups due to young minds or curious people

may have a better tendency to trust their mentors, than some influencers on social media (Jonkutė & Staniškis, 2019).

The collaboration between educational institutions and governmental organisations can lead to successful sustainability awareness. For instance, 3R (recycle, reuse, reduce) are usually implemented to governmental politics in energy, waste strategies. Spreading the information about possible benefits to people, by reducing their living costs and saving environment from possible pollution, they can start considering using energy from solar panel, trade some items, that are no longer in use in their houses and so on.

From the first look it can seem that the message should have received nearly everyone. Sadly, but the awareness does not reach everyone in effective way. For instance, there are still highly influential or known people, companies, which do not believe in worldwide environmental problems. They spread this message to their followers and encourage them to live as resources are not decreasing, water pollution is not increasing and the global temperature is not rising. These actions have more consequences, which come back to us in form of massive forest fires, storms, tornados, dead fish, etc. According to not believing people it is only a coincidence and there are no solutions to it.

Also, due to the lack of knowledge people are afraid to spend more money on environmentally friendly products, as they think, that it always costs more to produce in sustainable ways (Rasaputra & Choon-Yin, 2015). There is some truth behind the mindset, but the difference in price and quality ratio is non-comparable. For example, instead of buying disposable sponges to wash dishes, there is an alternative of sponges made of coconut, which are more expensive, but have longer lifeline. Therefore, in the long run environmentally friendly alternative is better not only for the environment, but for the customer as well.

In conclusion, the awareness of the problem creates greater atmosphere for forming the attitude about sustainability and motivates to behave accordingly. Nevertheless, the attempts to increase people's knowledge in positive way are not always understood correctly (Rasaputra & Choon-Yin, 2015). Sometimes consumers do not trust the government, media, etc. and chooses to believe their own beliefs, by which they isolate themselves from worldwide problems because of companies' willingness to make more profits.

## **1.5. Impact of motivation and attitude towards 12<sup>th</sup> SDG**

One more topic that needs to be investigated is the mindset and reasoning behind the sustainable consumption itself, whether it is intrinsic motivation or due to social desirability or both. According to researchers, responsible consumer behaviour are based on societal and personal



perspectives, when behaviour is grounded on environment, society, economy and personal values (Buerke, Straatmann, Lin-Hi, & Müller, 2017)

Attitude towards sustainable consumption, as well as motivation, are mostly affected by cultural beliefs, society values, personal development and growth goals, the stage of economic growth, political management procedures, behavioural control and so on.

### **1.5.1. Impact of attitude towards sustainable consumption**

Sometimes it may look that there are only two attitudes towards sustainable consumption. People, who are thinking that way, are making huge mistakes, especially if they run companies or have huge influence on other consumers. Due to the world became so complex there are more and more complex decisions and attitudes and there are no more just black or white.

People who have greater knowledge about sustainability development goals usually have a positive attitude about sustainability goals and tend to behave accordingly. Same statement applies to companies because of the pressure from their customers to supply sustainable and green products in order to stay competitive within the markets (Rasaputra & Choon-Yin, 2015). Also, according to Geng D., Liu J. and Zhu Q., education can motivate adolescents to purchase, treat and dispose sustainable products, due to ability to understand the concept of sustainable consumption, which is necessary (Geng, Liu, & Zhu, 2017). As the understanding of conscious consumption is constantly evolving, educating people becomes the necessity in order to follow up the trend.

According to Antonetti P. and Maklan S., emotions have the important role in regulating humans' behaviour through their impact on relevant consumer beliefs (Antonetti P. and Maklan S., 2014). The mindset often comes from the surroundings: family, workplace, community and so on. While playing the large role in shaping people's views it is crucial to mention, that close surroundings can accept or reject different thinking people from their circle (Rasaputra & Choon-Yin, 2015). Therefore, having some type of attitude can spread through bigger consumer groups than just one affected person.

However, sometimes having positive attitude towards sustainable consumption says nothing if person acts in opposite way. Thus, sustainable consumption and production still needs a consideration of management of product life cycle from various perspectives. Also, management of business must be required by governments to connect production with consumption (Wang, Ghadimi, Lim, & Tseng, 2019). If this criterion is not met, then customers will still choose to buy products with lower prices and will not think about sustainability due to their own financial capabilities.

Nevertheless, some people have negative attitude towards sustainable development goals. For instance, due to the lack of knowledge of what possible green alternative choices to their consumption needs are (Rasaputra & Choon-Yin, 2015). Therefore, they do not invest their time into trying to understand and behave accordingly. Also, rural residents tend to choose save their living expenses instead of behaving in altruistic ways, due to their beliefs that people can dominate the nature absolutely (Wang, Liu, & Qi, 2014).

To have a positive attitude towards sustainable consumption is a desired worldwide target. Consumers also should be motivated to behave in the same way and sometime maybe spread their own knowledge to as much people as possible.

### **1.5.2. Impact of motivation on sustainable consumption**

It may seem that having a positive attitude towards sustainable consumption is enough to behave accordingly the 12<sup>th</sup> sustainable development goal. Nevertheless, it is sometimes not only not enough, but also does not change a thing in customers' behaviour. They also need to be motivated to consume consciously and maybe even spread the knowledge to their family, friends, co-workers and so on.

People are mostly motivated due to better knowledge about sustainable consumption goal, it's reasons and possible consequences in case of failure (Rasaputra & Choon-Yin, 2015). When consumers receive information about not fair conditions for certain companies' workers, harmful companies' activities to environment and/or animals and lastly their own consuming decisions' consequences, they tend to contribute to the solutions of environmental issues, promotion of fairer working conditions, favour environmentally friendly products and so on. According to Rajat Sharma and Mithileshwar Jha, compassion, universalism (tolerance, protection of nature), acceptance, etc. at motivational level are significantly connected with sustainable consumption behaviour in a positive way (Sharma R., Jha M., 2017). Which leads to agreeing to the assumption of the better understanding of human psychology engages with such behaviour. Thus, as discussed, knowledge in most of the times affects the behaviour in sustainable ways also.

On the other hand, which can sound interesting is that self-directed people tend to have negative connection to sustainable consumption (Sharma R., Jha M., 2017). Often this type of people is independent, individualistic, loves freedom and live in developed economies. Therefore, they usually have more possibilities to get to know themselves and learn human psychology, which leads to tolerance towards different views and more conscious choices while consuming. However, self-directed people tend to live by their own norms and it can sound as extra effort to live an environment-friendly live.

Also, traditions have negative impact on 12<sup>th</sup> sustainable development goal motivation, if they do not come together in line (Sharma R., Jha M., 2017). For instance, when people value traditions, they usually think, that it is not respectful to do certain things in different ways, which leads to stubborn mindsets towards conscious behaviour about consuming environmentally harmful products due to their traditions requires to, which also demotivated people in their environment.

To sum it all up, when internal values, such as compassion, universalism and acceptance, are connected to a positive attitude, motivation and attitude towards 12<sup>th</sup> sustainable development goal is affected in best possible way by inspiring people to adopt sustainable behaviour in their daily lives. Therefore, companies can focus not only on people values, but also on modifying their own marketing plans to focus on bringing the positive attitude towards sustainable consumption itself.

## **1.6. Responsible consumption in Lithuania**

Sustainability in Lithuania is a quite new conception, especially in manufacturing. In 2012 Staniškis J., Arbačiauskas V. and Varžinskas V. state, that even though their research results show positivity in using environmentally friendly products in Lithuania, sustainability was not the primary option by industry and stakeholders (Staniškis, Arbačiauskas, & Varžinskas, 2012). Nevertheless, it has already become the important part of company's philosophy and strategy. Often companies suggest bringing your own cup to the coffee shop, in cases when the coffee is taken to go, to use paper straws, cutlery made from wood instead of plastic ones and bring your own bags (VŠĮ "Gamtos ateitis", 2021). Even though these steps can seem quite irrelevant or small in the case of the global environmental problem, but it is better to move slowly, than doing absolutely nothing.

The market in Lithuania is pretty conscious towards sustainability, which is visible from the reaction towards ecology events in past few years. However, people could be putting more effort even to the simplest solution, such as recycling. The scale of plastic waste only increases in the following years, which means that plastic packages should be changed also (VŠĮ "Gamtos ateitis", 2021).

However, the questionnaire prepared by "Norstat" showed that only 21% of companies in Lithuania have initiatives to decrease their environmental impact. Which is surprisingly low, when comparing with the scale of publicity, where a lot of companies claim their sustainability (Green Genius, 2021). According to Sustainable Development Report, 2021, Lithuania has thirty first ranking and has 84.9 statistical performance index, where 0 is worst and 100 is best (Sachs, Kroll,

& Lafortune, 2021). However, 12<sup>th</sup> sustainable development goal is between five least achieved goals (see figure 1 below).

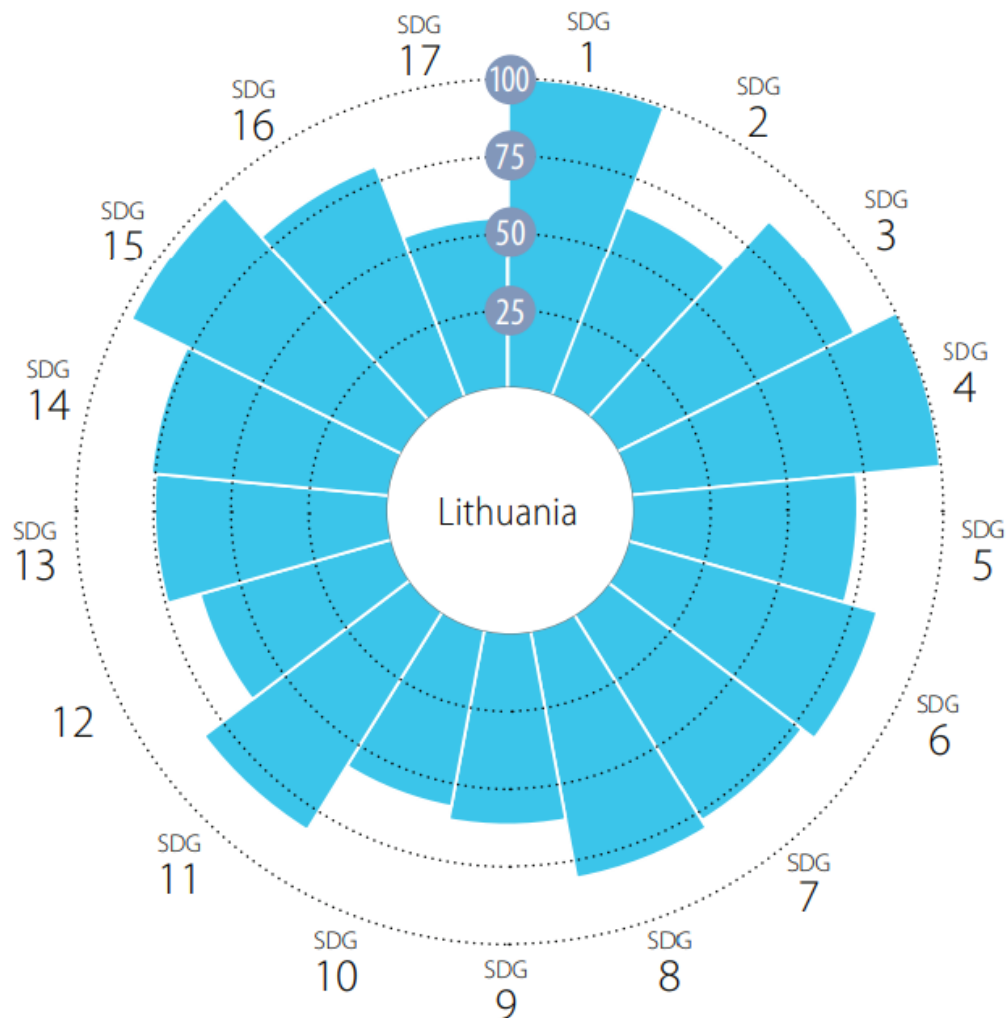


Figure 1 Average performance by SDG in Lithuania.

Source: Sachs, Kroll, & Lafortune, 2021

There is a lack of knowledge about recycling and food wasting in those people groups where it is needed the most (Green Genius, 2021). Furthermore, the questionnaire prepared by “Vilniaus vandenys” showed that big part of respondents has a lack of knowledge about the impact of their own behaviour to the environment, especially to lakes, rivers and so on. However, nearly all the respondents said, that they try to do even little actions to help the environment by recycling, saving trees, consuming consciously (Vilniaus vandenys, 2021).

One telecommunication company choose to educate people within its products. For instance, when the product is being rented once again the information, about the second usage and

its benefits, is given to the customer (Telia Lietuva, AB, 2021). Also, the information about the correct package recycling is given.

After “Biržų duona” decided to stop purchasing eggs from the companies, where chickens are held in cages, and shared this information publicly, the sales of their production increased, which shows, that every decision matter to customers and they can see the efforts (VŠĮ "Gamtos ateitis", 2021).

To make all sustainable actions go smoothly, governmental regulations are needed. Adapting new sustainability rules or governmental regulations would hardly be possible without quantitatively modelling consumption and production activities in specific region (Wang, Ghadimi, Lim, & Tseng, 2019). According to some companies, the law of environment pollution is still too weak in Lithuania. The pollution, without exceeding the boundaries, is not really regulated. Therefore, consumers, who want to behave more consciously, not always have knowledge how to do it and for companies it is easier to pay the fine instead of finding more sustainable ways to produce (Vilniaus vandenys, 2021).

To spread the information about sustainability and encourage people to behave more consciously, “Vilniaus vandenys” collaborates with Lithuania’s universities, encourages best students and researchers to connect and develop ideas in hackathons, inspires scientists to create new solutions to existing problems (Vilniaus vandenys, 2021).

When choosing the technological product, it is sometimes difficult to understand the impact of its production on environment. Thus, the Eco rating was invented, which helps to get knowledge about the manufacturing process, used materials and sustainability indexes of specific phone (Telia Lietuva, AB, 2021). Therefore, customers can be aware of the quantity of emission of their desired product and whether do they feel it is necessary for them to purchase it at stated cost.

In often occasions businesses encourages their partners to act in sustainable way. For example, IKEA, which works with wood manufacturers in Lithuania, raised new manufacturing standards and in order to work together in a long run, suggested to find sustainable manufacturing ways as well as use renewable resources (Telia Lietuva, AB, 2021).

Socially responsible business should also be environmentally accountable. Therefore, one of the biggest supermarkets in Lithuania chooses to decrease CO2 emission footprints, increase efficiency in recycling and focuses on saving natural resources as well as human health. All these decisions are made by applying circular economy principles which are also requested from their employees and partners (Kriščiukaiytė, 2020).

In order to keep their manufacturing efficient, companies should analyse the impact of their activity and possible solutions to change it, just to avoid irrelevant steps or less meaningful

actions (Telia Lithuania, AB, 2020). To add sustainability in their strategies would not be a mistake. As the sustainability takes greater impact in daily basis, bigger companies in Lithuania issue sustainability reports annually every spring to communicate their corporate social responsibility activities to employees, customers, market and competitors (Valatkevičienė, 2021). Even though it takes an additional time and costs to prepare these kinds of reports, companies still choose to behave in that way as they believe that their efforts are valuable not only for themselves, but for their customers or investors. Moreover, European Union agreed to obligate banks to analyse sustainability risks of companies when considering credit strategies. Thus, sustainable actions have straightforward consequences to companies' financial situation (Swedbank, 2020).

Moreover, in many Lithuanian companies the person in charge of sustainability usually works within communication or marketing departments, when CEO or the manager of production have better knowledge about processes and possibilities on how to turn the company towards more sustainable ways (Valatkevičienė, 2021).

Social responsibility is not a new term for "Vilniaus vandenys". The company decided to create an index which shows the number of clients complaints, emergencies and the level of clients' satisfaction, this index can be edited by anyone, who uses services or products provided by the company (Vilniaus vandenys, 2021).

According to the research made about Lithuania's market, it was proved that investments in innovations gains more profit for industries by increasing productivity, efficiency, and the quality of product, diluting the costs for resources and decreasing the necessary for great investments in pollution abatement equipment (Staniškis, Arbačiauskas, & Varžinskas, 2012). In addition, by collaborating with the scientists and researchers the biggest supermarket in Lithuania tries to understand and adapt new information to their daily needs by changing their packages to environmentally friendly ones, from cannabis material or paper. When making these decisions company tries to acknowledge customers' needs and demand in quality and price (Kriščiukaiytė, 2020).

Investments in research and development can also help to lose or minimize food waste problem, which is very wide. For example, food waste takes approximately 15% of all mixed waste in Lithuania in 2020 and by average one person throws away almost 37 kg food waste per year (Green Genius, 2021). Of course, maybe for one person to throw away one rotten apple can look innocent, but when it is done by many same minded people, it grows into greenhouse effect, when the world keeps getting warmer by the help of its own surface and natural processes. In Lithuania there are companies which can use those natural processes to produce renewable energy. For instance, "Green Genius" has 11 biogas power plant which can reproduce the heat and

electricity from natural processes by applying circular economy principles (Green Genius, 2021). Therefore, one more step in circular economy is guaranteed.

One of the biggest supermarkets in Lithuania collaborates with nongovernmental organization “Maisto bankas” by donating fruits, groceries and other food products, which are nearly out of date. In 2018 maxima has donated food products in cost of €600 000 for poorly living people (Kriščiukaiytė, 2020). Food products, which are not suitable for using anymore, are giving away to farmers or special companies, which reuse that outdated food to make biogas. In that way, the food waste is not created and new product is produced (Kriščiukaiytė, 2020).

Another important aspect to behave in sustainable way is to minimize emissions like CO<sub>2</sub>. For instance, to reduce costs in logistics companies often choose railways to transport their goods. Furthermore, railways create three times less CO<sub>2</sub> emissions comparing to the quantity of trucks which would have been ordered and nine times if comparing to airplanes (LTG Infra, 2021). Therefore, double benefit for company is guaranteed.

Deep consequences of the global warming, when the energy resources are getting lower, are well known worldwide topic. However, to use renewable energy is still more like a trend than a tendency in Lithuania market (Green Genius, 2021). Also, there is common thinking that renewable energy costs a lot and it takes a lot of time to receive profit from using it, when the truth is, that it is easier than ever to decrease the scale of used non-renewable energy and it does not require many investments (Green Genius, 2021). For instance, one third of “Biržų duona” used electrical energy is solar energy, which is made by their solar energy plantations. Also, the company for their own premises uses the heat, which is produced while baking bread. Thus, the costs for energy from previous year were reduced by 63%, which for this size company is relevant (VŠĮ "Gamtos ateitis", 2021). Furthermore, company claims, that their goal during 2021 is to increase corporate social responsibility in environmental activities and educational programs for their workers.

Almost all analyzed articles agree that investments in green energy and modern technologies are a long-term benefit for the company (AUGA Group, 2020; Kriščiukaiytė, 2020; Swedbank, 2020). New technologies can apply most suitable temperature or light intensity needed in the room, which saves energy by reducing it when it is not needed (Kriščiukaiytė, 2020).

Even though the company uses solar energy and re-uses energy consumed in production it is hard to find a solution to replace the plastic package for bread. “Biržų duona” claims that they use a lot of plastic mainly to package their products. Due to complexity of product logistics, it is tough to keep the bread fresh and in a good shape. Therefore, the company decided to make the package thinner and use only one kind of plastic to make it possible to recycle afterwards. Thus,

the company wastes less and saves costs on plastic by making thinner packages on big scale (VšĮ "Gamtos ateitis", 2021).

To keep same or possibly new clients engaged to companies, organisations usually take services from marketing companies or create advertisements by themselves. However, advertisements, which are made from paper and in most cases plastic, are hardly recyclable due to complexity and quantity of their materials. They are seen nearly everywhere, for example stickers on cars, in supermarkets, magazines of discounts, huge stands on fields and so on. However, companies should focus on the future by analysing and understanding how their advertisements are coming to life, which materials are used, how long do they stay alive, is it possible to recycle those advertisements after when they are no longer relevant (VšĮ "Gamtos ateitis", 2021).

To sum it all up, the possibility of greater number and quality of information campaigns and training programmes are deeply needed for both consumers and producers. Also, bigger effort needs to put into policy framework conditions, which promote sustainable consumption and production.



## 2. THE EMPIRICAL RESEARCH METHODOLOGY

The main goal of empirical research is to achieve the aim of the master thesis by accomplishing its objectives, which are listed in the introduction part. In this case, the purpose is to evaluate and determine impact of consumers' attitude towards 12th Sustainable Development Goal on responsible consumption in Lithuania with the help of researched scientific articles and statistically analysed questionnaires.

**The research model.** With the intention of succeeding to achieve the aim of research, the econometric model was chosen, which is the mathematical analytical expression, where with one formula or the system of many the critical processes and relations of many influential variables are indicated (Karpuškienė, et al., 2017). In other words, regression analysis and related tests of spatial data will be performed. To be more precise, information about the state or condition of individuals, regions, cities etc. in the specific time moment, which can be gathered via surveys, will be analysed within 3 stages: economic model, statistical model and econometric model (see table 4 below).

**Table 4**

*Process of forming the econometric model*

Stage	Steps	Description
<b>I</b>	1	Formulation of economic problem
	2	Formulation of hypotheses about the relation between variables
	3	Gathering data
<b>II</b>	4	Statistical and graphical data analysis
	5	Formulation of model mathematical formula
	6	Calculation of parameters
	7	Testing reliability of the model
<b>III</b>	8	Analysis of economic problem by using calculated parameters of the model and other statistical indexes
	9	Forecasting and describing economical scenarios

*Source:* prepared by the author according Karpuškienė, et al., 2017

### **The major variables.**

According to topic analysis' model, the dependent variable, consumers' responsible consumption ( $Y^{SC}$ ), is determined by influencing factors of the perception about companies' social and environmental activities ( $X^{CSR}$ ) and consumers' knowledge about sustainability ( $X^{SCK}$ ), which ones are understood as independent variables. The independent variables can be segmented to more aspects, which are deeply analysed in the literature analysis part. Furthermore, responsible

consumption can be affected via mediators, motivation ( $X^M$ ) and attitude ( $X^{SCA}$ ) towards sustainable consumption and production, which can also be segmented into more subjects. Finally, these variables will be researched through different age consumers in Lithuania, which stands as a moderator, and analysed their impact to dependent variable, responsible consumption (see figure 2 below).

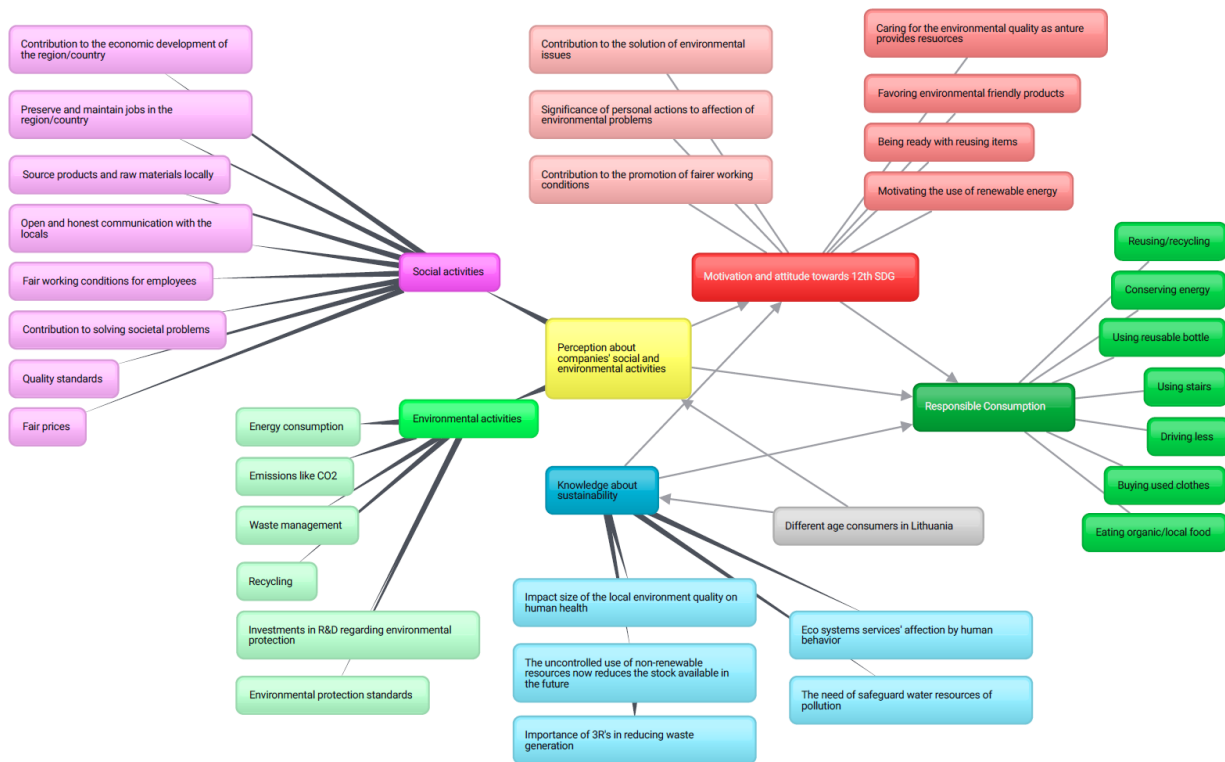


Figure 2 Topic analysis' model.

Source: prepared by author according to analysed data, 2021

**Hypotheses.** According to the topic analysis' model and performed literature review, further hypotheses were raised:

H1: Perception about companies' social and environmental activities positively affect responsible consumption;

H2: Knowledge about sustainability positively affects responsible consumption;

H3: Attitude towards 12<sup>th</sup> SDG has the highest impact on sustainable consumption in Lithuania;

H4: In older age consumer groups in Lithuania, effect of attitude towards responsible consumption is lower;

H5: In older age consumer groups in Lithuania, effect of knowledge about sustainability on responsible consumption is lower;

H6: In older age consumer groups in Lithuania, effect of companies' social and environmental activities on responsible consumption is lower;

H7: In older age consumer groups in Lithuania, effect of motivation on responsible consumption is lower.

**The methods, techniques, procedures and tools used to collect the data.** The following research will be performed with the help of literature review and statistical analysis of collected spatial data via questionnaire (Annex 2) by using SPSS software.

In literature review part sustainable consumption theoretical background will be analysed, how it evolved, what were the reasons, what solutions can be implemented, practices in different countries were compared in short and long terms. Also, the situation in Lithuania will be analysed, with application of previously collected information.

To get a deeper knowledge about how theoretical background or practices from other countries are implemented in Lithuania towards responsible consumption, the questionnaire was prepared. The questionnaire was combined from five scales: sustainable consumption, corporate social responsibility, sustainable consumption knowledge, motivation and sustainable consumption attitude. For used scales, please, see Annex 1. The scales used in questionnaire were measured using a 5-point Likert scale ranging from "strongly disagree" (1), "disagree" (2), "neutral" (3), "agree" (4) to "strongly agree" (5). Thus, the collected data were processed and analysed statistically with the help of SPSS program.

**Description of data.** As the responsible consumption can be performed by every human despite their differences, the data will be collected online questionnaire, which can be divided to five sections: sustainable consumption, corporate social responsibility, sustainable consumption knowledge, motivation and sustainable consumption attitude. Due to the subject's topic is analysed in Lithuania, the respondents were chosen to be living in the same country, Lithuania.

Secondary sources of information will be provided, their completeness and reliability assessed with the statistic program SPSS.

**Sample size.** To find out consumers' attitude via knowledge about sustainability, awareness of companies' social and environmental activities and motivation to consume in responsible way, the empirical research in the form of the survey was carried out for the representatives of consumers' society of Lithuania. The size of sample for this research was evaluated by applying Cochran's formula for large populations with 5% margin of error and 95% confidence level (Cochran, 1954). In total 384 respondents should be questioned by reason of the population in Lithuania is 2 796 891 per December 2021, according to the Statistical Department (Statistics Lithuania, 2022).

**Sampling method.** The analysed sample is selected with almost random sampling. All Lithuanian inhabitants, who have access to Vilnius University emails, Facebook public groups of universities, work in Cognizant Technology Solutions company, tend to know some people in common have a possibility to fill the survey via electronical shortcut.

**Data collection.** In order to optimize data collection procedures, the mixed-mode survey will be adjusted in the performed research. In this study, three surveying methods will be applied: an online questionnaire, a survey in .doc format distributed as an attachment on e-mail and questionnaire in the paper form.

**Data analysis.** The data will be processed by the means of mathematical statistical analysis and data processing software SPSS was employed. Firstly, the collected data will be analysed statistically and graphically. Then, the regression model formula will be computed. Afterwards, the parameters will be calculated and the model itself will be tested for reliability. Finally, the data will be described by using conclusions received from the regression model and hypotheses will be proved or rejected. Following the analysis, the forecast will be performed and economic scenarios will be presented.

**Measures.** The survey was composed of five question blocks that were based on the literature analysis and scales from related research. Each block of questions will be represented by the statistical average of answers' meanings, which ones later will be included in the regression model. Afterwards, with the help of F statistics it will be indicated if the indexes are significant for the regression model and if yes, how it affects the dependant variable.

The first block is intended to identify general understanding of the respondents towards their knowledge about sustainability (N=12) (Ahamad & Ariffin, 2018). The collected data will let to understand how much respondents know or they think they know about the sustainable consumption.

The second section was designed to get a deeper understanding of respondents' attitude towards sustainable consumption itself (N=12) (Ahamad & Ariffin, 2018). The results should show how people tend to react or how it affects them when they see unsustainable behaviour around them in daily lives or what are their opinions on sustainability topics shown on tv or media platforms.

The third block was designed to determine respondents' attitude towards companies' social responsibility (N=20) (Öberseder M., Schlegelmilch B. B., Murphy P. E., Gruber V., 2014). Answers should allow comprehend the respondents' approach towards the activities that companies prefer to perform in need of their own workers, the region where they manufacture or provide services and if it is important.

The fourth section is dedicated to get the deeper understanding how people are or are not consuming in a sustainable way in their daily lives (N=20) (Quoquab F., Mohammad J. and Sukari N. N., 2019).

The main goal of the fifth section is to get an answer to the question, what moves people to consume in a sustainable way, the altruism or the self-achievement. Thus, the motivation scale was implemented (N=8) (Antonetti P. and Maklan S., 2014).

The last section is dedicated to basic demographic information, such as gender, age, living location and so on, in order to make further comparisons and perform reasonable interpretations of survey results.

In all sections, except the last one with demographical information, 5-point Likert-type scale was implemented, in which way respondents would be able to express their opinion by choosing one of 5 alternatives by expressing the meanings from “strongly disagree” to “strongly agree”, with corresponding values from 1 to 5, or in other cases the meanings from “never” to “always”.

### 3. THE EMPIRICAL RESULTS ANALYSIS

After collecting the information via questionnaire, to achieve the objectives of the research, the further analysis will be performed according to the process of forming the econometric model suggested by Karpuškienė, et al., 2017.

#### 3.1 Statistical and graphical data analysis

In order to accomplish higher quality research and give more appropriate suggestions accordingly, it is helpful to firstly analyse via questionnaire gathered demographical information. As in the methodology part was stated, the information of people's gender, age, education, employment status, marital status and living location was collected and reviewed from any misleading responses.

The questionnaire was answered by 385 respondents, 193 men and 192 women. Most active men were younger than 21 years old, 14.81% of the whole population, and most active women were older than 41, 14.03% (see figure 3 below). As the respondents' age groups are divided similarly, the conclusions will be more constructive by comparing the gathered information.

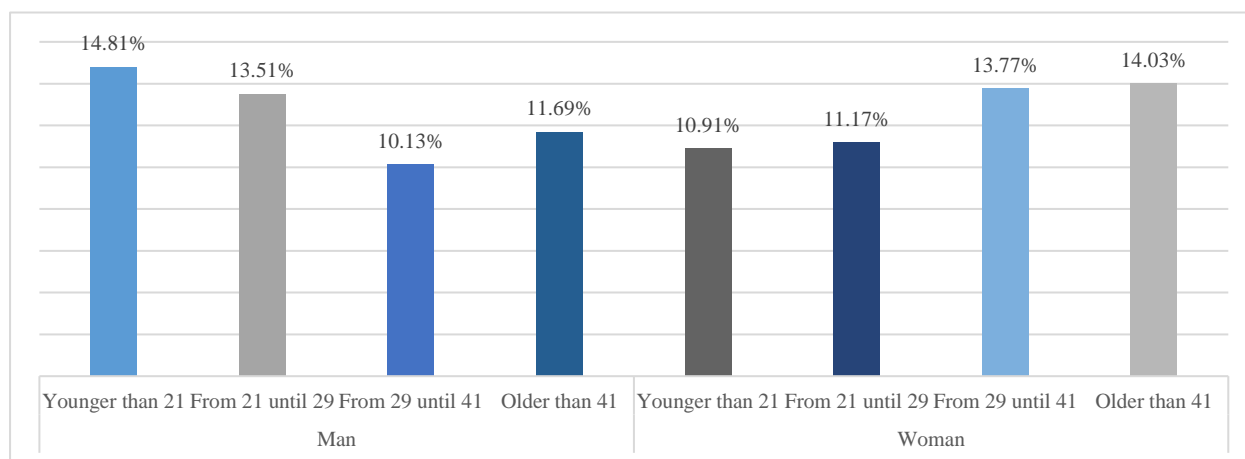


Figure 3 Men and women age groups by percentage

Source: prepared by author according to analysed data, 2021

However, the distribution in education is not so equal as in age group area. High school graduate men and women took greatest parts in answering questionnaire, 21.04% and 16.88% accordingly. Therefore, differences between responses are expected, as probability of not equal knowledge about sustainability is expected, as well as the motivation and the sustainable consumption itself (see figure 4 below).

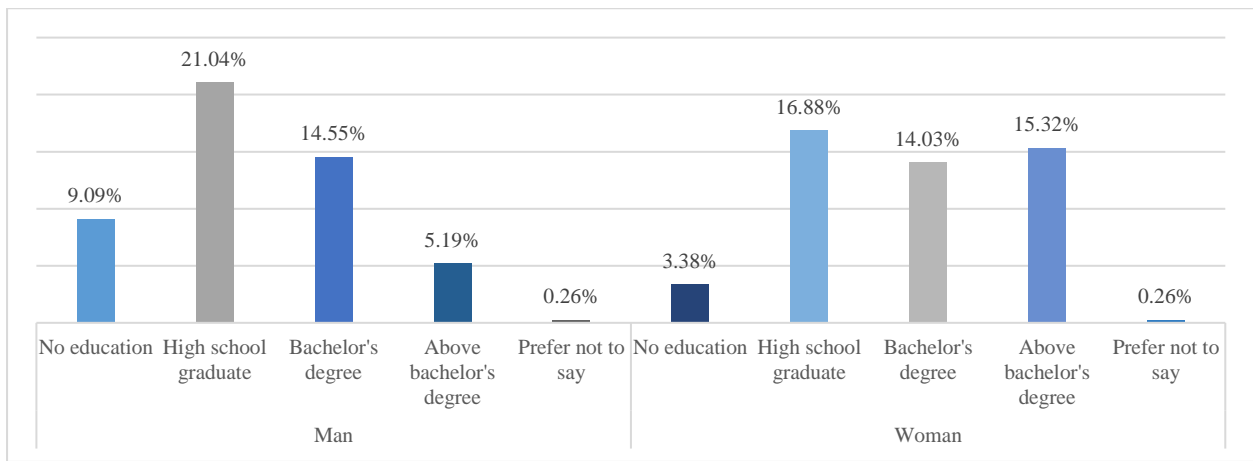


Figure 4 Men and women education by percentage

Source: made by author according to analysed data, 2021

Moreover, distribution in employment/studying status is not very equal as well. 20% women and nearly 16% men, who participated in questionnaire, were employed (see figure 5 below).

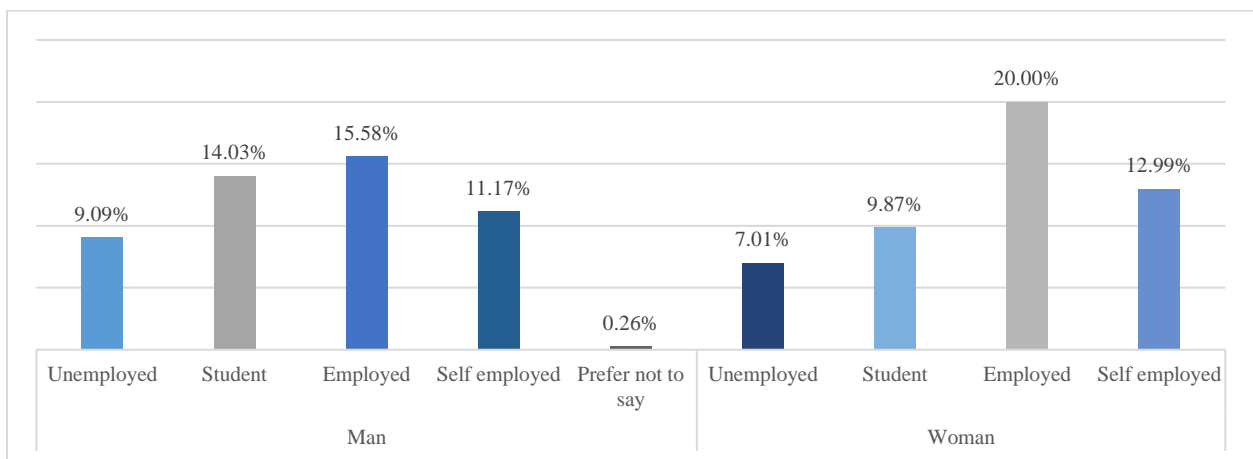


Figure 5 Men and women employment status by percentage

Source: made by author according to analysed data, 2021

Furthermore, from descriptive statistics we can identify the values of dependent and independent variables, where SC\_Av stands for “Sustainable Consumption”, dependent variable, SCK\_Av – “Sustainable Consumption Knowledge”, independent variable, CSR\_Av – “Corporate Social Responsibility”, independent variable, M\_Av – “Motivation”, independent variable and SCA\_Av – “Sustainable Consumption Attitude”, independent variable. All in the descriptive statistics table listed variables are calculated as averages of corresponding sections responses (see table 5 below). According to the descriptive statistics table, there are people who behave or have an attitude according to the questionnaire scales in the most positive way, as maximum values of every index is 5 from 5. On the other hand, from minimum statistic we can identify participants

with not such a positive attitude or behaviour as indexes variate from 1.583 to 1.917, with one exception with CSR\_Av, 2.8. Nevertheless, means of indexes show more promising results, CSR\_Av = 4.363, SCK\_Av = 4.339 and the rest ones are above 3.9, which point to more optimistic results, that more participants consume sustainably and are confident about their values.

**Table 5**

*Descriptive statistics*

	N Statistic	Range Statistic	Minimum Statistic	Maximum Statistic	Mean		Std. Deviation Statistic	Variance Statistic	Skewness		Kurtosis	
					Statistic	Std. Error			Statistic	Std. Error	Statistic	Std. Error
SC_Av	385	3,400	1,600	5,000	3,93753	,051913	1,018610	1,038	-,721	,124	-,810	,248
SCK_Av	385	3,083	1,917	5,000	4,33918	,039611	,777225	,604	-1,090	,124	,103	,248
CSR_Av	385	2,200	2,800	5,000	4,36351	,028315	,555582	,309	-,472	,124	-,915	,248
M_Av	385	3,375	1,625	5,000	3,91331	,058297	1,143864	1,308	-,821	,124	-,865	,248
SCA_Av	385	3,417	1,583	5,000	3,98961	,044473	,872620	,761	-,856	,124	-,437	,248

Source: prepared by the author, 2022

With the help of the scatter chart, we can get a deeper understanding how sustainable consumption variable depends on SCK\_Av, CSR\_Av, M\_Av and SCA\_Av separately (see figures 6, 7, 8 and 9 below). According to the figures, when people highest or lowest indexes within independent variables, sustainable consumption tends to be more affected in the same direction. However, average indexes tend to give more loose results on dependent variable, as the data are more scattered in the middle part, which proposes the idea of people not being sure about their knowledge, values and motivation.

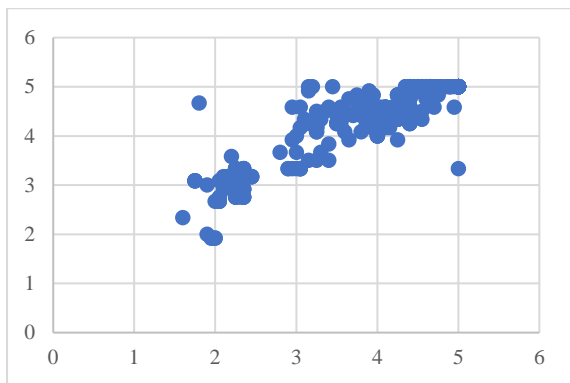


Figure 6 SC\_Av (Y) dependency on SCK\_Av (X)

Source: made by author according to analysed data, 2021

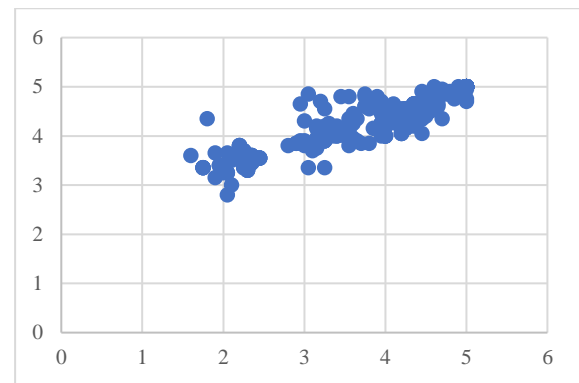


Figure 7 SC\_Av (Y) dependency on CSR\_Av (X)

Source: made by author according to analysed data, 2021



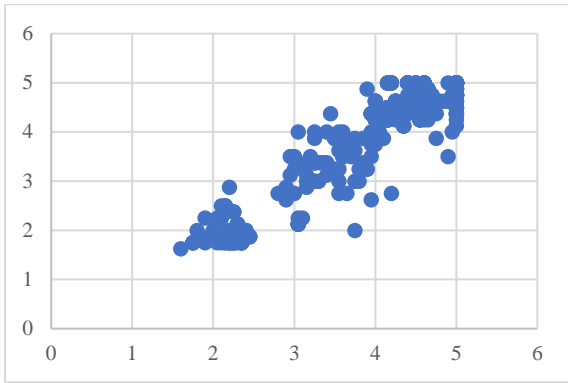


Figure 8 SC\_Av (Y) dependency on M\_Av (X)  
 Source: made by author according to analysed data, 2021

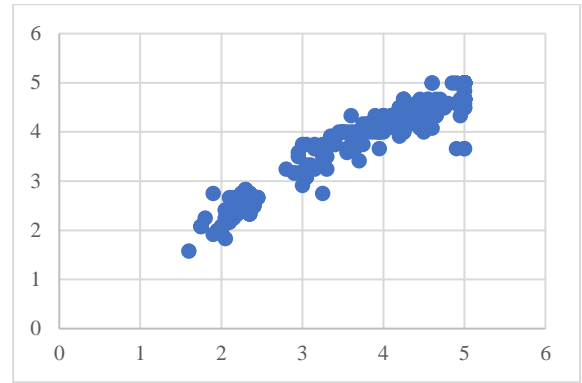


Figure 9 SC\_Av (Y) dependency on SCA\_Av (X)  
 Source: made by author according to analysed data, 2021

### 3.2 Formulation of model mathematical formula

In order to create a multiple regression model, we must check if dependent variable SC\_Av is distributed normally. Then, if it does, we need to make sure that dependent variable correlates with independent variables. Afterwards, we develop multiple regression model and evaluate size of coefficient of determination ( $R^2$ ) and check the significance of ANOVA ( $p < 0.05$ ). Finally, the significance of all predictors needs to be checked (all values of significance of t test should be less than 0.05).

Firstly, during normality analysis we performed two tests, Kolmogorov-Smirnov and Shapiro-Wilk. At least one of these tests should show significance above 0.05 to confirm that dependant variable fits to normal distribution curve (see table 6 below).

**Table 6**

*Tests of Normality*

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
SC_Av	,159	385	,019	,865	385	,053

Source: prepared by the author, 2022

According to the tests of normality table significance of Kolmogorov-Smirnov shows that significance of dependent variable is lower than required, 0.019. However, the significance index of Shapiro-Wilk test is higher than 0.05, 0.053. Therefore, we can state that SC\_Av fits to normal distribution and we can proceed with multiple regression model's calculations.

During this step there is a necessity to check if there are any relations between dependent and independent variables. Therefore, we calculated averages of every dependent variable (taking

in consideration that some of the survey questions were constructed in the opposite way) and afterwards we performed correlation by using Kendall's test, as all variables are in ordinal scale now (see table 7 below).

**Table 7**

*Correlation between dependent and independent variables*

			SC_Av	SCK_Av	CSR_Av	M_Av	SCA_Av
Kendall's tau_b	SC_Av	Correlation Coefficient	1,000	,789**	,810**	,726**	,829**
		Sig. (2-tailed)	.	,000	,000	,000	,000
		N	385	385	385	385	385
	SCK_Av	Correlation Coefficient	,789**	1,000	,796**	,646**	,737**
		Sig. (2-tailed)	,000	.	,000	,000	,000
		N	385	385	385	385	385
	CSR_Av	Correlation Coefficient	,810**	,796**	1,000	,644**	,744**
		Sig. (2-tailed)	,000	,000	.	,000	,000
		N	385	385	385	385	385
	M_Av	Correlation Coefficient	,726**	,646**	,644**	1,000	,695**
		Sig. (2-tailed)	,000	,000	,000	.	,000
		N	385	385	385	385	385
	SCA_Av	Correlation Coefficient	,829**	,737**	,744**	,695**	1,000
		Sig. (2-tailed)	,000	,000	,000	,000	.
		N	385	385	385	385	385

Source: prepared by the author, 2022

According to the table X above, we can see that all significance indexes of the independent variables in relation with dependent variable are below 0.05 (SC\_Av – Sig. (2-tailed)). Therefore, the correlation, when independent variable increases, dependent variable increases also, exists. As the correlation showed that the relationships exist, we can proceed with forming the regression formula.

First, we look at results from correlation analysis, ANOVA table. As significance is below 0.05 (in our case significance of all variables it is 0.000) then then it is good, we have different values for our formula (see table 8 below).

**Table 8**

*ANOVA*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	381,590	4	95,398	2153,334	,000 <sup>b</sup>
	Residual	16,835	380	,044		
	Total	398,425	384			

Source: prepared by the author, 2022

Then, from the model summary table we check the R square, which should be more than 0.2. As in our case R square is higher than 0.2, 0.958, it means that 95.8 percent are explained by our independent variables (see table 9 below).

**Table 9**

*Model summary*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,979 <sup>a</sup>	,958	,957	,210481

Source: prepared by the author, 2022

Afterwards, we look to coefficients table to check the significance of the independent variables, which should be less than 0.05. According to the coefficients table, significance between dependent variable and independent variables are below 0.05, except with sustainable consumption knowledge, 0.057, which means that SCK does not have impact on sustainable consumption (see table 10 below).

**Table 10**

*Coefficients of regression*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1,371	,111		-12,405	,000
	SCK_Av	,072	,038	,055	1,905	,057
	CSR_Av	,462	,049	,252	9,514	,000
	M_Av	,239	,025	,268	9,512	,000
	SCA_Av	,513	,042	,439	12,355	,000

Source: prepared by the author, 2022

However, bootstrap was performed in order to get a better understanding about the impact of sustainable consumption knowledge on sustainable consumption (see table 11 below).

**Table 11**

*Bootstrap for coefficients*

Model		B	Bias	Std. Error	Bootstrap <sup>a</sup>		
					Sig. (2-tailed)	95% Confidence Interval Lower	Upper
1	(Constant)	-1,371	-,008	,154	,001	-1,686	-1,070
	SCK_Av	,072	-,002	,059	,228	-,047	,187
	CSR_Av	,462	,004	,073	,001	,318	,608
	M_Av	,239	-,001	,029	,001	,179	,292
	SCA_Av	,513	,001	,076	,001	,362	,663

Source: prepared by the author, 2022

From the bootstrap analysis it is clearly visible that independent variable SCK\_Av still has no impact on SC\_Av variable on 1% level (Sig. 2 tailed = 0.228, which is above 0.05). However, the SCK\_Av variable impact is still significant on 10% level, as the significance is within the interval of 0.05 and 0.1 values (see table 10 above). Therefore, the regression formula would be as stated below:

$$SC_{Av} = -1.371 + 0.072 * SCK_{Av} + 0.462 * CSR_{Av} + 0.239 * M_{Av} + 0.513 * SCA_{Av}$$

The generated formula shows that relations between dependent variable and independent variables are positive. Also, it states that if any of the independent variables would increase by 1 point, then the sustainable consumption variable would increase by the index that is next to independent variable in the regression formula. To be more precise, taking in consideration motivation's independent variable, if it's value would increase from four to five, then sustainable consumption's value would increase by 0.239 and respectively the situation would change with changes of other independent variables.

### 3.3 Calculation of parameters

Firstly, it was decided to check multicollinearity with the help of variance inflation factor (VIF) test. VIF test was chosen due to it helps to detect when there is a correlation between independent variables, which cannot result into statistically independent result, as independent variables are affected by each other (Karpuškieñė, et al., 2017). When calculated VIF index is higher than 10, then we have multicollinearity problem between independent variables and possibility of incorrect interpretation occurs. In this case, the calculated results showed that multicollinearity exists just with one independent variable (SCK\_Av = 7.384; CSR\_Av = 6.321; M\_Av = 7.138; SCA\_Av = 11.373) (see table 12 below).

**Table 12**

*Coefficients of regression*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-1,371	,111		-12,405	<,001		
	SCK_Av	,072	,038	,055	1,905	,057	,135	7,384
	CSR_Av	,462	,049	,252	9,514	<,001	,158	6,321
	M_Av	,239	,025	,268	9,512	<,001	,140	7,138
	SCA_Av	,513	,042	,439	12,355	<,001	,088	11,373

Source: prepared by the author, 2022

In order to get the regression model without multicollinearity problem, we should eliminate variables that have multicollinearity between them. However, it was decided to leave variable SCA\_Av despite its multicollinearity problem, as it is just slightly above the index of 10 (SCA\_Av = 11.373) and it is understood, that attitude can be highly affected by knowledge, motivation and so on.

Furthermore, as the multicollinearity test's results showed that independent variables have impact on each other, it is necessary to check if model has autocorrelation problem too. The problem can be tested with Durbin-Watson test, where values are between interval 0 and 4. As a rule of thumb used, values of  $1.5 < d < 2.5$  show that there is no autocorrelation. In this case, as the Durbin-Watson test value is below 1.5 ( $d = 1.02$ ), the regression model has autocorrelation problem and the independent variables are not independent between each other (please see table 13 below).

**Table 13**

*Model summary*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,979 <sup>a</sup>	,958	,957	,210481	1,402

*Source:* prepared by the author, 2022

However, to avoid autocorrelation problem we should do the same routine as to avoid multicollinearity problem. Therefore, it was decided to leave variables as they are and move further with analysis.

Finally, it is important to check if standardized residuals correspond normal distribution. Usually, normal distribution is checked with histogram, which is compared with normal distribution curve, as well as in this case. According to the histogram, it is quite clear that standardized residuals correspond normal distributions, as the histogram appear as a bell curve (see figure 10 below).

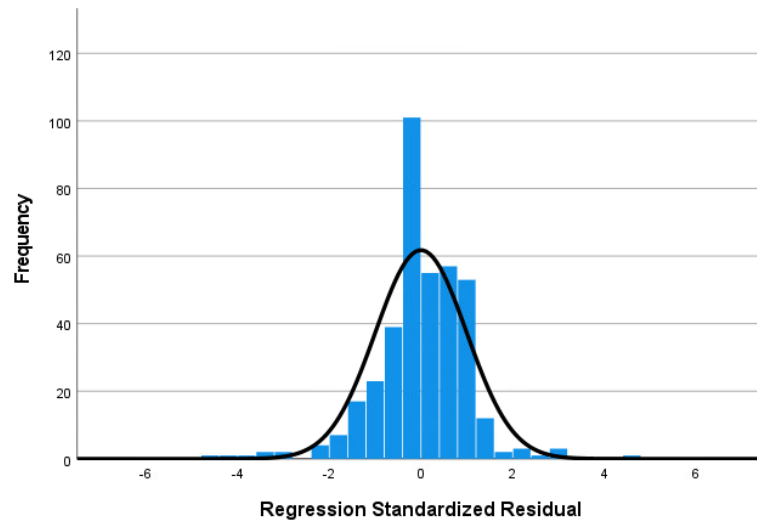


Figure 10 Histogram of normal distribution

Source: made by author according to analysed data, 2022

In order to be certain that standardized residuals correspond normal distribution it was decided to check the normal probability plot of regression standardized residual. In which case, as points are closer to line, as standardized residual are more correspond normality assumption. In this case, the normal p-plot supports conclusions of histogram (see figure 11 below).

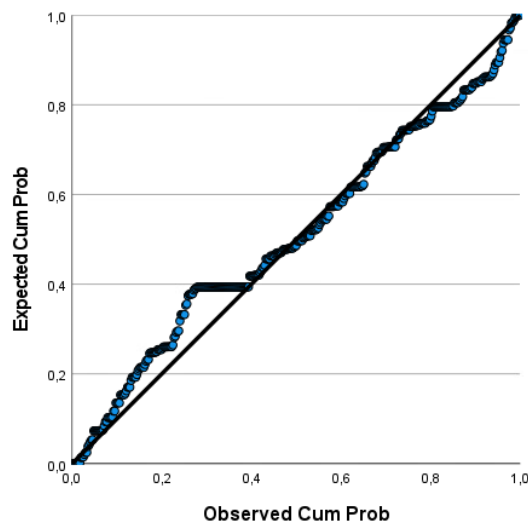


Figure 11 Normal P-Plot of regression standardized residual

Source: made by author according to analysed data, 2022

### 3.4 Testing reliability of the model

When parameters of regression model are calculated, it is vital to check the reliability of selected factors that are included into model. In order to check that, Cronbach's Alpha index was valued. If the absolute value of selected index is lower than index of 0.6, then analysed factor is not reliable in the model and should be eliminated. As all factors have indexes of Cronbach's

Alpha higher than 0.6, then no further calculations regarding reliability needed (see table 14 below).

**Table 14**

*Reliability test statistics*

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
SCK_Av	12,26643	6,178	,923	,922
SCA_Av	12,61600	5,633	,955	,909
CSR_Av	12,24210	7,314	,907	,952
M_Av	12,69229	4,557	,918	,949

*Source:* made by author according to analysed data, 2022

### **3.5 Analysis of economic problem by using calculated parameters of the model and other statistical indexes**

After the checking of the regression model is completed via various of parameters, further hypothesis checking was performed.

*H1: Perception about companies' social and environmental activities positively affect responsible consumption.*

*H2: Knowledge about sustainability positively affects responsible consumption.*

To check first and second raised hypotheses, it was decided to investigate relationships of variables with the help of regression analysis. As the formula is already calculated in previous steps (see table 10 above) and all possible issues are checked, the calculated parameters were taken. For H1 it is visible that perception about companies' social and environmental activities (CSR\_Av) has a positive impact on the dependent variable, responsible consumption (SC\_Av), as  $B = 0.462$  which is positive. Respectively, knowledge about sustainability (SCK\_Av) has also positive influence on responsible consumption, as  $B = 0.72$ ,  $B > 0$ . Thus, in both ways independent variables have positive impact on dependent variable and both hypotheses, H1 and H2 are accepted.

*H3: Attitude towards 12<sup>th</sup> SDG has the highest impact on sustainable consumption in Lithuania.*

In order to check third hypothesis, the calculated coefficients for regression model were analysed (see table 10 above). As the total number of respondents is equal for every variable, the highest impact of independent variable can be understood by checking which independent variable in the regression model has the highest B. In this case the highest B belongs to SCA\_Av variable, which stands for attitude towards 12<sup>th</sup> sustainable development goal, B = 0.513. Therefore, H3 is accepted as well.

*H4: In older age consumer groups in Lithuania, effect of attitude towards responsible consumption is lower.*

To accept or reject fourth hypothesis the bivariate correlation between attitude towards responsible consumption and age were analysed with the help of Spearman's correlation coefficient and one-tailed test of significance, as attitude towards responsible consumption cannot have an impact on age of respondents. As significance in the correlation between factors exists,  $p < 0.05$ , we can further check the Spearman's correlation coefficient. As the mentioned coefficient is  $R = -0.471$ , which is negative, like we expected, it means that opposite relation between these two factors exists (see table 15 below). Therefore, we can accept H4 and state that effect of attitude towards responsible consumption factor will be higher in younger age consumer groups in Lithuania.

**Table 15**  
*Bivariate Correlations Coefficients*

		Please state your age:		SCA_Av
Spearman's rho	Please state your age:	Correlation Coefficient	1,000	-,471**
		Sig. (1-tailed)	.	<,001
		N	385	385
	SCA_Av	Correlation Coefficient	-,471**	1,000
		Sig. (1-tailed)	<,001	.
		N	385	385

Source: made by author according to analysed data, 2022

*H5: In older age consumer groups in Lithuania, effect of knowledge about sustainability on responsible consumption is lower.*

As the fifth hypothesis is formulated from the same perspective of age, but with different variable, it was decided to use the same relation analysis method as for the previous, fourth, hypothesis. In this case with the effect of knowledge about sustainability on responsible consumption, as the significance is less than 0.05,  $p < 0.001$ , and having Spearman's coefficient



negative,  $R = -0.491$ , it is clear that the H5, in older age consumer groups in Lithuania effect of knowledge about sustainability on responsible consumption will be lower, is also accepted (see table 16 below). Furthermore, the acceptance suggests the idea of understanding, that younger people tend to apply their knowledge about sustainability in real life practice more than older people.

**Table 16**

Bivariate Correlations Coefficients

		Please state your age:		SCK_Av
Spearman's rho	Please state your age:	Correlation Coefficient	1,000	-,491**
		Sig. (1-tailed)	.	<,001
		N	385	385
SCK_Av		Correlation Coefficient	-,491**	1,000
		Sig. (1-tailed)	<,001	.
		N	385	385

Source: made by author according to analysed data, 2022

*H6: In older age consumer groups in Lithuania, effect of companies' social and environmental activities on responsible consumption is lower.*

The sixth hypothesis was checked using the same bivariate correlation and Spearman's test method as the fifth and fourth hypotheses. The calculated significance of bivariate correlation is below 0.05 and Spearman's test indicates that  $R = -0.452$  (see table 17 below). The results state that effect of companies' social and environmental activities on responsible consumption will be lower in older age consumer groups than younger in Lithuania and H6 is accepted. The conclusion of the hypothesis' analysis is not odd, as it is seen in daily lives how younger people tend to act against unethically behaving companies. For instance, the young Swedish girl Greta Thunberg and her speeches, actions inspired many people to stand up and express their opinions regarding the climate change and how it is affected by humans (Cannon, 2019). By calling for a system change Great encouraged to think out of the box and start generating ideas, how our daily decisions can impact the status of environment in daily lives. Obviously, talking maybe does not help a lot, but when those words transform into actions via protests, it gives some hope, that young people want companies to be accountable for their actions.

**Table 17**

Bivariate Correlations Coefficients

		Please state your age:		CSR_Av
Spearman's rho	Please state your age:	Correlation Coefficient	1,000	-,452**
		Sig. (1-tailed)	.	<,001
		N	385	385
	CSR_Av	Correlation Coefficient	-,452**	1,000
		Sig. (1-tailed)	<,001	.
		N	385	385

Source: made by author according to analysed data, 2022

*H7: In older age consumer groups in Lithuania, effect of motivation on responsible consumption is lower.*

In order to accept or reject the last, seventh, hypothesis, bivariate correlations coefficients were calculated as well. According to the data (see table 18 below), significance is below 0.05,  $p < 0.001$ , and the Spearman's coefficient is equal to -0.439. Therefore, it can be stated that H7 is accepted and effect of motivation on responsible consumption will be higher in younger age consumer groups in Lithuania.

**Table 18**

Bivariate Correlations Coefficients

		Please state your age:		M_Av
Spearman's rho	Please state your age:	Correlation Coefficient	1,000	-,439**
		Sig. (1-tailed)	.	<,001
		N	385	385
	M_Av	Correlation Coefficient	-,439**	1,000
		Sig. (1-tailed)	<,001	.
		N	385	385

Source: made by author according to analysed data, 2022

If starting with the regression model, according to the Coefficients of regression table (see table 10 above) the highest impact on sustainable consumption has sustainable consumption attitude ( $t=12.355$ ). Which is not surprising due to few researchers state, that emotions have the important role in regulating humans' behaviour through their impact on relevant consumer beliefs (Antonetti P. and Maklan S., 2014). Companies' social responsibility and motivation has very similar impact on sustainable consumption (CSR\_Av  $t=9.514$ , M\_Av  $t=9.512$ ). Results show that the information, about the company's behaviour, received by the customer, nearly equally motivates to consume sustainably. According to researchers, when consumers receive information

about not fair conditions for certain companies' workers, harmful companies' activities to environment and/or animals and lastly their own consuming decisions' consequences, they tend to contribute to the solutions of environmental issues, promotion of fairer working conditions, favour environmentally friendly products and so on (Rasaputra & Choon-Yin, 2015). However, from the Coefficients of regression table (see table 10 above) it is implied that respondents do not put very much importance on sustainable consumption knowledge ( $t=1.905$ ) comparing to other independent variables. According to the responses, the knowledge is the least important, which suggests that consumers may have the understanding about what can happen if people will proceed to consumer irresponsibly, but still choose to believe that opposite actions cannot change any of the global environmental problems.

After checking hypotheses, the understanding about the situation between consumers in Lithuania is a little bit clear. According to hypotheses, perception about companies' social and environmental activities and knowledge about sustainability affect responsible consumption positively. Furthermore, attitude towards 12<sup>th</sup> SDG has the highest impact on sustainable consumption in Lithuania between analysed variables. Also, it was proved that within respondents, in older age consumer groups in Lithuania effect of attitude towards responsible consumption, effect of knowledge about sustainability on responsible consumption, effect of companies' social and environmental activities on responsible consumption and effect of motivation on responsible consumption will be lower, as it is explained by researchers while analysing the situation between young adults in China (Geng, Liu, & Zhu, 2017).

### **3.6 Forecasting and describing economical scenarios**

According to the performed analysis it is quite difficult to predict how situation in Lithuania is going to be in the future due to the narrow spectre of respondents of the questionnaire. Even though the biggest population of respondents are within the similar social life circle like the author, the part of it has different, sometimes even very strong opinions regarding responsible consumption as overall process.

However, the responses indicate that younger people tend to be more motivated and applying their knowledge about sustainable consumption in real life practice more often than people from older groups. If this situation is not going to change, then the only option left is to wait while the younger generation grows up and replaces older people. In the same way, there would be created a completely different patch for new generations, as the knowledge and attitude towards sustainable consumption would be way more positive than it is right now.

Another possible scenario can be that everything can get too complicated and people will no longer know what is right and wrong, because every action, even the smallest one, will have

some reaction in a negative way. Therefore, consumers can likely be more afraid spreading good practice by avoiding receiving negative feedback and choose to keep their good practice examples to themselves.

Even though scenarios of future life can be upsetting or uplifting, it is nearly never clear how people are going to act and what changes will they bring further. Thus, there is a need of continuous research within the field to understand the current situation and try to prepare the world for upcoming events.

## CONCLUSIONS AND RECOMMENDATIONS

As Swedish people say, sustainability connects ecology, economics and social responsibility with balance within all of them. To progress in it, people must trust people, encourage them and take responsibly natural resources. The need of consumer awareness of reduce, reuse and recycle is the solution to saving natural resources and not creating more damage than it is done. Social and environmental responsibility is highly important for the firms to achieve maximum in their financial performance and be within the most valuable brands in the market. By putting effort to not only gain profit from the manufacturing or providing services, companies also must consider higher than existing values. The awareness of the consumption problem creates greater atmosphere for forming the attitude about sustainability and motivates to behave accordingly. Nevertheless, the attempts to increase people's knowledge in positive way are not always understood correctly (Rasaputra & Choon-Yin, 2015), but when internal values, such as compassion, universalism, acceptance, are connected to positive attitude, motivation and attitude towards 12<sup>th</sup> sustainable development goal is affected in best possible way by inspiring people to adopt sustainable behaviour. Therefore, the possibility of greater number and quality of information campaigns and training programmes are needed for both consumers and producers. Lastly, bigger effort needs to put into policy framework conditions, which promote sustainable consumption and production, when talking about the market in Lithuania.

On the other hand, every area has its own specifications and what looks applicable on paper, not always can be applied in daily lives. As such example can be knowledge about sustainability. After performed brief empirical research analysis, it is visible that consumers do not always behave accordingly to their knowledge. Customers firstly act according to their attitude and afterwards companies' social responsibility and consumer's motivation takes step into deciding process. Which leads to assumption that educating people about the worldwide environmental situation is not enough. Customers should acknowledge consequences of their choices for themselves and future generations.

Results of research have stated that younger people tend to be more motivated and consistent in applying their knowledge about sustainable consumption in real life practice more often than people from older groups. Thus, it is understandable, that for changes in current world situation need to be waited for, because the new generation is coming with their innovative and perspective ideas.

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# **IMPACT OF CONSUMERS' ATTITUDE TOWARDS 12TH SUSTAINABLE DEVELOPMENT GOAL ON RESPONSIBLE CONSUMPTION IN LITHUANIA**

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**Master Thesis**

**Global Business and Economics Master Programme**

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## **SUMMARY**

Size: 58 pages, 18 tables, 11 figures, 54 references

The main goal of the master thesis is to evaluate and determine impact of consumers' attitude towards 12th Sustainable Development Goal on responsible consumption within different age groups in Lithuania. To achieve the aim, in theoretical part sustainable development concept was analysed, 12<sup>th</sup> sustainable development goal was described, companies' social and environmental responsibility was defined, the knowledge about sustainability was explained, motivation and attitude towards 12th sustainable development goal were characterized, responsible consumption in Lithuania was analysed. To conduct the analysis the adopting of the research model and selection of variables were performed in the methodological part. The answer to the goal of the research is presented in the conclusions and recommendations section.

The data was collected via questionnaire and examined by the next econometric techniques. Firstly, the collected data were analysed statistically and graphically. Then, the regression model formula was computed. Afterwards, the parameters were calculated and the model itself was tested for reliability. Finally, the data was described by using conclusions received from the regression model and hypotheses were proved or rejected. Following the analysis, the forecast was performed and economic scenarios were presented.

The analysis shows: perception about companies' social and environmental activities and knowledge about sustainability affect responsible consumption positively. Furthermore, attitude towards 12<sup>th</sup> SDG has the highest impact on sustainable consumption in Lithuania between analysed variables. Also, it was proved that within respondents, in older age consumer groups in Lithuania effect of attitude towards responsible consumption, effect of knowledge about sustainability on responsible consumption, effect of companies' social and environmental activities on responsible consumption and effect of motivation on responsible consumption will be lower.

# VARTOTOJŲ POŽIŪRIO Į 12-TĄ DARNAUS VYSTYMOŠI TIKSLĄ ĮTAKA ATSAKINGAM VARTOJIMUI LIETUVOJE

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## **SANTRAUKA**

Darbo apimtis: 58 puslapiai, 18 lentelių, 11 paveikslų, 54 literatūros šaltiniai

Pagrindinis magistro darbo tikslas yra įvertinti vartotojų požiūrio į 12-tą darnaus vystymosi tikslą įtaką atsakingam vartojimui Lietuvoje tarp skirtingų amžiaus grupių. Tikslui pasiekti, teorinėje dalyje buvo išanalizuota darnaus vartojimo samprata, apibrėžta įmonių socialinė ir aplinkos atsakomybė, apibrėžtas supratimas apie tvarumą, detalizuoti motyvacija ir požiūris į 12-tą darnaus vystymosi tikslą, bei išanalizuota tvaraus vartojimo situacija Lietuvoje. Analizei atlikti metodinėje dalyje buvo atliktas tyrimo modelio pritaikymas ir kintamųjų parinkimas. Atsakymas į tyrimo tikslą pateiktas skyriuje „Išvados ir rekomendacijos“.

Duomenys buvo surinkti klausimyno pagalba ir išnagrinėti pateiktais ekonometriniais metodais. Pirma, surinkta informacija buvo išanalizuota statistiškai ir grafiškai. Tuomet, apskaičiuota regresijos modelio formulė. Po to, apskaičiuoti modelio parametrai ir patikrintas modelio patikimumas. Galiausiai, surinkta informacija apibendrinta pasitelkiant išvadamis gautomis iš regresijos modelio ir pateiktas hipotezių atmetimas ir priėmimas, bei pateikta prognozė ir įvairūs ekonominiai scenarijai.

Analizė rodo, kad supratimas apie įmonių socialinę ir aplinkos atsakomybę bei suvokimas apie tvarumą turi teigiamą įtaką atsakingam vartojimui. Taip pat, požiūris į 12-tą darnaus vystymosi tikslą turi didžiausią įtaką atsakingam vartojimui Lietuvoje tarp analizuotų kintamųjų. Toliau buvo įrodyta, kad vyresnio amžiaus respondentų požiūris į tvarų vartojimą, suvokimas apie tvarumą, supratimas apie įmonių socialinę ir aplinkos atsakomybę bei motyvacijos poveikis atsakingam vartojimui yra mažesnis palyginus su jaunesnio amžiaus respondentais.

## ANNEXES

### Annex 1. Questionnaire scales

#### **Sustainable consumption knowledge scale, Ahamad, N. R., & Ariffin, M. 2018**

1. The quality of local environment has a direct impact on human health
2. Access to natural resources (e.g. fossil fuels, natural vegetation, water, minerals) is an essential aspect of quality of life
3. Eco system services (e.g. air purification, flood regulation, water cycle) are highly affected by human behaviour
4. We need to safeguard water resources from pollution
5. The use of plastic is being reduced as they are harmful to the environment
6. The 3Rs (recycling, reusing and reducing) can significantly reduce waste generation
7. Natural resources (e.g. fossil fuels, natural vegetation, water, minerals) of the Earth are limited
8. Natural resources (e.g. fossil fuels, natural vegetation, water, minerals) should be preserved for the future generation
9. The uncontrolled use of non-renewable resources now reduces the stock available in the future
10. There is a pressing concern to look into renewable resources as natural resources are depleting
11. Energy efficient products are among the innovative ways to ensure minimal resource utilization
12. Carrying out the 3Rs are one of the ways to cut down our resource utilization

#### **Sustainable consumption attitude scale, Ahamad, N. R., & Ariffin, M. 2018**

1. I get irritated by smoke produced from open burning activities
2. I care for our environmental quality as nature provides our basic needs (e.g. water, clean air, land, forests)
3. I value the beauty of the place where I live/stay
4. I favour environmentally friendly products (e.g. products made from recycled materials)
5. I am ready to reuse items such as plastics, bottles and paper
6. I am willing to be involved in any programs to look after the environment
7. Development should be given priority over the protection of the natural environment\*
8. More efforts are needed to preserve the environment
9. The use of renewable energy sources should be increased
10. Recycling is difficult to do\*
11. Recycling campaigns launched by the government is a waste of money and resources\*
12. Bringing reusable bags is inconvenient\*

\* - reversed statements

#### **Corporate social responsibility scale, Oberseder M., Schlegelmilch B.B., Murphy P.E.**

#### **Gruber V., 2013**

1. Contribute to the economic development of the region
2. Preserve jobs in the region

3. Create jobs for people in the region
4. Source products and raw materials locally
5. Respect regional values, customs, and culture
6. Communicate openly and honestly with the local community
7. Respect human rights of employees
8. Set working conditions which are safe and not hazardous to health
9. Set decent working conditions
10. Treat employees equally
11. Develop, support and train employees
12. Communicate openly and honestly with employees
13. Ensure economic success of the company by doing successful business
14. Invest capital of shareholders correctly
15. Communicate openly and honestly with shareholders
16. Provide sustainable growth and long-term success
17. Reduce energy consumption
18. Reduce emissions like CO<sub>2</sub>
19. Prevent waste
20. Recycle
21. Dispose of waste correctly
22. Invest in research and development regarding environmental protection
23. Corporate environmental protection standards are higher than legal requirements
24. Employ people with disabilities
25. Employ long-term unemployed
26. Make donations to social facilities
27. Support employees who are involved in social projects during working hours
28. Invest in the education of young people
29. Contribute to solving societal problems
30. Implement fair sales practices
31. Label products clearly and in a comprehensible way
32. Meet quality standards
33. Set fair prices for products
34. Offer safe (not harmful) products
35. Offer the possibility to file complaints
36. Provide fair terms and conditions for suppliers
37. Communicate openly and honestly with suppliers
38. Negotiate fairly with suppliers
39. Select suppliers thoroughly with regard to respecting decent employment conditions
40. Control working conditions at suppliers

**Sustainable consumption scale, Quoquab F., Mohammad J. and Sukari N. N., 2018**

1. I try to reduce my water and electricity consumption by thinking of other people
2. I through the daily domestic rubbish in proper place in order to keep the roads clean
3. I use my thing wisely to avoid wastage

4. I don't like to waste food or beverage
5. While dining in restaurant, I order food(s) only the amount that I can eat in order to avoid wasting food
6. I always try hard to reduce miss-use of goods and services (e.g. I switch off light and fan when I am not in the room)
7. I avoid overuse/consumption of goods and services (e.g. take print only when needed)
8. I use the product in rational way to increase its lifetime usage
9. I purchase only to fulfil my basic needs and wants
10. I don't mind incurring a little financial loss while purchasing product in order to keep environment safe and sound
11. I purchase product that I really need
12. I purchase the product that is within my budget
13. I plan carefully before I purchase product of service
14. It became a habit to think about the consequences of excess consumption whenever I shop
15. I choose to buy product(s) with biodegradable container or packaging
16. While purchasing, I try to think whether the purchased product can cause any harm to the environment
17. I reuse paper to write on the other side
18. I recycle old clothes that still in good condition
19. I recycle glass bottle (drinking water bottle) as a container in the kitchen
20. I recycle food container whenever there is an opportunity
21. I send daily domestic rubbish such as paper, aluminium and others to the recycle
22. I reuse shopping bag(s) every time go for shopping
23. I recycle my old stuffs in every possible way (e.g. distribute old clothes among needy people)
24. I repair my belongings (e.g. shoe, handbags) to increase its life time
25. I try to avoid using plastic bag usage since it is not environmentally friendly
26. I prefer to use paper bag since it is biodegradable
27. I purchase and use products which are environmentally friendly
28. If I see anyone is polluting the environment (e.g. throwing rubbish in the river) I warn that person on the spot
29. I often pay extra money to purchase environmentally friendly product (e.g. organic food)
30. Before I make decision to purchase, I search for information through the web to find the environmentally friendly product
31. I am concerned about the shortage of the natural resources
32. I use eco-friendly products and services
33. I try to buy organic food since it is environmentally friendly
34. I support all environmental awareness activities
35. I always remember that excess consumption can cause shortage of natural resources
36. I do care for the natural environment
37. I always remember that my excess consumption can create hindrance for the future generation to meet up their basic needs
38. I care for the needs of myself and next generation
39. I often think about future generation's quality of life
40. It is my responsibility to control desire of excessive purchase for the sake of future generation
41. I am concern about the future generation

### **Motivation scale, Antonetti P. and Maklan S., 2013**

1. Through my personal choices I can contribute to the solution of environmental issues
2. My personal actions are too insignificant to affect environmental problems\*
3. Environmental issues are affected by my individual choices
4. Ecological degradation is partly a consequence of my own consumption choices
5. My individual consumption choices can contribute to the promotion of fairer working conditions
6. My personal actions can influence companies' decision to pay all their employees a fair wage
7. Unfair working conditions are partly a consequence of my own consumption choices
8. My personal choices would not be able to influence a company in paying all their employees a fair wage\*

\* - reversed statements

## **Annex 2. The survey**

Dear respondent,

I, Valdonė Mažeikaitė, am a 2<sup>nd</sup> year master's degree student at Vilnius University and currently I am doing the research with the aim to evaluate and determine impact of consumers' attitude towards 12th Sustainable Development Goal (sustainable consumption and production) on responsible consumption within different age groups in Lithuania.

The survey should take you about 7-10 minutes to complete.

The survey is anonymous and the results will be used only for the named research purposes. Your participation in this survey is voluntary. You have the right to withdraw at any point during the study.

In case of having any questions regarding the survey, feel free to contact me via e-mail: valdone.mazeikaite@evaf.stud.vu.lt.

Thank you for your time and provided answers!

**By using the options, please rate the degree to which you disagree or agree with each of the statements below (Sustainable consumption knowledge):**

1. The quality of local environment has a direct impact on human health
2. Access to natural resources (e.g. fossil fuels, natural vegetation, water, minerals) is an essential aspect of quality of life
3. Eco system services (e.g. air purification, flood regulation, water cycle) are highly affected by human behaviour
4. We need to safeguard water resources from pollution
5. The use of plastic is being reduced as they are harmful to the environment
6. The 3Rs (recycling, reusing and reducing) can significantly reduce waste generation
7. Natural resources (e.g. fossil fuels, natural vegetation, water, minerals) of the Earth are limited
8. Natural resources (e.g. fossil fuels, natural vegetation, water, minerals) should be preserved for the future generation
9. The uncontrolled use of non-renewable resources now reduces the stock available in the future
10. There is a pressing concern to look into renewable resources as natural resources are depleting
11. Energy efficient products are among the innovative ways to ensure minimal resource utilization
12. Carrying out the 3Rs are one of the ways to cut down our resource utilization

**By using the options, please rate the degree to how often do you behave according to each of the statements below (Sustainable consumption attitude):**

1. I get irritated by smoke produced from open burning activities



2. I care for our environmental quality as nature provides our basic needs (e.g. water, clean air, land, forests)
3. I value the beauty of the place where I live/stay
4. I favour environmentally friendly products (e.g. products made from recycled materials)
5. I am ready to reuse items such as plastics, bottles and paper
6. I am willing to be involved in any programs to look after the environment
7. Development should be given priority over the protection of the natural environment\*
8. More efforts are needed to preserve the environment
9. The use of renewable energy sources should be increased
10. Recycling is difficult to do\*
11. Recycling campaigns launched by the government is a waste of money and resources\*
12. Bringing reusable bags is inconvenient\*

\* - reversed statements

**By using the options, please rate the degree to which you disagree or agree with each of the statements below (Corporate social responsibility scale). Companies should...**

1. Contribute to the economic development of the region
2. Source products and raw materials locally
3. Respect regional values, customs, and culture
4. Communicate openly and honestly with the local community, employees, suppliers and shareholders
5. Set decent working conditions
6. Treat employees equally
7. Reduce energy consumption
8. Reduce emissions like CO2
9. Recycle
10. Dispose of waste correctly
11. Invest in research and development regarding environmental protection
12. Corporate environmental protection standards are higher than legal requirements
13. Make donations to social facilities
14. Label products clearly and in a comprehensible way
15. Meet quality standards
16. Offer the possibility to file complaints
17. Provide fair terms and conditions for suppliers
18. Negotiate fairly with suppliers
19. Select suppliers thoroughly regarding respecting decent employment conditions
20. Control working conditions at suppliers

**By using the options, please rate the degree to how often do you behave according to each of the statements below (Sustainable consumption):**

1. I try to reduce my water and electricity consumption by thinking of other people
2. While dining in restaurant, I order food(s) only the amount that I can eat in order to avoid wasting food
3. I avoid overuse/consumption of goods and services (e.g. take print only when needed)
4. I use the product in rational way to increase its lifetime usage

5. I purchase only to fulfil my basic needs and wants
6. I purchase the product that is within my budget
7. I plan carefully before I purchase product of service
8. I choose to buy product(s) with biodegradable container or packaging
9. While purchasing, I try to think whether the purchased product can cause any harm to the environment
10. I recycle old clothes that still in good condition
11. I recycle glass bottle (drinking water bottle) as a container in the kitchen
12. I reuse shopping bag(s) every time go for shopping
13. I recycle my old stuffs in every possible way (e.g. distribute old clothes among needy people)
14. I repair my belongings (e.g. shoe, handbags) to increase its life time
15. I try to avoid using plastic bag usage since it is not environmentally friendly
16. I purchase and use products which are environmentally friendly
17. If I see anyone is polluting the environment (e.g. throwing rubbish in the river) I warn that person on the spot
18. I often pay extra money to purchase environmentally friendly product (e.g. organic food)
19. I am concerned about the shortage of the natural resources
20. I try to buy organic food since it is environmentally friendly

**By using the options, please rate the degree to which you disagree or agree with each of the statements below (Motivation scale):**

1. Through my personal choices I can contribute to the solution of environmental issues
2. My personal actions are too insignificant to affect environmental problems\*
3. Environmental issues are affected by my individual choices
4. Ecological degradation is partly a consequence of my own consumption choices
5. My individual consumption choices can contribute to the promotion of fairer working conditions
6. My personal actions can influence companies' decision to pay all their employees a fair wage
7. Unfair working conditions are partly a consequence of my own consumption choices
8. My personal choices would not be able to influence a company in paying all their employees a fair wage\*

\* - reversed statements

**Demographical section:**

**Please state your gender:** Woman, Man, Prefer not to say

**Please state your age:** FILL IN SPACE

**Education:** No education, high school graduate, bachelor's degree, above bachelor's degree, prefer not to say

**Employment status:** Employed, Unemployed, Student, Self-Employed, Prefer not to say

**Marital status:** Single, Married or in a domestic partnership, Divorced, Prefer not to say