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**CIRCULAR ECONOMY PRACTICES: THE ROLE OF INSTITUTIONAL
FACTORS IN FORMING CONSUMER BEHAVIOR IN ESTONIA AND
AZERBAIJAN**

Master's thesis

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We have written this master's thesis independently. All viewpoints of other authors, literary sources and data from elsewhere used for writing this paper have been referenced.

Abstract

This master thesis aims to study the relationship between institutional factors (regulative, normative, and cultural-cognitive) and consumer behavior in the circular economy (CE) context. The conceptual model is developed based on the combination of institutional theory and the theory of planned behavior, the partial least square method is used for the analyses. The study data involves the responses of 223 and 200 survey participants from Estonia and Azerbaijan, respectively. The results reveal that attitude significantly affects consumer behavior toward CE practices in both countries. Furthermore, the attitude of consumers is significantly affected by all institutional factors in the case of Estonia while being significantly influenced by only normative factors in the case of Azerbaijan. Consumer attitude strongly mediates the relationship between institutional factors and consumer behavior in both countries. The thesis contributes to the literature by paving a way to understand how different institutional and cultural settings can shape consumer attitudes and behavior to promote CE practices.

Introduction

Circular economy (CE) is the popular concept in the environmental sphere which revolutionizes the linear economy notion by introducing closed-loop of material flows (Eisenreich, Füller, Stuchtey & Gimenez - Jimenez, 2022; Geisendorf & Pietrulla, 2018; Reike, Vermeulen & Witjes, 2018). The main concept of the CE is constituted by a rounded loop of a product life and the consumer contribution to this loop with certain consumption preferences, utilization and waste treatment habits (Arranz, Sena & Kwong, 2022). Optimization of the material flow (with backward resource flows and waste management), value chain throughout the product life (Parajuly, Fitzpatrick, Muldoon & Kuehr, 2020), and prolonging utilization time of materials (Bocken, Itala & Huotari, 2017) are the main notions and principles formulating the CE. The CE practices are considered to be effective against the environmental and economical threats such as resource scarcity (Geisendorf & Pietrulla, 2018), energy crisis, the poor relationships with goods and materials (Stahel, 2016). However, there is still a gap of research done about CE concept within scope of sustainability studies due to lack of awareness and fear of the unknown (Stahel, 2016).

The institutional environment is identified as one of the main drivers and barriers for the CE transition (Henrysson & Nuur, 2021, de Jesus & Mendonça, 2018). That environment is formed by main institutional factors such as regulative (laws, government policies), normative (obligations accepted by the majority of society), cultural-cognitive (shared perception and beliefs) factors (Scott, 2013a). Each of these factors are shaped by certain rules, beliefs, values, norms that have strong impacts on resource utilization, relations and activities in a particular region, field, as well as community (Scott, 2013a). Institutions determine who is exposed to the effects of environmental (e.g. water pollution) and social impacts of economic activities (Moreau, Sahakian, van Griethuysen & Vuille, 2017). It also shapes preferences, behaviors that consequently impacts the decision making (Vatn, 2013) and CE related behavior is not an exception in this context. The CE is an example to explore how institutions can have a major role in the cost distribution among agents of the economy not to transfer those costs to the environment (Moreau, Sahakian, van Griethuysen & Vuille, 2017). Many national governments have already accepted the importance of the CE transition and defined relevant targets (European Commission, 2020. Circular Economy Action Plan., n.d.).

However, in spite of the undeniable influence of institutions radically changing the speed and nature of CE, the amount of literature dedicated to formal and informal institution analysis is considerably low (Giezen, 2018; Ranta, Aarikka-Stenroos, Ritala & Mäkinen, 2018). Also, the consumer aspect of the CE transition (under the influence of institutions) is still underexplored compared to the organizational part of the transformation to CE (Hobson, 2016).

The aim of our study is to explain the relationship between institutional factors and

consumer behavior for promoting CE practices. As the institutional environment is unique to each society and government we chose Estonia and Azerbaijan to conduct the analysis. To the best of our knowledge, there are no studies conducted on the role of institutional factors on the CE in post-soviet nations. Compared to other EU members, for example, Benelux countries, Estonia is still at early stages of CE transformation (Fura, Stec & Mis, 2020). However, Estonia formulated its strategic development plan regarding CE in 2022 (Circular Economy in Estonia, n.d.). Unlike Estonia, Azerbaijan still has not given any importance to the action plan for implementing CE principles in the recently developed strategy document for the green economy (Yaşıl İqtisadiyyat Azərbaycan Report, 2022). Both countries suffer from the pollution sourcing from production of oil related products. Estonia is the leader regarding ecological footprint per capita among EU members and post-soviet countries due to extensive production of oil shales (Global Footprint Network, n.d.). On the other hand, Azerbaijan is one of the main contributors of ecological problems in the Caspian Sea due to its intensive raw oil and gas production. Estonia and Azerbaijan faced big economic shocks and much uncertainty about their development path after the collapse of the Soviet Union. Estonia has managed to overcome the issues in a short time and made a revolutionary switch in the institutional system by leaning on technology, building close relationships with EU members and applying policy changes. Thus, Estonia on a national level is way ahead of Azerbaijan in terms of institutional effectiveness based on regulatory quality, corruption and other dimensions of world governance index (World Bank WGI Index, 2021). Institutional differences between two countries are also deeply rooted in the unique cultural codes of each nation. Thus, we will elaborate on the institutional environment in both countries and we will conduct empirical analysis to reveal if there are significant differences or similarities between Azerbaijan and Estonian societies regarding the role of institutional factors on consumer behavior in the context of CE.

We would complete the following research tasks to achieve the main aim of the thesis.

- To give an overview of literature dedicated to CE concept
- To summarize main findings related to the studies that connect institutional and consumer behavior aspects of CE.
- To formulate research hypotheses based on conceptual model.
- To collect CE related survey data based on the proposed conceptual model in Estonia and Azerbaijan.
- To analyze the relationships between institutional factors, attitude and consumer behavior in the context of CE.
- To draw some conclusions for the results of research and suggest possible further study paths towards CE practices.

Our thesis consists of two main parts: theoretical background and empirical analysis.

Theoretical part is divided into three subsections which summarizes the concept of CE, gives an extant literature review for the role of institutional factors in CE, and lastly, presents findings of studies related to consumer behavior in the context of CE. The second part includes four subchapters. The first subchapter gives introduction for the cases of Estonia and Azerbaijan. The Second subchapter describes the conceptual model and following hypotheses. The third subchapter explains the methodology and characteristics of data used in study and the fourth subchapter performs appropriate analysis based on the provided conceptual model.

Keywords: circular economy, institutions, consumer behavior, Estonia, Azerbaijan, sustainability

CERCS classification: S180

1. Theoretical Background

1.1. Definition and principles of Circular Economy

After the industrial revolution, intensive use of raw materials in production increased and consumer-producer transformation to take-make-dispose model was accelerated. The rising threat of critical resource security pushed scholar world and national governments to explore practical and theoretical aspects of CE concepts (Geisendorf & Pietrulla, 2018). The CE concept brings novelty to be regenerative and restorative by its design which provides a complementary approach for sustainability goals (MacArthur, 2013). Restoration and regeneration terms are two main subcategories of the CE model which plays as an umbrella to cover the core principles (reuse, reduce, recycle). Restorative encapsulates the technical aspect of CE which is the return to a previous form (Morseletto, 2020). Regeneration is a set of ecological oriented processes to raise the amount of nature capital (Howard, Hopkinson & Miemczyk, 2019).

The core principle in CE practices is optimization of material and product cycles through the realization of 3 following steps: designing products with long lifetime; reutilisation of products; recovering materials from end-of-life products (Parajuly, Fitzpatrick, Muldoon & Kuehr, 2020).

The CE model is fundamentally based on 3 main principles, namely 3R: reuse, recycle, and reduce activities (MacArthur, 2013). The combination of R-imperatives (core principles) have increased a lot due to recent growth of articles in this field. Various core principles such as 3R, 5R, 6R, even 10R are used in the CE papers which indulge controversiality in this area (Agrawal, Singh & Murtaza, 2015; Bakker, Wang, Huisman & den Hollander, 2014; Clift & Druckman, 2016; Diener & Tillman, 2015; Reike, Vermeulen & Witjes, 2018). The principles that consumers play an active role are refuse, reduce, reuse, repair, and recycle (Reike, Vermeulen & Witjes, 2018).

Refuse is the term which is used in the setting of consumers and producers. For the consumers, the concept means to force them to purchase or consume less which helps to prevent waste increase (Black & Cherrier, 2010). The consumers may avoid the consumption of plastic bags which is an example of refuse concept (Kasidoni, Moustakas & Malamis, 2015).

The term “reduce” applies the notion of energy, raw materials usage minimization which leads to less waste at the end. The concept motivates “dematerialization” (Lieder & Rashid, 2016) for both consumers and producers. This R imperative of reduction means maximizing the value of use in the case of consumers. “Reduce” concept is somehow related to reuse which pushes consumers to use certain products or services less frequently or to prolong the usage life of them by small repairs.

“Reuse” label of CE means extending usage life of products by adopting a second or further consumption strategy through repairs, remanufacturing or refurbishment. From customers’ perspective, it means purchasing second-hand goods or finding somebody who might be inclined to use pre-owned items or making some small adjustments to worn out products for further use (Morseletto, 2020).

The aim of “repair” is to prolong the usage life of products to keep them in the cycle which is a more advantageous option to keep value compared with recycling (Stahel, 2019). The repair can also be both consumer or producer oriented depending on the location of it. For example, consumers can handle the repair of their broken furniture by do-it-yourself kits.

“Recycle” concept implies the transformation of waste generated by consumers or businesses to raw materials or products with the help of high-level tech. Although the cost of energy, technology, and other resources used in recycling generally exceeds the value retained out of this process, recycling is still one of the key principles of CE (Ioannidis, Chalvatzis, Leonidou & Feng, 2021). The consumers can contribute to the recycling process mainly by sorting their waste based on classification applied by their municipal powers.

Even though 3R concept has received further development to 5, 6 and even 10R, the current thesis relies on the initial three fundamental principles of CE - reuse, recycle, and reduce (MacArthur, 2013).

There is also a lot of fragmentation about the definition of CE which weakens the application of this concept in the real world. There are more than 100 definitions that have been recorded and concluded as different meanings for different actors in various fields (Kirchherr, Reike & Hekkert, 2017). There are many various concepts which correlates with CE within some context such as cradle-to-cradle (Braungart & McDonough, 2009), biomimicry (Andrews, 2015), the performance economy (Stahel, 2016), the blue economy (Smith-Godfrey, 2016), industrial symbiosis (Chertow, 2007) and so on.

Some organizational supporters of CE tended to underestimate the importance of

consumption, limiting it to recycling and purchasing (Bali Swain & Sweet, 2021). There is also an oversimplification for the role of citizens which is viewed as consumers and forced to accept practices dictated by other actors in CE such as the business or political sphere (Hobson, 2016). Although there are many interpretations about the environmental and economic aspect of CE, there are also a couple of definitions which consider the social aspect of CE such as the definition by the Dutch government: "Circular economy is an economy that strives to keep materials and products in use for as long as possible, though, for example, reusing, repairing, refurbishing, and recycling. In a CE, waste and pollution are minimized, and social benefits are created, such as job opportunities, human well-being, and social equity" (Waterstaat, 2019). The Dutch government thinks that a well-functioning CE should not only be a responsibility of the government and business community, the consumers should also play an important role for promoting CE such as using items longer, repairing them, or going to thrift stores. Therefore, the government plans to create a space for CE in the educational activities and create campaigns to encourage citizens.

1.2. Institutional factors for CE

We also explored the previous literature on institutional factors affecting CE practices (Levänen, Lyytinen & Gatica, 2018; Bag, Pretorius, Gupta & Dwivedi, 2021; Fischer & Pascucci, 2017). We identified the most recent papers which investigate institutional factors for transformation to CE. The most used theory in the empirical analysis was the model developed by Scott (2013) which is the combination of three institutional factors.

Table 1

Summary of the papers used institutional theory by Scott (2013)

Authors	Approach
(Levänen, Lyytinen & Gatica, 2018)	Institutional theory (Scott, 2013) is used to explore the effects of regulative, normative and cultural-cognitive factors on organizational activities in CE business models.
(Ranta, Aarikka-Stenroos, Ritala & Mäkinen, 2018)	Three factors (regulatory, normative, cultural-cognitive) of institutional theory (Scott, 2013) are applied to explore drivers and barriers to CE practices in US, China and Europe.
(Bag, Pretorius, Gupta & Dwivedi, 2021)	The influence of institutional forces on tangible resources and workforce skills which fosters CE and sustainable practices is analyzed. Regulatory, coercive and mimetic factors are analyzed using Institutional isomorphism theory (DiMaggio & Powell, 1983).
(Jabbour et al., 2020)	The effects of stakeholder pressures (from government, customers and internal stakeholders) are explored as barriers to CE practices.

(Fischer & Pascucci, 2017)	The influence of inter-firm cooperation on stimulating changes in the institutional environment to increase the effectiveness of material flows in the CE.
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Source: compiled by the authors.

The institutional theory developed by Scott (2013) is the main theory used in our thesis to capture the most important institutional factors. As indicated in Table 1, extant literature and empirical studies evaluate the relationship between the institutional theory and CE more from the organizational and governmental perspective. Therefore, the necessity of the examination emerges on the consumer side of the picture.

The theory categorizes institutions under three pillars - regulative, normative, and cultural-cognitive. The origin of this theory dates back to the work of institutional isomorphism theory of DiMaggio & Powell (1983) which defines three types of forces - coercive, normative, and mimetic.

The regulative institutions are the part of the first pillar of institutional theory used in this thesis. The major constituents of regulative institutions are legal obligations, coercive measures which are mostly associated with certain rules (Scott, 2008). Informal codes or formal regulations can represent the regulative pillar of the theory (Scott, 2008). This pillar is an instrument used by authorities to force the society to adopt certain purposes or ways of living. It basically determines the rights, responsibilities and obligations of different actors within the society put forward by the means like constitutions, legislations, acts, taxation and market coordination (Henrysson & Nuur, 2021).

The regulative pillar of institutional theory has been used extensively in different areas of sustainability studies to investigate barriers and opportunities. Veleva and Ellenbecker (2001) have identified that there is a strong relationship between regulative pillars and sustainable consumption and production behavior.

The regulative pillar of Scott's (2013) theory is also applied to explore various institutional factors of the CE in the EU region. For example, Fratini (2019) has investigated how the regulative structure of institutions has an impact on urban evolution of EU cities from the perspective of CE practices. The author emphasized the importance of appropriate regulatory measures to compensate the cost of externalities among actors of the economy. Moreover, delegating too much role to businesses has caused the negligence of consumers' role in circularity practices as described in the findings of authors.

The literature and the existing empirical studies lack the measurement of all institutional factors, in such a way that the effects of normative and cultural-cognitive pillars are not clearly identified (Arranz, Sena & Kwong, 2022).

Normative pillar represents a set of norms and values which leads to mutual commitment relationships among a group of people such as organizations, fraternities and individuals (Scott, 2013). Normative institutions take bases from the common judgment, attitude, beliefs or values about certain issues that are accepted by the majority of the society or shared socially (Veciana & Urbano, 2008). They are also mandatory aspects of social interactions, and these aspects direct individual behaviors toward the actions or choices which are assumed to be proper or normal in society and in the organizational environment (Bruton, Ahlstrom & Li, 2010).

Normatives are also the form of directives by different institutions (government, educational system, religion) which push the individuals to adopt certain behavior without any enforcement, sanctions (Trevino, Thomas & Cullen, 2008) or written law. Distinction between regulative and normative institutions is the feelings or senses following the breach of the normatives. If an individual does not follow the normatives or does not behave according to norms, shame and disgrace are the feelings that individual experiences. As a result, society members tend to conform to the normatives to maintain high self-respect (Scott, 2013).

Not only the normative pillars of institutional structure of countries can have a significant impact on the development of CE practices, but also it can impede the transformation to the CE concept. For instance, the normative sphere of institutional structure can encourage recycling to be more desirable than landfilling (Miliute-Plepiene, Hage, Plepys & Reipas, 2016). However, it can also demotivate the improvement of CE practices by giving more importance to reducing carbon emissions instead of adopting closed-loop of material circulation (Ranta, Aarikka-Stenroos, Ritala & Mäkinen, 2018).

Lastly, cultural-cognitive institutions are conceptualized to explain the shared understanding and knowledge within society which is based on a common logic of actions, and common frames used to make meaning (Scott, 2013). These institutions define the beliefs of people which consequently determine the perceptions towards challenges and difficulties in daily-life or professional life. Individuals refer to the cultural-cognitive frames when they try to understand the world and to make sense of it (Alexander, 2012). The reflection of cultural-cognitive factors is certainty or uncertainty among individuals (Scott, 2013).

Hofstede (2001) agrees that the perceptions of individuals about the unknown and unusual concepts determine if they will avoid uncertainty or not. This perspective is evaluated by the author in the cultural-cognitive frame and can be related to the individuals' behavior in CE practices.

Do, Mishra, Colicchia, Creazza and Ramudhin (2022) evaluate the cultural-cognitive institutions under the socio-cognitive factors and give following examples: recognition of the possibility of value recovery by consumers; consciousness about dependencies on raw materials and environmental problems; consumer intention to buy sustainable products. Ranta, Aarikka-

Stenroos, Ritala and Mäkinen (2018) study the behavioral stimulations of the customers of DELL and conclude that the cognitive patterns of customers (majority doesn't expect high performance from sustainable products) affect the purchasing behaviors of them.

Acknowledgement and recognition of resource scarcity and environmental pollution is another strong cultural-cognitive factor referred to by many scholars and is evaluated as an important driver of the CE transition (Ranta, Aarikka-Stenroos, Ritala & Mäkinen, 2018).

The connection of institutional theory and consumption behavior of individuals has been a significant factor in our thesis to explore this perspective of CE. Although the amount of research done in this topic is highly limited, there are some studies which have explored the relationship between institutional pressures and consumption patterns of people (Shi, Shambare & Wang, 2008; Martinez Castaneda, Marte & Roxas, 2015). Mont (2004) points out the necessity of new regulatory policies to support new investments and normative context to change the view of unsustainable consumption for shared use systems of households. As pointed out by Lounsbury (2007) institutions have a direct effect on cognition of individuals, thus on their consumption behavior. Therefore, it is a logical practice to use neo-institutional theories such as Scott's (2013) theory to find potential barriers and opportunities for altering traditional consumption patterns and lifestyle of individuals.

1.3. The role of consumer behavior in CE

There is an ongoing debate about the role of CE as being "eco-modernist view" which means the extensive application of technologies and other waste reduction methods to maximize the utility of business benefits (Genovese & Pansera, 2021). This eco-modernist narrative is highly applicable in the current situation of production and consumption institutions. The current institutional structure only focuses on the value of the waste by neglecting social factors which affect high waste generation as a result of high consumption (Bauman, 2013; Velenturf & Purnell, 2021). The need to study how the view of institutions differs from the perspective of consumer behavior emerges to find an alternative system to replace the current structure of CE management practices.

Opportunities to apply CE emerge in every stage of the value chain, to be specific in manufacturing, distribution and consumption level. Developed countries already have substantial CE practices applied in manufacturing and distribution, while most of the lost opportunities are the possible applications of the consumption stage (Towards the Circular Economy Vol. 2, n.d.).

The successful CE models doesn't capture only producers, but also consumers must be included into the scope of CE practices to achieve the ultimate progress (Arranz, Sena & Kwong, 2022).

Inadequate consciousness of consumers about the importance of the CE practices and the

lack of changes in firm culture are emphasized as the most challenging barriers (Kirchherr et al., 2018). Extensive CE implementation has not reached the potential level thus far, and lacking consumer awareness and consumer reluctance seems to be among the reasons for this inefficacy (Bicket et al., 2014). The limited consumer awareness leads to the consumer misbehaviours which act as another constraint for the transition. For instance, consumers usually tend to purchase new goods (Ranta, Aarikka-Stenroos, Ritala & Mäkinen, 2018) which is the behavior in contrast with the CE principles.

Disruptions like the scarcity of resources, material tracing technologies and new standards require and create new behavioral trends (such as replacing ownership with access) which should replace the accustomed behavior (Towards the Circular Economy Vol. 2, n.d.). These new trends and the notion of Consumer Behaviour in CE practices needs to be concretized. In the first place, environmental consumer behavior is shaped by environmental consumer attitude which is a psychological proclivity of consumers with favor or disfavor (Milfont & Duckitt, 2010). Although, consumer attitude or claim to contribute to the CE transition is not always reflected in consumer behavior. For example, even though most consumers claim that they would buy green products they still prioritize price, quality and other conveniences over environmentally friendly features (Gan & Kao, 2008).

Consumers take a direct part in 3 product lifetime stages: purchase (relevant principles: refuse, reduce); use (relevant principles: reuse, repair); end-of-life product management (relevant principles: recycle) (Parajuly, Fitzpatrick, Muldoon & Kuehr, 2020). Martinez, Castaneda, Marte and Roxas (2015) mention the fourth stage which is evaluation of consequences by the consumers with environmental sensitivity. In each of these stages' consumers can contribute to CE through relevant behaviors. Such as purchasing durable products, reusing or repairing malfunctioned products and contributing to the value recovery from end-of-life products through recycling or proper disposal (Parajuly, Fitzpatrick, Muldoon & Kuehr, 2020). Consumers determine if products will enter into the circular lifecycle or not, this decision is made in the "use" and "end-of-life product management" stages. If a consumer sells the product to another person as a second hand, gives it away or simply throws it into a recycling bin it means the product is re-entered into the circle, otherwise (throwing away or storing end-of-life products at home) the product will be unavailable for circular practices (Cordova-Pizarro, Aguilar-Barajas, Rodriguez & Romero, 2020). The use and end-of-life product management stages with relevant principles will be the main focus of this thesis.

Especially recovering value from end-of-life products and capitalization of that value to a great extent depends on consumer behavior, because end-of-life products start their recycling journey with proper disposal by consumers (Shevchenko et al., 2023). Consumers may tend to store the products even if they do not use them, for some products like cell phones 60 % of users

still keep the product instead of disposing of it, selling it or giving it away in Mexico (Alcántara-Concepción, Gavilan - Garcia & Gavilan - Garcia, 2016). Hence, the stimulation behind the misbehavior of product users' needs to be examined to foster CE transition.

In the First Circular Economy Action Plan by the European Commission (2015) all consumption phases within product lifetime are addressed starting with the “purchase” phase in which product labeling has a crucial role for consumers to differentiate products and to access the information about them. Consumer behavior in the “purchase” phase may be triggered by many determinants. Examples to those determinants are information about product, price and the range of products, as well as the regulatory factors (First Circular Economy Action Plan, n.d.). Elzinga, Reike, Negro and Boon (2020) consider payment method as another determinant which has a substantial impact on consumers' purchase behavior and intention to engage in Circular Business Models, authors suggest creating a new institutionalized consumer habit mechanism. The European Commission draws attention also to the product design, spare part availability, planned obsolescence problems and accessibility of repair information to optimize the “use” phase. Also, innovative consumption forms such as product sharing, prioritizing services over products are followed actions by the European Commission (First Circular Economy Action Plan, n.d.)

Despite the big role of consumer behavior in CE transition, there is a huge information gap about consumer's attitudes towards CE practices, especially towards Circular Business Models (CBM) (Ramani et al., 2010). Elzinga, Reike, Negro and Boon (2020) draw attention to treatment of consumers as passive actors in the CBM due to too much focus on business models from a business perspective. Thereby, extended focus on consumer behavior and examination of affecting variables are the gaps to cover.

Theory of Planned Behavior (TPB) by Ajzen (1985) which is widely applied to explore sustainable behaviors at individual level. TPB has been used to analyze questions and problems related to dozens of different domains such as blockchain adoption (Hartley, Sawaya & Dobrzykowski, 2021), consumer actions in wine industry (Marshall, Cordano & Silverman, 2005), construction waste management, green tourism industry (Verma & Chandra, 2018), eco purchasing behavior (Wang, Qiu, Ye & Liang, 2016). TPB basically states that people consider their intentions before performing an action. Our intentions are mainly affected by three factors: attitudes, subjective norms and perceived behavior control (Ajzen, 1985).

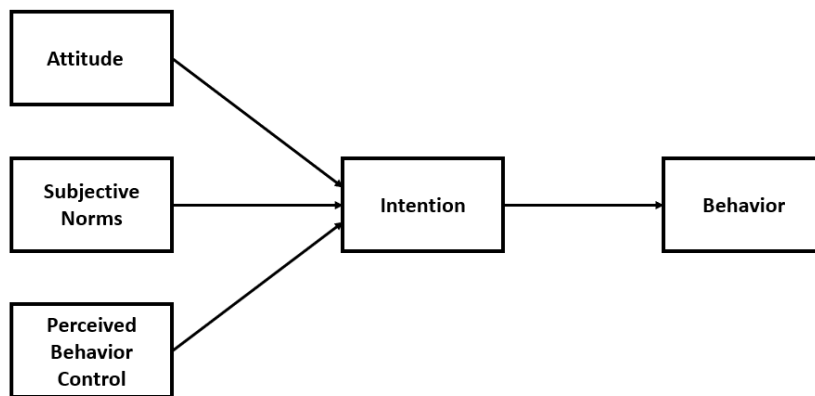


Figure 2: Visual description of the theory of planned behavior

Source: Compiled by the authors based on Ajzen (1985)

According to TPB the first factor that influences intention is attitude, which helps decide the probability of a particular behavior, such as studying for an exam today is something I should do. Another factor that impacts behavior is subjective norms which describe other people's opinions about a specific person's behavior. For example, a person's friends think that studying at the weekend is not a wise decision. The last factor - perceived behavior control - considers the elements which accelerate or limit the accomplishment of a behavior such as thinking about difficulty of studying and taking care of children at the same time.

There is highly limited research in CE literature which uses the combination of TPB and institutional theory. We have gathered the study papers which use a combination of institutional theory and TPB in their conceptual models as described in Table 2.

Table 2

Summary of papers which used institutional theory and theory of planned behavior.

Author	Paper	Theory	Conceptual model	Method
(Jan, Lu & Chou, 2012)	The adoption of e-learning: an institutional theory perspective	Institutional theory and TPB	Authors have used all pillars of institutional theory of DiMaggio and Powell (1983) along attitude and intention factors of TPB theory.	Quantitative analysis (data collection via survey)
(Shi, Shambare & Wang, 2008)	The adoption of internet banking: An institutional theory perspective	Institutional theory and TPB	Shi, Shambare and Wang have used all pillars of institutional theory by DiMaggio and Powell (1983) with attitude and intention factors of TPB theory.	Quantitative analysis (data collection via survey)

(Liu, Chen & Wang, 2022)	Factors driving waste sorting in construction projects in China	Institutional theory and TPB	Authors have used all factors of TPB theory and picked coercive and mimetic factors of institutional theory by DiMaggio and Powell (1983)	Quantitative analysis (data collection via survey)
(Fauzi & Sheng, 2022)	The digitalization of micro, small, and medium-sized enterprises (MSMEs): An institutional theory perspective	Institutional theory and TPB	Fauzi & Sheng (2022) have used all pillars of institutional theory by DiMaggio and Powell (1983) with attitude and behavioral intention factors from TPB theory.	Quantitative analysis (data collection via survey)
(Raab, Baloglu & Chen, 2018)	Restaurant Managers' Adoption of Sustainable Practices: An Application of Institutional Theory and Theory of Planned Behavior	Institutional theory and TPB	Authors have used all factors of institutional theory of DiMaggio and Powell (1983) and TPB theory in the conceptual model of paper.	Quantitative analysis (data collection via survey)

Source: Compiled by authors

Institutional theory states that formal and informal institutions provide an opportunity to explain attitudes and behavior of social actors (Scott, 2013). The studies mentioned in Table 2 proves this statement implementing studies in different policy areas, as well as in CE context. These studies postulate the beneficial role of institutional factors for exploring the attitude, intentions or behavior of consumers or businesses at individual level. For that purpose authors suggest different conceptual models based on merged modification of personal factors in TPB and institutional factors in institutional theory by Scott (2013) and DiMaggio and Powell (1983).

2. Empirical Analysis

2.1. Institutional settings for CE in Estonia and Azerbaijan

The differences and similarities between these countries will be explored in this section from the perspective of institutions and development paths which will also be further discussed after getting empirical results to have some suggestions towards application of CE.

Unlike other post-soviet nations, Estonia's trade partners, most of them were EU countries, have also helped to evolve its government and civic institutions towards more environmentally conscious behavior (Tukker, Charter, Vezzoli, Sto & Andersen, 2008).

Estonia's adoption of digitalization and exploiting the full potential of the internet has been a fundamental aspect of development of its political and social institutions. Key officials

within agencies have played a crucial role for implementing changes within law to accelerate adoption of IT within public institutions (Siil, 2001). The particular services within the e-government strategy of Estonia such as internet voting, common portal for bank and government services have highly contributed to raise digital literacy of its people which has also highly affected the environmental consciousness of Estonian society.

If we look at the level of confidence in state institutions from the perspective of regulative factors of institutional theory, statistics show remarkable positive results. The level of trust in democracy in Estonia was 57 % based on a report of the Eurobarometer (2019) survey which was highest among post-soviet nations. On the other hand, the level of trust in national government and parliament was 43% and 40% respectively which was higher than the EU average (34% and 34%). Furthermore, Estonia was a leader for its citizens' confidence in the legal system and executive powers such as police among post-communist nations based on the European Social Survey (2018). Therefore, we would like to explore how people's behavior towards CE changes with this kind of positive statistics from the perspective of the regulative pillar of institutional theory.

Regarding normative and cultural-cognitive factors of institutional theory, we also looked at the statistics about CE related activities. For example, only 20 % of Estonian citizens give most consideration to environmentally - friendly products and only 10 % think that recyclability of purchased products is important compared to countries with high CE awareness such as Netherlands (35 %) or Luxembourg (34 %). (European Commission & TNS Political & Social, 2014). While taking account of the given statistics about normative and cultural-cognitive factors of institutional theory, we would like to explore how these factors affect their attitude and behavior for application of CE.

At the national level, the Estonian government tries to find ways to increase the feasibility of implementing CE principles. As the first milestone in the CE transformation of Estonia, a strategic action plan document has been prepared under leadership of the Ministry of Environment of Estonia at the end of 2022 (Circular Economy in Estonia, n.d.). Based on this report, one of the main development objectives for the government regarding CE transformation is to raise the level of environmentally friendly thinking and behavior among Estonian society. Although it is an important step to develop main priorities for government, business and individuals for implementing CE principles, Estonia still lags behind other EU members in terms of CE trends.

The second country where we will conduct our analysis is Azerbaijan, the country that determined new strategic goals regarding sustainable development since the beginning of the current decade. The government has set the "green growth country and clean environment" as one of four national priorities by 2030 (United Nations, 2021, n.d.). Another positive step towards CE was the National Strategy regarding the development of solid municipal waste management

actualized during 2018-2022 (637 - “Azərbaycan Respublikasında Bərk Məişət Tullantılarının İdarə Edilməsinin Təkmilləşdirilməsi qanun, n.d.). Before the National Strategy came into force in 2018 environmental actions focused on the capital city of Azerbaijan keeping the regional environmental development out of scope, resulting with the poor waste collection and contamination in the vast fields where municipal waste is piled

Despite the strategical alterations Azerbaijan hasn't included a full CE concept into the scope of those strategies and the alterations were limited with the waste management practices. Additionally, there are fundamental institutional bottlenecks to foster CE practices in Azerbaijan, which explained further.

The regulative institutions in Azerbaijan apply the law which regulates the municipal waste handling and the engagement of consumers in recycling activities. But these regulations are limited with basic restrictions like the law articles which obligates consumers to throw the waste to designated disposal points (379-IVQD - “İstehsalat və Məişət Tullantıları Haqqında” Azərbaycan Respublikasının Qanun, n.d.). Imanova (2011) indicates that the government and other public institutions in Azerbaijan do not introduce sufficient financial rewards to individuals to foster CE practices.

On the other hand, the cultural cognitive pillar of institutional theory is another pain point in Azerbaijan which affects the individual approach towards many societal issues, including environmental problems. During the first 2 decades after the liberation educational institutions in Azerbaijan failed to raise the environmental awareness within the society and did not provide environmental education (Imanova, 2011) which caused the major obstacles to achieve the goals regarding CE industries. Local communities in Azerbaijan don't have satisfactory knowledge on costs or benefits of individual environmental activities which is another indicator of poor cultural-cognitive institutions. Besides, consumer awareness of the consequences of environmental actions and the knowledge about specific responsibilities of consumers are the crucial factors to concentrate for expanding CE practices in Azerbaijan (Trautwein, Babazade, Trautwein & Lindenmeier, 2021).

Normative pressures such as environmental behavior of other citizens, desirability of such behavior in society do not play a significant role when an Azerbaijani consumers reconsider their behavior, rather their personal norms, values and belief on human-nature relations have more influence on pro-environmental actions (Trautwein, Babazade, Trautwein & Lindenmeier, 2021)

Caucasian countries are more reluctant to waste management and move more hesitantly toward a circular transformation (Environmental Performance Index, n.d.). In the reports released by Yale University and The McCall MacBain Foundation Azerbaijan was ranked on the 92nd place in a global ranking where the proper collection and treatment of solid waste, recycling rates and plastic pollution were the main considerations to evaluate the waste management practices in

180 countries worldwide (Environmental Performance Index, n.d.). Low awareness regarding the environmental issues is an obstacle to overcome in order to promote sustainability (United Nations report on High-Level Political Forum on Sustainability, 2019).

To the best of our knowledge, there are not many empirical studies to measure the impacts on pro-environmental behavior in Azerbaijan. Trautwein, Babazade, Trautwein and Lindenmeier (2021) applied extended value-belief-norm theory to investigate pro-environmental behavior in Azerbaijan, and measured behavioral intention of respondents instead of their actual behavior, which motivates our study to cover the gap.

Overall, CE-related studies about these countries are scarce, and there is no study about comparative analysis of Estonia and Azerbaijan in terms of CE. Thus, together with the institutional characteristics of both countries, we decided to apply institutional theory and TPB to investigate differences between these two post-soviet nations regarding CE.

2.2. Methodology and Data

Based on the combination of TPB and Institutional Theory, we propose a conceptual model (see Figure 3). This modified model has been adopted from a study of Jan, Lu and Chou (2012) which is about adoption of e-learning among employees in an organizational context. In the model, we state that both attitude and actual behavior of consumers are affected by three institutional factors.

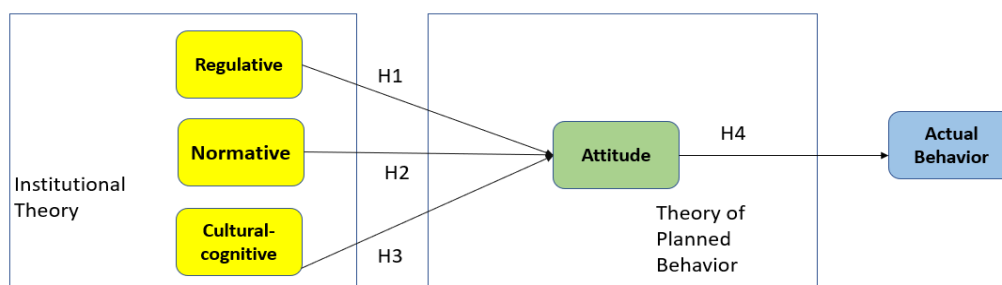


Figure 3: Conceptual model

Source: compiled by the authors based on Jan, Lu and Chou (2012)

Different versions of this conceptual model have been applied in different areas of social research topics such as digitalisation of enterprises (Fauzi & Sheng, 2022) and internet banking (Shi, Shambare & Wang, 2008). However, there is highly limited research in the sphere of CE which has applied the proposed conceptual model.

Regulative Pressure and Attitude

Institutions comprising regulative pressure affect consumer attitude towards climate issues (Hulme, 2009). Researchers mostly focus on the influence of regulative factors on the

organizational attitude and suggest that organizations are more intended to take environmental actions if they have regulatory pressures on them (Berrone, Fosfuri, Gelabert & Gomez - Mejia, 2013). Nevertheless, there are also studies indicating a significant effect of national level climate change actions taken by the government on consumer attitude (Schill, Godefroit - Winkel & Hughes, 2021). Regulations can have a pushing or pulling effect on consumers, for example, when regulative measures increase prices for a product consumer are being pushed to alternative solutions (e.g. rise in taxi fares pushes consumers towards UBER). Pulling effect of regulations is reflected in subsidies or different forms of incentives to make sustainable products attractive (Hazen, Mollenkopf & Wang, 2017). Consumers are more willing to behave environmentally friendly and engage in activities such as recycling, if they believe that the government makes an effort to maintain sustainability through reasonable policies and regulations (Guerin, Crete & Mercier, 2001). Thus, our first hypothesis is:

H1: Regulative pressure has a positive influence on people's environmental attitude towards CE practices.

Normative Pressure and Attitude

Normative institutions are empirically proven to be an influential factor on individual attitude. The attitude of individuals depends on the consideration of other people (whether they accept climate policies or not) around them with similar social characteristics (Hurlstone, Lewandowsky, Newell and Sewell, 2014). Individuals who accept sustainable behaviors as common responsibility in society (as a reflection of social norms) are more willing to protect the environment and resources (Bolsen, Druckman & Cook, 2014). Reno, Cialdini and Kallgren (1993) conducted several studies on the littering behavior of individuals and showed that the respective intentions were affected by the behavior of others, which also directly changes the attitude of individuals. Normative frames are mostly emerged among the people living together, after a period of time these people start showing similar attitude towards issues under the influence of normative pressure (Cullum & Harton, 2007), thus, our second hypothesis is:

H2: Normative pressure has a positive influence on people's environmental attitude towards CE practices.

Cultural-cognitive Pressure and Attitude

We already discussed that cultural-cognitive factors are mostly about the shared knowledge, common logic (Scott, 2013) , and a common way of making meaning (Alexander, 2012) within society which affects individual attitude and environmental intention (Do, Mishra, Colicchia, Creazza & Ramudhin, 2022) through certainty and uncertainty (Scott, 2013). Many studies prove the effect of these factors on environmental attitudes. Ranta, Aarikka-Stenroos,

Ritala and Mäkinen (2018) agree that negative individual perception about the quality of sustainable products can cause negative attitudes towards those products. People who are aware of the environmental impact of their actions have more willingness to positively contribute to the environment (Bolsen, Druckman & Cook, 2014). Awareness and knowledge of individuals can form individual perception of environmental problems which eventually will change the attitude towards those problems (Desa, Kadir & Yusoof, 2011). Such factors can also determine to what extent the attitude will be reflected in actual behavior. Poor knowledge and awareness among individuals about environmental issues such as solid waste problems can worsen the issue (Desa, Kadir & Yusoof, 2011). Compared to normative pressure, cultural-cognitive pressure is not the consequence of the pressure by the surrounding of individuals but rather people are directed by internal instincts which are based on the way of their understanding and awareness about certain matters. Thus, our third hypothesis is:

H3: Cultural cognitive pressure has a positive influence on people's environmental attitude towards CE practices.

Actual Behavior and Attitude

Environmental attitude is perceived as one of the most important factors that explains actual behavior. The strong relationship between these factors has been also proved in many environment related studies (Ballantyne & Packer, 2005; Dhir, Sadiq, Talwar, Sakashita & Kaur, 2021; Taufique, Vocino & Polonsky, 2017). However, there are also some studies that state the attitude-behavior gap in environmental studies (Boulstridge & Carrigan, 2000; Taufique, Vocino & Polonsky, 2017). There are contradictory opinions in the extant literature which pushed us to use the attitude as a main proxy predictor of actual behavior. We assume that there is a positive relationship between people's attitude and their actual behavior in the context of CE. Thus, our hypothesis is:

H4: Environmental attitude has a positive influence on people's environmental behavior towards CE practices.

Demographic factors also play an important role while investigating consumer behavior in CE. Buttel and Taylor (1992) states that age and education are highly crucial variables when environmental behavior is the main focus of research. For example, older people tend to think more and look for too much certainty before they act (Botwinick, 2013). Consumers with high educational attainment are more likely to care for the environment and more prone to change their consumption behavior based on sustainable choices (Diamantopoulos, Schlegelmilch, Sinkovics & Bohlen, 2003). Studies also show that females are more sensitive about environmental-friendly consumption (Wells, Ponting & Peattie, 2011) and are willing to purchase eco-friendly products

more than males (Khare, 2015). Considering all these factors, we will include age, gender, education as control variables to our analysis.

The survey is one of the most applied methods in studies which use the combination of institutional and TPB theories (Jan, Lu & Chou, 2012; Liu, Chen & Wang, 2022; Martinez, Castaneda, Marte & Roxas, 2015; Shi, Shambare & Wang, 2008). Surveys were conducted in two countries for 3 weeks, and 223 responses for Estonia and 200 responses for Azerbaijan were collected. Survey was prepared in 3 different languages - Estonian, Azerbaijani, and English. To reach out to different segments of the population we shared the survey in a variety of social media groups which also involved respondents from different regions of two countries. Respondents were asked to answer the survey questions in two parts. Questions related to the institutional factors were asked in the first part where regulative, normative and cultural-cognitive pressures were aimed to be measured. Each institutional pillar comprised 3 different items (Table A1 in Appendix). Firstly, regulative pressure and motivation were measured by asking people questions to understand to what extent they are driven by the laws, regulations or financial incentives by the government. The questions for the regulative pillar were adapted from DiMaggio and Powell (1983); Liu, Chen and Wang (2022); and Mahpour and Mortaheb (2018). Normative factors were measured via the questions about the behavior and attitude of other people that surround the respondents and were adapted from Shi, Shambare and Wang (2008); and Liu, Chen and Wang (2022). Cultural-cognitive factors were measured through the questions which evaluated the knowledge and the awareness of the respondents about the CE practices or about the impact of their environmental actions. The questions for cultural-cognitive pillar were adapted from Martinez, Castaneda, Marte and Roxas (2015); and Pinho (2017).

In the second part of the survey 6 questions were asked to measure the attitude (sense of responsibility, willingness to act and moral satisfaction level) and actual behavior (recycling, reusing and repairing activities) of the respondents towards CE practices (Table A1 in Appendix). The questions of the second part were adapted from Khan et al. (2020); Martinez, Castaneda, Marte and Roxas (2015); Khan, Bellini, Daddi and Iraldo (2022); and Liu, Chen and Wang (2022). Demographic statistics of respondents in Estonia and Azerbaijan is described in Table 3.

Table 3

Demographics of the data (N=223) for Estonia and (N=200) for Azerbaijan

Azerbaijan	Demographics	Item	Frequency	Percentage
	Gender	Male	106	53%
		Female	94	47%
	Age	Under 24 years	68	34%
		25-34 years	74	37%
		35-49 years	33	17%

		50 or over years	25	13%
	Education	Less than high school degree	16	8%
		High school degree or equivalent	6	3%
		Some college but no degree	0	0%
		Bachelor degree	86	43%
		Graduate degree	73	37%
		Doctoral degree	19	10%
Estonia	Gender	Male	106	48%
		Female	117	52%
	Age	Under 24 years	33	15%
		25-34 years	61	27%
		35-49 years	73	33%
		50 or over years	56	25%
	Education	Less than high school degree	6	3%
		High school degree or equivalent	36	16%
		Some college but no degree	35	16%
		Bachelor degree	60	27%
		Graduate degree	77	35%
		Doctoral degree	9	4%

Source: Compiled by authors

For the measures of all items Likert-type scale is used with the points from 1 to 7, where 1 indicates the statement of “strongly disagree” and 7 indicates the statement of “strongly agree”. Likert-type scaling is considered to provide more reliable scores and high internal consistency for the scores (C. C. Preston & Colman, 2000) and it was used by most of the researchers applying TPB and Institutional theory.

In our analysis section, we will use the SmartPLS application which is based on Partial Least Square - Structural Equation Modeling (PLS-SEM) method to evaluate the validity of scales and hypotheses. Unlike covariance-based SEM models, PLS-SEM allows small sample sizes and is highly flexible regarding normal distribution (Hair, Hult, Ringle and Sarstedt, 2021). This method is also logical to apply when the research model is an explanatory one and less developed (Hair, Ringle and Sarstedt, 2011). The PLS-SEM method helps us to analyze the simultaneous measurement model which is based on relationships among latent variables and indicators that explains them. It also includes a structural model which describes relationships among latent variables (i.e., path coefficients) (Fornell & Bookstein, 1982).

Our analysis consists of two stages: evaluation of measurement and structural model. We will investigate factor loadings, convergent validity, discriminant validity and reliability of constructs in the first stage. In the second stage (assessment of structural mode), we will examine path coefficients, R^2 values and significance of relationships between latent variables. In this stage both direct (excluding mediating effect of attitude) and indirect effects models will be

explored.

2.3. Results of the analysis

Measurement model - comparison of Estonia and Azerbaijan

We have put all descriptive statistics information about measurement items for Estonia and Azerbaijan in Table 4 and Table 5 respectively. The measurement of model fit for the PLS method differs from the LISREL-type SEM. While LISREL provides overall good-of-fitness indices, t-statistics for factor loadings are used for PLS-SEM to assess the significance and strength of relationships between latent variables. As observed from Table 4, the t-statistics of all factor loadings for Estonia are significant at the $p < 0.001$ level. On the other hand, the t-statistics of all factor loadings for Azerbaijan are significant at the $p < 0.05$ level as described in Table 5. We also assessed the results of the measurement model in terms of reliability, convergent validity, and discriminant validity of each item. The reliability of items in each construct should be evaluated based on composite reliability (CR) values which should be higher than 0.70 (Hair, Ringle and Sarstedt, 2011). A standard method to test item reliability also recommends that factor loadings be higher than 0.70 (Hair, Ringle and Sarstedt, 2011). As depicted in Table 4, we can see that all CR values and factor loadings are in between 0.70 and 0.90 for Estonia which is considered quite satisfactory.

Table 4

The Measurement Model for Estonia

Construct	Item	Load ing	Std.E rror	t- Statistic	Cronbach's α	CR	AVE
Regulative	REG1	0.846	0.046	18.511	0.776	0.867	0.684
	REG2	0.818	0.063	13.077			
	REG3	0.817	0.050	16.415			
Normative	NOR1	0.858	0.025	34.869	0.796	0.879	0.708
	NOR2	0.882	0.024	37.362			
	NOR3	0.780	0.059	13.197			
Cognitive	COG1	0.738	0.086	8.578	0.803	0.877	0.705
	COG2	0.842	0.058	14.455			
	COG3	0.928	0.023	40.458			
Attitude	ATT1	0.889	0.019	46.551	0.857	0.913	0.778
	ATT2	0.889	0.022	40.193			
	ATT3	0.867	0.027	32.184			
Behavior	BEH1	0.869	0.025	34.670	0.834	0.898	0.747

BEH2	0.820	0.037	21.947
BEH3	0.902	0.013	70.188

Note: All t-statistics are significant at the 0.001 level; CR=Composite Reliability; AVE=Average Variance Extracted; NA: not applicable to single-item measures

Source: Compiled by authors

In the measurement model for Azerbaijan (see Table 5), although all CR values are higher than 0.70, there is one loading factor in cognitive construct which is slightly lower than 0.70, we kept it because of its average value extracted (AVE) being higher than 0.50 (Hair, Hult, Ringle and Sarstedt, 2021). Moreover, we used AVE to measure the quality of convergent validity which should have a value higher than 0.50 (Hair, Hult, Ringle and Sarstedt, 2021). As indicated in Table 4 and Table 5, all AVE values are higher than 0.50 for both countries.

Table 5

The Measurement Model for Azerbaijan

Construct	Item	Loading	Std.Error	t-Statistic	Cronbach's α	CR	AVE
Regulative	REG1	0.781	0.264	2.954	0.768	0.850	0.657
	REG2	0.929	0.245	3.794			
	REG3	0.706	0.301	2.342			
Normative	NOR1	0.847	0.046	18.333	0.815	0.890	0.729
	NOR2	0.884	0.036	24.870			
	NOR3	0.831	0.062	13.318			
Cognitive	COG1	0.665	0.225	2.956	0.721	0.819	0.606
	COG2	0.748	0.190	3.929			
	COG3	0.903	0.210	4.300			
Attitude	ATT1	0.795	0.045	17.597	0.743	0.851	0.657
	ATT2	0.784	0.059	13.366			
	ATT3	0.851	0.039	21.713			
Behavior	BEH1	0.797	0.078	10.262	0.756	0.859	0.671
	BEH2	0.769	0.105	7.342			
	BEH3	0.888	0.050	17.839			

Note: All t-statistics are significant at the 0.05 level; CR=Composite Reliability; AVE=Average Variance Extracted; NA: not applicable to single-item measures

Source: Compiled by authors

Discriminant validity test was used to identify if there is some kind of relationship between latent variables. We used a modern method called the Heterotrait-Monotrait ratio of

correlations (HTMT) instead of the Fornell-Larcker method to assess discriminant validity.

Table 6

Discriminant validity: HTMT method - Estonia.

	ATT	BEH	COG	NOR	REG
ATT					
BEH	0.562				
COG	0.331	0.657			
NOR	0.526	0.253	0.222		
REG	0.43	0.186	0.122	0.423	

Source: Compiled by authors

The HTMT approach performs better in comparison with the former one (Henseler, Ringle and Sarstedt, 2015). Authors state that HTMT ratio should not be greater than 0.90 to establish discriminant validity. As depicted in Table 6 and Table 7, no values passed the threshold of 0.90 which approves the discriminant validity in measurement models of both countries.

Table 7

Discriminant validity: HTMT method - Azerbaijan.

	ATT	BEH	COG	NOR	Reg
ATT					
BEH	0.420				
COG	0.201	0.360			
NOR	0.279	0.200	0.153		
Reg	0.132	0.060	0.106	0.145	

Source: Compiled by authors

We also provided cross-loadings for both countries to further verify discriminant validity. All respective cross-loadings of the items (see appendix Table C1, Table C2) were less than individual loadings which is a proof of discriminant validity (Hair, Hult, Ringle and Sarstedt, 2021).

Structural model - Comparison of Estonia and Azerbaijan

We built the structural model for both of the countries where path coefficients, t-statistics, p values and R² values are estimated in Smart PLS. Bootstrapping techniques are used to calculate the values of path coefficients and t-statistics which are used to test our hypotheses. In the first part of our structural modeling we analyze our conceptual model where the main relationships are built according to our hypotheses. In the second part we analyze the mediating

effect of attitude between independent and dependent variables. Each of the analysis results will be discussed separately for Estonia and Azerbaijan. Figure 4 depicts the results of the conceptual model for Estonia. Significant path coefficients from regulative factors to attitude ($\beta=0.244$, $p < 0.01$), from normative factors to attitude ($\beta=0.320$, $p < 0.001$), from cultural-cognitive factors to attitude ($\beta=0.237$, $p < 0.001$) and from attitude to behavior ($\beta=0.449$, $p < 0.001$) support all of our hypotheses for Estonia. We also included gender, age and education into our model as control variables, and while the path coefficient from age to behavior ($\beta=0.247$, $p < 0.001$) is significant, the path coefficients from education to behavior ($\beta=0.096$, ns) and from gender to behavior ($\beta=0.072$, ns) are insignificant. Overall, our model for Estonia explained the 31 percent of the variance in behavior and 30.3 percent of the variance in attitude according to the R^2 values.

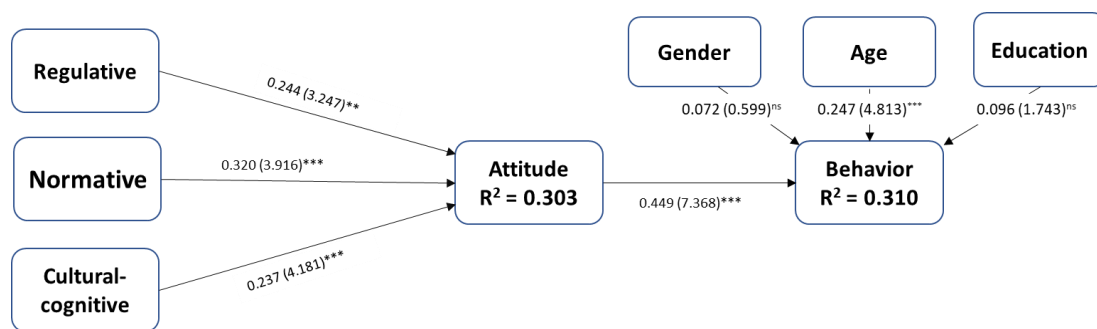


Figure 4: Results of Conceptual Model for Estonia

Note: Path coefficients (t-value): * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; ns: not significant

Source: Compiled by authors

Figure 5 depicts the results of the conceptual model for Azerbaijan. The path coefficients from regulative factors to attitude ($\beta=0.080$, ns) and from cultural-cognitive factors to attitude ($\beta=0.147$, ns) are insignificant, therefore H1 and H3 are rejected. While H2 is supported with significant path coefficient from normative factors to attitude ($\beta=0.200$, $p < 0.01$).

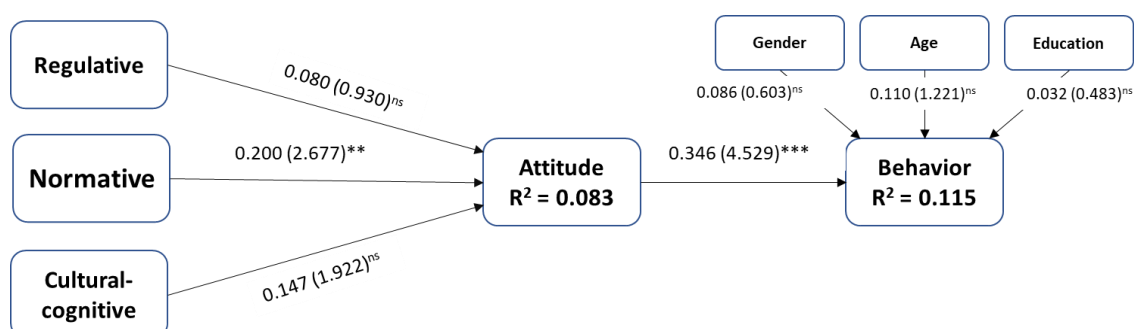


Figure 5: Results of Conceptual Model for Azerbaijan

Note: Path coefficients (t-value): * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; ns: not significant

Source: Compiled by authors

All of the control variables have an insignificant effect on behavior for the case of Azerbaijan. Overall, our model for Azerbaijan explained the 11.5 percent of the variance in behavior and 8.3 percent of the variance in attitude according to the R^2 values.

Mediating effect analysis

Above results show that attitude mediates the effect of all institutional factors on behavior in the case of Estonia, and mediates the effect of normative factors on behavior in the case of Azerbaijan. But the mediation effect needs to be elaborated further to analyze if attitude has partial or full mediation effect in each of 3 relationships between institutional factors and behavior. For that we run the bootstrapping calculations again to calculate also the direct effects of institutional factors on behavior, where the power of the mediation will be depicted (Baron & Kenny, n.d.).

Figure 6 depicts the modified model for Estonia where we observe the direct effects of regulative and normative factors on behavior are insignificant which means that for these factors attitude plays a full mediating role. On the other hand, there is a significant path coefficient directly from cultural-cognitive factors to behavior ($\beta=0.412$, $p < 0.001$), therefore attitude has a partial mediating effect between cultural-cognitive factors and behavior. In this model we also see a significant increase in R^2 of behavior (from 31 percent to 44 percent) which is caused by direct effects from institutional factors.

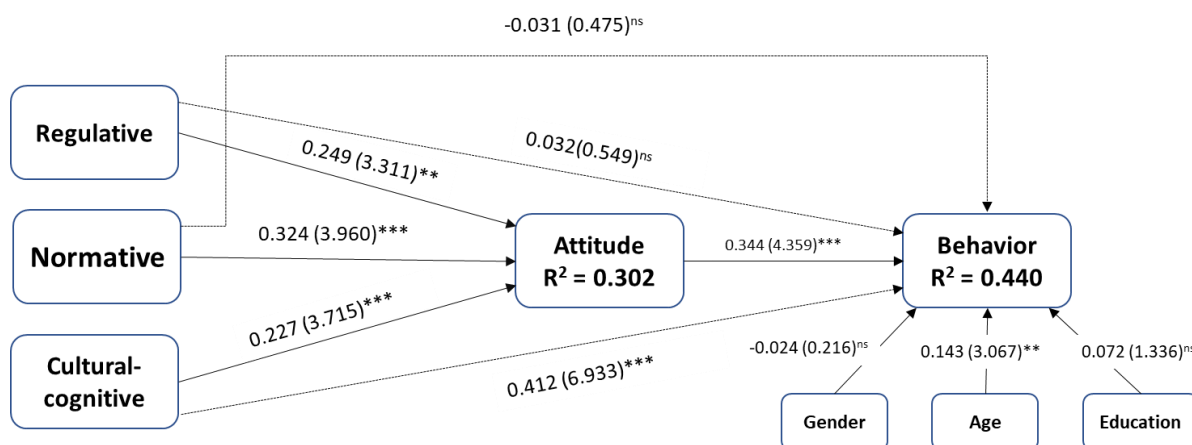


Figure 6: Results with Direct and Indirect Effects (The Case of Estonia)

Note: Path coefficients (t-value): * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; ns: not significant

Source: Compiled by authors

Figure 7 depicts the modified model for Azerbaijan. When we calculated the path coefficients without direct relationships between institutional factors and behavior we observed

that only normative factors significantly affected attitude (See Figure 5). But in the modified model (See Figure 7) with direct and indirect relationships we see the t-statistics of the effect of cultural-cognitive factor on attitude increases above 1.96 and makes the path coefficient significant. Therefore, in Figure 7 we are focusing on the direct relationship from normative factors to behavior and from cultural-cognitive factors to behavior. The path coefficient directly from normative factors to behavior is insignificant (0.068, ns), while the path coefficient directly from cultural-cognitive factors to behavior is significant (0.236, $p < 0.001$). In conclusion, attitude has a full mediating effect in the relationship between normative factors and behavior, while it has a partial mediating effect between cultural cognitive factors and behavior.

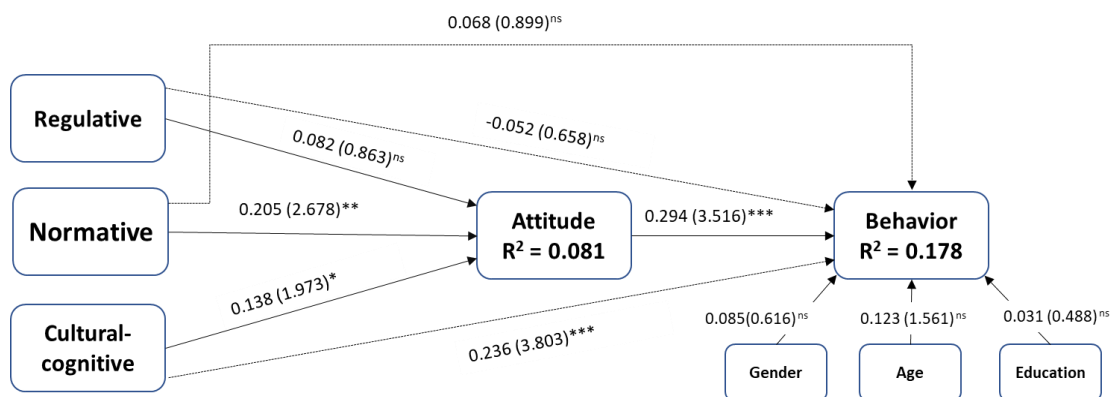


Figure 7: Results with Direct and Indirect Effects (The Case of Azerbaijan)

Note: Path coefficients (t-value): * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; ns: not significant

Source: Compiled by authors

Additionally, attitude doesn't play any mediating effect between regulative factors and behavior, as regulative factors have no significant effect on attitude in both models in the case of Azerbaijan. We see an increase in R^2 of behavior (from 11.5 percent to 17.8 percent) in the modified version of the model for Azerbaijan, which can be explained with the direct relationships from institutional factors.

2.4. Discussion

We built a new conceptual model based on institutional theory by Scott (2013b) and theory of planned behavior by Ajzen (1985) which aimed to reveal the relationships between regulative, normative, cultural-cognitive institutions and consumer attitude, as well as the influence of consumer attitude on consumer behavior. The combination of these two theoretical models have been already used in the extant literature (Martinez, Castaneda, Marte & Roxas, 2015; Liu, Chen & Wang, 2022; Jan, Lu & Chou, 2012; Raab, Baloglu & Chen, 2018; Fauzi & Sheng, 2022) in various contexts, such as employee attitude towards e-learning, intention towards

sustainable practices on an enterprise level, adoption of internet banking, eco-attitude and eco-behavior on a consumer level etc. Out of these studies Martinez, Castaneda, Marte and Roxas (2015) analyze all 3 institutional factors as in our study, while others focus on regulative and normative institutions. Our empirical approach is unique with the implementation of these models to extensively investigate the CE practices in Estonia and Azerbaijan - the countries having different institutional and cultural settings. On the other hand, the relationships between the variables of our thesis have never been studied thoroughly in chosen countries.

Table 8 and Table 9 depict the results regarding the hypotheses of our study for both countries.

Table 8

Hypothesis testing results in the case of Estonia

Hypothesis	Path Coefficient	p-value	Decision
H1: REG -> ATT	0.244**	0.001	Accepted
H2: NOR -> ATT	0.320***	0.000	Accepted
H3: COG -> ATT	0.237***	0.000	Accepted
H4: ATT -> BEH	0.449***	0.000	Accepted

Note: *p < 0.05, **p < 0.01, ***p < 0.001

Source: Compiled by authors

All of the hypotheses H1:H4 are supported by the results of the case of Estonia which show that all 3 pillars of the institutional environment have a strong effect on consumer attitude and consumer attitude has an even stronger role in shaping consumer behavior. This outcome is supported by the findings of Martinez, Castaneda, Marte and Roxas (2015) who agree that all 3 institutional factors significantly influence eco-attitude and eco-behavior of consumers. Other studies conducted in different policy areas and contexts like enterprise attitude in CE (Fauzi & Sheng, 2022) and internet banking adoption (Shi, Shambare & Wang, 2008) also agree upon the strong effect of regulative and normative institutions on attitude. On the other hand, Jan, Lu and Chou (2012) did not find a significant relationship between regulative institutions and employee attitude towards e-learning, which shows us that application areas may cause a different relationship between these notions. Additionally, we found strong influence of attitude on behavior, which is also supported by the authors, who used the similar conceptual models (Fauzi & Sheng, 2022; Shi, Shambare & Wang, 2008; Martinez, Castaneda, Marte & Roxas, 2015).

Table 9

Hypothesis testing results in the case of Azerbaijan

Hypothesis	Path Coefficient	p-value	Decision
H1: REG -> ATT	0.080	0.353	Rejected
H2: NOR -> ATT	0.200**	0.007	Accepted
H3: COG -> ATT	0.147	0.055	Rejected
H4: ATT -> BEH	0.346***	0.000	Accepted

Note: *p < 0.05, **p < 0.01, ***p < 0.001

Source: Compiled by authors

The results for the case of Azerbaijan support only H2 and H4 while rejecting H1 and H3. This indicates that only normative institutions out of all institutional factors influence consumer attitude significantly and in turn consumer attitude influences consumer behavior.

Martinez, Castaneda, Marte and Roxas (2015) conduct the study in a similar context and finds strong influence of regulative and cultural-cognitive institutions on consumers' eco-attitude which contradicts with our findings for Azerbaijan, but the same study supports our results regarding the strong relationship between normative institutions and attitude. However, we should not neglect the effect of context differences on the relationship between institutional factors and attitude. The significant relationship between normative institutions and attitude is supported by the study about enterprise attitude in CE practices (Fauzi & Sheng, 2022) and by the studies in non-CE contexts like internet banking and e-learning adoption (Jan, Lu & Chou, 2012; Shi, Shambare & Wang, 2008). But the studies by Fauzi and Sheng (2022); and Shi, Shambare and Wang (2008) don't support our findings for Azerbaijan regarding insignificant relationship between regulative institutions and attitude, while Jan, Lu and Chou (2012) supports this insignificance. Additionally, we found strong influence of attitude on behavior, which is also supported by the authors, who used the similar conceptual models (Fauzi & Sheng, 2022; Shi, Shambare & Wang, 2008; Martinez, Castaneda, Marte & Roxas, 2015).

In conclusion, in the case of Estonia attitude plays a mediating role between all 3 institutional factors and behavior, while in the case of Azerbaijan this effect is observed only between normative institutions and behavior. Considering the extant studies on mediating effect of attitude, Martinez, Castaneda, Marte and Roxas (2015) support the mediating effect of eco-attitude between all 3 institutional factors and eco-behavior. Attitude plays a mediating role between regulative pressure and internet banking adoption, also between normative institutions and internet banking adoption (Shi, Shambare & Wang, 2008).

To understand if the mediating effect was partial or full, we conducted new analyses where we also measured direct relationships between institutional factors and consumer behavior. The results of analyses for both cases are depicted in Table 10 and Table 11.

Table 10

Mediating effect of attitude in the case of Estonia

Relationship between institutional factors and consumer behavior	Mediating effect of attitude in the relationship
Regulative -> Behavior	Full mediating effect
Normative -> Behavior	Full mediating effect
Cultural-Cognitive -> Behavior	Partial mediating effect

Source: Compiled by authors

In the case of Estonia, we observed the full mediating effect of consumer attitude between two of institutional factors (regulative and normative) and behavior, which means these two institutional factors do not affect consumer behavior directly, but only through consumer attitude. On the other hand, cultural-cognitive institutions affect consumer behavior both directly and indirectly (through consumer attitude) which means that consumer attitude has a partial mediating effect between cultural-cognitive institutions and consumer behavior.

Table 11

Mediating effect of attitude in the case of Azerbaijan

Relationship between institutional factors and consumer behavior	Mediating effect of attitude in the relationship
Regulative -> Behavior	No mediating effect
Normative -> Behavior	Full mediating effect
Cultural-Cognitive -> Behavior	Partial mediating effect

Source: Compiled by authors

In the case of Azerbaijan, no mediating effect of consumer attitude is observed between regulative institutions and consumer behavior, as there are no indirect or direct effect of regulative factors on consumer behavior. Normative institutions do not affect consumer behavior directly, but only through consumer attitude, which is interpreted as a full mediating effect of consumer attitude between normative institutions and consumer behavior. Lastly, consumer attitude has a partial mediating effect between cultural-cognitive institutions and consumer behavior, as there are significant direct and indirect relationships between cultural-cognitive institutions and consumer behavior. We also saw changes in indirect relationships when we conducted our second analyses to also measure direct effects, the most significant one of those changes was the indirect effect of cultural-cognitive institutions which turned out to be significant in the second analyses.

Martinez, Castaneda, Marte and Roxas (2015) and Shi, Shambare and Wang (2008) also conduct similar mediation analyses adding direct relationships between institutions and behavior to their models. Martinez, Castaneda, Marte and Roxas (2015) argue that eco-attitude has a partial

mediating effect between all 3 institutional factors and behavior. While, Shi, Shambare and Wang (2008) support full mediation effect of attitude in regulative and normative pressure on internet banking adoption.

In the analyses for both countries R^2 values increased after adding direct relationships from institutional factors to consumer behavior. Regarding control variables, results showed that in the case of Estonia only age has a significant effect on consumer behavior, while in the case of Azerbaijan none of the control variables affects consumer behavior significantly.

Conclusion

This study investigated the connection between institutional factors and consumer behavior in the CE context. The conceptual model derived from institutional theory and TPB was used to analyze data from 223 and 200 respondents from Estonia and Azerbaijan, respectively. The model included three pillars of institutional theory – regulative, normative, and cultural-cognitive and two factors of TPB - attitude and behavior.

We found that regulative, normative, and cultural-cognitive pillars play an essential role in shaping people's attitudes towards CE in Estonia, and the connection between attitude and behavior is also proven to be strong in Estonian society. However, only normative factors were the main contributor to people's attitudes toward CE practices in Azerbaijan, and the relationship between attitude and behavior was also strong, as observed in Estonia.

The possible assumption regarding the contrast in results could be related to the quality of institutions and cultural differences in the compared countries. As also emphasized by Imanova (2011) lack of some financial incentive laws offered by the Azerbaijan government and the gap of environmental education within society supports our findings related to the insignificant effects of regulative and cultural-cognitive institutions on sustainable consumption behavior of individuals in Azerbaijan. On the other hand, the confidence of Estonian society in regulative institutions (European Social Survey, 2018) and higher individual environmental consciousness of majority in Estonia (European Commission & TNS Political & Social, 2014) backs up our findings about significant effects of regulative, normative, and cultural-cognitive institutions on environmental-friendly behavior of Estonian residents. However, studying the reasons for this big difference in results between Estonia and Azerbaijan was not the aim of our study, thus this creates a nuanced study opportunity for further research to explore in depth.

This study provides valuable practical and theoretical implications for researchers and policymakers. The study's main findings highlight detailed elements of socio-political and cultural factors of consumer behavior in the CE context. The high growth rates in economic development and consumption levels of countries have increased the importance of political, social, and cultural institutions to tackle environmental issues and motivate people towards

environmentally-friendly choices.

Considering highly limited research dedicated to analyzing the relationships between institutional factors and consumer behavior in the environmental context, this research emphasizes the importance of a detailed examination of this phenomenon by adopting various theoretical models to develop more enlightening explanations for sustainable behavior in developed and developing countries such as Estonia and Azerbaijan.

The most significant limitation in conducting this research was deciding on the number of variables used in the conceptual model. We did not have the opportunity to include all variables from the original version of the TPB theory due to limited capacity of survey questionnaire as a method of research. In further research, subjective norms and perceived behavior control variables can also be included in the conceptual model. Furthermore, our sample is limited to specific countries (Estonia and Azerbaijan), so results should be carefully generalized or used for different cultural or geographical settings.

On the other hand, since we performed the survey collection process online, the responses of young people are in majority. Therefore, we should acknowledge that this data to some extent might not be a true representation of reality. Lastly, institutional factors in the results of our research model explain the variance in attitude and behavior toward CE, 8 and 12 percent for Azerbaijan and 30 and 31 percent for Estonia, respectively. Thus, these numbers suggest that many important factors are omitted from our study results. Further studies may include other important social, cultural, or economic variables better to explore the reasons for consumers' preferences toward CE.

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Appendix

Table A1

Questions of survey

Regulative factors
1. Government regulations and laws for citizens would make me engage more in recycling, repairing and reusing activities. (DiMaggio & Powell, 1983)
2. Financial rewards offered by the government would make me engage more in recycling, repairing and reusing activities. (Liu, Chen & Wang, 2022)
3. The government's mandatory policies on manufacturers would make me engage more in recycling, repairing and reusing activities. (Mahpour & Mortaheb, 2018)
Normative factors
4. People around me who are more engaged in reuse, repair, and recycling activities have better social image. (Shi, Shambare & Wang, 2008, Liu, Chen & Wang, 2022)
5. Environmentally conscious behaviors of my neighbors would make me behave the same way. (Liu, Chen & Wang, 2022)
6. If people around me benefit economically from reusing, repairing, and recycling activities, I will also be more prone to do the same. (Liu, Chen & Wang, 2022)
Cultural-cognitive factors
7. I have got environmental education (e.g. in school, in family) (Pinho, 2017).
8. I know how to properly reuse, repair and recycle the products I consume. (Martinez, Castaneda, Marte & Roxas, 2015)
9. I am aware of the benefits of recycling, repairing and reusing activities. (Martinez, Castaneda, Marte & Roxas, 2015)
Consumer Attitude
10. It is my environmental responsibility to reuse, recycle, and repair. (Khan et al., 2020)
11. To engage in reusing, repairing, and recycling activities would give me moral satisfaction
12. I am willing to change my consumption habits to reuse, recycle, and repair more frequently. (Martinez, Castaneda, Marte & Roxas, 2015)
Consumer Behavior
13. I reuse all products until their end of life. (Khan et al., 2020)
14. I repair broken or malfunctioned products instead of throwing them away. (Martinez, Castaneda, Marte & Roxas, 2015)
15. I sort and recycle my waste. (Liu, Chen & Wang, 2022)
Demographic Information
16. Please insert your age.
17. What is your gender?
18. What is the highest level of education you have completed?
19. Where are you located?

Source: Compiled by authors

Location of Survey Respondents in Estonia



Figure B1: Location of survey respondents in Estonia

Source: Compiled by authors

Location of Survey Respondents in Azerbaijan

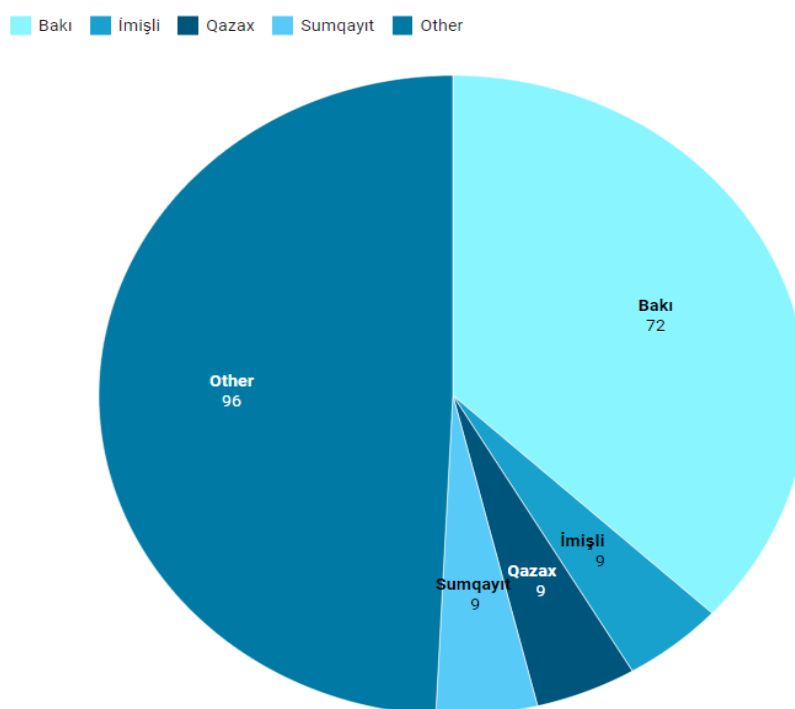


Figure B2: Location of survey respondents in Azerbaijan

Source: Compiled by authors

Table C1

Cross Loadings - Estonia

	ATT	BEH	COG	NOR	REG
A T T 1	0.889	0.427	0.344	0.37	0.329
A T T 2	0.889	0.433	0.238	0.399	0.301
A T T 3	0.867	0.441	0.227	0.404	0.331
B E H 1	0.416	0.869	0.447	0.149	0.145
B E H 2	0.309	0.82	0.512	0.199	0.133
B E H 3	0.51	0.902	0.485	0.215	0.148
C O G 1	0.144	0.334	0.738	0.172	0.022
C O G 2	0.208	0.491	0.842	0.06	-0.066
C O G 3	0.348	0.525	0.928	0.199	0.123
N O R 1	0.425	0.24	0.164	0.858	0.252
N O R 2	0.387	0.194	0.147	0.882	0.355
N O	0.287	0.088	0.129	0.78	0.232

R 3					
R E G 1	0.282	0.101	-0.018	0.284	0.846
R E G 2	0.232	0.059	-0.043	0.279	0.818
R E G 3	0.359	0.213	0.149	0.269	0.817

Source: Compiled by authors

Table C2

Cross Loadings – Azerbaijan

	ATT	BEH	COG	NOR	Reg
A T T 1	0.795	0.243	0.199	0.299	0.052
A T T 2	0.784	0.222	0.112	0.103	0.123
A T T 3	0.851	0.309	0.121	0.131	0.114
B E H 1	0.197	0.797	0.269	0.126	0.031
B E H 2	0.294	0.769	0.142	0.171	-0.037
B E H 3	0.29	0.888	0.289	0.092	-0.007
C O	0.065	0.169	0.665	0.037	-0.036

G 1					
C O G 2	0.099	0.206	0.748	0.063	0.043
C O G 3	0.203	0.273	0.903	0.185	0.09
N O R 1	0.203	0.142	0.200	0.847	0.136
N O R 2	0.219	0.182	0.103	0.884	0.031
N O R 3	0.169	0.049	0.086	0.831	0.154
R E G 3	0.077	0.002	-0.007	0.062	0.781
R E G 1	0.124	-0.002	0.092	0.131	0.929
R E G 2	0.023	-0.046	0.083	0.08	0.706

Source: Compiled by authors

Resümees
RINGMAJANDUSE TAVAD: INSTITUTSIONAALSETE TEGURITE
ASPEKTIDE ROLL TARBIJAKÄITUMISE KUJUNDAMISEL EESTIS JA
ASERBAIDŽAANIS

Toghrul Pashabayli
Zeynal Laylabashov

Käesoleva magistr töö eesmärk on uurida institutsionaalsete sammaste (regulatiivne, normatiivne ja kultuurilis-kognitiivne) ja tarbijakäitumise vahelist seost ringmajanduse kontekstis. Kontseptuaalne mudel on välja töötatud institutsionaalse teooria ja kavandatud käitumise teooria kombinatsiooni põhjal, analüüside tegemiseks kasutatakse osalise vähimruutude meetodit. Uuringu andmed hõlmavad 223 ja 200 küsitluses osaleja vastuseid vastavalt Eestist ja Aserbaidžaanist. Tulemustest selgub, et suhtumine mõjutab oluliselt tarbijate käitumist ringmajandusetavade suhtes mõlemas riigis. Lisaks sellele mõjutavad tarbijate suhtumist Eesti puhul oluliselt kõik institutsionaalsed tegurid, samas kui Aserbaidžaanis puhul mõjutavad seda oluliselt ainult normatiivsed tegurid. Tarbijate suhtumine mõjutab tugevalt institutsionaalsete tegurite ja tarbijate käitumise vahelist seost mõlemas riigis. Magistr töö annab oma panuse seni avaldatud kirjandusse sillutades teed arusaamisele, kuidas erinevad institutsioonilised ja kultuurilised tingimused võivad kujundada tarbijate hoiakuid ja käitumist ringmajandusetavade edendamiseks.

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