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"A LITERATURE REVIEW ON UNDERSTANDING THE INTENTION OF SUSTAINABLE FOOD PURCHASING WITH THE THEORY OF PLANNED BEHAVIOR: CULTURAL DIFFERENCES"

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Abstract

World population growth and rapid industrialization are putting significant pressures on our planet's resources. The global climate crisis knocking on our door causes a decrease in agricultural areas and in turn, it affects food resources. In this process, it is expected to create awareness in the food industry. The main aim of this study is to explain the sustainable food product buying intention of consumers in different cultures in terms of the theory of planned behavior (TPB) approach. In this context, firstly, it is to find out the effects of attitudes, social norms and Perceived behavioral control (PBC) that affect consumers' purchase intention is investigated. Afterwards, the influence of collectivism, one of Hofstede's cultural approaches, and man-nature orientation factor which has just begun to be studied in the literature, on the behavioral intention formation process is investigated. As a result, it is seen that it will

be easier to move towards sustainability with new approaches created by the consumer making a difference.

Keywords: *sürdürülebilir gıda, planlı davranış teorisi, kültür, insan doğası yönelimi, tüketici davranışı*

"PLANLI DAVRANIŞ TEORİSİ İLE SÜRDÜRÜLEBİLİR GIDA SATIN ALMA NİYETİNİN YORUMLANMASINA İLİŞKİN BİR LİTERATÜR TARAMASI: KÜLTÜRLER ARASI FARKLILIKLAR"

Öz

Dünya nüfus artışı ve hızlı sanayileşme, dünyamızın kaynakları üzerinde önemli baskılar oluşturmaktadır. Giderek artan küresel iklim krizi, tarım alanlarının azalmasına sebep olmakta ve bu durum gıda kaynaklarını da etkilemektedir. Bu durum sonucunda gıda sektöründe bir farkındalık yaratılması beklenmektedir.Bu çalışmanın temel amacı, farklı kültürlerdeki tüketicilerin sürdürülebilir gıda ürünü satın alma niyetlerini planlı davranış teorisi (TPB) yaklaşımı açısından açıklamaktır. Bu kapsamda öncelikle tutumların, sosyal normların ve algılanan davranışsal kontrolün (PBC) tüketicilerin satın alma niyetini tetikleyen etkileri araştırılmaktadır. Bunun yanısıra, Hofstede'nin kültürel yaklaşımlarından biri olan kolektivizm ve literatürde yeni araştırılmaya başlanan insan-doğa yönelimi faktörünün davranışsal niyet oluşturma süreci üzerindeki etkisi araştırılmaktadır. Araştırmalar, bireyci bir kültürde yaşayan tüketicilerin, kolektivist tüketicilere kıyasla sürdürülebilir gıda ürünlerine daha fazla ilgi gösterdiklerini savunmaktadır. Sonuç olarak, fark yaratan tüketicinin oluşturduğu yeni yaklaşımlarla sürdürülebilirliğe doğru ilerlemenin daha kolay olacağı görülmektedir.

Anahtar Kelimeler: *sürdürülebilir gıda, planlı davranış teorisi, kültür, insan doğası yönelimi, tüketici davranışı*

1. INTRODUCTION

Introduction

Sustainability is an approach which comprises both economic, ecologic and social factors (Vermeir & Verbeke, 2006). The most fundamental principle of sustainability is that all resources are depleted in the environment. For this reason, sustainability concentrates on the correct use of resources with constructive approaches such as maintaining the integrity and resilience of ecosystems.

According to the "Food and Agriculture Organization of the United Nations", a sustainable food system (SFS) is to guarantee food security and nutrition to future generations by protecting economic, social and environmental factors. Therefore, UNCTAD (2006) defines organic farming as "a holistic production management whose primary goal is to optimize the health and productivity of interdependent communities of soil, life, plants, animals and people". Hence, organic production focuses on environmental awareness, biodiversity, animal welfare standards, natural resources and quality of products (De Magistris & Gracia, 2008).

This article proposes that the "theory of planned behavior" (TPB) theoretical framework is used to investigate the individual's buying intentions towards sustainable food in different cultures. TPB accepts the "attitudes", "subjective norms" and "perceived behavioral control" (PBC) in order to perform various behaviors (Ajzen, 1991). Culture is one of the important differentiators, which separates one category of people from another (Hofstede, 1991). According to Hofstede (1980), for instance, the individualistic index of Turkey is low (37) and Turkey is a collectivist society. "We" is important for society, people are affiliated with in-groups like families or organizations who look at each other for loyalty. On the other hand, German society is a truly individualistic society (67). It can be stated that actualizing self has come into prominence in this culture.

Another emerging perspective points out that, people's sense of responsibility and their preferences give direction to loyalty. According

to the Sustainable Development Report (2021), SDG index scores of Germany (82,5) and Turkey (70,4) indicate that sustainable agriculture develops more in Germany, which was ranked as the greatest European market retail sales for organic food worth 10,9 billion Euros in 2018 (Canova et al.,2020). Therefore, this article is designed to investigate how Hofstede's collectivist cultural factor has affected the intention of people in their purchasing decision under the TPB framework.

In conclusion, this paper explains the sustainable food product purchase intention of consumers living in different cultures with TPB approach. The research is structured as follows; firstly, the concept of TPB which are "attitudes", "social norms" and "PBC" that affect consumers' purchase intention are investigated. Afterwards, the influence of collectivism, one of Hofstede's cultural approaches, and man-nature orientation factor on the attitude, subjective norm and PBC formation process are examined.

LITERATURE REVIEW

2.1. Theory of Planned Behavior (TPB)

A decision model, TBP, created by Ajzen (1991), in which the intention is the direct key psychological antecedent for acting behavior and it is one of the most salient theories used in purchasing products with green features. Intention is an understanding about the possibility of an individual's performance of a certain behavior and it has the relation between attitude, subjective norm and the final behavior fully (Ajzen, 1991). The likelihood of conducting the actual behavior increases at a time when intention increases (Ajzen, 1991).

In green marketing content, many scholars adopted TPB in order to concentrate on product buying intention which is usually followed by actual behavior (Arli et al., 2018; Gadenne et al., 2011; Kalafatis et al., 1999; Liobikiene et al., 2016; Paul et al., 2016; Polonsky et al; 2012; Bang et al., 2000; Albayrak et al., 2011; Hamilton & Terblance-Smit, 2018; Yadav & Pathak, 2017).

2.1.1. Attitude Towards Sustainable Foods

Attitude towards the behavior is the initial construct of TPB. Multiplying salient beliefs and outcomes create attitudes (Huang & Chuang,

2007) and Ajzen (1991) highlights how the behavior of an individual is evaluated by the attitude as positively or negatively (De Maya et al., 2011). Attitude, which is based on cognition, affection and conation for certain products and services (Solomon, 2009), is perceived as an essential antecedent to explain an individual's preferences of goods and services, such as food products (Scalco et al., 2017; Voon et al., 2011).

In the literature, there are several studies which point out that a positive attitude does not always end up in the behavior. Lack of information regarding green products result in attitude-behavior gap among the consumers in evaluation of environmental concern and the purchasing behavior (Liobikienė, 2016). The attitude-behavior gap is common; individuals may find that preserving the planet is important, but they may not act in that manner during shopping (Giesen & Leenheer, 2019).

Additionally, when we make a comparison between Turkish and German consumers, the relationship between attitude and intention to purchase is that German consumers have a positive attitude towards sustainable food. Since they consider it more nutritious with better taste and less pesticides (Meyer-Höfer et al., 2015; Baker et al.,2004). Furthermore, it is found that attitude is a significant determinant of sustainable food buying intention in Turkey (Caliskan et al.,2020). However, the subjective norm is found as the second important determinant (Asif et al.,2018).

2.1.2. Subjective Norms

Subjective norm, which is known as a pressure on the behavior with the influence of the individual's social group, is the other important construct in the model of TPB (Scalco et al.,2017; Al-Swidi, 2014; Ajzen, 1991). Individuals have a tendency to act in a manner, which is appreciated by their reference groups (Al-Swidi, 2014; Rezai et al.,2012). Therefore, intention towards purchasing organic foods would be higher when it is expected significantly by others (Scalco et al., 2017; Voon et al., 2011).

Buying green goods is perceived as a good example to encourage others among European consumers and a subjective norm is found to influence high power distance in EU countries, such as Western EU countries in which power, status symbol and prestige are highlighted (Liobikienė, 2016). On the contrary, subjective norms have a negative influence on

individualistic cultures (Kumar, 2012). Therefore, individualistic consumers are influenced less by subjective norms. Therefore, countries reflect differently toward sustainable food consumption.

Additionally, according to Hofstede (1980), for instance, Turkey is a collectivistic country, and it is more influenced by subjective norms. In addition to this, Caliskan et al. (2020) state that the subjective norm importantly affects Turkish consumers' buying intention towards sustainable food. On the other hand, the consumption of sustainable food is a choice of personal lifestyle in Germany (Meyer-Höfer et al., 2015).

2.1.3. Perceived Behavioral Control (PBC)

"Theory of Planned Behavior" (TPB), which is a development of the "Theory of Reasoned Action" (TRA), included the "perceived behavioral control (PBC)" structure to the model (Ajzen, 2005). The degree to which individuals realize their intention is not just decided by themselves, it also depends on individuals' abilities, psychological characters, the appropriateness of resources and opportunities needed to achieve the behavior. These factors are not under the direct control of the individuals (Ajzen, 2005).

PBC briefly describes individuals' perceptions of available resources; perceiving organic foods to be more expensive than non-organic products (Al-Swidi et al., 2013). In addition, time availability in some countries (i.e. Italy, Germany, Spain and the Netherlands) is also very important as it creates the necessity of finding special stores to purchase organic food (Tarkiainen & Sundqvist, 2005). Consequently, countries reflect differently toward sustainable food consumption.

Furthermore, individuals who think they do not have enough resources or opportunities to create a certain behavior may not have powerful behavioral intentions, even though their attitudes are strong and they know that their behavior will be approved by others (social norms). For Turkey, PBC significantly influences consumers' sustainable food buying intentions (Caliskan et al., 2020; Asif et al., 2018). Furthermore, Bamberg (2002) finds that PBC of German consumers have an important and positive influence over buying intention for sustainable goods.

2.1.4. Intention to Purchase Sustainable Foods

It is claimed that "attitude", "subjective norms" and "PBC" presume buying intention of sustainable products separately (Robinson & Smith, 2002). Behavioral intention addresses the readiness of an individual to carry out a behavior. According to Ajzen (2005), it is an indicator of how much an individual is willing to perform the behavior or make an effort. For example, individuals who have high motivation to purchase organic foods take care of the potential effects of food productions (Bisonette & Contento, 2001).

In short, more environmentally friendly individuals more likely purchase sustainable foods (Grunert & Juhl, 1995). The stronger the intention of the individual means the higher the possibility of carrying out the behavior.

2.2. Cultural Dimensions

Hofstede's (1980) model based on shared value orientations between cultures. The cultural factors are mainly stated as " individualism-collectivism; power distance; uncertainty avoidance and masculinity-femininity". Individualism-collectivism is regarded as the most important factor which differs for countries and people (Hui et al., 1995).Therefore, in the marketing environment understanding individuals' culture and their norms come into prominence.

Collectivism is explained as the level at which people in a society become part of groups (Hofstede, 2011). It can be stated that in a collectivist culture, individuals feel strong by participating in groups and involved in extended families. The purpose of these in-groups is to protect participants for absolute loyalty (Hofstede, 2011). On the other hand, people adopting individualism regard the self as autonomous and they feel independent from society (Jain et al., 2007).

Social norms take an important place in collectivist society and people show nature friendly buying behavior (Ahn et al., 2012). It can be stated that people living in collectivist society decide their thoughts in a way that benefits society (Hofstede, 2011). In addition to this, various researches support this relation in countries such as Japan (McGreevy & Akitsu, 2016), China (Chan & Lau, 2002) and Pakistan (Rahvan & Luomala, 2020).

PBC has less influence on intent compared to people living in indivi-

dualistic culture (Vabo & Hansen, 2016; Ali et al., 2020). Because people who take part in this culture consider society less and tend to trust their inner feelings, they have less concern about societal issues. Recently, Sreen et al. (2018) state that collectivist values have a positive impact on PBC, subjective norm and green purchasing attitude.

Due to these reasons, it can be stated that individual values can be influenced by personal dimensions like developing a positive attitude and perceived control towards using sustainable food in the process of making decisions in strong individualistic societies. On the other hand, people's beliefs can be affected by social factors such as tendency to adapt to the views of crucial people and institutions during making decisions in the usage of consuming sustainable food in collectivistic cultures.

2.3. Man nature orientation

Man nature orientation at first takes place in the value-orientation framework that was developed by Kluchhohn and Strodtbeck during the 1960s (Kluchhohn and Strodtbeck, 1961). Mainly, this orientation explains the ability of human beings to live in harmony with the environment and concentrates on understanding their attitude towards the environment (Snodgrass and Gates, 1998; Jandt, 2004). It can be indicated that man nature orientation is a traditional behavior that does not change easily over time.

When the relevant literature is investigated, it is observed that people having high concern on nature do not harm it without showing reason and they are described as high in man-nature orientation. However, society supports low orientation towards man-nature belief power over environment (Jandt, 2004). Recently, Sreen et al. (2018) evaluate cultural beliefs as the premise factor in the theory of planned behavior and support orientation to man to nature enhancing individuals attitudes in the consumption of green products.However, it is observed that the studies are very limited in global context.

Conclusion

In the past few years, consumers have become significantly more conscious in their activities, attitudes and knowledge regarding environmental protection. Since the environmental issue directly affects peop-

le's lifestyles and values, people's attention and awareness to this issue has increased to a greater extent. Consumers, who have changed their lifestyles and commercial activities, have started to prefer more green products (Kong et al., 2014). Since the threats posed by the climate crisis have started to become more serious every day and have begun to cause the reduction of agricultural areas and the negative impact of food resources. While some countries are more sensitive about sustainable food, some countries lag behind.

In addition, personal factors are effective in the decision-making process of individuals in individualistic cultures in terms of attitudes towards sustainable food consumption. However, individuals in collectivist cultures are affected by their environment who are important for them for the decision making process towards sustainable food consumption. Therefore, this literature review reveals that "attitude", "subjective norms" and "PBC" differ on cultural values and behaviors in sustainable food purchase intention.

On the other hand, globalization extinguishes cultural values and differences (Kumar, Anand, & Song, 2017). Rapid economic development and technological progress have started to make people's lives easier, and people can quickly access the information they want. Therefore, as Ajzen said, we can deduce that the subjective norm does not have an effect on the intention by itself and decrease cultural differences in terms of sustainable food consumption (Ajzen, 1991).

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"AN EXPLORATORY STUDY ON THE ROLE OF MUNICIPALITIES' IN CIRCULATION OF THE SECOND-HAND TEXTILE PRODUCTS: UNDERSTANDING THE PROCESS, MOTIVES, AND CHALLENGES"

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Abstract

In this study, we aimed to visualize municipalities' practices in circulation of the second-hand textile products, in terms of their role in the process, motives and challenges they face with. Introduction provides background information about the circular economy in general, whereas literature review examines municipalities' role collection and re-distribution of second-hand textile products. Qualitative study is adopted to gain insights and data collection method is in-depth interviews. Three major findings emerged; delineation of the whole process as of collection, sorting&cleaning, displaying and re-distribution, domination of social and economic motives and various challenges in the system. In the last part, findings are discussed and a different model for managing the process in a more optimal way is recommended.

Keywords: *Circular economy, Municipality, Re-usage, Idle textile product*

INTRODUCTION

The circular economy is a relatively old concept. However, it has gained importance, especially after the 1990s. The circular economy is an economic concept that includes planning, resourcing, procurement, production and reprocessing creation in order to minimize waste and maximize both ecosystem functioning and human well-being (Murray, Skene, & Haynes, 2015). Due to the increase in environmental concerns, governments, businesses and the academic environment pay attention to the concept. According to the UNEP (2006), the circular economy helps to maintain the balance between economic development and the production of environmental sources.Geissdoerfer, Savaget, Bocken and Hultink (2017) define the circular economy as a regenerative system in which minimizing resource input and waste, emission, and energy leakage come out by decelerating, closing, and narrowing materials and energy loops.

Three principles that are reduced, reuse and recycle dominate the circular economy. These principles are also known as 3Rs. Reduction implies a decrease in resources and energy consumption through the improvement of production efficiency. Reuse refers usage of byproducts and waste from one phase of the production to the next phase. Lastly, recycle claims that output materials in any production process can be used another process as input material (Zhu, Geng, & Lai, 2010; Geisendorf & Pietrulla, 2017 and Heshmati, 2017).

In that study, we focused on local authorities' understanding of the "reusability" dimension of the circular economy. Inspired by the recent news about heightened attention to collect and effectively distribute second-hand textile products, three research questions were formulated:

RQ1: What is the overall process the municipalities perform in the re-use of second-hand textile products? Who/ What are the actors involved in that process?

RQ2: What are the motives of municipalities for supporting the circularity of second-hand textiles?

RQ3: What are the challenges of this process?

Municipalities' Role in Circulation of Second-Hand Textile Products: Examining Practices

Developing countries such as China, Taiwan, Denmark and the United Kingdom have road maps highlighted by the government (Yuan, Bi &Moriguichi,2008; Morgan & Bitwiste, 2009; Huang, Azevedo, Lin, Cheng & Lin; 2021; Christensen, 2021). In order to apply these strategic plans developed by governments, municipalities become one of the significant parties in the system. There are three main reasons why municipalities have a significant role in the circular economy (Christensen,2021). Firstly, the waste management systems are mostly the duty of the local government. Before the importance of the circular economy was realized, municipalities dealt with excessive amounts of waste. These high amounts of wastes also pollute the environment. With the adoption of the circular economy approach, municipalities recycled large amounts of waste to useable materials or re-distribute them. Thus, the damage to the environment has been reduced. Secondly, circular economy practices fit environmental implementation plans such as reduced air and water pollution and reduce energy usage. Thirdly, municipalities can act as a bridge between citizens and the private sector. The downside of the collection and managing is needed high amount cost because of the heterogeneity character of municipalities" wastes (Zacho, Mosgard & Riisgaard, 2018; Hoornweg & Bahada, 2012).

Zacho al., (2018) conducted research that is a subject for Danish municipalities' practices to reuse and recycle textile products. After the collection period, four streams can be seen -items for reuse, cardboard, wood and plastics-. For items for reuse, several steps named sorting, testing, cleaning, price taking are applied and are sold them. Cardboard and wood wastes turn to raw materials- paper mill cardboard production and chipboard production through sorting, transporting and shredding. These converting products are ready to reuse. For plastic waste, the process is a little bit longer compared to previous materials. Plastic wastes also are sorted, transported and shredded. Following some processes as others, they are still counted as wastes. Such wastes should go through unknown processes in order to turn them into raw materials. The raw materials are again sorted, transported and shredded for reuse. The first

step- the collection step- is done by the largest of the recycling centers in a company. The remaining steps are performed at recycling facilities (Zacho et al., 2018).

Huang, Azevedo, Lin, Cheng and Lin (2021), have investigated Taiwan's textile innovation strategies. They found six challenges- governmental and regulatory issues, economic and financial issues, technical issues, societal issues, infrastructural, supply chain and market issues, organizational and managerial issues based on the previous literature. Among these six issues, societal issues are another important barrier in the Turkish concept. The issue became a topic because of lack of confidential public information, lack of social awareness, difficult to find personnel and low customer demand for second-hand textile products.

One of the most popular practices is from the United Kingdom, whereby donators can dispose of their own idle textile product to Oxfam, Salvation Army and Cancer Research where these donated textile goods are sorted and sold in their stores. Useable textile products are also sold to Africa, East Europe and Asia. These two sale systems are reuse practices. For reuse practice, the nonusable textile wastes can be directly sent to landfills (Waste Online, 2008;Morgan& Birtwistle, 2009). In that sense, non-governmental organizations might be more active in some countries by not only disseminating these idle textile products to disadvantaged families but also selling and exporting to createeconomic benefits, as well.

RESEARCH METHODOLOGY

To gain an insight into different procedures, in-depth interviewing is selected as a data collection method. Interviewees are selected to cover diverse levels of local governance including headman, municipalities' social services, and metropolitan municipalities' social services. Snowball sampling technique is adopted to reach the (Flick, 2009; Machado, Almeida, Bollick & Bragagnolo, 2019) target interviewees. The researchers sent invitation emails to municipalities' information, municipalities' social services and municipalities' environmental department units for appointment both social services and units confirmed the appointment with a return rate of seven out of eleven (63%). The sample consists of

eight participants (one headman of the environmental production department in the municipality, social services director/specialists and one metropolitan municipality social services).

FINDINGS

Process of Re-distribution of Second Hand Textiles

The process of re-distribution of second-hand textiles is envisioned in four steps: as of collection, cleaning & sorting, displaying and re-distributing. Collection of idle second-hand textile products is possible in three main streams. Donators might bring the items to the municipalities' facilities, or call to be collected directly from their homes by local authorities or deliver to piggybanks by themselves. Due to the limited budget of municipalities, they go bidding for firms that are willing to be part of these processes. During the bargaining period between firms and municipalities, the firm presented the profitable contract win the bidding and put their piggybanks based on municipalities' decisions. The idle textile products from piggybanks are collected from such firms. According to these contracts, firms might give back some portion of textile products to municipalities. Firms can also donate wheelchairs to the municipalities. These collected second-hand textile products go to the second stage –warehouses of municipalities or warehouses- in three ways. In the third step of displaying, products that are being cleaned and refurbished are set to meet new owners through municipalities' social stores. These stores are managed by municipalities whereby items are organized in a descent way. In the last part of re-distributing the items, two main streams exist social store or direct lending of the items via municipalities' efforts. Disadvantaged people can visit these social stores and receive the textile products needed. Visiting houses practices prevent abuse of these textile products.

Motives

The findings validated strong emphasis on "social motives", whereby both donators and local authorities are aware of how this system is contributing to disseminating a sense of collectivist tendencies in the society. Therefore, in that term, the direct motive is undoubtedly a social one.

However, it is believed that the indirect effect of economic and environmental motives exists even though they are not overtly mentioned.

Challenges Emerging From the System

The most complicated phase of the whole process is undeniably the collection part because of the fact that idle wastes have heterogeneous character. Multiple channels of collecting the items pose a challenge not only in coordination but also in control issues, as well. Three main challenges are identified in this step; lack of inspection, abuse of the items, resource constraints, passive role of municipalities in cleaning&sorting part, insufficient utilization of technology.

The most prominent problem is the lack of inspection. It serves as a challenge from two perspectives. The first one covers the lack of inspection in the items' perspective, whereby inappropriate items might enter the system, which increases the workload in the second phase of cleaning and sorting, as well. Unfortunately, the situation is severe in piggybanks. Due to lack of inspection and automated like the process of giving away the items drops the quality of the items and under which conditions it is presented. The local authorities emphasized that intermediaries faced with a large variety of items rather than second-hand textile, including organic waste, books in really bad condition due to contamination and even electronics. The second dimension regarding the lack of inspection is about the balance of power between intermediaries and municipalities. Interviewees stated that the contract they have with the intermediaries is so restrictive that they are not fully aware of the full process and mostly renew the contract.

Secondly, system abuse is experienced in three aspects; unauthorized piggybank placements, free riders, finding real "needy" people. As given in the process part, municipalities go out to bidding and clarify the conditions of how many piggy banks will be placed to which locations and when they will be collected, etc. Also, the threat of free riders is a mentioned issue, whereby people invade piggybanks and collect the items by themselves, either for selling or using these items. Finding the real "needy" people is a compelling job in this process. Unfortunately, some people request textile products even though there are no real needy

conditions. Such people abuse the system that is maintained by municipalities.

Thirdly, the municipalities are getting help from intermediaries for the piggybank system. On the other hand, direct delivery from home imposes an extra burden on the local authorities. All of the interviewees expressed how in the collection of these items, they suffered from assigning an adequate number of human resources and vehicles.

Municipalities are quite passive in the cleaning and sorting phase due to the context of the contracts. Actually, it is stated that that sorting and cleaning textile products are costly and certainly more human resources are needed. Technology is not used efficiently in municipalities' stores. Every single entry is done manually in most cases. However, usage of technology leads to least employees in these stores and help to meet high demand situation.

DISCUSSION & CONCLUSION

This study is designed to delineate the role of municipalities as of local authorities in the reusability of second-hand textile products. Local authorities are fully aware of their role as social liaisons between disadvantaged people and donators. However, intermediaries are detected as extremely active involving actors. Not only the local authorities but also these intermediaries recognized the economic and social value of these idle textile products which triggered competition. In that perspective, it is believed that local authorities need to be more assertive to determine the contractual context for the piggybank system in terms of increasing transparency of the processes. Municipalities mostly renew the previous contract and fail to change the terms of the contract, which remain as insufficient to meet with the escalating needs of the people.

Yet, we believe the role of metropolitan municipalities is underestimated. Due to the proliferation of the motives (intensifying social and economic impact and minimizing environmental impact), the activities performed by intermediaries might be undertaken by the metropolitan municipalities. Not only, it would guarantee the reach of operations (collection, cleaning and sorting), the potential in the qualitative and quantitative nature of the idle textile products would be recognized. If

the metropolitan municipalities take in charge of this piggybank system and disable intermediaries, it would come with at least three anticipated benefits; re-directing to recycling facilities, garage sales of the "diamond" category" and refurbishing the flawed items. Collection and sorting steps need to be handled by the metropolitan municipality, meaning that a better grasp of the process is ensured. In line with Christen's (2021) view, on below municipalities need to be more active in both waste and usable material circularity, centralized sorting of the items will make it easier to detect, the usable and recyclable materials, which would establish a direct channel to sending items to recycling facilities.In most scenarios in this research, unusable textile wastes are thrown away, metropolitan municipalities need to be more active in landfill operations. Also, sorting comes with a by-product of recognizing the "diamond" category", which represents branded vintage items and accessories, that might be utilized in a garage sale option. As in the Danish case, Zacho (2018) explains how selling the items might create value in the system. Refurbishing of these items are quite missing, municipalities generally lack the human resources and fund to renovate these items.

Even though convenience is a critical point in that process either collecting or re-distributing the items, lack of control especially in the collection of these items via piggybanks is quite challenging. Instead of increasing the prevalence of piggybanks, the social store model offers more advantages.

In addition, another emerging theme is the utilization of technology. As mentioned in Huang et al.'s (2021) study, infrastructural problems exert a challenge in the system, indicating insufficient usage of technology. In the first era of admitting the items via barcodes, will increase the municipalities' control on the overall cycle. If more technology is used in social stores, in the displaying step, fewer employees will work there. This will cause a decrease in budgets and these employees can work other steps in these processes like cleaning and sorting products etc.

This study has some limitations. First, we interviewed only party "municipalities". However, the system has more than one parties such as intermediaries, NGOs, donators and users. Secondly, the number of interviewers in the study is quite limited. Only five municipalities, one

neighborhood representative and one employee in metropolitan municipality accepted our interview requests. Thirdly, we visualized only textile product re-circulation. However, other recycled materials such as plastics and wood could be analyzed at the macro level.

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"CAN LUXURY BE SUSTAINABLE AND STILL CREATE VALUE FOR A SUSTAINABLE FUTURE?"

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Abstract

The luxury landscape is experiencing steady growth and change with the emergence of the circular economy concept and adoption of sustainable practices in the luxury industry. While scarce research highlights a mismatch between sustainability and luxury, as concepts such as excessive consumption, irrationality and self-pleasure are linked to luxury, whereas sustainability decrease the perceived quality, value created by the relationship of sustainability and luxury at micro and macro level grants research as vast number of consumers adopt sustainable luxury under particular situations and support circular economy. This exploratory study aims to investigate how sustainable luxury is perceived by the luxury shoppers in Turkey. To develop an understanding on the topic, the paper build on research on luxury consumption and extends it by integrating insights from 12 semi-structured interviews with luxury consumers. The findings provide insights for luxury brands to adopt and improve their sustainable management strategies.

Keywords: *Luxury, Sustainable Luxury, Consumer Perceived Value, Sustainability, Circular Economy*

Öz

Döngüsel ekonomi kavramının ortaya çıkması ve lüks sektörde sürdürülebilir uygulamaların benimsenmesiyle lüks pazarda istikrarlı bir büyüme ve değişim yaşıyor. Yapılan sayılı araştırmada sürdürülebilirlik ve lüks arasındaki uyumsuzluğu vurgulanıyor. Aşırı tüketim, mantıksızlık ve kişisel zevk gibi kavramlar lüksle bağlantılıyken Sürdürülebilirlik algılanan kaliteyi düşürürken, mikro ve makro düzeyde sürdürülebilirlik ve lüks ilişkisinin yarattığı değer, çok sayıda tüketicinin belirli durumlarda sürdürülebilir lüksü benimsemesi ve döngüsel ekonomiyi desteklemesi nedeniyle araştırmayı desteklemektedir. Bu keşifsel çalışma, sürdürülebilir lüksün Türkiye'deki lüks tüketiciler tarafından nasıl algılandığını araştırmayı amaçlamaktadır. Konuyla ilgili bir anlayış geliştirmek için, makale lüks tüketim üzerine araştırmalara dayanır ve lüks tüketicilerle yapılan 12 yarı yapılandırılmış görüşmeden elde edilen bilgilerie ntegre ederek onu genişletmektedir. Bulgular, lüks markaların sürdürülebilir yönetim stratejilerini benimsemeleri ve iyileştirmeleri için iç görü sağlamaktadır.

Anahtar kelimeler : *Lüks, Sürdürülebilir Lüks, Tüketicinin Algıladığı Değer, Sürdürülebilirlik, Döngüsel Ekonomi*

1. INTRODUCTION

Whilst our planet's scarce resources are gradually erodingand consumers are becoming more concerned about their spending's detrimental impacts (Sun et al., 2021),especially on the environment,the number of global brands that are becoming conscious of their corporate obligations and are introducing new strategies for a sustainable and better world are increasing (Cuomo et al., 2019).In a similar fashion, luxury industry, whichis growing steadily is facing its own paradigm shift (Hennings et al., 2013).Bain & Company Report (2019) shows that the personal luxury goods industry had a market performance of €260 billion in 2018 and market growth is projected to achieve €320-330 billion by 2025.Some prominent luxury brands are at the forefront of the sustainable change (Joy et al.2012);despite their products' exclusive attributes(Hennings et al., 2013) and sustainability and luxury being perceived as a contradiction bysome consumers (Kapferer&Michaut, 2015). As such, sustainability practices such as transparency in the supply chain (Han et al.,2017) involving labor and animal cruelty are adopted by a growing number of luxury brands. Also, many luxury brands such as LVMH, Gucci, Sergio Rossi, Yves Saint Laurent, Stella McCartney and Porsche introduce sustainable products to the market (Sun et al.,2021) and more than 260 luxury jewelry brands have Responsible Jewelry Council certificate, which states that the brands follow the environmental, ethical and social criteria (Athwal et al., 2019), while still concentrating on uniqueness, craftsmanship and superior quality (Cuomo et al., 2019). These sustainable actions confirm the growing attention and devotion of luxury firms to environment and verify luxury and sustainability to be no longer mutually exclusive (Hennings et al., 2013).

Against this background, limited research on sustainable luxury find that sustainability and luxury are mutually beneficial (Cervellon, 2013; Henning et al., 2013) and exclusivity and longevity create a link between these two notions (Carcano, 2013). Studies identify that sustainable practices strengthen the values of consumers significantly (Cervellon& Shammas, 2013; Shukla, 2011) and influence conscious consumers' purchase intentions (Amatulli et al., 2018; De Angelis et al., 2017) as they can express their actual and social selves (Osburg et al., 2019; Janssen et al.,

2017). Nonetheless, this limited work falls short of clarifying how sustainable luxury is understood and valued by the luxury consumers (Athwal et al., 2019). Consequently, changing the mindset of the consumers about the hedonic value of sustainable luxury is a challenge for luxury brands. This exploratory studyaims to fill this gap in identifying Turkish luxury consumers'perceptions and attitudes towards luxury brands with sustainable practices. With this aim scripts from 12 in-depth interviews with luxury consumers have been analyzed and emergent patterns have been identified and discussed.

2. LITERATURE REVIEW

Luxury does not have a universally recognized meaning, but the term "luxus" is taken from Latin and it denotes excellence, exclusivity, extravagance, conspicuous consumption, excess spending, superior craftsmanship and pleasure (Wells et al.,2021, Kuşçu, 2020). Scholars categorize luxury in words as heritage, high-priced, hedonic experience and tailored customized service (Cuomo et al., 2019; Kapferer&Michaut, 2015) and it is mostly identified with self-enhancement values (Amatulli et al.,2018).

Luxury brands provide not only functional benefits but also experiential benefits through uniqueness and distinctiveness as well as symbolic benefits through conspicuousness and extravagance (Radon, 2012). The concept of limited availability and rarity is the most lasting and distinguishing aspects of luxury (Beckham &Voyer, 2014). Due to limited availability, luxury is available to selective minority, and this takes luxury to the highly desired status, rather than ordinary (Wong & Dhanesh, 2017). Premium price, high quality and heritage of passing valuables through generations are the other unique features of luxury (Kapferer&Michaut, 2015), which express wealth for conspicuous and materialist consumers (Veblen, 1899). Luxurymay seem to be not connected with sustainability, civil rights or environmental issues (Winston, 2016), however, media and activist groups spotlight luxury brands that are documented with animal abuse, environmental damage and poor labor conditions (Caixiong, 2011) which harms the reputation of some luxury brands (Bendell&Kleanthous, 2007).

Previous literature on sustainable luxury finds that sustainable products signal prosperity and strengthen the values of consumers significantly (Cervellon& Shammas, 2013; Shukla, 2011) as they are more expensive than mainstream products (Griskevicus et al.,2010) and consumers perceive sustainable luxury made from rare materials more valuable than other luxury goods (Davies et al.,2012). For instance, buying a Gucci Rainforest Bag may indicate that the consumer is environmentally conscious in addition to signaling status and money (Griskevicius et al.,2010). Therefore, conspicuous consumption has been shifted to green conspicuous consumption (Griskevicius et al., 2010) with luxury consumers expressing their actual and social selves (Osburg et al., 2019; Janssen et al., 2017) while engaging in responsibility in environmental issues (Cvijanovich, 2011) and considering ethical brands (Wang et al.,2021).

Yet, past research provides mixed findings on how consumers view sustainability and luxury. While Chernev and Blair (2015) show that consumers' quality perceptions can be increased by sustainable features, perceived quality of luxury is low (Achabou&Dekhili, 2013) when recycled materials like vegetable leather or sustainable labelling are used (Beckham &Voyer, 2014) as these contradict individuals' beliefs on luxury. Similarly, using organic raw sources are viewed as unfavorable as consumers perceive them as dirty (Streit& Davies, 2013). On the contrary, luxury goods are perceived to be timeless, long lasting and durable (Athwal et al., 2019), which is congruent with sustainability (Kessous et al.,2016) as preservation defines sustainability and sustainable products are manufactured with high quality raw materials (Kapferer, 2010). Also, scarcity is a critical feature of luxury (Janssen et al.,2014), however consumers do not prioritize scarcity in sustainable luxury (Wang et al.,2021).And finally, sustainable luxury productsare limited, genuine and unique (Moscardo&Benckendorff, 2010) and consumers prefer sustainable luxury when rarity, trend and guilt-free enjoyment are linked to sustainable aspects (Wang et al.,2011).

3. METHODOLOGY

Structured online interviews were undertaken with a total of 12 interviewees (see Table 1) and took approximately 30 minutes. The questions

were designed to elicit subjective perspectives of interviewees' attitudes and perceptions of luxury and then sustainable luxury. The analysis relied on recorded and transcribed data along with interview notes. The interviews were all performed in Turkish, and the transcriptions were then translated into English. To eliminate any potential bias, all transcriptions were systematically explored and methodically categorized in order to find significant emerging patterns.

Respondent	Age	Occupation	Respondent	Age	Occupation
F 01	34	Academician	F 05	65	Lawyer
M 01	25	Marketing Manager	F 06	42	Merchandiser
F 02	38	Lawyer	M 03	45	Sales Manager
F 03	35	Export Manager	M 04	45	Vice President
F 04	38	Academician	M 05	34	Purchasing Manager
M 02	38	Marketing Manager	F 07	45	Country Manager

Table 1:Demographic profile (n=12)

4. FINDINGS AND DISCUSSION

The results of the scripts reveal that high price, life quality, prestigeand product quality were the main elements of luxury perceived by the respondents. As one of the emergent themes with respect to luxury, luxury consumerism is related with being high-priced and having sophisticated marketing strategies lead by ostentatious value pursuit by luxury customers.

> *"Luxury is money, things that can be bought and obtained with a lot of money." (F03)*

> *"The price of something is high and the quality is also high. I find these two facts in the right ratio in terms of quality and price." (F06)*

Individuals achieve their social status through the extrinsic cues of the luxury brands and their socio-psychological needs are satisfied by impressing the society (Amatulli& Guido, 2012; Shukla, 2011). The significant factor for purchasing luxury brands is called materialism (Islam et al., 2021). Materialistic people place material gain at the heart of their life and consider materialism as a guide to happiness (Richins& Dawson, 1992). According to the social identity theory, a materialist consumers consider the luxury good ownership as a sign of prestige or status indicator and therefore, they are inclined to purchase conspicuous luxury products (Christopher &Schlenker, 2004). Additionally, the purchases can increase the positive word-of-mouth and in turn, create brand ambassadors (Amatulli et al., 2018; De Angelis et al., 2017).

> *"We can say that the effect of word-of-mouth communication and social norm is very high. I think it is related to the collectivist culture, seeing your friend in your own home environment, and getting information about it first. While it will benefit you in terms of time, my friend says it is also in her own house. This is completely a status indicator; it is used because of symbolic meanings. Both the functional and hedonic benefit are very important to me, and this leads me to luxury products." (F 04)*

Besides signaling and social factors, self-identity and hedonism also influence the consumer's motivation towards luxury consumption (Wiedmann et al.,2007). Therefore, luxury brands are purchased for self-expression and self-presentation (Janssen et al.,2017; Tsai, 2005).

> *"I use luxury products in the field of clothing because I see that it can represent a style that belongs to me. Secondly, since I use it frequently in daily life, quality is important. Quality and style are top priority for me." (M 05)*

Furthermore, social factors are prominent in the context of luxury in which individuals are heavily influenced by their intrinsic desire to build a strong social desire (Wiedmann et al.,2009).

As previously mentioned, materialist consumers have higher purchase intention towards luxury goods since they think that these types of goods have better functional value due to the nature of these products are perceived to be durable and high quality (Islam et al.,2021). Besides being exclusive and high quality, luxury goods are durable and have longer lifespan (Wiedmann et al., 2007). The terms of luxury and quality are synonymous within the minds of the consumer (Dubois et al.,2001) and the quality and performance of a luxury product is the major distinction from non-luxury products (Vigneron & Johnson, 1999).

> *"It is a lifestyle with good quality." (F 02)*
>
> *"It is a concept that makes people's life easier and valuable." (M 05)*
>
> *"Since I entered the business life, as the positions in the company have changed, my understanding of luxury has gradually increased. A Mercedes car is a luxury for me, both in terms of safety and comfort. Recently I bought a watch (Rolex), it is this luxury for me and I wear it with pleasure. These are the prestige side of the business." (M 04)*

Nonetheless, some respondents have negative thoughts on sustainable luxury goods as they consider the sustainable aspects may decrease their perceived quality (Achabou&Dekhili, 2013). Using recycled sources in luxury garment is perceived as a contradiction with prestige (Achabou&-Dekhili, 2013) and sustainable labelling on a luxury product is found to be less appealing (Beckham &Voyer, 2014). As such the consumers' perception towards sustainable luxury weakens when sustainable materials are used, (Dekhili et al.,2019) and sustainable luxury is perceived to be poor quality. High status, prestige and social power are not well symbolized by sustainable luxury (Beckham &Voyer, 2014).

> *"The quality of a sustainable luxury product is different because of the used materials as it was made from something recyclable." (F 02)*
>
> *"Can't expect it to be that high quality. It doesn't give that feeling even when you touch the product. I don't look at the content because fashion and trend are more important to me." (F 06)*

When sustainability statements are linked to status-related advantages, positive attitudes are formed within the minds of the consumer (Steinhart et al., 2013). Sustainable consumption practices intend to benefit the environment, save resources in the long term, and contribute to the society (Islam et al., 2021).

> *"I want to consume a more luxurious product for my income level and lifestyle, because my social environment is in that direction. If I have social awareness and sustainable focus, I prefer the brand which offers sustainable luxury." (M01)*

Furthermore,we found that the majority of the respondents consider sustainable luxury in a negative way in terms of status indication. In addition, materialistic consumers are taking less ethical/sustainable decisions in collectivist cultures like Turkey (Wang et al., 2018).

> *"I do not find sustainable luxury very realistic in Turkish conditions, but in general, what I have observed in Turkey is the products they buy and try to use as a status indicator, feeling that they belong to that brand. For sustainable luxury, people need to be above a certain income level so that they can keep their relationship with the brand. However, this is difficult in Turkey…These products may appeal to a narrower market. I do not think that the target audience of the companies are focusing on sustainability at that moment." (M 02)*

The sustainable luxury brand is defined as green, ecologically friendly, less appealing, and cost-effective in the long term (Septianto, 2020) which makes some luxury consumersconsider the attributes of sustainable luxury unappealing, and pleasure of individuals is decreased by sustainable luxury (Cervellon& Shammas, 2013) since luxury has long been associated with excessive consumption and extravagance, which are the contradicting points against sustainability (Yang et al., 2017; Veblen, 1889).

"Luxury is consumed fast, and it is unsustainable. Sustainability cannot be luxury. The two terms conflict with each other. Recycled product cannot be a luxury. Luxury cannot be a synthetic product. I think it's on the market because it's cheap. It cannot be healthy and comfortable; it makes you sweat. Therefore, it does not carry the characteristics of luxury. Clothing can be recycled, but it is not luxury." (F05)

"It's just wrong for a sustainable product to look luxurious. I don't see luxury in sustainability"(M05)

Sustainability issues are turned to be prevalent in the luxury industry as a result of broad interest in promoting sustainable consumption, and more luxury brands have embraced environmental concerns to promote sustainability (Athwal et al., 2019; Shen et al., 2012). Due to the current industry dynamics toward ethical and sustainable consumption, marketers want to draw attention to shopping behavior of purchasing sustainable products by promoting an image that the use of the sustainable product contributes to a greener society (Kim et al., 2019). Companies' sustainable and ethical activities are frequently reflected through their green advertising statements, which have a favorable influence on customers' perceptions and attitudes (Kim et al., 2019).On the contrary,the interviews provided opposite insights on the status of sustainable luxury and reveal that luxury consumers are either unaware of sustainable luxury, have never purchased one sustainable luxury item or unaware that they have purchased one. Purchasing sustainable luxury is not a priority for the majority, therefore, luxury consumers are not the primary driving factor of the development of luxury industry (Rolling &Sadachar, 2017; Dekhili&Achabou, 2016; Voyer& Beckham, 2014; Achabou&-Dekhili, 2013; Cervellon& Shammas, 2013) and due to lack of prestige and appeal, brand awareness is still low in sustainable brands (Dekhili et al., 2019).

"I think there is a gap in the market in this regard. The products of the brands I bought did not have a marketing strategy that would

create such awareness in me. If I own a few luxury items, I haven't heard anything about it from the salesperson or the manager. This is because the seller does not bring this issue to the fore, rather than why the consumer does not choose the sustainable product. Even when buying the watch, if the seller says that we benefit our planet with sustainability in the production of this watch, saying that we benefit our planet as follows, he can convince me to pay 500 Euros more. More specific and beautiful marketing strategies can create awareness in the customer. Maybe that's why there are no people around me who buy sustainable luxury products," (M04)

5. CONCLUSION

Through the investigation of in-depth interviews conducted with luxury consumers, this paper identifies some novel insights to luxury brands. Initially, despite the perceived contradiction that consumers see between the notions of sustainability and luxury, this paper initially finds that the concepts of luxury and sustainability overlap as they both focus on quality, permeance and durability. However, the results also reveal that perception of luxury is subjective and is heavily influenced by perceived quality. Therefore, luxury brands need to be cautious about the detrimental impact of sustainability on luxury products. Additionally, similar to the confusion in luxury, some respondents are unsure what sustainable luxury entails. They have not purchased sustainable luxury and have no idea where to purchase these products. However, driven by the desire to distinguish themselves from the others, the shift from "owning" to "sharing and experiencing" and from "seeking prestige" to "self-actualization and personal growth", luxury consumers' concerns about environment and social problems may result in higher purchase intention towards sustainable luxury goods. As a result, luxury brands need to concentrate on symbolic gains and build cultural capital to nurture their brand identity that is values by today's luxury consumers andprioritize communication strategies accordingly. Appropriate product positioning and message framing intermediates the behavioral change significantly (Klotz et al.,2018). Loss-framed message with facts can be very influential for altering attitudes, since consumers are more concerned about

losses than gains (Kahneman & Tversky, 2013). Furthermore, educating the consumers about the durability and high quality is critical for luxury brands. Government and effective opinion leaders can play an essential part in consumer trainings. Fair and transparent treatment in environment and supply chain needs to be promoted in campaigns, because they create positive and strong attitudes in consumers. Marketing campaigns may play a greater role in influencing individuals for the durability of sustainable luxury goods, which will enable consumers to gain more information about the sustainability practices of luxury brands and change their attitudes. Luxury brands are based on appearance and perceptions; therefore, celebrity endorsement can promote the sustainable luxury brands effectively (Radon, 2012), celebrity endorsements can have a significant influence on consumer awareness and positive attitude towards sustainable luxury and in turn, it may enhance the brand equity (Keller et al.,2011).

6. LIMITATION & FUTURE RESEARCH

This study offers insights for luxury brands in their sustainability journey. However, it should be noted that this is just an exploratory study conducted with purposively selected respondents reflecting a certain segment of the society. Enlarging the focus of the study to diverse segments and to other stakeholders might provide a deeper understanding.

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"ROLE OF STARTUPS IN THE CIRCULAR ECONOMY: CASES FROM TURKEY"

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Abstract

Since industrial revolution, the world has witnessed dominance of-linear economy which is also called as cowboy, open-ended or traditional economy (Özsoy, 2018; Urbinati, Chiaroni and Chiesa, 2017). This model is treating world resources as if they are unlimited and pushing the take-make-dispose understanding(Gedik, 2020; Veral, 2021). Coupled with the desire of mankind to consume more and world population getting bigger, this understanding is a challenge towards sustainability, potentially driving the planet towards a point of collapse(Frosch andGallopoulos, 1989; Sariatli, 2017; European Investment Bank, 2020). Therefore,there is a global need to change consumption patterns and consume less resources (Veleva, 2021). In other words, an antithesis of linear economy understanding is required and thatantithesis is called Circular Economy.

Circular economy is a concept that refers to cleaner production, use of renewable energy and materials, elimination of toxic chemicals and waste and increased manufacturer and consumer responsibility (Gedik, 2020). According to the philosophy behind it, man should follow the example of nature in that it acts in a circular manner where everything

is an input to another thing (Salvador, Barros, da Luz, Piekarski and de Francisco, 2020). In the words of an 18th Century scientist, Antoine Laurent de Lavosier, "nothing is lost, nothing is created, everything is transformed" (Zucchella and Urban, 2019, pg. 4). In that sense, circular economy proposes to replace the flow of "resources-products-waste" in linear economy, with a new flow that is more in line with overall functioning of nature and goes as "resources-products-waste-renewable resources" (Urbinati et al, 2017, pg. 490). With that respect, circular economy represents a paradigm shift (Gedik, 2020; Rok and Kulik, 2021)

As far as practical implications of this new paradigmare considered, circular economy has been associated with the so-called R Frameworks; starting from 3R and 4R at its simplest versions and reaching 10R at the highest level (Kirchherr, Reike and Hekkert, 2017; Reike, Vermeulen and Witjes, 2018). These frameworks simply provide strategic choice alternatives that can be used when trying to get aligned with circular economy principles. For instance, 3R framework refers to applying reduce-reuse-recycle formula in production of goods and services. 3R is a prominent and commonly used framework that circular economy is based on (Gedik, 2020; Heshmati, 2015).

Currently, majority of existing businesses in the world are based on linear economy understanding (Salvador et al, 2020). However, circular economy has its own business models since the principles behind it can affect the way companies make business and lead to the transition of existing business models or appearance of new ones (Urbinati, Rosa, Sassanelli, Chiaroni, and Terzi, 2020). The business models that are used by circular companies can be summarised under mainly five categories as: "Circular Supply Models, Resource Recovery Models, Product Life Extension, Sharing Models and Product Service Systems (PSS)" (OECD, 2019, pg.13). This list involves a popular shortlist of archetypes that are mentioned by various other institutions and researchers (Pollard, Osmani, Cole, Grubnic and Colwill, 2021).Yet, though somewhat limited in number, there exist other circular business model typologies in the literature as well (Urbinati et al, 2020). Indeed, it is possible to speak of the existence of 20 different circular business model archetypes according to the study of Pieroni, McAloone and Pigosso (2020).

Regarding Turkey, circular economy can be considered as a new concept in the country and the entrance of it to agendas of related parties in the country dates back to the announcement of first Circular Economy Action Plan of European Commission in 2015 (Ünlütürk et al, 2021). Up until 2021, the discussions on circular economy in Turkey have mostly evolved within the contexts of plastic pollution and zero waste (Blau and Janssen, 2020). There is official support for European Union (EU) Green Deal, but there is no National Circular Economy Action Plan in Turkey (Balbay, Sarıhan and Avşar, 2021). Also, it is difficult to talk about the existence of subsidies or tax-benefits to support circular business development in the country (Blau and Janssen, 2020). So, on the state level, the support for circular economy can be considered to have remained at a limited scale up until 2021 and mostly shaped with the effect of EU Green Deal (Balbay et al, 2021). Nevertheless, there are several positive developments that are parallel to the understanding of circularity. For instance, the country has accepted the National Recycling Strategy and Action Plan in 2017 (Varır and Gürtepe, 2018). Also, at the end of 2020, Turkish Environment Agency has been established by the state and will work in line with circularity principles and zero-waste understanding (Blau and Janssen, 2020).

With respect to thecurrent practices of Turkish companies, it can be said that there is a certain level of interest towards circular economy concept especially on the side of some large-scale, established companies (Blau and Janssen, 2020; Ünlütürk et al, 2021; Güngör, 2019).Alsofirms that especially have export operations to Europe have also started trying to act more in line with circularity principles (Balbay et al, 2021). However, when it comes to small and medium sized firms, most Turkish companies of this sort may be considered as still reluctant to take risks in switching their accustomed way of operations which are in line with linear economy (Güngör, 2019). Nevertheless, there are also successful and visionary start-ups making innovations in line with circular economy understanding (Ünlütürk et al, 2021). This study focuses on this, latter kind of companies, and aims to be an exploratory study providing insights on the activities of circular start-ups in Turkey.

Acting as a pioneering hence explanatory study over the circular start-ups in Turkey, the purpose of the study can be summarised as: To obtain

an overall picture of circular start-ups in Turkey, to understand their strategic choices, and to check adoptability of existing circular start-up typologies to Turkey, and/or, if possible, to propose a typology based on the Turkish case.The study will address basically two research questions: 1) Which "circularity strategies" are being followed by the circular start-ups in Turkey? and, 2) What kind of "circular business models" are being used by these companies?

The research will be exploratory in nature and a multimethod research design will be followed and the research will be carried out in basically three steps. The aim of the first step is to generate a list of circular start-ups in Turkey that can be focused on. With that purpose, a desk research will be carried out in order to create a list of circular start-ups in Turkey by checking relevant press articles and documentaries on circular start-ups,social media and publications of relevant sectoral organisationssuch as circular economy related associations, accelerators and incubators. This step will go on until no further companies are found to be added to the list. After generation of start-ups list, in the second step, publicly available information will be collected on each company using mostly the company websites. At this stage, in-depth interviews will also be carried out with founders of selected start-ups if necessary.In the third and final step, the data will be analysedto understand circularity strategies and business models that are used. With that purpose, a content analysis will be carried out. During the analysis, available circularity (R) strategy and circular business model frameworks in the literature will be used asguidelinesfor coding and classification.

From an academic point of view, the importance of the researchlies in the expectation that it will help shed a light on a not-so-well-discovered terrain and inspire further studies in Turkey. Indeed, generally speaking, there is not enough knowledge accumulation about the companies that operate in line with circular economy principles (Cullen and De Angelis, 2021). When it comes to the case of start-ups, the level of available information drops even further as research on circular economy has mostly focused on the practices of established companies and the contributions of start-up companies is neglected to a great extent (Henry, Bauwens, Hekkert and Kirchherr, 2020). Parallel to this general situation, to the

knowledge of the authors, academic studies on circular start-ups is very limited in Turkey either.

On the other hand, the research is also expected to provide insights on the potential contribution of being circular to a company in terms of its business model. Indeed, even though academic research on circular business models is increasing(Cullen and De Angelis, 2021); further studies are needed to clarify the ways that companies use in creating value in line with circularity principles (Urbinati, Chiaroni and Chiesa, 2017, Urbinati et al, 2020; Centobelli et al, 2019). Therefore, from a practitioner point of view, the findings of the research may encourage practitioners to consider establishing companies that are in line with circularity principles or modify the business model of existing companies accordingly.

Key Words: *Circular Economy, Entrepreneurship, Start-Up, Circular Business Models*

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"DÖNGÜSEL EKONOMİ VE ENDÜSTRİ 4.0, SÜRDÜRÜLEBİLİR KALKINMA HEDEFLERİNE ULAŞMAYA NASIL KATKIDA BULUNABİLİR?"

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Özet

Sürdürülebilirlik uygulamaları son on yılda, akademisyenler, organizasyonlar ve devlet politikalarına yön verenler tarafından yoğun ilgi görmektedir. Sürdürülebilir Kalkınma Amaçları (SKA), Birleşmiş Milletler Kalkınma Programı tarafından belirlenen; toplumumuzun karşılaştığı temel sorunları ele alan, sürdürülebilir uygulamaların ve çözümlerin teşvik edilmesi amacı ile kurgulanan bir stratejiler bütünüdür. Bir diğer deyişle bahsi geçen amaçlar ve hedefler, yoksulluğu ortadan kaldırarak, tüm insanların barış ve refah içinde yaşamasını sağlamak için yapılan bir evrensel eylem çağrısıdır. Aynı zamanda, Döngüsel Ekonomi (DE) ve Endüstri 4.0 (I4.0) ilgili 17 amacı gerçekleştirme hususunda sahip oldukları gelişme potansiyelleri ile gün geçtikçe büyük önem kazanmaktadır. Planlanan araştırmada, Döngüsel Ekonomi ve Endüstri 4.0 uygulamalarının birleşimi olan DE-I4.0'ın SKA'ları gerçekleştirmede nasıl katkı sağlayacağını belirlemek yönünde etki faktörü 2'nin üzerinde olan, 11

yayınevine ait 38 dergide; 2015-2020 yılları arasında yayınlanmış 75 makale incelenecektir.

Anahtar Kelimeler: *sürdürülebilir kalkınma amaçları, döngüsel ekonomi, endüstri 4.0*

Abstract

Sustainability practices have attracted great interest from academics, organizations, and government policymakers in the last decade. Sustainable Development Goals (SDGs) are a setof strategies designed by the United Nations Development Program to address the main problems faced by our society and to promote sustainable practices and solutions. In other words, the aforementioned goals and objectives are a universal call to action to eliminate poverty and ensure that all people live in peace and prosperity. At the same time, Circular Economy (CE) and Industry 4.0 (I4.0) gain great importance day by day with theirdevelopmentpotentials in realizing 17 related goals. In the proposed research, 75 articles published between 2015 and 2020 in 38 journals of 11 publishers with an impact factor of more than 2 will be examined in order to determine how DE-I4.0, which is a combination of Circular Economy and Industry 4.0 applications, will contribute to the realization of SDGs.

Keywords: *sustainable development goals (SDGs), circular economy (CE), industry 4.0 (I4.0)*

1. GİRİŞ

Doğrusal ekonomi, tüketiciyi daima yeniyi tüketmeye sevk eden, kullanım ömrü uzun ve dönüşebilir ürünler yerine; kısa ömürlü, sürdürülebilir olmayan, kullanım ömrü sonucu çöp olacak ürün üretiminin yanında, yetersiz atık yönetim politikası ile de atıkların sorumluluğunu devlete bırakmaktadır. Döngüsel Ekonomi ise sürdürülebilirlik politikası kapsamında uzun ömürlü ürün üretimi ile üretim bandına yeniden alınabilen geri dönüşebilir ürün üretimi ile atık yönetiminde üreticiye de sorumluluk yüklemektedir.

Sürdürülebilir Kalkınma Amaçları (SKA), Birleşmiş Milletler Kalkınma Programı tarafından belirlenen; toplumumuzun karşılaştığı temel so-

runları ele alan, sürdürülebilir uygulamaların ve çözümlerin teşvik edilmesi amacı ile kurgulanan bir stratejiler bütünüdür. Aynı zamanda, Döngüsel Ekonomi (DE) ve Endüstri 4.0 (I4.0) ilgili 17 amacı gerçekleştirme hususunda sahip oldukları gelişme potansiyelleri ile gün geçtikçe büyük önem kazanmaktadır. Planlanan araştırmada, Döngüsel Ekonomi ve Endüstri 4.0 uygulamalarının birleşimi olan DE-I4.0'ın SKA'ları gerçekleştirmede nasıl katkı sağlayacağını belirlemek yönünde etki faktörü 2'nin üzerinde olan, 11 yayınevine ait 38 dergide; 2015-2020 yılları arasında yayınlanmış 75 makale incelenerek, sürdürülebilirlik uygulamalarının önce çıkan amaçlarının bu alanda çalışma yapan akademisyenler, örgütler ve devlet politikalarına yön verenler için katkı sağlaması amaçlanmıştır.

2. KAVRAMSAL ÇERÇEVE

2.1 Döngüsel Ekonomi

Doğrusal ekonomi, tüketiciyi daima yeniyi tüketmeye sevk etmekte, kullanım ömrü uzun ve dönüşebilir ürünler yerine, kısa ömürlü sürdürülebilirlik barındırmayan, kullanım ömrü sonucu çöp olacak ürün üretiminin yanında, yetersiz atık yönetim politikası ile de atıkların sorumluluğunu devlete bırakmaktadır. Döngüsel ekonomi ise sürdürülebilirlik politikası kapsamında uzun ömürlü ürün üretimi ile üretim bandına yeniden alınabilen geri dönüşebilir ürün üretimi ile atık yönetiminde üreticiye de sorumluluk yüklemektedir. Döngüsel ekonomi temelli üretim, tüketicinin geri bildirimlerine önem veren interaktif bir yapıdır (Çetin, 2020).

Geri dönüşüm, hammaddenin çıkarılması gibi üretim sürecinde oluşan çevresel hasarları azaltmaya yardımcı olur ve yeni ürünlerin üretilmesi için gerekli enerjide tasarruf sağlar (Lee, 2020). Bu tasarruf kavramı döngüsel ekonomi konseptinin temel ilkeleri için de önemli bir çıkış noktasıdır. Döngüsel ekonomi 3R ilkesini temel almaktadır. Bu ilkeler azaltmak, yeniden kullanmak ve geri dönüştürmektir. Döngüsel ekonomi, sürdürülebilirlik için çevre unsuru ile ekonomik unsurlar arası zorunlu ilişkilerin bağlantılarının ele alındığı, Pearce ve Turner'ın çalışmalarında (1990) daha somut olarak karşımıza çıkmaktadır (Güleryüz & Duygulu, 2020). Özetle, döngüsel ekonomi her tür kaynak tüketimini azaltabilmek adına ürünü en uzun süre kullanımda tutmayı hedefleyen tüm üretim bandı kurgusunu bu ilke çerçevesinde ören bir ekoldür.

2.2 Sürdürülebilir Kalkınma Amaçları

Döngüsel ekonomi çeşitli ülkeler tarafından kullanılan sosyal kurumları ve oluşumları sürdürülebilir gelişim amaçlarına ulaşmak için bir araç olarak düşünülebilir. Sürdürülebilir kalkınmanın amaçları ile döngüsel ekonomi arasında çok yakın bir ilişki olduğu gözükmektedir (Rodriguez-Anton, Rubio-Andrada, Celemin-Pedroche, & Alonso-Almeida, 2019). Bir konsept olarak düşünebileceğimiz sürdürülebilir kalkınmanın somut olarak ele alındığı bazı amaçlar mevcuttur. Bu amaçların hepsine ulaşılması ideali gerçekleşirse, sürdürülebilir kalkınma tam manasıyla hayata geçebilecektir.

Gündem 2030, dünyanın geleceğini ilgilendiren en öncelikli konulara ilişkin, değişimi ve gelişimi teşvik eden bir araç olarak oluşturuldu. Gündem 2030'un herkesi kapsar nitelikte olması amacıyla, hükümetleri, kurumları ve sivil toplum örgütlerini, sürdürülebilir kalkınmaya ve sürdürülebilir gelecek algısına yönlendirmek amacı ile birbirine bağlı hedefler listesi olan 17 SKA kurgulanmıştır.Bu noktadan hareketle, 17 başlık altında toplanan sürdürülebilir kalkınmanın amaçları şu şekilde sıralanabilir:

SKA1 Yoksulluğa Son
SKA2 Açlığa Son
SKA3 Sağlık ve Kaliteli Yaşam
SKA4 Nitelikli Eğitim
SKA5 Toplumsal Cinsiyet Eşitliği
SKA6 Temiz Su ve Sanitasyon
SKA7 Erişilebilir ve Temiz Enerji
SKA8 İnsana Yakışır iş ve Ekonomik Büyüme
SKA9 Sanayi, Yenilikçilik ve Altyapı
SKA10 Eşitsizliklerin Azaltılması
SKA11 Sürdürülebilir Şehirler ve Topluluklar
SKA12 Sorumlu Üretim ve Tüketim
SKA13 İklim Eylemi
SKA14 Sudaki Yaşam
SKA15 Karasal Yaşam
SKA16 Barış, Adaletin ve Güçlü Kurumlar
SKA17 Amaçlar İçin Ortaklık (UNDP, 2021)

2.3 Endüstri 4.0

Tarihsel akış doğrultusunda değişim dinamiklerini daima doğasında barından endüstriyel gelişimin ilk aşaması Endüstri 1.0 dönemi, tamamen doğrusal ekonomi bağlamında buhar gücü yoluyla insanların yönettiği kitlesel üretim makinelerinin kullanımı ve bu kitlesel üretimin devamlı yeni hammadde kullandığı sürekli tüketim ile bu tüketimin getirdiği ekonomik büyümeye dayalıdır. (Yücebalkan, 2020).

19. yüzyıl sonlarında başlayan Endüstri 2.0 dönemi iki dünya savaşına sahne olan ama hızla dijitalleşmeye ilerleyen bir süreç olarak kabul görmektedir. İleri mekanik teknolojinin getirdiği sınırsız üretim kapasitesi endüstrinin başını döndürmüş ve doğal kaynakların doğrusal ekonomi bazlı sınırsız kullanımı teşvik etmiştir. 20. Yüzyıl sonlarına denk gelen Endüstri 3.0 ise analog devri kapatıp dijital devri açarken, bu dönüşüm daha çok üretim tekniği aşamasında kalmış ve gerek hammadde gerekse de ekonomi döngüselliğine beklenen düzeyde yansımayan bir dönüşüm olmuştur. Bunun yanı sıra bu dönem Endüstri 4.0 için temel hazırlarken, bu temele giden gelişmeler yavaş yavaş uyanmaya başlayan döngüsellik bilinci için başlangıç noktası yaratmıştır.

21. yüzyıl'a gelindiğinde geçmişin popüler ekonomik bakışı ve bu bakışın günümüze kadar uzanan mirası olan sınırsız kaynak kullanımının getirisi ile her geçen gün küresel ısınma, iklim felaketleri, küresel pandemiler gibi olumsuzluklar yüzünden yerküre alarm vermiştir. İşte böyle bir dönemde ele alabileceğimiz Endüstri 4.0 nesnelerin interneti, yapay zekâ, bulut teknoloji gibi mekânsız, somut kaynak kullanımını minimum düzeyde tutan ve büyük ölçüde soyut bir üretim biçimi sunmaktadır (Yücebalkan, 2020).

2.4 Sürdürülebilir Kalkınmanın Endüstri 4.0 Üzerindeki Etkisi

Ortaya çıkışı teknoloji merkezli bir ekonomi politikası olan ve 2011 Almanya/ Hannover Fuarı'na uzanan Endüstri 4.0 insan-insan ve insan-makine etkileşimlerini içinde barındırmakla beraber makinelerin kendi aralarında da bir etkileşim içinde olmasına zemin hazırlayan bir dijital dönüşüm sürecini ifade etmektedir. Endüstri 4.0'a uzanan tarihsel süreçte Endüstri 0 dönemi yığın üretim yapılamayan, adetli el üretimi üzerine kurulu doğal kaynakları (dönemin koşullarına bağlantılı olarak)

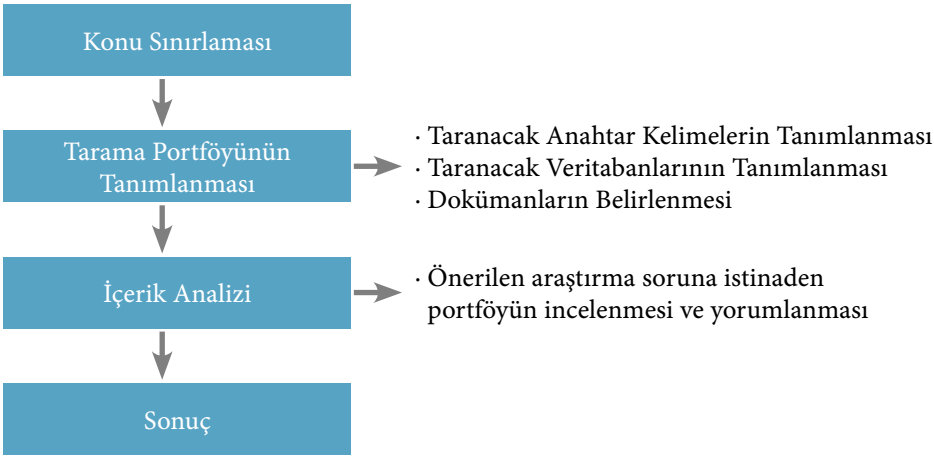
nispeten daha az tüketen bir süreç olarak karşımıza çıkarken, döngüsel ekonomiye ihtiyaç duyulan dönemin asıl başlangıcı 18. yüzyıl'da İngiltere'de ortaya çıkan Sanayi Devrimine dayanmaktadır. (Güleryüz & Duygulu, 2020).

Endüsti 4.0'ın hizmet edeceği düşünülen anlayış ile taban tabana zıt olan Endüstri 1.0 döneminin hâkim paradigması olan, sınırsız doğal kaynak varlığı çerçevesinde sürekli büyüme ve buna uygun doğrusal ekonomi anlayışının, gezegende varlığını daha fazla sürdürmemesi gerekliliği özellikle COVID-19 küresel pandemisi döneminde çok daha fazla anlaşılmıştır. Gezegeni korumak için her tür süreci döngüsel çemberde ele alıp sürdürülebilir ekonomiler ile hayatı sürdürülebilir kılmak adına çevreci politikaların önemsenmesi gereği önemli bir gerçek olarak döngüsel ekonomiye geçişe ivme katmıştır. (Çetin & Yılmaz, 2021).

Doğal sermaye olarak nitelendirebileceğimiz kaynakların sınırsız olduğu bakış açısının çöküşü, döngüsel ekonominin yükselmesi için zemin hazırlarken Endüstri 4.0'ın getirdiği yeni dönem bu süreci teknik olarak hızlandırabilecek bir nitelik taşımaktadır. Sürdürülebilir kalkınmayı gerçekleştirme yöntemi olarak konumlandırdığımız döngüsel ekonomi ile Endüstri 4.0 arasında bulunan ilişkinin temeli bahsettiğimiz gibi değişen üretim yapısının dönüştüğü dijitallik kavramına dayanmaktadır (Güleryüz & Duygulu, 2020).

3. UYGULAMA VE YÖNTEM

Planlanan bu çalışmada, "Döngüsel Ekonomi ve Endüstri 4.0, Sürdürülebilir Kalkınma Hedeflerine ulaşmaya nasıl katkıda bulunabilir?" araştırma sorusuna cevap bulmak amacı ile mevcut literatürde Sürdürülebilir Kalkınma Hedefleri, Döngüsel Ekonomi (DE) ve Endüstri 4.0 (I4.0) konseptleri ve anahtar kelimeleri farklı veri tabanları aracılığı ile taranacak ve incelenecektir. Bu araştırmada, Döngüsel Ekonomi ve Endüstri 4.0 uygulamalarının birleşimi olan DE-I4.0'ın Sürdürülebilir Kalkınma Amaçlarını gerçekleştirmede nasıl katkı sağlayacağını belirlemek yönünde etki faktörü 2'nin üzerinde olan, 11 yayınevine ait 38 dergide; 2015-2020 yılları arasında yayınlanmış 75 makale incelenecektir. Literatür tarama modeli Barros ve meslektaşlarının 2019'da tasarladığı şekilde kullanılacaktır. Figür 1'de planlanan araştırmanın modeli belirtilmiştir.



Figür 1: Literatür Taraması Metodolojisi

Konu sınırlaması; Araştırma sorusuna istinaden, literatür taraması portföyüne dâhil edilen makaleler, döngüsel ekonomi ve/veya endüstri 4.0'ın Sürdürülebilir Kalkınma Amaçlarına ulaşmada nasıl yardımcı olduğu analiz edilecektir. Araştırmaya İngilizce olarak yayınlanmış, hakemli dergilerin makaleleri dâhil edilecektir.

***Tarama Portföyünün Tanımlanması*;**

Adım1: Taranacak Anahtar Kelimelerin Tanımlanması; Bu araştırmada DE veya I4.0 ile SKH arasındaki bağlantıya odaklanan makaleler ele alınacak olup, toplamda 12 adet anahtar kelime taratılacaktır. İlgili veritabanlarında tarama yaparken kullanılacak anahtar kelimeler; "sustainable development goals", "SGD", "industry 4.0", "I4.0", "circular economy ","CE", "sustainability" , "sustainable development" ," internet of things" , "iot" , "smart manufacturing" ," smart industry".

Adım2: Taranacak Veri Tabanının Tanımlanması; Scopus ve Web of Science veri tabanları, bu araştırma alanındaki kapsamlılıkları nedeniyle seçilmiştir. Diğer veri tabanlarıyla karşılaştırıldıklarında, ilgili iki veritabanı önemli ölçüde daha fazla sonuç vermiş olup, arama bir önceki konuda belirtilen anahtar kelimeler ve kriterlere göre yapılacaktır.

Adım3: Dokümanların Belirlenmesi; Tarama kriterlerine istinaden veritabanları aracılığı ile tüm makaleler belirlendikten sonra, yayınlar

elektronik tablolara aktarılacak ve içerik analizi için seçilen kriterlere göre düzenlenecektir.

İçerik Analizi; Araştırmaya dâhil edilecek tüm yayınlar elektronik tablolarda derlendikten sonra, nihai portföyün içerik analizine başlanacaktır. Yayınlardaki DE ve I4.0 kombinasyonları incelenerek, SKA'ların hangilerinin gerçekleştirilmesine katkı sağladıkları yorumlanacaktır.

5. Sonuç ve Öneriler

Endüstri 4.0 ve teknolojinin de gelişimi ile, doğrusal ekonomi algısının aksine, hızla gelişmekte olan döngüsel ekonomi konsepti de dünya gündeminde kendisine çokça yer bulmaya başlamıştır. Bu bilgiler ışığında, planlanan bu araştırma sistematik bir literatür taramasıyla bu üç konuyu birbirine bağlamayı, döngüsel ekonomi (DE) ve Endüstri 4.0 (I4.0) kombinasyonunun sürdürülebilir kalkınma hedeflerine ulaşılmasına nasıl katkıda bulunabileceğini araştırmayı amaçlamaktadır.

Planlanan bu araştırma, literatürde Sürdürülebilir Kalkınma Amaçları, Döngüsel Ekonomi ve Endüstri 4.0'ı içerik analizi yaparak ele alan ilk araştırmalardan biri olarak kabul edilebilir. Gelecekte yapılacak araştırmalar için, sera gazı emisyonu, yeni iş yaratma, yeni üretim modelleri gibi farklı perspektiflerden değerlendirmek anlamında literatürde birtakım boşlukların olduğu düşünülmektedir. Öte yandanplanlanan bu araştırmanın akademisyenler, organizasyonlar ve devlet politikalarına yön verenler için de bir rehber görevi göreceği düşünülmektedir.

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"SUSTAINABILITY IN THE TEXTILE INDUSTRY: AN EXPLORATORY ANALYSIS OF SUPPLY CHAIN DISCLOSURE AND SUPPLY CHAIN COMPLEXITY"

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Abstract

Sustainability has become an important issue on corporate agendas and firms are increasingly being held responsible for not only their own actions, but also the actions of other firms in the supply chain. In line with this, firms aiming to be more transparent about their sustainability practices started to voluntarily reveal their supplier lists to the public, which might include information such as the company name, product type, location, factory demographics (e.g.firm size, gender distribution), audit reports and sustainability grading of suppliers. Practical evidence illustrates differences across supply chain disclosure practices; however, there is little research on the determinants of supply chain disclosure. This exploratory study focuses on one of these determinants and aims to investigate the impact of supply chain complexity on the extent of supply chain disclosure by textile firms. Two dimensions of supply chain complexity is examined: horizontal complexity (i.e. the number of suppliers) and spatial complexity (i.e. geographical spread of suppliers). Data is collected from secondary sources using supplier lists published on company websites. Hypotheses are tested via hierarchical regression analysis.

The results suggest thatwhereas horizontal complexity has a negative effect spatial complexity has a positive impact on supply chain disclosure.

Keywords *– supply chain disclosure; supply chain complexity; sustainability; textile*

Özet

Sürdürülebilirliğin kurumsal stratejilerde önemli bir gündem maddesi haline gelmesi ile artık firmalar sadece kendi eylemlerinden değil, tedarik zincirlerindeki diğer firmaların da sürdürülebilirlik performansından sorumlu tutulmaktadır. Bu doğrultuda, sürdürülebilirlik uygulamaları konusunda daha şeffaf olmayı hedefleyen firmalar, tedarik zincirlerindeki firmaların adı, ürün çeşidi, lokasyon, çalışan detayları (örn. çalışan saysı, cinsiyet dağılımı), denetim raporları ve tedarikçilerin sürdürülebilirlik derecelendirmeleri gibi bilgilerini içerebilecek tedarikçi listelerini gönüllü olarak kamuoyu ile paylaşmaya başladılar. Şirketlerin tedarik zinciri açıklama uygulamaları arasında farklılıklar olduğu bilinmekle beraber, henüz bu farklılıkların belirleyicileri hakkında literatürede çok az araştırma bulunmaktadır. Bu ampirik çalışmada, olası belirleyicilerden biri olan tedarik zinciri karmaşıklığına odaklanılmakta, ve tedarik zinciri karmaşıklığının tekstil firmalarının tedarik zinciri bilgilerini açıklama kapsamına etkisi incelenmektedir. Tedarik zinciri karmaşıklığının iki boyutu ele alınmaktadır: yatay karmaşıklık (tedarikçi sayısı) ve mekansal karmaşıklık (tedarikçilerin coğrafi dağılımı). Veriler, şirket web sitelerinde yayınlanan tedarikçi listeleri kullanılarak ikincil kaynaklardan toplanmış, hipotezler hiyerarşik regresyon analizi ile test edilmiştir. Sonuçlar, tedarik zinciri bilgileri açıklama kapsamı üzerinde yatay karmaşıklığın negatif, mekansal karmaşıklığın ise pozitif etkisi olduğunu göstermektedir.

Anahtar kelimeler *– tedarik zinciri açıklama kapsamı; tedarik zinciri karmaşıklığı; sürdürülebilirlik; teksti*

INTRODUCTION

Growing concerns regarding the scarcity of world resources and the increasing burden of overproduction on the climate cause firms across several industries tolook for solutions to the sustainability challenge. In line with this objective, firms focus not only on their own operations, but also aim to improve sustainability in their supply chains. This view reflects the thought that "a firm is no more sustainable than its supply chain" (Krause et al., 2009). As part of these sustainability efforts, more proactive firms are investing in improving supply chain transparency (Marshall et al., 2016; Sodhi and Tang, 2019). Supply chain transparency can be defined as disclosing information to consumers, investors and other stakeholders about the supply chain members and their compliance with sustainability expectations (Malik et al., 2021; Marshall et al., 2016; Sodhi and Tang, 2019). Although we have seen growing number of firms that aim to improve supply chain transparency, there are also challenges to achieve this objective such as supply chains becoming increasingly complex due to dispersed operations across the globe and increasing number of actors in the supply chain (Bode and Wagner, 2015; Malik et al., 2021), making it difficult to identify all actors and evaluate their sustainability efforts.

Supply chain transparency is evident in several sectors; however, it has particularly received great attention in the textile sector, especially after the unfortunate Rana Plaza Event in 2013 where over 1000 workers had died due to the collapse of a textile factory complex, housing suppliers of major Western textile retailers. This event caused several stakeholders (i.e. NGOs, governments, consumers) to demand more transparency from buying firms regarding their supply chains and the environmental and social performance of the suppliers. As part of supply chain transparency practices, several textile firms (e.g. H&M, Marks and Spencer, Adidas, Esprit, etc.) started to voluntarily reveal their supplier lists (Marshall et al., 2016; Sodhi and Tang, 2019). This practice is defined as "supply chain disclosure" (Marshall et al., 2016; Sodhi and Tang, 2019). Whereas some firms share basic information such as supplier names and locations, others share more sensitive information such as the number of employees, gender distribution, supplier audits and scores (Catalano and Cui, 2020; Malik et al., 2021).

Past research has mostly focused on the impact of supply chain disclosure on buying firm performance. While some studies propose beneficial outcomes such as increased financial performance and reputational benefits, others echo the negative effects such as loss of competitive advantage and high costs of gathering information (Malik et al., 2021; Kalkanci and Plambeck, 2020; Sodhi and Tang, 2019). Other studies, focus on the impact on consumers. For instance, Buell and Kalkanci (2020) investigate how transparency of internal and external responsibility initiatives impact consumer decision making. Similarly, while examining supply chain disclosure, Catalano and Cui (2020) distinguish between supplier transparency (e.g. name, location, number of workers) and sustainability transparency (e.g. supplier audits, use of sustainable materials) and investigate their impact on consumer purchasing behavior. Another research stream focuses on understanding how supply chain disclosure improves supply chain sustainability. For instance, Kalkanci and Plambeck (2020) use a game theory approach to examine the impact of revealing supplier lists on supplier's social or environmental violations. Sodhi and Tang (2019) focus on how publishing supplier lists shifts the responsibility NGOs.

Despite the increasing number of studies on the impact of supply chain disclosure on outcomes such as buying firm financial performance and reputation, consumer purchasing behavior, and supply chain sustainability, there is limited understanding on the determinants of supply chain disclosure (Chen et al., 2019). In this research, we focus on supply chain complexity as a possible determinant and aim to answer the following research question:

RQ: What is the impact of supply chain complexity on supply chain disclosure extent?

We propose that high supply chain complexity makes it difficult to have a transparent supply chain and thus, firms share less information. We analyze the firms listed in Fashion Transparency Index 2021 and investigate two dimensions of supply chain complexity: horizontal complexity (the number of suppliers) and spatial complexity (differentiation of suppliers). Our results illustrate that whereas horizontal complexity

has a negative impact on supply chain disclosure, in contrast to our expectations, spatial complexity has a positive impact.

LITERATURE REVIEW

Sustainability in the Textile Supply Chain

Textile industry has a large impact on both environmental and social sustainability (Brun et al., 2020). Textile suppliers are often located in low-cost countries where social issues such as child labor use, overtime, unhealthy working conditions and irregular wages pose a great threat. Additionally, damage to environment is evident due to high water use, use of toxic chemicals, extensive amount of waste and high consumption rates facilitated by 'fast' fashion (Brun et al., 2020; Jestratijevic et al., 2020). Furthermore, textile industry is characterized by a highly complex, global supply chain making it fragile to sustainability issues (Brun et al., 2020). For instance, Zara currently has 1,805 suppliers and 8,543 factories worldwide[1] whereas H&M has over 700 commercial product suppliers who manufacture products in over 1600 tier 1 factories across 39 countries in Europe, Asia and Africa[2].In fact, reputational damage often occurs due to sustainability problems at the lower tiers of the supply chain, due to second- or third-tier suppliers which the buying firm might not have direct access to.

Supply Chain Transparency and Supply Chain Disclosure

Transparency, which has become an important element of corporate sustainability, can be defined as the disclosure of information and include various practices such as publishing sustainability reports, environmental product information, announcing sustainability certifications (Egels-Zandén et al., 2015). Supply chain transparency, a dimension of transparency, can be simply defined as the disclosure of supply chain information to the public (Brun et al., 2020; Marshall et al., 2016). More recently, several pioneer firms started to publish supplier lists as part of supply chain disclosure practices (Chen et al., 2019). Information shared

1 https://www.inditex.com/about-us/inditex-around-the-world#continent/000
2 https://hmgroup.com/sustainability/leading-the-change/transparency/supply-chain/

on supplier lists might include supplier/factory name (across different tiers), parent company, full address or country only, product type, number of workers, gender distribution of workers, union membership, audit reports/sustainability scores.

Although sustainability in the textile sector has been under the scrutiny of NGOs and consumers lately, supply chain transparency is still limited (Brun et al., 2020), necessitating more research on this topic. Majority of the firms disclose rather basic information about their supply chains, such as the names and location of suppliers, and often only do so for a part of their supply chains (Brun et al., 2020; Catalano and Cui, 2020; Sodhi and Tang, 2019). Supply chain disclosure is regarded by stakeholders not as an end, but rather as a means towards sustainability improvement (Brun et al., 2020), also highlighting the commitment of the buying firm towards being more sustainable (Chen et al., 2019). Whereas supply chain disclosure can put greater pressure on the buying firm, it enables benefiting from public efforts to improve sustainability as well as reap out benefits of brand reputation for being sustainable (Chen et al., 2019). Obviously, the ultimate aim is to improve the suppliers' compliance with social and environmental sustainability standards (Chen et al., 2019).

Supply Chain Complexity

Due to increased globalization and heterogeneity in product portfolios and customer demands, supply chains have become utterly complex (Bode and Wagner, 2015; Ateş et al., 2021; Lu and Shang, 2017). Supply chain complexity is often argued to have a detrimental impact on performance, for instance resulting in higher costs, supply chain disruptions and delivery issues (Bozarth et al., 2009; Brandon-Jones et al., 2015). Supply chain complexity can be examined in two dimensions: i) Detail (structural) complexity and ii) Dynamic (operational) complexity (Bode and Wagner, 2015, Bozarth et al., 2015). Detail complexity refers to the number and variety of elements defining the system (Bozarth et al., 2009;) whereas dynamic complexity refers to interactions between the elements of the system which cause unpredictability, randomness, or frequent changes in a system's response to a given set of inputs (Bode & Wagner, 2015). Two sub-dimensions of detail supply chain complexity

are: horizontal complexity; i.e. the number of suppliers, and spatial complexity, i.e. geographical dispersion of suppliers (Ateş et al., 2021; Bode and Wagner, 2015).

HYPOTHESIS DEVELOPMENT

Overall, we propose that supply chain complexity reduces supply chain disclosure extent.

A large number of suppliers indicate a greater coordination effort resulting in higher administrative and transaction costs (Bode and Wagner, 2015; Lu and Shang, 2017). A firm with a large supply base, especially dispersed over several tiers, will face challenges in identifying all these actors. For instance, although names of suppliers can be detected, the administrative effort in reporting more detailed supply chain information such as gender distribution, union membership and audit reports will be highly costly for the buying firms. On the other hand, a smaller supply base enables more collaborative relationships with suppliers (Ateş et al., 2021). Suppliers in a more collaborative relationship would be more inclined to share sustainability information demanded by the buying firms. Additionally, search costs associated with finding sustainable suppliers and ensuring compliance will be less in small supply bases. Therefore, we formulate the following hypothesis:

Hypothesis 1: *Horizontal complexity is negatively associated with supply chain disclosure.*

Global supply chains pose another threat to supply chain disclosure. When spatial complexity, the number of countries suppliers are located at, increases, operational challenges also increase (Brandon-Jones et al., 2015). Brun et al. (2020) argue that achieving transparency is difficult for firms with globally dispersed supply chains. They further state that high levels of complexity in textile industry reduce visibility and damage collaborative relationships with suppliers. Similarly, Chen et al. (2019) indicate that global supply chains spanning over multiple continents and several countries make it difficult to trace supply chains, especially due to the fact that several players in these extended supply chains are independent contractors which the focal firm has no direct links to. Therefore, we formulate the following hypothesis:

Hypothesis 2: *Spatial complexity is negatively associated with supply chain disclosure.*

DATA AND RESEARCH METHOD

This research relies on secondary data and quantitative analysis.

To measure 'supply chain disclosure extent', we relied on the supply chain disclosure scores indicated on the Fashion Transparency Index 2021 Report. This index rates the major textile firms and retailers based on the extent of supply chain disclosure in five areas: Policy & commitments, governance, traceability, know & show & fix and spotlight issues. For instance, on top of the list there is the company OVS with a score of 78 (out of 100), followed by H&M (68) and Timberland (66).

To measure supply chain complexity, we relied on the supplier lists published by the textile firms on their websites. We operationalized 'horizontal complexity' as the number of suppliers and 'spatial complexity' as the number of countries suppliers are located at. Out of the 247 firms listed on the Fashion Transparency Index (2021) report, we were able to find the supply chain complexity data of 93 firms.

RESULTS

We performed a correlation analysis to investigate the association between supply chain complexity and supply chain disclosure. We found that while there is a negative association between horizontal complexity and supply chain disclosure (r=-0.248), there is a positive association between spatial complexity and supply chain disclosure (r=0.334).

CONCLUSION

This research illustrates that when firms have a large supply chain, they are likely to disclose less supply chain information. In contrast to our expectations, we find that firms with more globally dispersed supply chains in disclose more detailed supply chain information. This might be due to the fact that firms engaged in global sourcing face various law and legislations of different countries, requiring them to record more supply chain data. Additionally, due to higher supply chain disruption risk, they might be more proactive in preparing for unexpected sustai-

nability problems. There is a need for more research to elaborate on the findings.

This research is not without limitations. We rely on secondary data and hence lack supply chain complexity information of firms that do not disclose supply chain information. Detailed case studies by means of interviews might enable investigating 'how' supply chain complexity impacts supply chain disclosure.

As the next steps of this research, we aim to further improve our understanding by investigating the impact of supply chain disclosure on sustainability performance, by focusing on its three dimensions: financial performance, environmental performance and social performance.

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"SÜRDÜRÜLEBİLİR TÜKETİM İÇİN ÜRÜNLER VE TÜKETİCİ DAVRANIŞLARI"

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Özet

Sürdürülebilirlik ve döngüsel ekonomi konuşulduğunda pek çok kavram ile konuyu derinleştirmek mümkündür. Pazarlama ve tüketici davranışı bağlamında ilgili çalışmaların üstünde durulmak gerektiğinde, pazarlama karmasının temel öğesi olan ürün konusu ele alınabilendir. Bu çalışmanın amacı, sürdürülebilirlik için geliştirilen, işlem gören, uygulamaları ve uyarlamaları olan ürünlerin bir arada sunumunu yapmaktır. Araştırmanın hazırlanması sırasında, literatür taraması gerçekleşmiştir. Sürdürülebilirlik için ürün konusu hedeflenerek, ulusal ve uluslararası şekilde gerçekleştirilmiş çalışmalar incelenmiştir.Ürün sürdürülebilirliği ve sürdürülebilir ürün bağlamında iş, sivil toplum ve bilim dünyasının hem üretici hem de tüketici rolleriyle gerçekleştirdiklerinin projeksiyonu ortaya konmuştur. Hazır giyimden, gıdaya, mamüllerden hizmetlere ürün çeşitliliği ile sürdürülebilirlik çalışmalarının gerçekleştiği görülmüştür. Türkiye'deki ürün hatları ile farklı ülkelerdeki ürün hatları ve sürdürülebilirlikleri için çalışılanların derlenerek bir arada sunumu mümkün olmuştur. Yapılan araştırma sonucunda edinilen bilgilerle geliştirilmiş olan çalışma, sürdürülebilir ürünlere dair güncel durum sunumuolarak ifade edilebilir. Sürdürülebilir ürünler ve ürünlerin sürdürülebilirliği konularının ana hatlarıyla ve bütüncül olarak ele alınması ile

ilgili ürünler derlemesi gerçekleştirilmiştir.Birbirinden farklı sektörlerdeki bu ürünler,karakteristik özellikleriyle, değişen pazar bölümlerinde yer almaktadırlar. Enerji, tekstil, tarım, sağlık ve teknoloji pazarlarında konuya yönelik geliştirilen ürünlerin ön planda olduğu görülmektedir. Enerji üretiminden, su tüketimi ilgili olan ürünlere, kumaş sektöründe ürünün dayanıklılığını arttırmaktan, sağlık hizmetlerinden faydalanmaya, akıllı cihazlar üretiminden tohumun yenilenme özelliğine, giyilebilir teknolojiden yenilenebilir enerjiye kadar çeşitli etkiler ve özelliklerle sürdürülebilir ürünler var edilebilmektedir. Küresel olarak pazara sunulabilen ürünlerin olmasının beraberinde dünyanın farklı yerlerinde bölgesel, kültürel, coğrafi hatta tüketicilerin demografik, psikografik ve fonksiyonel özellikleri ilişkili farklı ürün türlerinin üretim ve tüketim bilgileri mevcuttur. Araştırmanın bulgularıyla sürdürülebilir ürünler ve tüketicilerin davranışları sunulmuştur.

Anahtar Kelimeler–Sürdürülebilirlik, SürdürülebilirÜrünler, TüketiciDavranışları, ÜrünHatları

Jel Kodları– Q01, D91, L67, E2

"SUSTAINABLE PRODUCTS AND CONSUMER BEHAVIOUR"

Abstract

Sustainability and circular economy issues can be deepened by many concepts. Marketing mix, especially product factor and consumer behaviours have specific impact on sustainability processes. The aim of the study is to present the products that are produced to support the subject. These products are developed, manipulated, served and used to keep on the target. Research method of the study is literature review and many related contents are analyzed to compile the sustainable product types. There are many differenttypes of commodities and services to pursue

the sustainability operations. Non-govermental organizations, academic, public and private corporations have different roles to serve these products and the study can be classified as the projection or the catalog. The wide range of sustainable commoties as apparels, foods and different types of services are listed as the sustainable products. Global and Turkish market informations, product lines and attempts are compiled to inform about the contexts. Diverse sectors informations are projected to share characteristics of the products. Each of them can be classified asenergy, textile, agriculture, health and technology industries. Energy generation, water consumption, health service utilization, smart devices production, genuine seeds cultivation wearable technology innovation and renewable energyare exemplified as sustainability operations and sustainable products. Cultural, regional, geographical, demographic, psychographic and functional concepts have various level impacts on these products manufacturing and consumer behaviours. The effects have decisive role in sustainable products development and market place.The study shows, either global or local markets have many different types of these products.

Key Words–Sustainability, Sustainable Products, Consumer Behaviour, Product Lines

Jel Kodları– Q01, D91, L67, E21

1. GİRİŞ

Ekonomik gelişmeler ve kalkınma beraberinde olumlu pek çok gelişmeyi getirmesinin yanında cana ve canlıya dair kaynakların tükenmesinde de etkin rol sahibidir. Bu sebeple, bir yandankaynakların tükenmesinin önlenmesi diğer taraftan da sürdürülebilirliğin sağlanması için stratejiler geliştirilmekte ve süreçler yönetilmektedir. Başta gelişmiş ekonomiler olmak üzere küresel olarak sürekli eylem planları ve faaliyetler gerçekleşmektedir. 2015 senesinde birleşmiş milletlerin belirlediği on yedi sürdürülebilirlik hedefleri üzerinden her türlü aşamaya çalışılmaktadır.

İklim değişimi, küresel ısınma, temiz su kaynaklarının tükenmesi, aşırı tüketim sorunları sebepli atık fazlası durumunu oluşturan israf ve bilinçsiz tüketim davranışları sürdürülebilirlik konusunda özellikli çalışmalar gerekliliğine işaret etmektedir.Dünyanın sürdürülebilirliğinin tehdit altında olduğu hakkında sürekli, farklı ve birçok olumsuz veri sunulmaktadır(Konyalıoğlu, 2021:376). Olumsuz sonuçlara dair olasılıkların sunumları devam etmektedir.Sürdürülebilirlik için 'Sıfır Atık' hedeflenmesi beraberinde, sürdürülebilir ürünlerin tüketimi ile dünyadaki çoklu ortamların sürdürülebilirliğini sağlamaya çalışılmaktadır.Tüketicilerin tutum ve davranışları belirleyici etki sahibidir.

Bu çalışma ile birbirinden farklı sektörlerde, çeşitli pazar bölümleri ve hedef tüketicilere yönelik sürdürülebilir ürünlerin bir arada derleme sunumu gerçekleştirilmektedir. Günümüz küresel ve yerel pazarlardaki sürdürülebilir ürün hatları ile özelliklerinin durumunun projeksiyonuna çalışılmaktadır.

2. LİTERATÜR

Sürdürülebilirlik, 20.y.y. son çeyreğinde gündeme gelip, son on senesinde önemi artarak 21.y.y.'ın önde gelensorununa dönüşmüştür.Bu dönemlerde, Birleşmiş Milletler çatısı altında konuyla ilgili iyileştirici, düzeltici ve geliştirici süreçler yapılandırılmaya başlanmıştır.Bugüne gelene kadar sürdürülebilirlik bahsi günümüzde kullanıldığı şekilde ilk olarak 1972 yılında, DonellaMeadows'un'Büyümenin Sınırları' çalışmasında yer almıştır (Meadowsv.d., 2004). Gelişmişliğin getirisi olan endüstriyelleşme, bu bağlamda gerçekleşen atık artışları, kullanılan doğal kaynakların

yenilenmelerine yönelik süreçlerin tüketiminden çok daha uzun zaman alması ile dünyanın bir yandan ısınırken diğer yandan eriyen buzullarla sayısız ekolojik dönüşümü yaşaması bu konuların önemini arttırmıştır (https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12567-Sustainable-products-initiative/public-consultation_en).

Sürdürülebilir ürünlerin ekolojik dengeyi, sosyal düzeni, erişilebilirlik ve haklar eşitliğini yaşatabilir olduklarının onaylanmasıuluslararası geçerli uygulamalarla gerçekleşebilmektedir. Bunlar, çeşitli belgelendirme ve sertifikasyon sistemleri ile yönetim anlayışları şeklinde çeşitlenebilmektedir (Carlson, 2018:121). Bu süreçler tüketicilerin sürdürülebilir ürün tüketim davranışlarını yaygınlaştırmak ve etkileşimli tüketici pazarları var edebilmek adına önemlidir.

Sürdürülebilir ürünlerin pazara sunulması ve ürün hattı çalışmaları gerçekleştirilirken, tüketici davranışı geliştirilmesinde zorluk yaşanan durumlar da görülebilmektedir. Böylesi durumlar aşağıdaki şekilde sıralanabilirler (https://www.theguardian.com/sustainable-business/2014/sep/10/consumer-behaviour-sustainability-business):

- Etiket ve sertifikalara güvensizlik olması
- Sertifikaları geçerli olan kuruluşların bir tür küresel kartel duruşu ile geçerli sertifikaların ulusal yapılarda geliştirilmesine karşı bariyer oluşturması
- Geçerliliğin belgelendirmesindeki küresel oligopol yapıda gelişmiş ekonomilerin güçleri ile küresel pazarlara egemenliği sürdürmesine destekleri.
- Besinsiz, aç ya da besin olan yerlere göç etmek zorunluluğunda kalmak endişesi ile besinde sürdürülebilirliğe odaklanmak

3. ARAŞTIRMA METHODU

Bu çalışma için sürdürülebilir ürünler ve sürdürülebilirliği destekleyen ürünler hakkındahazırlanmış olan yayınlar incelenmiştir. Sürdürülebilirlik hedeflerinin yakalanması süreçleri kapsamında geliştirilen ve etkileri olan ürünlere yer verilen araştırmalar referans alınarak, güncel bilgi derlemesi ortaya konmuştur.

4. SÜRDÜRÜLEBİLİR ÜRÜNLER VE TÜKETİCİ DAVRANIŞLARI

Ürünlerin sürdürülebilirliği bilinciyle tüketilmeleribilgi edinmeyi, nispi yüksek maliyeti,bilişselliği, kısaca belirli çabayı gerektirir. İlgilenim yüksek satın alma davranışı gerekliliği vardır. Tükettiğin her ürünün menşei, yetiştirildiği bölgesi, kökü, yetiştirilme ve işleme yönteminin paylaşımı bu tüketimi desteklemektedir. Tüketicinin satın alma gücü ve sosyodemografik durumu da sürdürülebilir ürünleri tüketebilmelerinde belirleyici faktörlerdendir(Bernyte, 2018: 29).

İnsanlar hızlı tüketim ürünlerine kolaylıkla erişmek isterler, böylesi koşullar göz önüne alındığında, tüketicilerin beslenmeleri için kendi sebze ve meyvelerini yetiştirmeleri, yağmur sularının toplanması gibi geleneksel yöntemler teşvik edilebilmektedir (https://www.theguardian.com/sustainable-business/2014/sep/10/consumer-behaviour-sustainability-business).

Besinlerin, kumaşların arta kalanlarının ve kullanım dışı kalan ürünlerin farklı ürünlerin sağlanmasında kullanılması da sürdürülebilir ürünlerin geliştirilmesi ve tüketici davranışının sürdürülebilmesinde önemli yer tutar.

4.1. Sürdürülebilir Ürünler

Geleneksel faaliyetlerle, ürün ve ürün hatlarınininovasyon birliktelikleri sonucunda sürdürülebilir ürünler pazarlara sunulabilmektedir. Farklı sektörlerde, çeşitli pazar türlerinde, ürün hatlarının genişletilmesi, uzatılması, derinleştirilmesi ve uyumu çalışmalarıyla tüketicilerin sürdürülebilir tüketim davranışları etkinleştirilebilmektedir(Bovea, 2018:13). Bu ürünler;

- Temiz su
- Temiz enerji
- Besin
- Moda - Giysi
- Sıfır atık özellikli(tekrar kullanılabilir) alışveriş malzemeleri
- Konutlar
- Karbon ayak izini azaltacak organik ürünler
- Yeşil yıkama olarak sıralanabilmektedirler.

Sürdürülebilir tüketim davranışı ve tüketici davranışındaki sürdürülebilirlik için de ürünlerin sunulduğu koşullar, çalışma ve yaşam alanları vardır. Bunlar;

- Kentleşme
- Ulaşım
- Mevsim normalleri
- Daha az et yemek
- Doğal bal tüketmek olarak örneklendirilebilir.

Örnek olarak, kurşun içermeyen bittiğinde toprağa ekip yeşeren bitki olan bir kalem paylaşılabilir. Bu kalemin özellikleri ve sürdürülebilir tüketici davranışı desteklenmesi aşağıda aktarıldığı şekilde olmaktadır.:

- Kalemi kullanıyorsunuz kalemtraşla açıyor ve tükendiğinde ise bir saksıya dikip evde yetiştiriyorsunuz.
- Arkasındaki yeşil kapak kısmın içinde beş adet tohum var.
- Yeşil kısım toprağın içinde suyu görünce çözünüyor ve içindeki tohumlar saksıda bitki oluyor.
- Yapılan bir üretimde yetiştirilen bitki nane olmuştur.

Farklı sektörler ve pazarlardan örnekler verilebilmektedir(Jastorff, v.d., 2005:370). Bunlar su bazlı bitkilerden üretilen ve organik biyolojik olarak parçalara ayrışabilen, organik ve hayvan deneyleri olmadan üretilmiş, ambalajları geri dönüştürülebilen, kozmetik, cilt ve kişisel bakım ürünleri olabilmektedir. Cilt temizleme jeli, şampuan, nemlendirici, peeling, yüz maskesi, şampuan, maskara, oje olarak çeşitlendirilebilirler.

80% geri dönüşümlü kağıttan, daha az ağaç, su ve enerji harcanarak üretilen sürdürülebilir ürünlerin pazardaki payları da giderek artmaktadır. Jumbo havlu, Z katlama dispenser havlu, sensörlü dispenser havlu ve peçete olarak ürün hatları çeşitlenebilmektedir (https://corporate.target.com/corporate-responsibility/planet/sustainable-products).

Beyaz eşya sektöründe geri dönüştürülmüş pet şişe ile çamaşır makinesi kazanı üretimi gerçekleştirilebilmektedir. Plastiğin sebep olduğu kirliliği, karbon salınımı ve enerji tüketimini azaltmaya katkı sağlamak amacıyla geliştirilen ürünlerdendir. Böylesi üretim ile bir senede on beş milyandan fazla pet şişe ile geri dönüşüm sağlanabilmektedir.

Çamaşır yıkama sırasında deterjanlardaki mikrofiber parçaların makine kirli su deşarjı ile çıkışını 99% oranında engelleyen filtre teknolojisi kullanılmaktadır. Atık suların deniz suyuna karışması halinde deniz suyuna karışan mikrofiber parçalar balıklar ve denizdeki canlıları zehirleyici etki yapmaktadır. Denizlerdeki hayatın sürdürülebilirliği için böylesi filtreleme sistemi etkili bir ürün olabilmektedir (https://www.bosch.com/sustainability/sustainable-products/).

Balıkçılıkta kullanılan büyük naylon ağların plastik geri dönüşümü ile üretilmesi bir başka sürdürülebilir üründür. Geri dönüştürülür naylonun farklı pazarlarda da etkin kullanımı sürdürülebilirlik adına önemli katkıdır. Benzer şekilde, plastik malzemelerin dönüştürülmesiyle 'Doğaya Dönüş Başlasın' sloganı ile geri dönüşümlü elektrik süpürgesi değinilecek bir başka üründür. Bu ürünün 90%'ı geri dönüştürülmüş plastikten üretilmiştir (https://corporate.target.com/corporate-responsibility/planet/sustainable-products).

Atıkların dönüştürülmesiyle, Pasifik Okyanusu bünyesinde var edilen, 'Büyük Pasifik Çöp Yarımadası' farklı ülkelerde geliştirilen süreçlere örnek verilebilir. Bu yarımadada toplanan çöplerin dönüşümü gerçekleştirilerek pazarlara ürünler sunulmaktadır.

Küresel dijital perakende devi Amazon, 25.000'den fazla üründen uygun olabilenleri, sürdürülebilirlik onayı için geçerli on dokuz sertifikadan biri ile pazara sunmaya başlamıştır. Özellikle 'İklim Taahhüdü Dostu' ürünlerin pazara sunulması üstünde durulan ürün hatlarının geliştirilmesi bağlamındadır.

Konut inşası ve dekorasyon sektöründe 75% geri dönüşüme sahip mutfak tezgahları, kanserojen madde ve formaldehit içermeyen ultra esnek laminantlar, kimyasal madde ve kanser yapıcı tutkal içermeyen, yüzey efekt özelliği ile esnekliği bütünleştiren G-Multiflex yapı malzemeleri üstünde durulması gereken ürünlerdendir (https://www.heidelbergcement.com/en/sustainable-products).

Tekstil boyama sektöründe, dijital baskı deviEpson'un geliştirdiği dijital baskı sistemi ile alışılagelmiş kimyasal ve çevreye zararlı atık salınımına sebep olabilen sistem geride bırakılabilmektedir. Ekolojik denge ve sürdürülebilirlik adına önemli endüstriyel ürünlerden biri olarak ifade edilebilir.

5. SONUÇ

Enerji, tekstil, plastik, balıkçılık, teknoloji, tarım ve kozmetik gibi pek çok farklı sektörde sürdürülebilirliğin desteklenmesi için geliştirilmiş ürünler pazarlarda yerini almaktadır. Günümüz tüketicisinin sürdürülebilir ürün kullanımı ve bunun önemi konusunda sürekli bilinçlendirme çalışmaları yapılmaktadır. Yapılan iletişim ve tutundurma faaliyetleri tüketicilerin sürdürülebilir ürün talebinde olmalarını destekler şekilde sıklaşarak yapılmaktadır. Tüketici bilinçlendikçe sürdürülebilir ürünlere talebini, kullandığı ürünlerin dönüştürülmesini ve gitgide sürdürülebilirliğin sağlanmasını destekler şekilde tüketici davranışlarını sergilemeye çalışacaktır.

Pazarlara sunulan ürünler, dönüşüm ekonomisi kapsamında geliştirilen teknolojiler ve geleneksel yöntemlere geri dönüş sürdürülebilirliğin etkinleşmesi ve pazarlardaki ilgili ürün hatların güçlenmesini getirecektir(Hayhurst,2018).Bu çalışma kapsamında hem küresel hem de yerel yapılara etkili olacak ürün geliştirilmesi ile tüketici davranışlarının derlenerek aktarımı gerçekleştirilmiştir. İleriye dönük zenginleştirilmiş ve sürekli yenilenerek geliştirilecek 'Sürdürülebilir Ürünler Kataloğu' için giriş yapılmıştır.

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"THE IMPACT OF RENEWABLE ENERGY ON ECONOMIC GROWTH"

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Abstract

World economy rises on energy sector; with its strategic leadership in economic growth. While global development and population increase continuesly, the demand and need for energy scales up. This is end of "below average growth" era. With the impact of developping technology, renewable energy cost goes down and transformation process speeds up by governments incentives for environmentalist energy production. But; it seems that for long years, still, fossil fuels system will continue. Developments in fossil fuel possesing countries, especially oil, have direct impact on energy prices. As a result; the global trend for energy demand is towards clean (green) energy sources. The fight against CO2 release and climate change will become more important. Although in predictable future, supremacy of fossil fuels will continue; government policies and incentives will be shaped in support of works to minimize their negative impacts to nature. Demand for energy and natural resources has been increasing due to economic and population growth in Turkey. Over recent years, the country has experienced the fastest surge in energy demand among OECD countries, and according to the International Energy Agency (IEA) forecasts, is set to double its energy use over the next decade. The projections of the Ministry of Energy and Natural Resources confirm that this trend will continue for the medium and long term. I

will provide a value to literature by increasing importance of renewable energy sources for nature, human and world. I will try to look the impact of renewable energy on economic growth specific to Turkey. Using clean, renewable energy is one of the most important actions you can take to reduce your impact on the environment.

Key Words: Energy, Sustainable Development, Renewable Energy, Natural Resource Economics

Jel Codes: F53 International Agreements and Observance . International Organizations, G18 Government Policy and Regulation, O1 Economic Development, Q2 Natural Resources including Energy, Natural Resources Renewable, Z13 Economic Sociology . Economic and Social Stratification,

"YENİLENEBİLİR ENERJİ KAYNAKLARI VE EKONOMİK KALKINMA"

Özet

Dünya ekonomisi enerji sektörü üzerinde yükseliyor; ekonomik büyümedeki stratejik liderliği ile. Küresel kalkınma ve nüfus artmaya devam ederken, enerji talebi ve ihtiyacı da artıyor. Bu, "ortalamanın altında büyüme" döneminin sonu. Gelişen teknolojinin de etkisiyle, çevreci enerji üretimine yönelik devlet teşvikleri ile yenilenebilir enerji maliyeti düşmekte ve dönüşüm süreci hızlanmaktadır. Fakat; öyle görünüyor ki daha uzun yıllar fosil yakıt sistemi devam edecek. Başta petrol olmak üzere fosil yakıt sahibi ülkelerdeki gelişmeler enerji fiyatlarına doğrudan etki etmektedir. Sonuç olarak; enerji talebi için küresel eğilim temiz (yeşil) enerji kaynaklarına yöneliktir. CO2 salınımı ve iklim değişikliği ile mücadele daha önemli hale gelecek. Öngörülebilir bir gelecekte fosil yakıtların üstünlüğü devam edecek olsa da; devlet politikaları ve

teşvikleri, doğaya olan olumsuz etkilerini en aza indirecek çalışmaları destekleyecek şekilde şekillendirilecektir. Türkiye'de ekonomik ve nüfus artışına bağlı olarak enerji ve doğal kaynaklara olan talep artmaktadır. Son yıllarda ülke, OECD ülkeleri arasında enerji talebindeki en hızlı artışı yaşadı ve Uluslararası Enerji Ajansı'nın (IEA) tahminlerine göre, önümüzdeki on yılda enerji kullanımını ikiye katlayacak. Enerji ve Tabii Kaynaklar Bakanlığı'nın projeksiyonları, bu eğilimin orta ve uzun vadede devam edeceğini teyit etmektedir. Yenilenebilir enerji kaynaklarının doğa, insan ve dünya için önemini artırarak literatüre değer katacağım. Yenilenebilir enerjinin ekonomik büyüme üzerindeki etkisini Türkiye özelinde incelemeye çalışacağım. Temiz, yenilenebilir enerji kullanmak, çevre üzerindeki etkinizi azaltmak için yapabileceğiniz en önemli eylemlerden biridir.

Anahtar Kelimeler: Enerji, Kalkınma Ekonomisi, Yenilenebilir Enerji

2. Introduction

World economy rises on energy sector; with its strategic leadership in economic growth. While global development and population increase continuesly, the demand and need for energy scales up. Global energy consumption had gone up by 2,9% in 2018; this is the highest rate since 2010. Whereas average increase level between 2010-2018 is 2,2%. This is end of "below average growth" era. With the impact of developping technology, renewable energy cost goes down and transformation process speeds up by governments incentives for environmentalist energy production. But; it seems that for long years, still, fossil fuels system will continue. Developments in fossil fuel possesing countries, especially oil, have direct impact on energy prices.

Today, countries having majortiy of oil reserves are still in conflicted regions and having critical political issues. This causes supply forecast failure. Developping countries economies boost energy demand. According to EIA, based in USA, global energy demand in 2050 will go up by 50% compared to 2018. The source of this huge increase in considered to be countries out of OECD. These countries strong economic growth, together with increase in population, make question how to meet the energy demand. China, USA and EU creates 52,4% of global energy demand, as of end of 2018; with China's increasing share. Today China is almost the source of ¼ of global energy demand. Since 2000, China total energy consumption had tripled and became World leader. Whereas , between 2010-2018, USD had recorded 8% and EU, 9%, negative growth. Despite global crisis , China had not experienced any contraction.

Oil, natural gas and coal are the most consumed energy sources. In 2010 their share was 87% ; and in 2018 it is noted 85% of total consumption. In this context, the share of renewable energy sources increases , and nuclear energy is less. Despite the fact that renewable energy share increases fast; this is not enough to change the general frame; but it gives strong hints of future trends. Government incentives, growing technology and consumer consciousness is expected to will boost renewable energy consumption. In addition, taking into consideration supply safety and problems in Access to sources, gives a clearer Picture about the

future. Logistic sector is considered the last one demanding renewable energy. There is still not enough infrastructure for consumption of renewable energy in seaway, airway and road transport. Since 2010 , the highest rise in consumption of renewable energy per person is recorded as 1,8% in 2018. This pictures shows that in comparison to 18 years ago , one person consumes 19% more energy.

As a result; the global trend for energy demand is towards clean (green) energy sources. The fight against CO2 release and climate change will become more important. Although in predictable future, supremacy of fossil fuels will continue; government policies and incentives will be shaped in support of works to minimize their negative impacts to nature.

Demand for energy and natural resources has been increasing due to economic and population growth in Turkey. Over recent years, the country has experienced the fastest surge in energy demand among OECD countries, and according to the International Energy Agency (IEA) forecasts, is set to double its energy use over the next decade. The projections of the Ministry of Energy and Natural Resources confirm that this trend will continue for the medium and long term.

Recent energy data indicate that Turkey is a net energy importer country, depending on such imports for 73% of its energy needs. This high rate of energy dependence has been the main driving force behind the formulation and implementation of new policies to commission local and renewable energy resources. In this respect, Turkey announced the National Energy and Mining Strategy in 2017 which identified security of supply, localization, and predictable market conditions as the main pillars to follow in energy sector. Under the Strategy, ensuring localization and reducing import dependence through utilization of domestic resources stands as a top priority for Turkey which is ambitious to generate 2/3 of its electricity from local and renewable resources by 2023.

Turkey has a substantial amount of renewable energy potential, and utilization of this potential has been on the rise over the last decade. As of the end of 2018, hydro, wind and solar resources constitute the vast majority of the country's renewable energy resources, accounting respectively for 28,291 MW, 7,005 MW and 5,068 MW of the total installed capacity of more than 88,526 MW. However; biomass/biogas and geot-

hermal energy resources are also expected to comprise a considerable portion with the rapid growth in utilization of these resources in the market.

As part of the ongoing efforts to promote localization, the Government has identified following targets to strengthen renewables' position in the market beyond 2020s:

- Increasing the share of renewables to 30 percent by 2023
- Increasing geothermal installed capacity to 3,000 MW (from the current 1335 MW) by 2023
- Maximizing the use of hydropower
- Increasing wind installed capacity to 16,000 MW (from the current 7,155 MW) by 2027
- Increasing solar installed capacity to 16,000 MW (from the current 5,435 MW) by 2027

Three different investment models are in place in Turkish renewable energy market in this new period: unlicensed, licensed, and the RE-Zone (YEKA) model.

In my dissertation, I will provide a value to literature by increasing importance of renewable energy sources for nature, human and world. I will try to look the impact of renewable energy on economic growth specific to Turkey. Using clean, renewable energy is one of the most important actions you can take to reduce your impact on the environment. Electricity production is our first source of greenhouse gases, more than all of our driving and flying combined, and clean energy also reduces harmful smog, toxic buildups in our air and water, and the impacts caused by coal mining and gas extraction. But replacing our fossil-fuel infrastructure will take time—and strong, consistent support from both state and federal mandates to build renewable energy generation and demand for clean energy from consumers and businesses. Renewable energy sources can be used to produce electricity with fewer environmental impacts. It is possible to make electricity from renewable energy sources without producing carbon dioxide (CO2), the leading cause of global climate change. Renewable energy provides reliable power supplies and fuel diversification, which enhance energy security, lower risk

of fuel spills, and reduce the need for imported fuels. Renewable energy also helps conserve the nation's natural resources.

Turkey has a substantial amount of renewable energy potential, and utilization of this potential has been on the rise over the last decade.

The Ministry of Energy and Natural Resources issued a Regulation. Renewable Energy Resource Zones on October 9, 2016 in the Official Gazette. The Regulation introduced a new investment model to support renewable energy investments and incentivize local manufacturing of renewable generation assets. The main purposes of the Regulation have been identified as follows: to commission renewable energy resources much more efficiently and effectively through identification of renewable energy zones on the public, treasury, or private-owned territories; to realize the renewable energy investments much more rapidly; to manufacture renewable energy equipment in Turkey; to use locally-manufactured equipment/ components; and to contribute to research and development activities through technology transfer.

In literature, Hondroyiannis, (2002) He has worked on the correlation between Greece's energy consumption and economic growth between 1960-1996, by the mean of vectoral error correction model. Empirical evidences show that in long run considered variables are co-integrated, and energy consumption has a significant role in economic growth.

In addition to the above study, GENCOGLU, (2003) and ERTURK, (2008) have analyzed the potential and forecasting future resources. GENCOGLU, (2003) He has stated following opinions about importance of renewable energy sources for Turkey, who is rich in terms of diversity and potential of these sources. Turkey has 8% of World geothermal energy sources; also due to his geographical advantage, we get good amount of solar energy. Turkey is one of the rara countrie's for hydrolic energy. Wind energy potential is calculates as 160 TWh. In this research each type of energe source is reviewed separately; the possibilities for more efficient usage is analysed in terms of their current status and future potential.

ERTURK, (2008) He has studied following topics in his research named Turkey's alternative energy production opportunities and facilities. Energy is one of the basic inputs for economic and social development;

used in industry, housing and transportation. But fossil fuels cause environmental pollution during conversion and consumption state. Especially energy conversion plants may cause cross boundries acid rains. In order to solve these problems it is essential to head for renewable energy sources. This research shows the role of energy sources in the past worldwide consumption and energy forecasts according to future sources.

3. Literature Review

Renewable energy has become very hot topic for 20 years. Renewable energy has been analysed in different aspects, data and methodology. However, the most attractive topic has become searching the relationship between the growth and the renewable energy. They are summarized below.

Rafiq, Salim and Bloch (2014) by the method of multi variable vectoral error correction model are studied in China dnd India between 1972-2011. India's renewable energy Technologies contribution to its development; and China's clean Technologies adoption related to production and carbon emission, have impact on their sustainable development.

Akar, (2016), Dynamic parallel data analysis is applied to Balkan countries between 1998-2011. It is determined that there is a negative and meaningfull relation between economic growth and renewable energy consumption.

Cadoret and Padovana (2016), Paralel data analysis is applied to 26 EU countries between 2004-2011. It is studied that manufacturing industry loby activities delay renewable energy management. In addition , according to environment and energy policies analysis income per capita has a negative impact on renewable energy distribution.

Lin, Omoju and Okonkwo (2016), Time series analysis and Vectoral error correction are applied to study in China between 1980 and 2011. It is concluded that in China, financial development has positive impact on renewable energy's share on electricity consumption; as well as in GDP and foreign investment.

Papiez, Smiech and Frodyma (2018); simple linear regression analysis is applied to EU countries sample group between 1995-2014. As per this research, renewable energy growth is the main indicator to define the

components of energy sources mix. These are the GDI, SWI and energy consumption cost of fossil fuel.

Hondroyiannis, (2002) He has worked on the correlation between Greece's energy consumption and economic growth between 1960-1996, by the mean of vectoral error correction model. Empirical evidences show that in long run considered variables are co-integrated, and energy consumption has a significant role in economic growth.

Lau vd (2018) , Co-integration analysis, Autoregressive distributed delayed boundries test, Granger causality test, are applied to Malaysia between 1980-2015. According to this study, economic growth and direct foreign investment are the main components of renewable electricity consumption. It is determined that renewable electricity consumption has negative impact on trade deficit in long run. 12

The second attractive topic related to renewable energy is efficiency and utilization. They are mainly conducted by Rafiq and Alam (2010), Mehrara, Rezaei and Razi (2015), Marwues vd. (2011) and ALTAS, (1998).

Rafiq and Alam (2010) by using Parallel data and time series analysis he analysed Brasil, China, India, Indonesia, Philippines and Turkey as sample group between 1980-2006. This study comes to the conclusion that developping countries efforts to decrease carbon density is related to their increase of renewable energy efficiency.

Mehrara, Rezaei and Razi (2015), using Average most smaller squares technique and Bayesci model average technique, OECD countries are studied bewteen 1992-2011. It is stated that rural population, enviromental institutions and human capital are the most important variables affecting renewable energy consumption. Also, adverse effect of CO2 emmission have impact on its utilization increase.

Marwues vd. (2011), by the mean of Dynamic data analysis, 24 countries (21 EU countries and Turkey, Switzerland and ıceland) are sampled between 1990 and 2006. In this study it is stated that , especially at the beginning, encouriging policies to endorse the utilization of renewable energy sources should be supported against pressures from fossil fuel lobies.

ALTAS, (1998) In his study " Renewable energy sources and Turkey's potential " : In today's actual bottleneck about energy , he has pursued

his research about utilization rate of renewable energy sources; wind and solar energy, and existing related projects; as well as Turkey's compatibility for these energy sources. He put forth that our renewable energy sources are could respond to the needs of the country.

In addition to the above studies GENCOGLU, (2003) and ERTURK, (2008) have analyzed the potential and forecasting future resources. GENCOGLU, (2003) He has stated following opinions about importance of renewable energy sources for Turkey, who is rich in terms of diversity and potential of these sources. Turkey has 8% of World geothermal energy sources; also due to his geographical advantage, we get good amount of solar energy. Turkey is one of the rara countrie's for hydrolic energy. Wind energy potential is calculates as 160 TWh. In this research each type of energe source is reviewed separately; the possibilities for more efficient usage is analysed in terms of their current status and future potential.

ERTURK, (2008) He has studied following topics in his research named " Turkey's alternative energy production opportunities and facilities. Energy is one of the basic inputs for economic and social development; used in industry, housing and transportation. But fossil fuels cause environmental pollution during conversion and consumption state. Especially energy conversion plants may cause cross boundries acid rains. In order to solve these problems it is essential to head for renewable energy sources. This research shows the role of energy sources in the past worldwide consumption and energy forecasts according to future sources.

4. Methodology and Conclusion

In this study about the impact of renewable energy on economic growth, ARDL boudary test; developped by Pesaran (2001) will be utilized. This test is more convenient in comparison to co-integration methods, developped by Engle & Granger (1987) and Johansen (1988). The reason is that, it is able to test the existace of co-integration relation give that series stability level is different.

In order to detect an existance of co-integration relation between series, by the mean of ADRL boundary test, first; an unlimited error correction model is to be builted. Evidences about the existance of co-integra-

tion between variables will be obtained and, accordingly, short term and long term ARDL models will be created.

Economic analysis suggests that there is a long run relationship between variables under consideration as stipulated by theory. This means that the long run relationship properties are intact. In other words, the means and variances are constant and not depending on time. However, most empirical researches have shown that the constancy of the means and variances are not satisfied in analyzing time series variables.

In the event of resolving this problem most cointegration techniques are wrongly applied, estimated, and interpreted. One of these techniques is the Autoregressive Distributed Lag (ARDL) cointegration technique or bound cointegration technique. Hence, this study reviews the issues surrounding the way cointegration techniques are applied, estimated and interpreted within the context of ARDL cointegration framework. The study shows that the adoption of the ARDL cointegration technique does not require pretests for unit roots unlike other techniques. Consequently, ARDL cointegration technique is preferable when dealing with variables that are integrated of different order, I(0), I(1) or combination of the both and, robust when there is a single long run relationship between the underlying variables in a small sample size.

In this study about the impact of renewable energy on economic growth, also Granger Causality test will be applied. Causality between two variables X and Y can be proved with the use of the so-called Granger causality test, named after the British econometrician Sir Clive Granger. This test makes use of Student's t-statistic and F-statistic tests and testifies when values of the variable X provide statistically significant information about the evolution of the future values of the variable Y. Let us assume that Y and X are two variables having stationary time series of data or observations. To test the null hypothesis that X does not Granger-cause Y, we first find the appropriate p lagged values of Y (the order p of the AR(p) process) to include in an AR(autoregression) process of Y.

In order to detect an existance of causal inference relation between series, Granger Causality test will be applied. It was fairly quickly understood that, unlike correlation, regression has a natural direction: the regression of Y on X does not pro- duce coefficient estimates that are the

algebraic inverse of those from the regression of X on Y. The direction of regression should respect the direction of causation.

We should once again distinguish between correlation and causality. Correlation is the existence of a mutual relationship or connection between two or more processes or phenomena that tend to vary, be associated, or occur together in a way not expected on the basis of chance alone. Causality (referred to also as cause and effect) is the rational relationship between two processes, the first of which (the cause) is partially or totally responsible for the second, while the second is partially or totally dependent on the first. A process can have many causes, which beginning from the past can determine quantitatively the evolution of effects in the future. Causality cannot exist without a form of correlation; however, any correlation does not mean the existence of causality. In addition, causality cannot exist unless the cause happens prior to its effect and moreover it provides statistically significant information about its effect

The null hypothesis that variable X does not Granger-cause variable Y is accepted when no lagged values of the variable X are retained, after the application of t-statistic and F-statistic tests, in Eq. (7.4). Otherwise, we reject the null hypothesis in favor of the alternative, and we conclude that variable X Granger-cause variable Y and thus the future values of variable Y are depended on the present values of variable X.

Annual renewable energy sources of wind power energy, hdyro power energy and sun power energy production capacity data series from 2010 to 2020, eligibility threshold and market openness data series from 20010 to 2020 will be used in the study. On the other side Gross Domestic Product (GDP) growth, Capital and Labor series will be used in the study. The main data series are mostly taken from Energy Ministry of Turkey, Energy Market Regulator (EMRA) and Turkish Statistic Institute (TUIK), EWEA, GWEC, WWEA and others. 1

Hypothesis;

H0: There is no relationship between economic growth and renewable energy sources

H1: There is a relationship between economic growth and renewable energy sources

The dependent variable, GDP (Production), will be explain with the help of following independent variables;

The independent variable, Renewable Energy Sources (Wind Power Production+Sun Power Production+Hydro Power Production)

Labor

Capital,

Standard error (ui)

$GDP = \beta 0 + \beta 1W + \beta 2S + \beta 3H + \beta 4K + \beta 5L + ui$

Independent Variables are RES (renewable energy sources) (YEKA in Turkish) items as S (sun), W (wind) and H (hydro) additionally labor and capital are also taken as independent variable. GDP (gross domestic product) is dependent variable and yearly datas of dependent and independent variables will be used.

RES S+W+H & L & K independent variable

GDP dependent variable

Firstly t test and F test will be applied after test results will demonstrate the number of variables are decreased or increased. Therafter I will try to apply Granger Causality and ADRL Test for my hypothesis conclusion.

"DÖNGÜSEL EKONOMİNİN İNSAN BOYUTU ÜZERİNE BİR İNCELEME"

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Özet

Döngüsel ekonominin önemi ile ilgili yapılan araştırmaların, son yıllarda ilgili yazında oldukça arttığı bilinmektedir. Genel anlamda sürdürülebilirlik açısından, daha mikro seviyede ise çevresel ve ekonomik kaygılarla, döngüsel ekonomiye duyulan ilgi gün geçtikçe daha da önem kazanmaktadır. Ancak döngüsel ekonominin örgütler bazında tam olarak benimsenebilmesi için insan kaynakları yönetim fonksiyonu ile ilişkilendirilmesi gerekmektedir. Döngüsel ekonominin, yeşil insan kaynaklarının desteğine ihtiyaç duyduğu düşünülmektedir. İlgili yazında ise, henüz bu ilişkinin yeteri kadar ele alınmadığı görülmektedir. Bu makalenin ana amacı, yeşil insan kaynakları yönetimi (Yeşil İKY) olarak literatürde geçmekte olan konseptin, döngüsel ekonomi ile gerekli uyumunun ele alınması ve döngüsel ekonomik iş modelleri açısından hem uygulayıcılara hem de akademisyenlere bilimsel bir kaynak olarak katkı sağlayarak, ampirik çalışmalara da ışık tutacağı düşüncesi ile önermeler ortaya koymaktır.

Anahtar Kelimeler: *döngüsel ekonomi, sürdürülebilirlik, yeşil insan kaynakları yönetimi*

Abstract

It is known that research on the importance of circular economy have increased considerably in the related literature in recent years. In terms of sustainability in general, and environmental and economic concerns at a more micro level, the interest in the circular economy is gaining more importance day by day. However, in order for the circular economy to be fully adopted on the basis of organizations, it must be associated with the human resources management function. It is thought that the circular economy needs the support of green human resources. In the related literature, it is seen that this relationship has not been sufficiently addressed yet. The main purpose of this article is to discuss the necessary compatibility of the concept of green human resources management (GHRM) in the literature with the circular economy and to make propositions with the idea that it will shedlight on empirical studies by contributing to practitioners and academicians as a scientific resource in terms of circular economic business models.

Keywords: *circular economy (CE), sustainability, green human resources management (GHRM)*

1. GİRİŞ

Sınırlı kaynakların optimum seviyede kullanılma amacı günümüz örgütlerinin ekonomik faaliyetlerini sürdürürken göz önünde bulundurmaları gereken en önemli hususlardan biridir. Her organizasyon amaçlarına ulaşmak için doğaya, çevreye ve doğal kaynaklara ihtiyaç duymaktadır. Bu noktada, bu ihtiyacın çevresel dönüşüme katkı sağlayarak, söz konusu doğal kaynaklara mümkün olduğunca en az seviyede zarar vermesi amaçlanmaktadır. Bu bağlamda örgütlerin en önemli fonksiyonlarından biri olan insan kaynakları departmanlarına da oldukça büyük bir görev düştüğü bilinmektedir. Yeni iş alanları, yeni yetkinlikler, yeşil kültür, yeşil işler ya da diğer adıyla yeşil yakalı işlerin ortaya konulması ile yeşil insan kaynakları uygulamalarının etkinliği de günümüzde önem kazanmaktadır. Sürdürülebilir yeşil ekonominin örgütler tarafından sağlıklı bir şekilde uygulanabilmesi için önem kazanan yaklaşımlardan biri de yeşil insan kaynakları uygulamaları olmaktadır.

Yeşil insan kaynakları uygulamaları ile örgütlerde daha az sayıda doğal kaynak kullanımı, çevreye ve topluma daha duyarlı ve sorumlukları çerçevesinde daha hassas çalışanların varlığı ve sayılarının arttırılması hedeflenmektedir. Bu bağlamda bu kültürü yaratabilmek için bu şekilde düşünce yapısına sahip çalışanların ihtiyaç duyduğu yetkinlikler, insan kaynağı yönetimi açısından önem kazanmaktadır.

Bu çalışmada, yeşil insan kaynakları yönetimi, amaçları, yeşil işlerin neler olduğu ve bu işleri yerine getirebilmek adına çalışanların hangi yetkinliklere sahip olmaları gerektiği açıklanarak; döngüsel ekonomi ile gerekli uyumunun ele alınması ve döngüsel ekonomik iş modelleri açısından hem uygulayıcılara hem de akademisyenlere katkı sağlamak amaçlanmaktadır.

2. KAVRAMSAL ÇERÇEVE

2.1 Döngüsel Ekonomi

Çevre ve ekonominin birbirleriyle oldukça yakın ilişkileri bulunmaktadır. Kullanılan malzemelerin azaltılması, o malzemeleri yeniden kullanabilmesi ve geri dönüşüm sürecine ilişkin 3R (reduce, reuse, recycle) ilkeleri bağlamında döngüsel ekonomi (DE), bu iki kavramın arasındaki güçlü bağın ne denli kuvvetli olduğunu ortaya koymaktadır (Gürül, 2019).

Turnerve Pearce(1990) döngüsel ekonomi kavramını literatüre ilk kez kazandırmışlardır. Söz konusu çalışmalarında, doğal kaynakların ekonomi içindeki yerini açıklayarak, sistemin nasıl çalıştığı kavramını tanımlamış ve doğal kaynakların ekonomi ile olan yakın etkileşimi ve etkilerini belirtmişlerdir.

Döngüsel ekonomi (DE); Avrupa Birliği, pek çok gelişmiş ülke ve aynı zamanda dünya çapında faaliyet göstermekte olan birçok işletme tarafından teşvik edilen bir kavramdır. Döngüsel ekonomi, sürdürülebilir çevresel ve ekonomik kalkınma ile uyumlu bir ekonomik büyüme yaklaşımı olarak önerilmektedir (EMAF et al., 2015; EMAF, 2013; EMAF, 2012; CIRAIG, 2015; COM, 2015; COM, 2014). Günümüz modern ekonomi sisteminin artık sürdürülemez olduğu akademik çevreler, işletmeler, ülkeler bazında son dönemde sıkça tartışılmaktadır. Dolayısı ile artık sürdürülmesinin mümkün olmadığı düşünülen günümüz modern ekonomi sisteminin alternatifi olarak döngüsel ekonomi modeli yeni bir akış modeli olarak kabul görmektedir (EMAF et al., 2015; EMAF, 2013; EMAF, 2012; CIRAIG, 2015).

Döngüsel ekonomi, doğrusal doğa-toplum, doğa-malzeme ve enerji üretim akışından üretilen hizmeti maksimize eden, toplumsal üretim-tüketim sistemlerinden inşa edilen bir ekonomidir. Döngüsel malzeme akışları, yenilenebilir enerji kaynakları ve çeşitli enerji akışları kullanılarak yapılır. Başarılı döngüsel ekonomi, sürdürülebilir kalkınmanın üç boyutuna da katkıda bulunur. Döngüsel ekonomi, üretim akışını doğanın tolere ettiği ve ekonomik döngülerdeki ekosistem döngülerini doğal üreme oranlarına saygı göstererek kullandığı bir düzeye sınırlar (Korhonen, Honkasalo, &Seppälä, 2018)

2.2 Yeşil İnsan Kaynakları Yönetimi (Yeşil İKY)

Yeşil İKY, kuruluşlar içinde kaynakların sürdürülebilir kullanımını ve daha genel olarak çevresel sürdürülebilirliğin nedenlerini teşvik etmek için İKY politikalarının kullanılması şeklinde tanımlanmaktadır (Marhatta&Adhikari, 2013). Yeşil İKY, yeşil inisiyatifi anlayan, takdir eden ve uygulayan yeşil işgücünün yaratılmasından doğrudan sorumludur. Aynı zamanda şirketin insan sermayesini oluşturmak için; işe alma, eğitim, ücretlendirme, gelişim, performans yönetimi, ödüllendirme ve kariyer planlama gibi tüm İKY süreçleri boyunca yeşil hedeflerini sürdürür

(Mathapati, 2013). Bir başka tanıma göre Yeşil İKY; birey, toplum, doğal çevre ve işletme yararına örgütün çalışanlarını yeşil yapan tüm politika, uygulama ve sistemleri ifade etmektedir (Opatha&Arulrajah, 2014).

Yeşil işe alım, bir örgüt içindeki çevre yönetim sistemleri çerçevesinde; uygun bilgi, beceri, yaklaşım, tutum ve davranışlara sahip çalışanların işe alınması süreci olarak tanımlanmaktadır. İşe yeni girenlerin bir örgütün sahip olduğu çevre kültürüne aşina olabilmeleri ve çevresel değerlerini koruyabilmek adına işe alım uygulamaları, etkili çevre yönetimine katkı sağlayabilir (Wehrmeyer, 1996).

Yeşil performans yönetimi, bir örgütün çevresel kaygıları ve politikalarını kapsayan konseptlerden oluşur. Aynı zamanda çevresel sorumlulukların kullanımına da odaklanmaktadır. Epstein ve Roy (1997) çalışmalarında, İnsan Kaynakları yöneticileri çevresel performansı, performans yönetim sistemlerine entegre ettiklerinde, çevre yönetimini herhangi bir sıkıntı ve/veya probleme karşı koruyabildikleri sonucuna varmışlardır. Günümüzde bazı örgütler, kurumsal çapta çevresel performans standartları ve çevresel performans hakkında faydalı veriler elde etmek için Yeşil bilgi sistemleri/denetimleri kurarak, performans yönetimi konusuyla ilgilenmektedir (Marcus&Fremeth, 2009).

Yeşil eğitim ve geliştirme, iş görenleri çevresel yönetim değerleri hususunda bilgilendirir, onları enerji tasarrufu sağlayan, atıkları azaltan, çevre bilincini örgüt içinde yayan ve iş görenleri çevresel problem çözme sürecine dahil etme fırsatı sağlayan çalışma yöntemleri konusunda eğitir (Zoogah, 2011). Yeşil eğitim ve geliştirme faaliyetleri, iş görenleri çevre yönetiminin farklı yönleri ve değeri konusunda bilinçlendirir. Bir kuruluş içinde atık yönetimi de dahil olmak üzere farklı koruma yöntemlerini benimsemelerine yardımcı olur. Ayrıca, bir iş göreninin farklı çevresel sorunlarla başa çıkma kapasitesini geliştirir.

Yeşil İKY bağlamında, ödüllendirme, örgütlerdeki çevresel faaliyetleri desteklemek için potansiyel araçlar olarak kabul edilir. Ödül ve yönetim için stratejik bir yaklaşıma uygun olarak, modern örgütler, iş görenleri tarafından başlatılan çevre dostu girişimleri teşvik etmek için ödül sistemleri geliştirmektedir. Çalışanlara çevre sorumluluğu ile ilgili görev almaları için ücret teklif edildiğinde, çevre yönetimi programlarına bağlılığın arttığı gözlemlenmiştir (Forman &Jorgensen, 2001).

2.3 Döngüsel Ekonomi ve Yeşil İnsan Kaynakları Yönetimi İlişkisi

Yeşil İKY ve döngüsel ekonominin belirli benzerlikleri vardır ve ayrıca belirli sinerjiler de üretebilirler. Hem sürdürülebilir insan kaynakları (Huselid, 1995) hem de döngüsel ekonomi, firmaların performansını (Despeisse vd., 2017) ve rekabet avantajını (Tse vd., 2015) etkileyebilir. Döngüsel bir ekonomide faaliyet gösteren şirketlerin, özellikle kullanılmış ürünler ve malzeme akışlarından dolayı kaynaklardaki göreceli artış olasılıkları göz önüne alındığında, doğrusal bir ekonomide faaliyet gösteren şirketlerden çok daha iyi durumda olacaklarını öngörmek mümkündür (McKinsey, 2017; Nasir vd., 2017).Döngüsel ekonomi, işletmelerin toplumdaki rolünü yeniden şekillendirerek, örgütsel sürdürülebilirliğe katkıda bulunmaktadır (Koh ve diğerleri, 2017; Winans ve diğerleri, 2017; Rothenberg ve diğerleri, 2017). Bu kavramsal çerçeve bağlamında çalışmanın önermesi şu şekildedir

Önerme: Yeşil insan kaynakları yönetimi ile döngüsel ekonomi performansı arasında olumlu yönde bir ilişki vardır.

3. SONUÇ VE TARTIŞMA

Bu çalışmada yer alan önermenin yürütülecek ampirik araştırma ile sonuçlarının ortaya konmasının hem akademik hem de uygulayıcılar için faydalı çıkarımlar sağlayacağı düşünülmektedir. Teorik bir perspektiften Yeşil İKY uygulamalarının çevresel ve ekonomik anlamda döngüsel ekonomi performansına katkısı açısından oldukça az sayıda çalışma bulunmaktadır. Dolayısı ile çalışmada yer alan önermenin ampirik olarak çalışılmasının ilgili literatüre katkı sağlayacağı düşünülmektedir. Öte yandan, yönetimsel bir bakış açısıyla daYeşil İKYfaaliyetlerinin zayıf ve güçlü yönlerinin belirlenmesine bağlı olarak örgütler açısından öne çıkan uygulamalarındaha yaygın bir şekilde kullanımını sağlamaya yönelik stratejiler geliştirebilmeleri için de katkı sağlayacağı düşünülmektedir.

Öte yandan, yeşil performans değerlendirmesine ilişkin gelecekteki araştırmaların çevresel olaylar, çevresel sorumluluklar, çevre politikasının iletişimi ve yeşil bilgi sistemi ve denetimler gibi konulara odak-

lanması önerilmektedir. İş tanımı, yeşil görevler ve ulaşılacak hedeflerle uyumlu olmalıdır. İK personeli, performans değerlendirme derecelendirme sistemini; ekip çalışması, iş birliği, çeşitlilik, yenilikçilik ve çevre yönetimi gibi davranışsal ve teknik yeterliliklere ilişkin derecelendirme boyutlarını içerecek şekilde değiştirmelidir.

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"FINANCIAL ASPECTS OF ENVIRONMENTAL, SOCIAL AND GOVERNANCE CRITERIA: TURKISH CASE"

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Abstract

A company's environmental, social and governance (ESG) criteria has become an important part of the decision-making process of any financial statement user in recent years. The global shift of people's view to act consciously to society and nature, accelerated the progress of green and sustainable financial reporting. Many researchers around the world are wondering if these ESG criteria have a positive impact on company's corporate financial performance. If so, it would be a great incentive for the firm's to be aware of the consequences of their economic activities, and to correct their actions in accordance to the public opinion. Some studies have supportive evidence of a positive relationship between ESG criteria and financial performance. In the other hand, there are also some studies that have conflicting results. There is little information in this area regarding the situation in Turkey. In this study we aim to evaluate the impact of ESG criteria on financial performance of firms quoted

on Borsa Istanbul Stock Exchange. The dataset, which is obtained from Thomson Reuters database, consists of 15 non-financial firms for the period between 2011-2020. For the total of 150 firm-year observations, panel data analysis is employed to investigate how ESG criteria, which is proxied by ESG scores, affects financial performance of companies, which is measured by return on assets and return on equity. The results for both of our models show that in Turkey, there is a significant and positive relationship between environmental, social and governance criteria and financial performance of the selected firms for the analysis period.

Keywords: *esg criteria, financial performance, borsa ıstanbul stock exchange, panel data analysis*

Öz

Bir şirketin çevresel, sosyal ve yönetişim (ÇSY) kriterleri, son yıllarda tüm finansal tablo kullanıcılarının karar verme sürecinin önemli bir parçası haline geldi. Dünya çapında insanların topluma ve doğaya karşı bilinçli hareket etme yönünde değişen bakış açıları, yeşil ve sürdürülebilir finansal raporlamadaki ilerlemeye ivme kazandırdı. Birçok araştırmacı, bu ÇSY kriterlerinin şirketlerin kurumsal finansal performansı üzerinde olumlu bir etkisi olup olmadığını merak ediyor. Şayet öyleyse, firmaların ekonomik faaliyetlerinin sonuçlarının farkında olmaları ve kamuoyunun fikrine göre eylemlerini düzeltmeleri açısından teşvik edici bir faktör olacaktır. Bazı çalışmalar, ÇSY kriterleri ile finansal performans arasında pozitif bir ilişki olduğuna dair destekleyici sonuçlara varmıştır. Öte yandan, çelişkili sonuçları olan bazı çalışmalar da vardır. Bu alanda Türkiye'deki durumla ilgili çok az bilgi bulunmaktadır. Bu çalışmada, Borsa İstanbul Menkul Kıymetler Borsası'na kote firmaların ÇSY kriterlerinin, finansal performansları üzerindeki etkisinin değerlendirilmesi amaçlanmıştır. Thomson Reuters veri tabanından elde edilen veri seti, 2011-2020 dönemi için finansal olmayan 15 firmadan oluşmaktadır. Toplam 150 firma ve yıl gözlemi için, ÇSY puanlarının temsil ettiği ÇSY kriterlerinin, seçilen firmaların varlık karlılığı ve öz kaynak karlılığı ile ölçülen finansal performansını nasıl etkilediğini araştırmak için panel veri analizi tekniği kullanılmıştır. Her iki modelimizin sonuçları da Tür-

kiye'de seçilen firmaların çevresel, sosyal ve yönetişim kriterleri ile analiz dönemi için finansal performansları arasında anlamlı ve pozitif bir ilişki olduğunu göstermektedir.

Anahtar Kelimeler:*çsy kriterleri, finansal performans, borsa istanbul menkul kıymetler borsası, panel veri analizi*

1. Introduction

In the recent years, company's environmental, social and governance (ESG) criteria has become an important part of the decision-making process of any financial statement user. The ESG criteria is an indicator of a company's environmental and social responsibility (Friede, Busch, & Bassen, 2015). As global warming becomes a topic highly debated, and renewable energies getting financially viable. The public requires the corporations to be held responsible of their economic activities for the consequences to nature and humanity. In Turkey the abundance of news about natural disasters, pollution, income inequality and increasing unemployment rates of university graduates are worrying. That's why the assessment of corporation's social and environmental responsibility is becoming an important aspect (Aktaş, Kayalidere, & Karğin, 2013).

The structure of this study is as follows: the literature review section is devoted to the literature and empirical findings regarding the relationship between environmental, social and governance criteria and financial performance. In Section 3 the hypothesis has been developed in accordance with previous literature. Methodology and analysis are extensively described step by step in Section 4. Results are interpreted in Section 5. Lastly in Section 6, concluding remarks have been mentioned.

2. Literature Review

In literature there have been many studies carried out, both empirical and theoretical, to try to understand the relationship between ESG criteria and corporate financial performance.Many of these studies examined the potency, sequence, and relationship causality, which resulted in both supportive and conflicting evidence (Yoo & Managi, 2021). Thus, it is difficult to give a final verdict to the relationship between thevariables beforehand, as empirical studies on the relationship between ESG criteria and corporate financial performance have not shown definite results.

Based on our literature review some of the empirical research argue about the positive link between ESG criteria and financial performance(Landi & Sciarelli, 2019; Zhao, et al., 2018; Dalal & Thaker, 2019). This positive link has been explained by the hypothesis of social impact, which was based on the instrumental stakeholder theory (Donaldson & Preston,

1995). According to these theories, addressing the needs of various stakeholder parties would influence financial results to the better based on high productivity and efficiency. In the other hand, ignoring the demands of stakeholders may harm company's corporate financial performance. Firms that are addressing these environmental, social and governance criteria will also boost their public image that will protect the businesses from unexpectedthreats and lay the groundwork for new opportunities.

As for the negative ESG criteria and financial performance link, various studies have disclosed evidence(Balatbat, Siew, & Carmichael, 2012; Duque-Grisales & Aguilera-Caracuel, 2021; Saygili, Arslan, & Birkan, 2021). They argued that factors that increase ESG scores are not cost effective and that they increase the workload on administration. This is backed by the trade-off hypothesis where it is proposed that the more a company engages with activities that result on an increase on ESG scores the worse their corporate financial position is going to be (Myers, 1984). They argue that the sole purpose of a company is to maximize shareholder's wealth. Because these practices do not contribute to the companies' economic activities. It is seen as a waste of the investment of the shareholders.

3. Hypothesis Development

Numerous empirical studies researched the financial aspects and the effects of ESG criteria on a firm's corporate financial performance. The results of these studies are conflictive. Some of them had results that support a positive relationship, where some of the studies have supportive evidence of a negative relationship.

In this paper we are going to hypothesize like many other research in the area(López-Toro, Sánchez-Teba, & Benítez-Márquez, 2021; Zubeltzu-Jaka, Andicoechea-Arondo, & Alvarez Etxeberria, 2018; Garcia & Orsato, 2020), that there is a positive relationship between environmental, social and governance criteria and corporate financial performance. Below there are two hypotheses generated in accordance with the analysis models later described in the paper:

Hypothesis 1: There is a positive relationship between ESG scores and Return on Assets

Hypothesis 2: There is a positive relationship between ESG scores and Return on Equity

4. Methodology

The dataset for this research consists of 15 non-financial Turkish companies for the period of 2011-2020. The data used in our analysis was obtained from Thomson Reuters Database. STATA 16 statistics software was used to run the panel data analysis. The data is strongly balanced (there is no missing data across all the 150 firm-year observations). The study aims to investigate the relationship between ESG criteria and corporate financial performance. Two models were used to test this connection. One where the dependent variable was measured using return on assets, and one where it is measured by return on equity (Siew, Balatbat, & Carmichael, 2013). Both ratios are a common profitability measurement and comparison tool in finance. Environmental, social and governance criteria is proxied by ESG scores (Aybars, Ataünal, & Gürbüz, 2019)which are calculated and published by Thomson Reuters. Other factors, namely, firm size and leverage, which can have an impact on a firm's financial performance are included in our analysis in the form of control variables. Variables used in this study with their abbreviations and definitions are summarized in Table 1 below.

Variable	Abbreviation	Definition
Dependent Variables		
Return on Assets	ROA_{it}	Net income/total assets for firm i at year t
Return on Equity	ROE_{it}	Net income/shareholder's equity for firm i at year t
Independent Variable		
Environmental Social and Governance Criteria	ESG_{it}	ESG score for firm i at year t
Control Variables		
Firm Size	$SIZE_{it}$	Natural logarithm of total assets for firm i at year t
Leverage	$LEVERAGE_{it}$	Total debt/Total assets for firm i at year t

Table 1: The Variables and Their Abbreviations Used in This Study

Our research hypotheses were tested to find out the relationship between environmental, social and governance criteria and financial performance. Models below shows the functional representation of our hypotheses.

Model 1:

$$ROA_{it}=\beta_0+\beta_1 ESG_{it}+\beta_2 SIZE_{it}+\beta_3 LEVERAGE_{it}+u_{it}$$

Model 2:

$$ROE_{it}=\beta_0+\beta_1 ESG_{it}+\beta_2 SIZE_{it}+\beta_3 LEVERAGE_{it}+u_{it}$$

In our analysis we looked for multicollinearity which can be described as correlation between independent and control variables. Multicollinearity, if present in the model, can severely distort the analysis results. In our case we tested our model using Variance Increasing Factor (VIF) and the results shows that there is no multicollinearity in the model. Secondly Likelihood-ratio test was run to identify the estimator to be used. Results indicated that for both models, there was a presence of unit effects. For our first model, Hausman test demonstrated that the unit effects were at random, and for the second model the results show that the unit effects were fixed.

To test the deviations from the basic assumptions of panel data analysis, firstly we ran a Jarque-Bera normality test. According to the test we concluded that the dataset was normally distributed. For heteroskedasticity we used Wald test. For both models results indicated the presence of heteroskedasticity. Pesaran, Friedman and Frees tests were used to look for cross-sectional independence, and it was revealed that the dataset was free from cross-sectional independence. Lastly, the test for autocorrelation of Baltagi and Durbin-Watson were performed. According to the test results both models suffered from autocorrelation. Under the deviations of heteroskedasticity and autocorrelation, a robust standard errors estimator (Tatoğlu, 2020), Driscool-Kraay was used for the models to conduct the regression analysis.

5. Results

Table 2 portrays the results of our first model. The findings support our initial hypothesis which stated the positive relationship of environmental, social and governance criteria and corporate financial performance. The results demonstrate the positive and significant impact of ESG scores on financial performance of selected non-financial Turkish companies quoted on BorsaIstanbul Stock Exchange for years 2011-2020.

Regression with Driscoll-Kraay standard errors			
Dependent Variable: ROA			
Variables	**Coefficients**	**Standard Errors**	**T Statistics**
ESG	0,0002408**	0.0000831	2.90
SIZE	-0,0355554***	0.0045096	-7.88
LEVERAGE	0,0107689*	0.0052418	2.05
Constant	0,4043691***	0.0366776	11.02
Number of observations	150		
Number of groups	15		
Wald chi2	86,93		
Prob > chi2	0,0000		
Legend	**p<0,1; **p<0,05; ***p<0,01*		

Table 2: Results of The Random-Effects Panel Data Analysis for The Dependent Variable ROA

The control variables, both firm size and leverage had statistically significant impact on corporate financial performance. Firm size had a negative influence on financial performance, where leverage had a positive influence for the observation period of the selected firms.

Below, Table 3 displays the results of our second model. In line with our first model the results of the second model also showsthe positive relationship of environmental, social and governance criteria and corporate financial performance. The results again demonstrate, the positive

and significant impact of ESG scores on financial performance of selected non-financial Turkish companies quoted on Borsa Istanbul Stock Exchange for years 2011-2020.

Regression with Driscoll-Kraay standard errors			
Dependent Variable: ROE			
Variables	**Coefficients**	**Standard Errors**	**T Statistics**
ESG	0,0019648**	0.0006008	3.27
SIZE	-0,0997099***	0.0210485	-4.74
LEVERAGE	-0,0117475	0.0198879	-0.59
Constant	1,139937***	0.2132787	5.34
Number of observations	150		
Number of groups	15		
F	9.78		
Prob >F	0,0034		
Legend	**p<0,1; **p<0,05; ***p<0,01*		

Table 3: Results of The Fixed-Effects Panel Data Analysis for The Dependent Variable ROE

In our second model only one of our control variables, firm size, was found to have a statistically significant influence on financial performance. It had a negative effect on financial performance in line with our first model for the selected companies during the observation period.

The results of our research, which portrays the environmental, social and governance criteria as an impact factor of corporate financial performance for the selected companies quoted in Borsa Istanbul Stock Exchange is supportive with other studies applied in different regions and countries around the world (López-Arceiz, et al., 2018; Abdi, Li, & Càmara-Turull, 2021; Almeyda & Darmansya, 2019).

6. Concluding Remarks

As discussed extensively, environmental, social and governance field has been a hot topic for both academicians and administrative bodies. Academicians have found various results such as positive and negative relationship between the ESG criteria and corporate financial performance. In this study we examined the effect of ESG criteria on financial performance of 15 non-financial companies quoted on Borsa Istanbul Stock Exchange, and we hypothesized that the relationship between environmental, social and governance criteria and corporate financial performance was positive.

The empirical evidence of our research analysis is in line with the hypothesis generated, and it reveals the positive relationship, supportive with other works around the world. Hence, it could be concluded that environmental, social and governance criteria has a positive effect on corporate financial performance of the selected Turkish companies quoted on Borsa Istanbul Stock Exchange for the years 2011-2020.

Companies can take in to account these results in their future activities.As it is verified by our analysis, the ESG criteria has a positive impact on financial performance. These results can be interpreted from two different perspectives. It can be said that the investors and consumers in Turkey are becoming more selective and conscious about their investment and consuming behaviors. They are rewarding the companies which are environmentally and socially responsible and punishing the ones who are not.And for the companies it is beneficial, that these practices improve firm's financial performance and the reputation of the company. In this manner Turkish companies should focus on improving their environmental, social and governance scores to be long-lasting and competitive.

For further research, the factors that affect environmental, social and governance criteria can be examined to find out which factors have the most influence on these scores and to give weight to those factors to improve financial performance.

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"A STUDY ON DEVELOPING A BUSINESS MODEL FOR REMANUFACTURED SPARE PARTS SOLUTIONS IN TURKEY"

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Abstract

After-sales spare parts consumption in the automotive sector is increasing day by day within the growing sector. Especially in case of breakdown of spare parts from abroad, it constitutes a serious cost item for vehicle users. In order to reduce these cost items in our country, the number and competence of spare parts revision centers are increasing .Parts undergoing revision in these centers are offered to vehicle users as an alternative product with lower costs.

The "AS SERVICE PRODUCT" model, which is one of the circular economy business models for the automotive spare parts sector in Turkey, needs to be expanded as a prototype. With this model, product life cycles are intended to be extended and thus the amount of waste spare parts will be reduced, the product will be kept in use for the maximum time and the cost per product by the user will be reduced.

In this context, this study aims to examine how spare parts are revised according to product groups under the "AS SERVICE PRODUCT" model. As a result of this examination, the economic benefits provided to the end- users, the benefits to the country's economy and the environ-

ment are revealed.We aim to provide answers to a certain extend to the questions : How does this circular economy business model contribute to waste reduction and optimization of resource efficiency? How does it contribute to extended product life cycles? For this purpose, the results of a case studyare discussed.

Keywords: Circular economy, Remanufacturing, After sales, pare par

Özet

Büyüyen sektör içerisinde otomotiv sektöründe satış sonrası yedek parça tüketimi her geçen gün artmaktadır. Özellikle yurt dışından temin edilen yedek parçalarda arıza olması durumunda araç kullanıcıları için ciddi bir maliyet kalemi oluşturmaktadır. Ülkemizde bu maliyet kalemlerini azaltmak için yedek parça revizyon merkezlerinin sayısı ve yetkinliği artmaktadır. Bu merkezlerde revizyona tabi tutulan parçalar, daha düşük maliyetlerle alternatif bir ürün olarak araç kullanıcılarına sunulmaktadır.

Türkiye'de otomotiv yedek parça sektörü için döngüsel ekonomi iş modellerinden biri olan "Hizmet Olarak Ürün" modelinin prototip olarak yaygınlaştırılması gerekmektedir. Bu model ile ürün yaşam döngülerinin uzatılması amaçlanarak, atık yedek parça miktarı azaltılacak, ürün maksimum süre kullanımda tutulacak ve kullanıcı tarafından ürün başına maliyet düşürülecektir.

Bu bağlamda bu çalışma, "Hizmet Olarak Ürün" modeli altında ürün gruplarına göre yedek parçaların nasıl revize edildiğini incelemeyi amaçlamaktadır. Bu inceleme sonucunda son kullanıcılara sağlanan ekonomik faydalar, ülke ekonomisine ve çevreye sağladığı faydalar ortaya konulacaktır. Bu döngüsel ekonomi iş modeli araştırma sorularına cevap vermeyi amaçlıyoruz.

Anahtar Kelimeler: Döngüsel ekonomi, Yeniden Üretim, Satış sonrası, Yedek parça

Introduction

Remanufacturing is an industrial process in which used products, called cores, are returned to their useful life.Remanufacturing, which can be considered as a kind of reverse logistics activity, is a process that includes the systematic planning, in-process inventory, implementation and control of the flow of raw materials, packaging and finished products from the point of production, distribution or use to the appropriate disposal point or recovery point (Subramoniam et al.,2009).

According to previous studies in the literature, it has been concluded that remanufacturing is a profitable and environmentally friendly production process. It provides not only economic benefits, but also ecological benefits, as it is a situation where a product seen as waste is reused (Subramoniam et al.,2009).

When designing the remanufacturing process, businesses determine their strategies by considering cost savings, environmental and legal obligations (Yusopet al., 2016).

Within this context the main purpose of this study is to introduce a new business model of remanufacturing in the automotive spare parts sector. With the findings obtained and analyzedfrom a case study, a new business model was designed and verified. With this proprosed model, it is aimed to increase the business volumes in a way to meet the demands of the customers by using the remanufactured parts in the independent after-sales market of the authorized services more effectively.

Literature Review

In Remanufacturing process, damaged, repaired or replaced, cleaned parts are partially or completely processed.Although the emergence of remanufacturing is purely economic according to some studies, it is a development that can compensate for the ecological imbalance caused by rapid population growth and excessive consumption of resources and contribute to the circular economy.

As a fundamental process, remanufacturing involves many uncertainties. The process begins with the dismantling of the used product, then those parts are cleaned and quality checked, reusable parts and scrap parts are sorted. After the reusable parts are determined, some of them

go through additional processes and some of them go directly to the assembly process. In the final step, the component parts are assembled, checked for quality and packaged for shipping(Ferrer and Whybark, 2001).

Remanufacturing process consists of 8 steps. Here is a basic sort, but may vary depending on the sequence of steps remanufactured products (Sundin, 2004):

i. Core collection
ii. Investigation and identification of faults
iii. Dismantling of all products
iv. Cleaning of all parts
v. Parts of renewal
vi. Reassembly products
vii. Testing to verify that serves as a new product Products

Core: 'core' is a term used to describe the product or component to be widely performed during the reproduction process.

In the below table Steinhilper (1998), compares remanufacturing with the repair.

REMANUFACTURE	REPAIR
Applicability	
Used products	Defective products
Defective products*	
Process	
Complete disassembly	Failure detection
Cleaning of all parts	Disassembly of some parts
Remediation of parts to as new state / Replenishment of new parts / Upgrading of parts*	Restoration or replacement of defective part
Product reassembly	Reassembly of parts
Characteristics	
Industrialised process	Mechanic's work
Overall restoration to like new condition	Individual repair of defect
Customer receives anonymous product	Customer keeps his/her own product
Like-new or lifetime warranty	Warranty covering repair work only
Upgrading/Upcycling to state-of-art technology	Product retains earlier standard

Table . 1 Compares remanufacturing with repair.

Automotive parts manufacturing can be considered an effective strategy to develop and promote sustainability in the automotive industry. Remanufactured automotive spare parts can be supplied at lower prices, contributing to less material and energy use in the process (Zhang et. Al.,2011)

According to the *resource-based view*, strategic resources among firms in an industry may differ, these resources may be mobile, and as a result, differentiation may take time in the long run. Therefore, the resource-based view suggests that a company can achieve economic sustainability by using resources effectively and efficiently(Barney, 1991).

According to Michaud and Llerena (2006), creating an environmentally sustainable image companies need to make remanufacturing products that are attractive and acceptable to the end consumer. Increasing motivation to return used products can be achieved by marketing the quality of remanufactured products. Comparing and testing new and remanufactured products ensures that remanufactured products are as good as new with data. It also saves end users and money due to the lower cost of remanufactured products. (Subramoniam et al., 2010).

Methodology

Case study for creating new business model for aftermarket spare parts product group

Engine, gearbox and turbocharger constitute the most expensive product groups in terms of price in automotive after-sales spare parts and service processes. The need for remanufacturing for these products is increasing day by day in line with customer demands. There is no model in the market where authorized services and authorized renewal centers work together.

In this study, the participant observer method was used as the data collection method in the research.(DeWALT&DeWALT, 2002).For this, area and dealer visits was made and customer insights were collected by the participant of this case. A model was created with agile working methods. In this way, it is aimed to offer quality and guaranteed reman products to customers. There is no other similar study in the after-sales market.

According to Yin (2003),An exploratory case study explores a variety of phenomena characterized by a particular research environment that limits the choice of formulated hypotheses and/or methodology that can be tested. Discovery situations are appropriate when there is significant uncertainty about the operation of the program, its aims and outcomes. (Yin ,2003).

Engine, turbocharger, automatic transmission and injector, which are 4 different product groups, were evaluated according to this process..

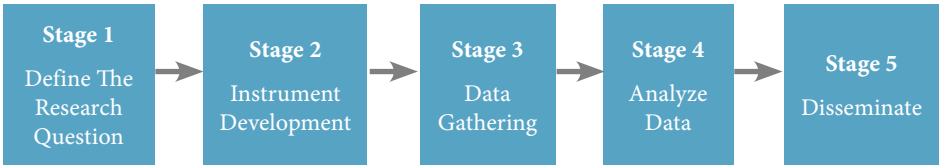

Figure . 1 A five-stage research model (Stuart et al.,2002)

In this study, a five-stage research model was developed and applied based on Stuart's (2002) model shown above.

This case study was conducted with 22 authorized service points and a chain of remanufacrure spare parts revision centers in 4 different cities in Turkey.. It has been questioned why customers with engine, automatic gearbox, turbo and injector faults in their vehicle do not prefer authorized service chains. The reasons for the preference of these customers were analyzed. As a result of the analysis of reasons for preference, a business model that would increase the business volume of both the authorized chain services and the authorized revision center has been put forward by producing solutions to the needs of the customers. The business model we developed specifically for this study is based on a flow that incorporates the features specific to Turkish context and the selected sample.

Current and Proposed Business models

In the current situation, each product group is offered to the customer only with an original or sub-industry solution. In the new business model, customers are served with remanufacture spare parts, which provide

price advantage and an authorized service guarantee. In this way, it has been observed that the business volume of the services that respond to customer needs has increased.

Current and Proposed Business models For Engine Product Family

For engine product group failures, the option of replacing the engine at the authorized service or renewing the engine as part of the original parts is offered to the customer.The business model in these solutions is not preferred over other solutions in the market due to the high-priced customer solution. Since the customers in the other part are price sensitive, they prefer low-priced and poor quality alternative solutions in the market instead of authorized services.

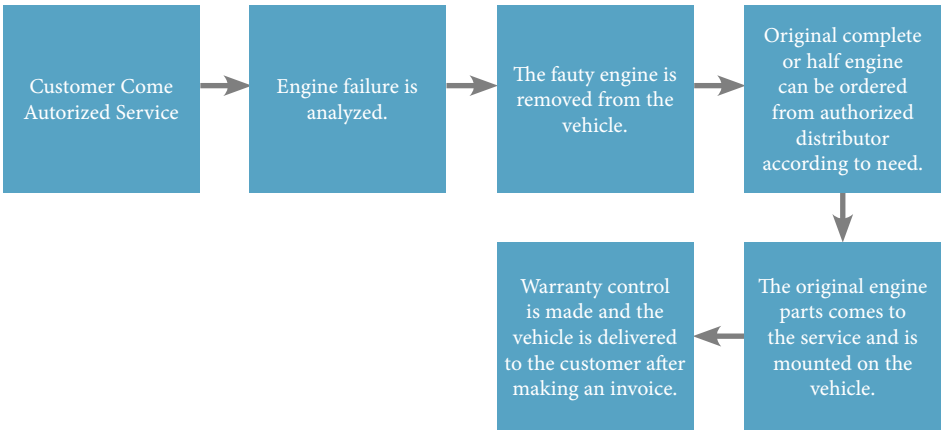

Figure . 2:Current business model

New business model Engine remanufacturing process

After analyzing the current business model, options were evaluated to offer low-priced products to customers. Engine failures that occur when customers come to the service are analyzed and grouped by frequency analysis. This is shown in figure 3according to failure type.The parts used in these fault groups have been analyzed. The kit was made by grouping the parts that are used in the complete engine revision and that are changed in each revision. When the parts are ordered as kits from an authori-

zed distributor, they are ordered at a more affordable price. This situation seriously reduces the occurrence for the customer and it is preferable to come to the authorized service.

The engine renewal business model created with this kit is the first in its field in terms of sustainability and circular economy. It is expected to contribute to different product groups and different sectors in the world literature.

The first kit includes only the base revision kit. This includes parts that should definitely be replaced at the lowest level of engine failure. In general, in case of gasket burning, vehicle overheating or lack of oil, only these parts need to be changed. The second kit is needed in case of malfunctions that are larger than the malfunctions encountered in the first malfunction. In these types of failures, the turbocharger and injectors were damaged along with the engine. While the engine is overhauled, these parts are revised and replaced. In the third kit requirement, if the piston rods are damaged, the engine is overhauled, the turbocharger and injectors are taken to the reman process, and the piston rods are changed. In the fourth case, in addition to the first three groups, the crankshaft is also damaged and all parts are replaced in the engine shell.

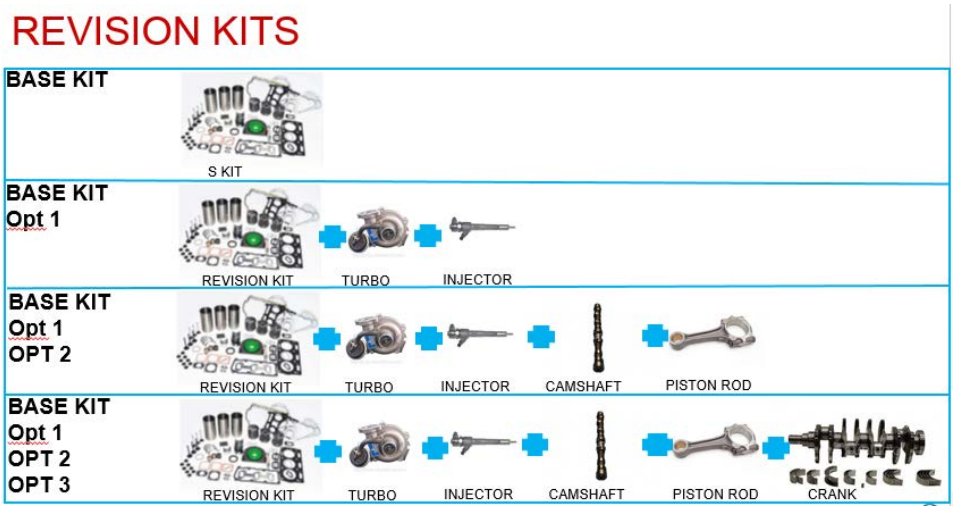

Figure . 3:Engine failure solutions type

In the new business model, the engine remanufacturing process starts with the order of the relevant kit type from the authorized distributor after the vehicle is diagnosed at the service..The new engine remanufacturing process flow is shown as follows.

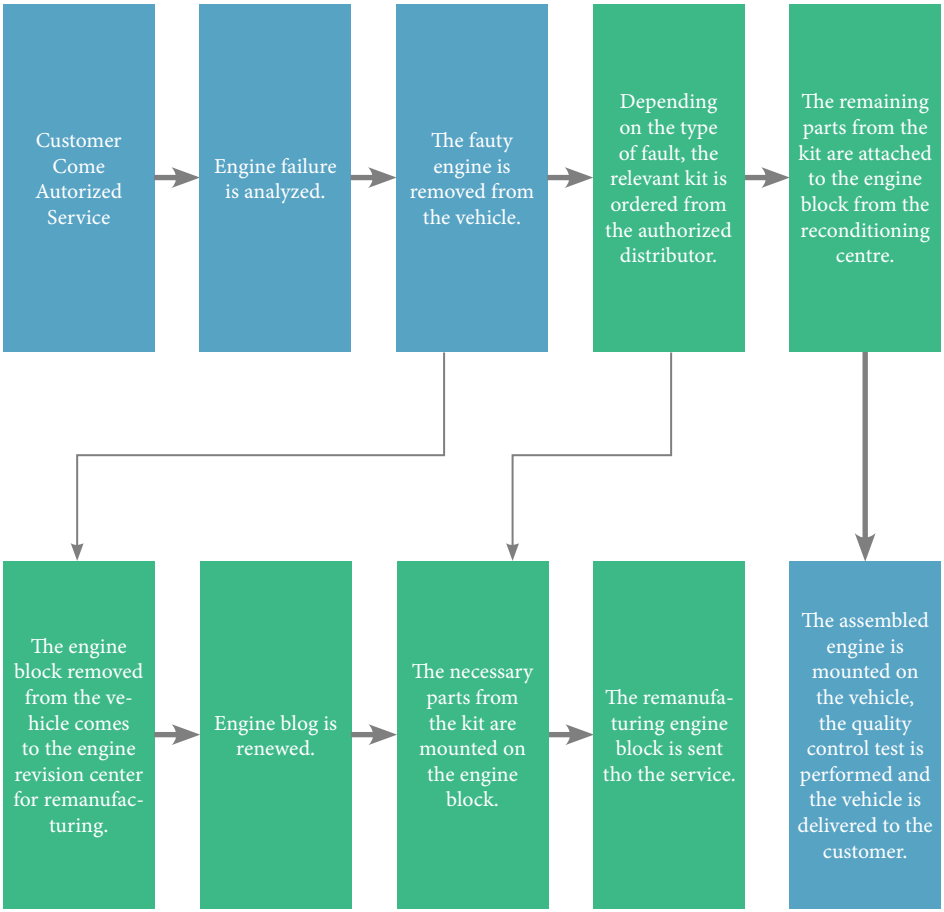

Figure . 4: New business model

New Proposed Remanfacture Business models For Turbocharger Product Family

The damaged turbocharger is removed from the top of the vehicle. The reconditioned turbocharger is available from the supplier. The authorized service sends the turbocharger, which it has removed from the top of the vehicle, back to the supplier.

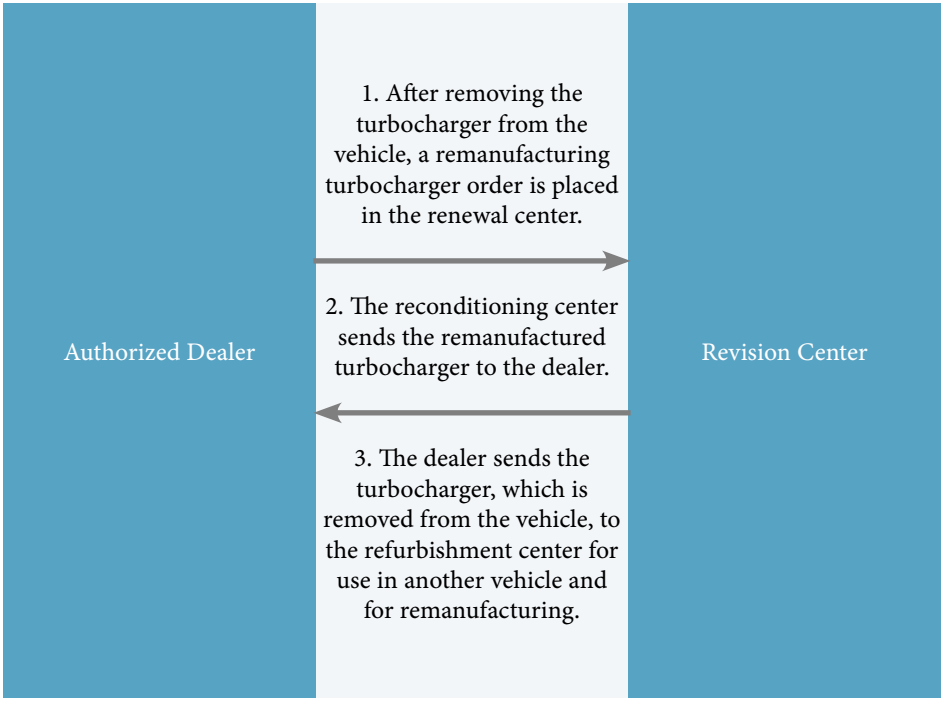

Figure . 5 : New Proposed Remanfacture Business models For Turbocharger Product Family

New Proposed Remanfacture Business models For Injector Product Family

The damaged injector is removed from the top of the vehicle. The reconditioned injector is available from the supplier. The authorized service sends the injector , which it has removed from the top of the vehicle, back to the supplier.

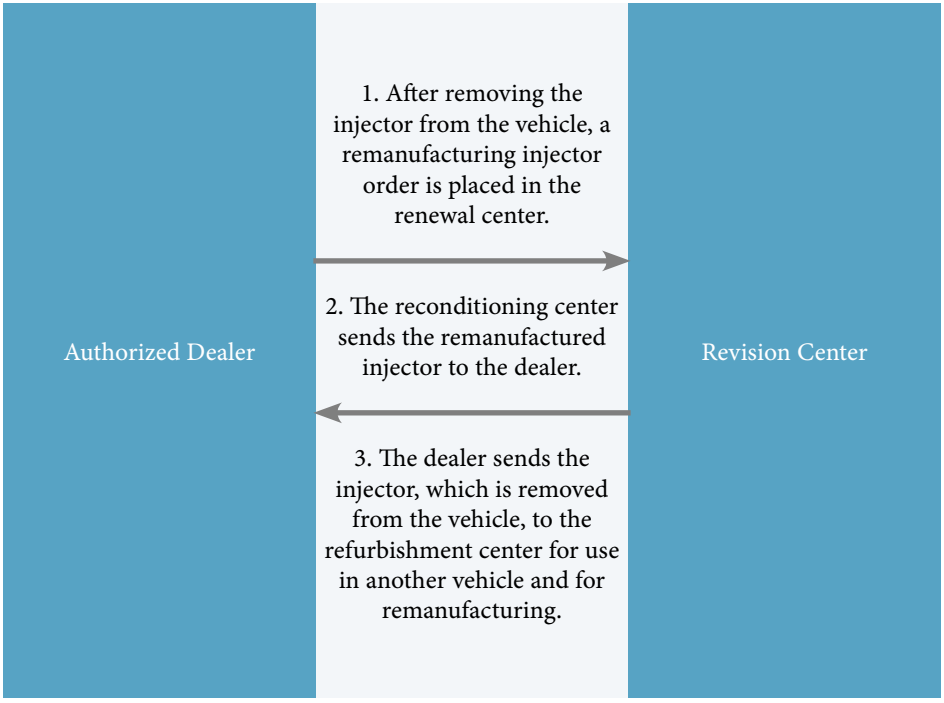

Figure . 6: New Proposed Remanfacture Business models For Injector Product Family

New Proposed Remanfacture Business models For Gearbox Product Family

The damaged automatic gearbox is removed from the top of the vehicle. The reconditioned automatic gearbox is available from the supplier. The authorized service sends the automatic gearbox, which it has removed from the top of the vehicle, back to the supplier.

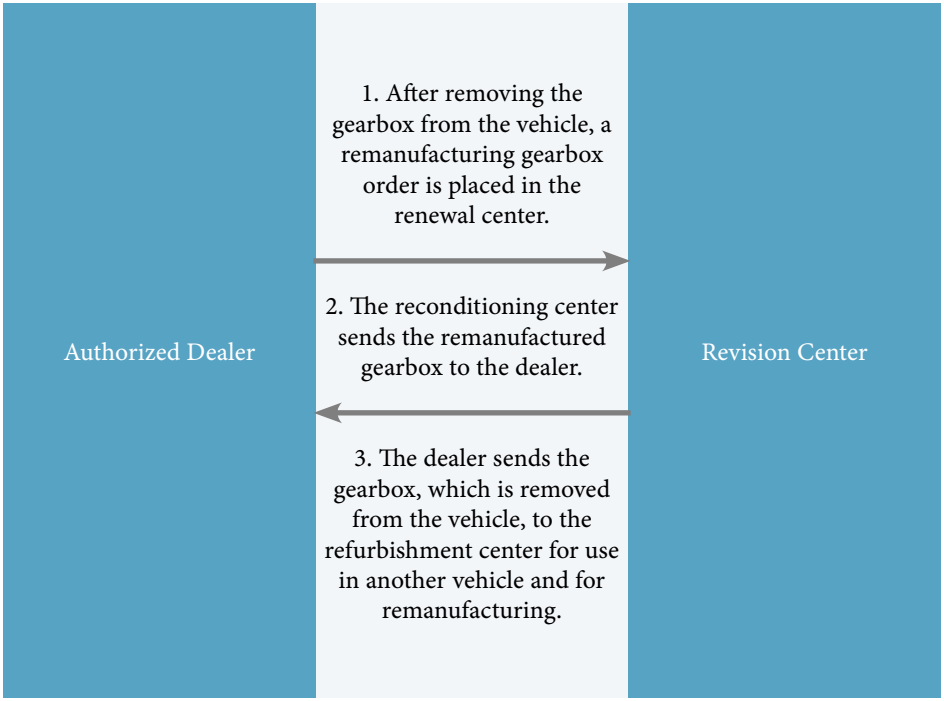

Figure . 7: New Proposed Remanfacture Business models For Gearbox Product Family

Conclusion

The model was obtained and tested as a result of a case study.With the case study, points that were not taken into account while developing the business model were discovered.The actors examined in the study need to adopt the sustainability and circular economy approach by applying remanufacturing to automotive spare parts.

While responding to customer needs by prioritizing sustainable growth and competitiveness, authorized services should pay attention to issues such as product life cycle perspective, less raw material extraction and consumption, as well as reduced energy consumption.

To sum up ,the most important result of this study has been the increase in the business volumes of authorized services by making the engine remanufacturing process, which had higher costs and was not preferred by the customers before, preferable in authorized services.

The new business model shown in Figure 4 has been developed to address the missing points of the new business model shown in Figure 2 and to meet customer needs. With the newly created business model as shown in figure 4 ;

- Transaction cost has been reduced.
- Customer satisfaction has increased.
- The rate of preference of authorized services by customers has increased.
- The use of remanufactured parts has increased and it has become a contribution to the environment and circular economy and to the country's economy.
- Contribution was made to employment.
- As the business volume of authorized services increased, profit margins increased.

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