RESP
JOURNAL OF RECYCLING ECONOMY & SUSTAINABILITY POLICY

INTERNATIONAL CONGRESS OF RECYCLING ECONOMY & SUSTAINABILITY POLICY

October 12, 2023 / Baku, Azerbaijan
Baku Eurasian University

EDITORS

Prof. Dr. Gülzar İBRAHIMOVA
Prof. Dr. Durmuş Çağrı YILDIRIM

ISBN: 978-625-8254-29-7

www.scienceazerbaijan.org/tr/economy

İSTANBUL GELİŞİM ÜNİVERSİTESİ
SciAz Science Azerbaijan
BANDIRMA ONYEDİ EYLÜL ÜNİVERSİTESİ

INTERNATIONAL CONGRESS OF RECYCLING ECONOMY & SUSTAINABILITY POLICY

October 12, 2023 / Baku, Azerbaijan
Baku Eurasian University

THE PROCEEDINGS BOOK

EDITORS

Prof. Dr. Gülzar İBRAHIMOVA

Prof. Dr. Durmuş Çağrı Yıldırım

Issued: 23.10.2023
ISBN: 978-625-8254-29-7

Yayın Tarihi: 23.10.2023
ISBN: 978-625-8254-29-7

www.scienceazerbaijan.org/tr/economy

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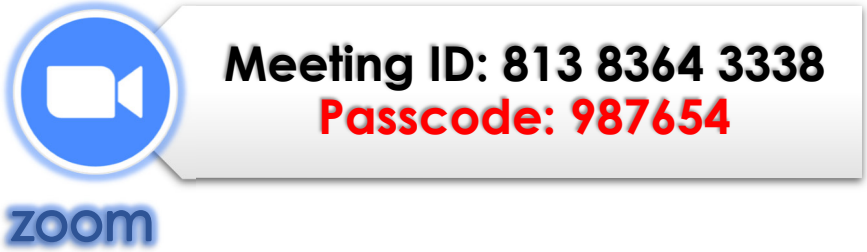

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12.10.2023 / SESSION-1
Baku Local Time: 11:00-12:20
Ankara Local Time: 10:00-11:20

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Dr. Mustafa Dereci
İstanbul Sabahattin Zaim University, Turkiye

Burak Ektiren
Hilton İstanbul Kozyatağı, Turkiye

-Keynote Speakers-

12.10.2023 / SESSION-2
Baku Local Time: 12:30-13:50
Ankara Local Time: 11:30-12:50

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Higher School of Security and Economics, Bulgaria

ONLINE PRESENTATIONS

12.10.2023 / Hall-1

BAKU LOCAL TIME	ANKARA LOCAL TIME
14 00 : 16 30	13 00 : 15 30

HEAD OF SESSION: İlhan EROĞLU

AUTHORS	AFFILIATION	TOPIC TITLE
Sevda BERİGEL İlhan EROĞLU	*Tokat Gaziosmanpaşa University*	THE IMPACT OF ECOLOGICAL FOOTPRINT AND GREEN FINANCIAL DEVELOPMENT ON SUSTAINABLE DEVELOPMENT: THE CASE OF G-7 COUNTRIES
İlhan EROĞLU Fatih YETER	*Tokat Gaziosmanpaşa University*	A REVIEW ON THE CIRCULARITY OF ENERGY AND ENVIRONMENTAL IMPACT WITHIN THE FRAMEWORK OF CIRCULAR ECONOMY
Fatih YETER	*Tokat Gaziosmanpaşa University*	DOES WASTE MANAGEMENT IMPACT ON ENVIRONMENTAL QUALITY: EVIDENCE FROM SELECTED EU COUNTRIES
İlhan EROĞLU Serap BOLAYIR	*Tokat Gaziosmanpaşa University*	COMPARISON of SELECTED EUROPEAN COUNTRIES and TURKIYE on RECYCLING RATES
İlhan EROĞLU Nalan KANGAL	*Tokat Gaziosmanpaşa University*	TWO KEY PLAYERS OF THE FUTURE: GREEN GROWTH AND GREEN FINANCE
Suna MUĞAN ERTUĞRAL	*Istanbul University*	GREENWASHING AND SUSTAINABLE ENVIRONMENTAL APPROACH
Seda YILDIRIM Durmus Cagrı YILDIRIM Neslihan SEVIK Vinay KANDPAL	Tekirdag Namık Kemal University Kocaeli University *UPES Dehradun*	GREEN BRANDS AND SUSTAINABLE DEVELOMENT
Ömer ESEN Durmuş Çağrı YILDIRIM Melek GÜVEN	*Tekirdağ Namık Kemal University*	ASSESSING THE NONLINEAR EFFECTS OF ENVIRONMENTAL INNOVATION ON CARBON FOOTPRINT: EVIDENCE FROM THRESHOLD ANALYSIS FOR TÜRKIYE

ONLINE PRESENTATIONS

12.10.2023 / Hall-2

BAKU LOCAL TIME	ANKARA LOCAL TIME
14 00 : 16 30	13 00 : 15 30

HEAD OF SESSION: Ayhan GÖRMÜŞ

AUTHORS	AFFILIATION	TOPIC TITLE
Damla ÇEVİK AKA	*Kırklareli University*	A THEORETICAL STUDY ON THE "SOCIAL SUSTAINABILITY" DIMENSION IN PRODUCTION
Ayhan GÖRMÜŞ	*Tekirdağ Namık Kemal University*	IN THE CONTEXT OF THE CIRCULAR ECONOMY, COMPARATIVE ANALYSIS OF THE EMPLOYMENT STRUCTURE OF WASTE COLLECTION AND RECOVERY ACTIVITIES AND MANUFACTURING INDUSTRY IN TURKEY
Deniz SAY ŞAHİN Zeynep Gökçe GÜNGÖR	*Mehmet Akif Ersoy University*	EVALUATION OF ECOPSYCHOLOGY IN THE CONTEXT OF SOCIAL WORK
Nedret ERBOY Nihal TATAROĞLU	*Muğla Sıtkı Koçman University*	SUSTAINABLE URBAN TRANSPORTATION SOLUTIONS: A CASE STUDY IN MUĞLA PROVINCE
Ayşe Esra PEKER Merve Nur ÇAK	*Fırat Unıversıty*	EVALUATION OF THE CIRCULAR ECONOMY MODEL FOR ADVANCED ECONOMIES WITH PANEL COINTEGRATION
Şerife KUZGUN	*Kırklareli University*	THE REVIEW OF GREEN ENTREPRENEURSHIP WITH BIBLIOMETRIC ANALYSIS
Işıl DEMİRTAŞ	*Giresun University*	OVERVIEW OF THE CIRCULAR ECONOMY IN TURKEY AND AN ASSESSMENT OF CIRCULAR ECONOMY POLICIES
Kenan AYDIN Tuğba KANTARCI	*İstanbul Gelişim University*	"GREEN LOGISTICS" APPLICATIONS FOR SUSTAINABILITY DEVELOPMENT

ONLINE PRESENTATIONS

12.10.2023 / Hall-3

BAKU LOCAL TIME	ANKARA LOCAL TIME
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HEAD OF SESSION: Muhammad FAISAL

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Muinat Wuraola SALAWU Moruff Adeyemi SALAWU	*University of Lagos*	INFLUENCE OF DIRECTORS COMPENSATION ON EARNINGS MANAGEMENT PRACTICES IN THE NIGERIAN BANKING SECTOR
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Mekuanint Abera Timbula Chetana Marvadi	*Gujarat University*	DETERMINANTS OF ACCEPTANCE AND USE OF TECHNOLOGY AMONG MICROFINANCE INSTITUTIONS EMPLOYEES
Mekuanint Abera Timbula Chetana Marvadi	*Gujarat University*	DETERMINANTS OF DIGITAL TRANSFORMATION STRATEGY IN MICROFINANCE INSTITUTIONS
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Muhammad FAISAL	*Allama Iqbal Open University*	SIGNIFICANCES AND BENEFITS OF CPEC (CHINA PAKISTAN ECONOMIC CORRIDOR) FOR PAKISTAN AND CHINA A REVIEW BY DR FAISAL
Abdurrahman AYDIN	---	SMART CITY APPLICATIONS AND SUSTAINABILITY: TÜRKIYE EXAMPLE

ONLINE PRESENTATIONS

12.10.2023 / Hall-4

BAKU LOCAL TIME	ANKARA LOCAL TIME
14 00 : 16 30	13 00 : 15 30

HEAD OF SESSION: James Essien Akpan

AUTHORS	AFFILIATION	TOPIC TITLE
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Adirek Vajrapatkul	*Sukhothai Thammathirat Open University*	ADULT LITERACY RATE IMPROVEMENT IN QUANTILE REGRESSION MODEL
Adirek Vajrapatkul	*Sukhothai Thammathirat Open University*	THAILAND POVERTY IN SPATIAL REGRESSION MODELS
Olusegun Opeyemi Oni Olurinde Kingsley Olusola Sarah Oluwakemi Ishola	*Agricultural and Rural Management Training Institute*	IMPACT OF MICROFINANCE BANKS' SERVICES ON PERFORMANCE OF MANUFACTURING SMEs IN ILORIN, METROPOLIS
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Saniyah PUTRININGSIH Muhammad SHULTHONI Hendri Hermawan ADİNUGRAHA	*UIN K.H. Abdurrahman Wahid Pekalongan*	THE INFLUENCE OF THE BASIS OF THE CONTRACT IN LEASING TRANSACTIONS ON BUSINESS SUSTAINABILITY
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James Essien Akpan	*Nigeria Police Academy*	INFLUENCE OF INFLATIONARY TRENDS ON STOCK MARKET PERFORMANCE IN NIGERIA
Yunana, Titus Wuyah	*Nigeria Police Academy*	MONETARY AND FISCAL POLICIES' EFFECTS ON AGGREGATE DEMAND IN NIGERIA: A SIMULATION APPROACH
Fikri Erdem ŞEŞEN	*Kırıkkale University*	RECYCLING AND INTEGRATION OF WASTES AND RESIDUES IN IRON-STEEL INDUSTRY

ONLINE PRESENTATIONS

12.10.2023 / Hall-5

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HEAD OF SESSION: Irina-Ana DROBOT

AUTHORS	AFFILIATION	TOPIC TITLE
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Pierre Rostan Alexandra Rostan	*American University of Iraq*	2100 MUNICIPAL SOLID WASTE PROJECTIONS OF OECD COUNTRIES
Irina-Ana DROBOT	*Technical University of Civil Engineering Bucharest*	THE INFLUENCE OF THE EUROPEAN UNION'S ENVIRONMENTAL POLICY ON OUR EVERYDAY LIVES
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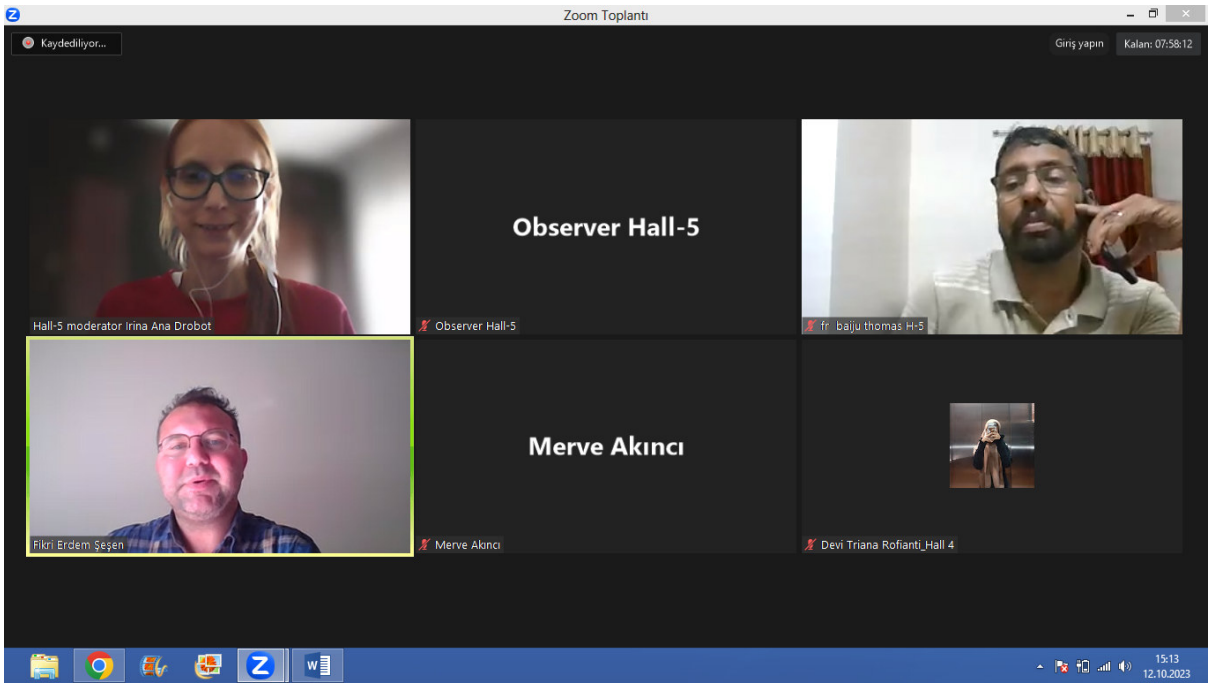
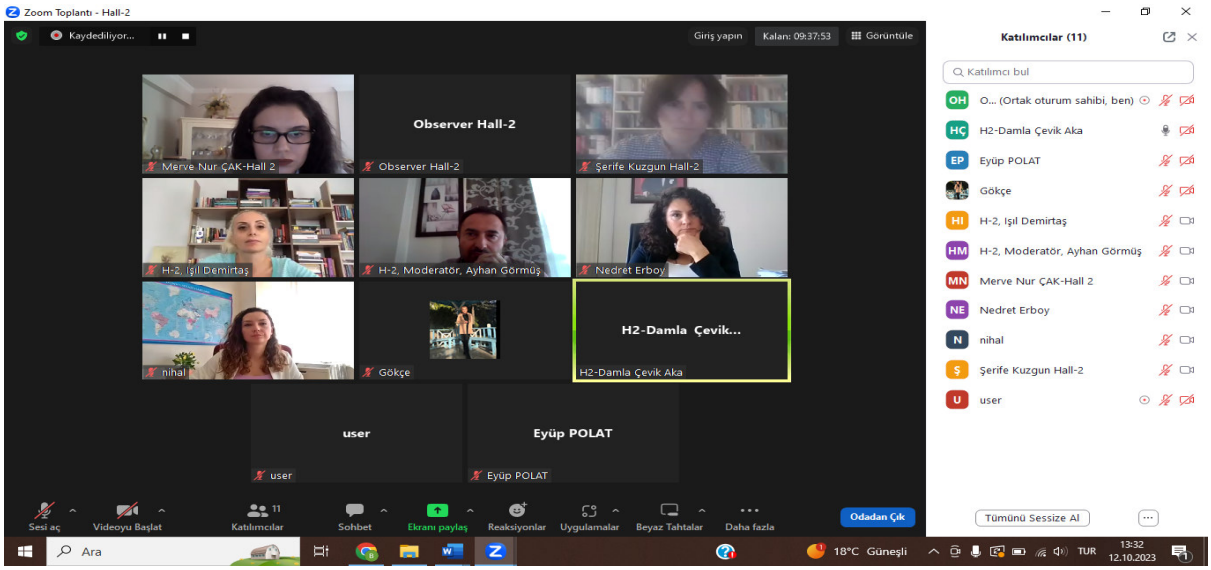
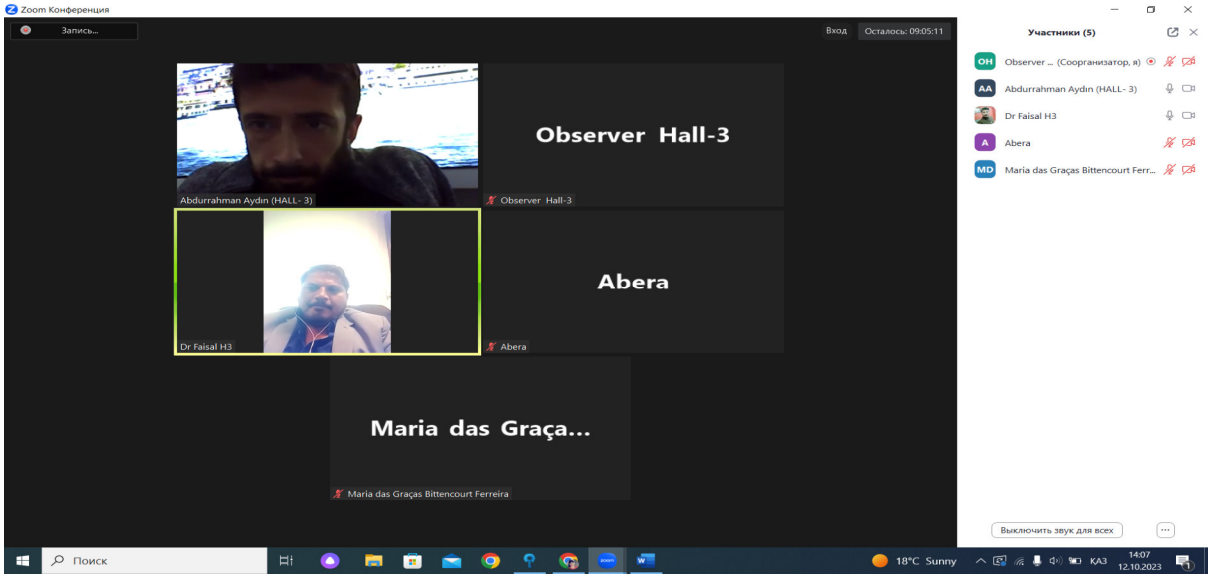
Fr. Baiju Thomas	*Ramakrishna Mission Vivekananda Educational and Research Institute*	A STUDY ON FOSTERING ENVIRONMENTAL ETHICS TOWARDS SUSTAINABLE DEVELOPMENT OF ECOSYSTEM

PHOTO GALLERY



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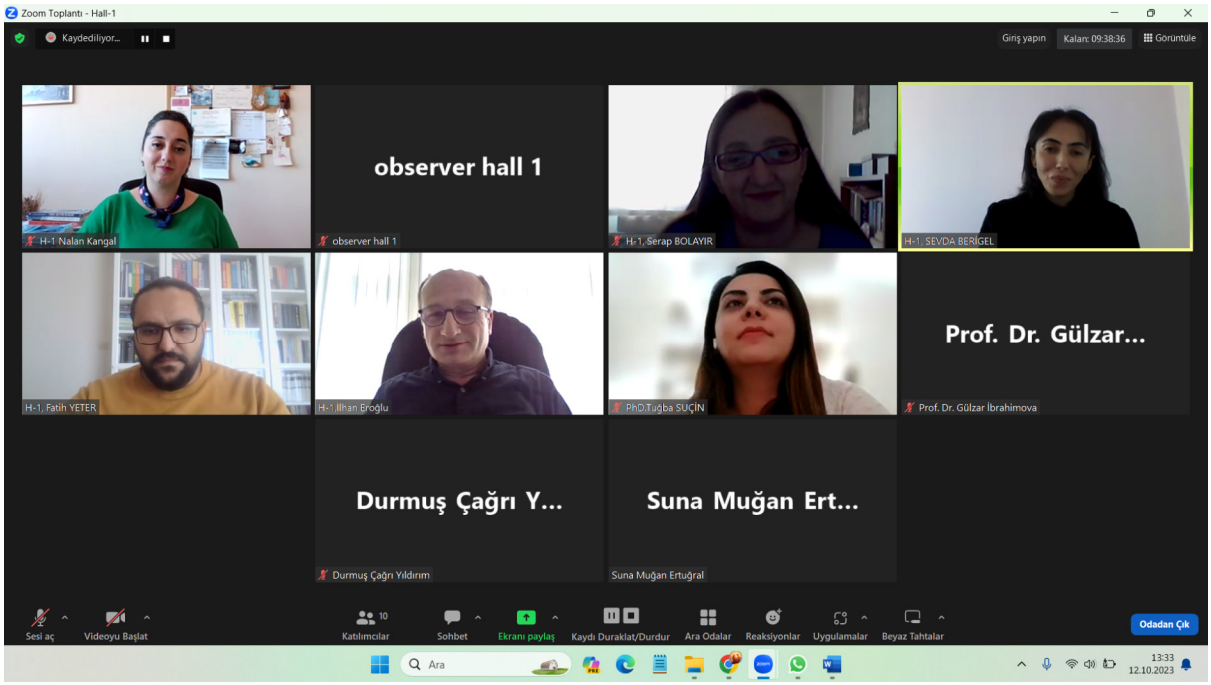
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H-1, SEVDA BERİGEL
H-1, Fatih YETER
H-1 İlhan Eroğlu
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12.10.2023

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EMBRACING SUSTAINABILITY AS A STRATEGIC APPROACH TO PUBLIC POLICIES: EXPLORING CASE STUDIES FROM THE EU BORDERLANDS

Prof.Dr. Rui Alexandre Marçal Dias Castanho
University of the Azores, Portugal; WSB University

Abstract
In recent years, the imperative of sustainability has become increasingly central in shaping global public policies. This speech delves into the comprehensive embrace of sustainability as a strategic foundation for designing and implementing public policies, specifically focusing on illuminating case studies from the European Union (EU) border regions. These borderlands' unique geographical, economic, and cultural dynamics present distinct challenges and exceptional opportunities, making them an ideal laboratory for investigating the integration of sustainability principles into policy initiatives.
This study aims to dissect how sustainability is strategically incorporated into the development and execution of public policies, thereby fostering more sustainable and resilient communities within the EU borderlands. Analyzing a selection of illuminating case studies from these regions explores the multifaceted dimensions of sustainable policymaking, considering environmental, economic, social, and cultural aspects.
The findings underscore the significance of adopting sustainable strategies in policymaking, revealing the potential to address pressing issues such as cross-border cooperation, economic disparities, environmental conservation, and community well-being. These case studies shed light on the successes and challenges encountered when navigating the intricate interplay between sustainability and public policies in borderland contexts.
As policymakers and stakeholders seek innovative solutions to the complex and evolving issues faced by the EU borderlands, the insights derived from this exploration offer valuable guidance and lessons. They emphasize the transformative potential of sustainability as a strategic approach and highlight the necessity of tailored, region-specific policies that reflect the unique character of the borderlands. This research, therefore, serves as a comprehensive resource for those shaping public policies, offering a roadmap for the journey toward a more sustainable and resilient future in the EU's diverse border regions.
Keywords: Border Cooperation; Sustainable Planning; Strategic Planning; Sustainable Development.

GREEN MACROECONOMIC EQUILIBRIUM: SEQUENTIAL DEVELOPMENTS ON POLICY EFFECTS

Prof. Dr. Ramesh Chandra Das
Department of Economics, Vidyasagar University

Abstract
The mainstream Macroeconomics or the traditional Macroeconomics did not consider environmental issues, the issues of pollution, into its modelling and policy analysis. The System of National Accounts (SNA) would estimate GDP without considering resource depletion and degradation (or depreciation) of natural capital. To the environmentalists, such a GDP was dirty GDP. The statistical division of the United Nations has developed the System of Environmental Economic Accounting (SEEA) to incorporate the environmental factors into the System of National Accounts (SNA). A new system of sustainable accounting, known as Green Accounting, has thus emerged. Regarding formal macroeconomic model formulations with the help of policy instruments, such as the well-known Fiscal Policy and Monetary Policy, the thinking started at the end of the last century. Herman Daly (1991a, b) was the first to adopt ecological macroeconomics to illustrate the significance of the environment when dealing with macroeconomic issues. Later Anthony Heyes (2000) has modified the Daly's (1991) text book version of ecological macroeconomics by incorporating the environmental equilibrium curve or EE curve within the standard IS-LM model like the structure followed in the well-known Mundell-Fleming model. Physical capital and natural capital are considered to be substitutes to each other leading to negatively sloped EE curve. To Heyes, expansionary fiscal policy (monetary policy) is to be accommodated with contractionary monetary policy (fiscal policy) to maintain environmental stability. Then Philip Lawn (2003) introduced the pollution permit market and technological invention towards green capital formation to the structure of Heyes model and showed that expansionary fiscal policy will lead to contractionary monetary policy at first, and then technological invention will work leading to decrease in the price levels and increase in real money balance. The LM curve will then shift to the right until the maximum output of the new technological development is reached. But, later, Das et al (2023) show that the ever shifting of the LM to the right will stick around the full capacity output, not to the maximum output level as pointed out by Lawn.

OVERCOMING THE WORLD'S CHALLENGES BY TAKING ACTION FOR SUSTAINABLE DEVELOPMENT GOALS WHILE TRANSITIONING TO CIRCULAR ECONOMY

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ABSTRACT
These days, the United Nations Sustainable Development Goals (SDGs) represent the international consensus that every positive action taken by individuals, communities, entities, governments, and country leaders will ultimate lead to a better future for all, where nobody will be left behind. What is more, these Global Goals bring to the regions and countries worldwide the promise of a better future for the present and the next generations to come, where people are expected to enjoy peace and prosperity at the highest levels. Furthermore, once this vital aims are accomplished by humanity, the outcomes expected make reference to fostering development capable to balance all facets of life, in terms of economic, environmental, and social sustainability. The paper starts with the theoretical background, which thoroughly investigates major concepts, such as: accountability; business responsibility; collaboration, innovation and research; good practices in solving the societal challenges; sustainable practices and sustainability; green and sustainable development; recycling economy; circular economy; knowledge-based frameworks for the SDGs; and people's health, happiness, and well-being. Additionally, the paper makes an in-depth analysis of the current challenges faced by people, communities, and nations at a wide level, while addressing the most recent changes and risks that accompanied the most significant international economic and social events that took place recently. In the same line with the aforementioned aspects, the paper focuses on presenting the links that exist today between the achievement of the SDGs and the strongly anticipated transition to the circular economy, which are seen as major issues in successfully overcoming the world's challenges. In terms of the practical approach, the accent is put, on the one hand, on the most recent statistics that display the current status of the SDGs and, on the other hand, on the presentation of the solutions capable to accentuate the transitioning to circular economy. All in all, the paper supports the necessity of building businesses and economies that place individuals and ecosystems at the center, through accountable, efficient, integrated, and transparent actions and measures that sustain peace. Likewise, the paper draws a particular attention to the objectives of the 2030 Agenda for Sustainable Development that mainly promotes a renewed society profoundly anchored in creating partnerships for the SDGs.

KEYWORDS: Circular Economy; Gender Equality; Sustainability Assessment; Sustainable Living; Sustainable Prosperity; Sustainable Supply Chains; Human Rights; Happiness Management; Sustainable Development Goals (SDGs); Strengthened Partnerships for SDGs

INTRODUCTION
These days, the United Nations Sustainable Development Goals (SDGs) are probably seen as one of the most important aims to which the nations worldwide had to adhere in order to show their concern towards the future of nowadays generations as well as the future of the next generations that will come.

However, this promise for a better future for all, where the general outcome should be that no one must be left behind and support ought to be provided to all individuals, means that everyone – people, communities, governments, country leaders, business owners, and so on – needs to get involved in the process.

According to the most recent findings published in reputed reports by renowned specialists and practitioners all over the world, a viable solution is represented by the Circular Economy Model (World Economic Forum, 2023). What is more, these reputed specialists and researchers decided to allocate impressive amounts of energy as well as tremendous efforts in finding solutions capable to change today's economic model – which is essential a Linear Economic Model – with Circular Economy Model, hence showing a great trust in a circular future for all (World Customs Organization, 2023). Furthermore, nations' leaders as well as countries' governmental officials all over the world started promoting not long ago the idea that the business models are expected to change, given the fact that investing in the circular economy will ultimately have the power – through the aid of sustainable investments – to transform the way entities do business (World Business Council for Sustainable Development, 2023).

In this matter, there are several general questions due to be addressed and expected to be considered by everybody, as follows:

(a) Is climate change a given and can the individuals, communities, and organizations help in improving the gaps arising in climate change?

(b) Can the Planet's resources be still conserved and wisely used in the production business processes and in the same time have blooming consumption on which entities depend for their survival and success?

(c) Can a consensus be reached by all involved parties so that the permanent damage to the Planet's resources be avoided and even stopped? And

(d) Will circularity and the Circular Economy Model become the "New Normal" for the future of the business worldwide?

The questions mentioned in the lines above are clearly of utmost importance for everyone. By considering these questions, the current study focuses on covering the following crucial objectives, as follows:

(Research Objective no. 1) The first research objective of this paper is to present the theoretical background (the literature review), while focusing on key concepts, such as: accountability; business responsibility; collaboration, innovation and research; good practices in solving the societal challenges; sustainable practices and sustainability; green and sustainable development; recycling economy; circular economy; knowledge-based frameworks for the SDGs; and people's health, happiness, and well-being.

(Research Objective no. 2) The second research objective of this paper is to present an in-depth analysis of the current challenges faced by people, communities, and nations at a wide level, while focusing on the most recent changes and risks that accompanied the most significant international economic and social events that took place recently. In this matter, the references could be made here at the most recent economic and social crisis as well as to the international conflicts that are intended to change the way in which individuals and communities regard their future as well as their development possibilities.

(Research Objective no. 3) The third research objective of this paper focuses on presenting the relationships that exist today between the achievement of the SDGs and the strongly anticipated transition to the circular economy, which are seen as major issues in successfully overcoming the world's challenges.

(Research Objective no. 4) The fourth research objective of this paper makes reference to the practical approach of the study, where the accent is put, on the one hand, on the most recent statistics that display the current status of the SDGs and, on the other hand, on the presentation of the solutions capable to accentuate the transitioning to circular economy.

While focusing this particularly challenging given context, the manner in which business is being done will clearly have to change in order to facilitate the adaptation of the individuals, the communities, and the organizations to the new global environment. The way in which business should be done will most certainly focus on achieving the SDGs. In addition, by introducing a sustainable way of doing business in the form of positive and successful business models will hopefully enable a reduction in nations and regions resources dependence with the major help of the circular economy.

LITERATURE REVIEW (BACKGROUND)

This section focuses on the theoretical background (the literature review) and is intended to address the importance and the role of several key notions, such as: accountability; business responsibility; collaboration, innovation and research; good practices in solving the societal challenges; sustainable practices and sustainability; green and sustainable development; recycling economy; circular economy; knowledge-based frameworks for the SDGs; and people's health, happiness, and well-being.

These days, the business responsibility is becoming more and more important for everybody (Alhassan & Nwagbara, 2022). On the one hand, the reasoning behind the growing necessity to create more responsible businesses and to determine the already existing ones to act responsible is represented by the current situation in which the communities and environment find themselves. The lack of the resources has become clear especially in areas in which individuals are facing major environmental, social, and health problems (Barasa *et al.*, 2023). Nevertheless, the limitation of the resources is generally accepted and known, which even creates serious disputes – including the most damaging ones possible, namely wars – among individuals, communities, regions, and nations (Castanho, 2020). On the other hand, in the cases in which the countries are fortunate and have at their disposal certain resources, the way in which these resources are allocated and used may not be always the right one (Circle Economy Foundation, 2023). In this case, business responsibility ought to be accompanied by several other crucial elements, such as: accountability; collaboration, innovation and research; good practices in solving the societal challenges; and sustainable practices and sustainability (Deloitte, 2023).

The table below focuses on what fostering economic growth and development means for the Planet and the people, while centering on business responsibility and circular economy on the road of changing individuals and organizations way of doing business (see Table no. 1: Fostering Economic Growth and Development, while centering on Business Responsibility and Circular Economy).

Table no. 1: Fostering Economic Growth and Development, while centering on Business Responsibility and Circular Economy

Understanding Economic Growth and Development	Addressing Business Responsibility and Circular Economy
Green Growth and Sustainable Development	The natural assets of the Planet are able to provide the resources and the environmental services on which environmental health and biodiversity as well as well-being and people's health focuses on and has come to rely on (Ellen MacArthur Foundation, 2023c).
Green Development and Sustainable Development	The natural resources of the Planet are used with great care so that the present and the future generations can benefit from them, but in the same time their potential has a sustainable basis (Popescu, 2019).
Green Economy and Sustainable Development	The focus must be on the following key elements: clean air (Management Association, 2018); clean water (Nova & González, 2023); resilient biodiversity (Popescu, 2020); growth in green jobs (Popescu, 2022b); growth in employment and income with an accent on sustainability (Eunomia, 2023); and environmentally-friendly (eco-friendly) products and services (Financial Times, 2023).

Source: The Authors' Own Elaboration

In addition to the aforementioned aspects, the current paper brings into discussion the aspects related to circular economy in the brave attempt to show that overcoming the world's challenges can solely be done by taking action for SDGs while transitioning to the circular economy. Hence, the green and sustainable development takes into consideration the fact that Green Growth refers to fostering economic growth and development while being concerned with the health of the environment – in particular, with creating a balance between the natural assets of regions and countries and the desires and needs of the people, and the well-being of individuals and communities which relies on the manner in which the resources are allocated, the environmental care and services are provided, and the prevention of the loss of the biodiversity and ecosystem services is taken into consideration (Gigauri *et al.*, 2023; Ellen MacArthur Foundation, 2023a).

All in all, since the current linear economic model failed to respond to ensure the right balance between the health of the environment and the happiness and well-being of people, the circular economy model has to address now aspects, such as: recycling economy (Ellen MacArthur Foundation, 2023d); knowledge-based frameworks for the SDGs (Ellen MacArthur Foundation, 2023b); people's health, happiness, and well-being (Erturk *et al.*, 2024); green economy (Harvard Business Review, 2021); public and private investments in green economy and green growth (Popescu, 2021); reduced carbon emissions and pollution (Eshiet, 2023); enhanced energy and resources efficiency (Popescu, 2023); and eco-friendly products for the customers and clients (Environmental Protection Agency, 2023).

RESEARCH AND FINDINGS

The methods and the methodology used in this paper take into account the following aspects: first of all, the first part of the paper is dedicated to the theoretical background – the theoretical framework of the study, in which the importance of sustainability is presented and exemplified, so that the role of accomplishing the SDGs can be better acknowledged; and second of all, the second part of the paper is dedicated to the case study where the accent is put, on the one hand, on the most recent statistics that display the current status of the SDGs and, on the other hand, on the presentation of the solutions capable to accentuate the transitioning to circular economy.

A very important part of the circular economy makes reference to its valuable contributions to the SDGs (see Table no. 2: Fostering Economic Growth and Development, while centering on Business Responsibility and Circular Economy).

Table no. 2: Fostering Economic Growth and Development, while centering on Business Responsibility and Circular Economy

Circular Economy	Valuable Contributions to the SDGs
Reducing waste and pollution	The circular economy model intends to close the loop on the resources use by minimizing in this manner the impact that the resources use and the economic activities have on the environment (International Institute for Sustainable Development, 2023).
Basing on a new production and consumption model	The circular economy model intends focus on sustainable development, taking into account the following ideas: firstly, a new production and consumption model ought to be created, so that the optimization of resources can be accomplished (Management Association, 2019); and secondly, the reduction of the consumption of raw materials should be accomplished by recovering waste either by recycling or by using some of the used but still good components to give life to new products (Management Association, 2023a)
Centering on ways to sustain the future	According to specialists, circularity refers mainly to the practices that will ultimately lead to sustainability (Herbst, 2023). Among the practices that can be associated with ensuring a sustainable future can be mentioned the following ones: reusing raw materials (Herdiana *et al.* 2023); refurbishing used products (Kannan, 2024); and recycling old materials (Knezevic, 2023).

Source: The Authors' Own Elaboration

According to the most recent published studies, the current status of the SDGs is not very promising, given the fact that almost 12% of the SDGs are currently on track (Shukor *et al.*, 2024; Management Association, 2023d; Šebestová & Popescu, 2022; United Nations Economic Commission for Europe, 2021). What is more, researchers pointed out the fact that they noticed a stagnation of the Agenda 2030 progress which finds the roots in the recent environmental, social, economic, financial, and demographic crisis that humanity has confronted itself with (Jain *et al.*, 2024; Jain & Kukreja, 2023; Martínez-Falcó *et al.*, 2023). Furthermore, António Guterres (Secretary-General, United Nations) emphasized in the United Nations' most recently published report entitled "The Sustainable Development Goals Report 2023: Special Edition" the fact that: "Unless we act now, the 2030 Agenda will become an epitaph for a world that might have been. (…) We are at a moment of truth and reckoning. But together, we can make this a moment of hope. I urge all Member States to make 2023 the moment when we jump-start progress on the SDGs, to create a more peaceful and prosperous future for all" (United Nations, 2023).
The table below highlights the most recent progress in terms of the SDGs as well as possible suggestions in order to accomplish the SDGs (Table no. 3: Current Status of the SDGs).

Table no. 3: Current Status of the SDGs

Sustainable Development Goals Progress at the Midpoint	Steps that Require Further Action
Global Goal 1: No Poverty – the progress noted may be seen as slow and uneven (A) Even though social protection has expended (as it was noted during the COVID-19 crisis), based on the most recent statistics "over 4 billion people remain entirely unprotected". (B) Also, the current efforts are insufficient and if the trends continue to maintain as they are now, "575 million people will still be living in extreme poverty", while "only one-third of countries will have halved their national poverty levels by 2030".	Possible suggested steps to be taken: the social protection spending should increase not only in advanced economies but, also, in emerging and developing economies.
Global Goal 2: Zero Hunger – the global food crisis has accentuated, while food security represents a real challenge in several countries worldwide (A) Statistics showed that in 2022 "about 9.2 per cent of the world population was facing chronic hunger, equivalent to about 735 million people – 122 million more than in 2019". (B) Statistics showed that in 2022 "an estimated 45 million children under the age of 5 suffered from wasting, 148 million had stunted growth and 37 million were overweight".	Possible suggested steps to be taken: there is currently, there is not enough food for everyone, so food supplies should be increased where needed; also, nutrition targets should be established and adequately monitored.

Global Goal 3: Good Health and Well-Being Progress has been made in this matter, as follows: (A) "146 out of 200 countries or areas have already met or are on track to meet the SDG target on under-5 mortality". (B) "Effective HIV treatment has cut global AIDS-related deaths by 52 per cent since 2010 and at least one neglected tropical disease has been eliminated in 47 countries".	Possible suggested steps to be taken: finding solutions to expend universal health coverage ought to be uncovered; finding solutions in order to reduce maternal mortality ought to be discovered.
Global Goal 4: Quality Education Recent statics pointed out that the COVID-19 pandemic had devastating effects for education, namely: "only one in six countries will achieve the universal secondary school completion target by 2030".	Possible suggested steps to be taken: finding solutions to finance education and make education financing a national priority.
Global Goal 5: Gender Equality The report showed that "a mere 15.4 per cent of Goal 5 indicators with data are "on track", 61.5 per cent are at a moderate distance and 23.1 per cent are far or very far off track from 2030 targets".	Possible suggested steps to be taken: more concern ought to be shown in this matter by national policies, national parliaments, and institutions.
Global Goal 6: Clean Water and Sanitation Recent statistics showed that: (A) "In 2020, 2.4 billion people lived in water-stressed countries". (B) "(…) billions of people still lack access to safe drinking water, sanitation and hygiene". (C) "Water use efficiency has risen by 9 per cent, but water stress and water scarcity remain a concern in many parts of the world".	Possible suggested steps to be taken: promoting research and innovation; having a holistic approach towards water management; and increasing investments in the sector.
Global Goal 7: Affordable and Clean Energy Recent statistics showed that: (A) "(…) about 660 million people will still lack access to electricity and close to 2 billion people will still rely on polluting fuels and technologies for cooking by 2030". (B) "Developing countries experience 9.6 per cent annual growth in renewable energy installation, but despite enormous needs, international financial flows for clean energy continues to decline".	Possible suggested steps to be taken: promoting research and innovation; having a holistic approach towards the energy sector management; empowering individuals and communities to act sustainable; and increasing investments in the sector.

Global Goal 8: Decent Work and Economic Growth Recent statistics showed that: (A) "The global unemployment rate declined significantly in 2022, falling to 5.4 per cent from a peak of 6.6 per cent in 2020 as economies began recovering from the shock of the COVID-19 pandemic", which "was lower than the pre-pandemic level of 5.5 per cent in 2019". (B) "The estimated total global unemployment in 2022 was 192 million."	Possible suggested steps to be taken: ensuing new employment opportunities; and emphasizing the importance of training and education.
Global Goal 9: Industry, Innovation and Infrastructure Recent statistics showed that: (A) "Global manufacturing growth slowed down to 3.3 per cent in 2022, from 7.4 per cent in 2021". (B) "As of 2022, 95 per cent of the world's population was within reach of a mobile broadband network, but some areas remain underserved".	Possible suggested steps to be taken: increasing the investments in innovation, research, development, and advanced technologies.
Global Goal 10: Reduced Inequalities Recent statistics showed that: (A) "The incomes of the poorest 40 per cent of the population had been growing faster than the national average in most countries". (B) "The year 2022 witnessed the highest number of refugees (34.6 million people) ever documented. This year is also a deadly one for migrants, with nearly 7,000 deaths recorded globally".	Possible suggested steps to be taken: increasing cooperation, collaboration, and fair trade; supporting peace, prosperity, and financial systems.
Global Goal 11: Sustainable Cities and Communities Recent statistics showed that: "In 2022, only half of the world's urban population had convenient access to public transportation."	Possible suggested steps to be taken: "implementing inclusive, resilient and sustainable urban development policies and practices"; and prioritizing "access to basic services, affordable housing, efficient transportation and green spaces for all".
Global Goal 12: Responsible Consumption and Production Recent statistics showed that: "Global crises triggered resurgence in fossil fuel subsidies, nearly doubling from 2020 to 2021".	Possible suggested steps to be taken: relining more on the power and the benefits of the circular economic model; and finding solutions to recycle and become more sustainable and eco-friendly.
Global Goal 13: Climate Action Recent statistics showed that: "To limit global warming to 1.5°C above preindustrial levels, emissions must already be decreasing and need to be cut by almost half by 2030, just seven years away".	Possible suggested steps to be taken: finding sustainable solutions to achieve net-zero emissions; and focusing on inclusiveness and resilience policies.

Global Goal 14: Life Below Water Recent statistics showed that: "The ocean is in a state of emergency as increasing eutrophication, acidification, ocean warming and plastic pollution worsen its health. Additionally, the alarming trend of overfishing persists, leading to the depletion of over one third of global fish stocks."	Possible suggested steps to be taken: coordinated global actions; interconnecting institutions efforts worldwide.
Global Goal 15: Life on Land Recent statistics showed that: "The recently adopted Kunming-Montreal Global Biodiversity Framework provides renewed impetus for Goal 15, outlining four outcome-oriented goals to be achieved by 2050 and 23 targets to be achieved by 2030."	Possible suggested steps to be taken: putting a higher emphasis on nature and the relationship that exists between individuals and the environment.
Global Goal 16: Peace, Justice and Strong Institutions Recent statistics showed that: (A) "(…) the year 2022 witnessed a more than 50 per cent increase in conflict-related civilian deaths, largely due to the war in Ukraine". (B) "As of the end of 2022, 108.4 million people were forcibly displaced worldwide – an increase of 19 million compared with the end of 2021 and two and a half times the number of a decade ago". (C) "In 2021, the world experienced the highest number of intentional homicides in the past two decades".	Possible suggested steps to be taken: institutions should focus on securing justice; and the peaceful transition to sustainable development should be made.
Global Goal 17: Partnerships for the Goals Recent statistics showed that: (A) "While official development assistance (ODA) flows continue to reach record peaks, the increase in 2022 is primarily attributed to spending on refugees in donor countries and aid to Ukraine". (B) "Despite a 65 per cent improvement in Internet access since 2015, progress in bridging the digital divide has slowed down post-pandemic. Sustained efforts are required to ensure equitable access to the Internet for all".	Possible suggested steps to be taken: all countries should have the necessary financing facilities and technological support to accelerate the implementation of the SDGs as indicated in the Agenda 2030.

Source: The Authors' Own Elaboration based on "The Sustainable Development Goals Report 2023: Special Edition" (United Nations, 2023)

As it can be seen in the analysis provided above, there is still a lot to be done in order to achieve the SDGs. Nevertheless, the COVID-19 crisis and the COVID-19 pandemic have managed to slower the process of the SDGs achievement in all the 17 areas of interest represented by the Global Goals (Management Association, 2023b; Management Association, 2023c). Besides all these, the COVID-19 crisis and the COVID-19 pandemic not only irreversibly affected the social and the economic balance of the advanced economies, but also created real distress in emerging and developing countries (Organisation for Economic Co-operation and Development, 2020; Ortiz-Rodriguez *et al.*, 2022).

CONCLUSION

The current study is supported by the findings and the outcomes obtained in other papers and reports on similar topics (Popescu & Popescu, 2019; Popescu, 2022a; Rafiq *et al.*, 2023; Risso & Testarmata, 2018). What is more, this current study managed in a successful way to show that the SDGs are invaluable to everybody, no matter the country or region where those individuals come from and no matter the social or the economic status of those individuals (Wang & Tian, 2023). Furthermore, even though the world needs more time in order to accomplish the SDGs, by postponing the achievement of these great Global Goals the future of the present and the future generations might be far more affected than until present (World Bank, 2022; Yang, 2020).

In conclusion, the 2030 Agenda for Sustainable Development ought to be regarded as vital for the implementation of the reforms capable to address and support the SDGs achievement. Also, in the same line with these aspects, the world leaders ought to have in mind the fact that the inclusive and the sustainable transformation implicates three major issues:

(a) First of all, equipping the governance and institutions with the instruments necessary to support the inclusive and the sustainable transformations due to arise in any society;

(b) Second of all, the policies and the investments that require immediate priority are the ones that center on the accomplishment of the SDGs; and

(c) Third of all, there is the need to create a balance, equilibrium between the needs of the environment and the health of individuals; hence respect and concern ought to be shown constantly towards the health of the environment as well as the happiness and the well-being of individuals.

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GREEN HUMAN RESOURCE MANAGEMENT

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ABSTRACT

The key aspects in human resource management today are the purposeful linking of objectives and metrics to measure results, increased accountability by achieving individual acceptance, prompt and persuasive action for a balanced approach to tasks and people. The crisis aspect of the prolonged and unpredictable pandemic, the technologically oriented and globalized society and business, the hybridity of changes are a strong factor of impact on management processes. And on the other hand, by itself, every crisis brings high levels of stress and anxiety, reduced motivation and staff turnover. The corona-virus pandemic has clearly shown us all the basic and so far, obvious prerequisites on which our economic success depends. Sustainable management of human resources means creating environmental, social and health conditions for both present and future generations. Finally, the growing international dimension of the current discussion makes it clear that sustainability is an issue that affects us all. Employers and employees face joint challenges to reconcile sustainability and profitability. This paper aims to enlighten the reader on the topic of green HRM by reviewing the existing literature, to contribute to the knowledge by highlighting the significant works of various researchers in a very simplified manner. It focuses on the current status of green HRM practices, where HRM has been a leading topic in recent years and where good practices and ideas can be highlighted. Employees' bargaining power decreases as supply of labour increases and so many employees are working longer hours for fear of being made redundant. The current economic crisis has put immense pressures on organisations to rethink their priorities and to cut costs and let go of many employees. Employees found their jobs, and in some cases, their livelihoods in danger almost overnight. Thus, it is becoming increasingly blurred when work begins and where it ends. Unpredictable employee markets, tighter budgets, a demotivated and dissatisfied workforce put strains on effective delivery of HRM. However, attracting and selecting the best candidates is neither an easy nor a cheap task. Recruitment and selection is a process where there are no one size fits all method and the process is subject to bias. Therefore, the motivational factor of personal trajectory is one in which the motivation arises from events that lead the individual to undertake socially and may involve an objective of helping people who go through the same problems that the individual faced or may be associated with the need of lifestyle change due to some event.

EKOLOJİK AYAK İZİNİN VE YEŞİL FİNANSAL GELİŞMENİN SÜRDÜRÜLEBİLİR KALKINMA ÜZERİNDEKİ ETKİSİ: G-7 ÜLKELERİ ÖRNEĞİ

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ÖZET
Geleneksel üretim ve tüketim alışkanlıklarının hem kaynaklar hem de çevre üzerinde yarattığı olumsuz etki tüm dünyayı göz ardı edilemeyecek boyutta ekolojik sorunlarla karşı karşıya getirmiştir. Çevresel tahribat karşımıza iklim değişikliği, küresel ısınma, hava, toprak ve su kirliliği olarak çıkmaktadır. Bu durum dikkatleri daha temiz dolayısıyla daha çevreci ve sürdürülebilir nitelikte üretim ve tüketim arayışına çekmiştir. Sözü edilen sürdürülebilirliğin sağlanması için de ülkelerin ekonomilerindeki niceliksel artışa niteliksel artışların da eşlik etmesi gerekmektedir. Çevresel bozulmanın önemli göstergelerinden biri olan karbon emisyonu ve ekolojik ayak izi aynı zamanda sürdürülebilir büyüme ve kalkınmanın da göstergesi haline gelmiştir. Sürdürülebilir kalkınmada önem arz eden bir diğer konu ise yeşil finanstır. Kabaca iktisadi büyümenin çevreye zarar vermeden gerçekleşmesine odaklanan yeşil finans kavramını çevre dostu yatırımlara sağlanan fon desteği şeklinde tanımlamak da mümkündür. Bu çalışmada ekolojik ayak izinin ve yeşil finansal gelişmenin sürdürülebilir kalkınma üzerindeki etkileri G-7 ülkeleri özelinde araştırılmıştır. G-7 içerisinde yer alan Kanada veri eksikliği nedeniyle analiz dışında bırakılmıştır. Ele alınan ülkelerin 1996-2018 yıllarına ait verileri panel veri yöntemi kullanılarak incelenmiştir. Çalışmanın bulgularına göre ekolojik ayak izindeki %1'lik bir artış sürdürülebilir kalkınma üzerinde %2 oranında bir gerilemeye neden olurken; yeşil finansal gelişmedeki %1'lik bir artış ise sürdürülebilir kalkınma üzerinde yaklaşık olarak %2 oranında bir gelişime olanak tanımaktadır. Aynı şekilde, kişi başına düşen enerji tüketimindeki ve karbondioksit emisyonundaki %1'lik artışların sürdürülebilir kalkınmayı sırasıyla %13 ve %18 oranında artırdığı test sonuçları arasındadır.
Anahtar Kelimeler: Sürdürülebilir Kalkınma, Ekolojik Ayak İzi, Yeşil Finansal Gelişme.

THE IMPACT OF ECOLOGICAL FOOTPRINT AND GREEN FINANCIAL DEVELOPMENT ON SUSTAINABLE DEVELOPMENT: THE CASE OF G-7 COUNTRIES

ABSTRACT
The negative impact of traditional production and consumption habits on both resources and the environment has brought the whole world face to face with ecological problems that cannot be ignored. Environmental destruction is manifested as climate change, global warming, air, soil and water pollution. This situation has drawn attention to the search for cleaner, more environmentally friendly and sustainable production and consumption. In order to achieve this sustainability, the quantitative increase in the economies of countries must be accompanied by qualitative increases.

Carbon emissions and ecological footprint, which are important indicators of environmental degradation, have also become indicators of sustainable growth and development. Another important issue in sustainable development is green finance. The concept of green finance, which roughly focuses on the realization of economic growth without harming the environment, can also be defined as the funding support provided to environmentally friendly investments. This study investigates the effects of ecological footprint and green financial development on sustainable development for G-7 countries. Canada, which is included in the G-7, is excluded from the analysis due to lack of data. The data of the countries analyzed for the years 1996-2018 are analyzed using the panel data method. According to the findings of the study, a 1% increase in the ecological footprint leads to a 2% decline in sustainable development, while a 1% increase in green financial development leads to a 2% improvement in sustainable development. Similarly, 1% increases in per capita energy consumption and carbon dioxide emissions increase sustainable development by 13% and 18% respectively.
Keywords: Sustainable Development, Ecological Footprint, Green Financial Development.

GİRİŞ

İnsan ve doğa arasında hem birbirini etkileyen hem de birbirinden etkilenen nitelikte, karşılıklı bir ilişki vardır. Sanayileşme ve kentleşmedeki artık, teknolojik ilerleme ve hızla artan nüfus bu ilişkiyi çevre aleyhinde konumlanır bir hale getirmiştir. Bu bozulmuş ilişki neticesinde, bugün dünya tüm canlı varlığını tehdit eden, acil çözüme muhtaç pek çok çevre sorunlarıyla karşı karşıyadır. Ekonomik büyüme kanalıyla toplumsal refah artırılırken çevrenin korunmasının amaçlanması sürdürülebilir kalkınma fikrini doğurmuştur.

Ekonomik büyüme kavramının zamanla yetersiz hale gelmesi sürdürülebilir kalkınma kavramını doğurmuştur. Bu kavram ilk kez 1987'de Dünya Çevre ve Kalkınma Komisyonu tarafından hazırlanıp yayınlanan ve Bruntland Raporu olarak bilinen "Ortak Geleceğimiz" raporunda dile getirilmiştir(Akyol ve Gül, 2021: 1722). Bu rapora göre sürdürülebilir kalkınma, sahip olunan doğal kaynakları, gelecek nesillerin de bu kaynaklara ihtiyaç duyacağı bilinciyle kullanmayı ifade etmektedir. Bu açıdan sürdürülebilir kalkınma, yalnızca ekonomiye odaklanan bir kavram olmaktan çıkmakta, ekonominin yanı sıra çevresel ve toplumsal kalkınmayı da amaçlamaktadır(Dinç, 2015: 2).

Sürdürülebilir kalkınma birden fazla alanı ilgilendirmesi sebebiyle farklı alanlarda birçok faktörle olan ilişkisi pek çok araştırmaya konu olmuştur. Bu çalışmada sürdürülebilir kalkınmanın ekolojik ayak izi ve yeşil finansal gelişme arasındaki ilişki G-7 ülkeleri ele alınarak incelenecektir. Çalışmanın ilk bölümünde değişkenlerin kavramsal boyutu ele alınacaktır. Çalışmanın ikinci kısmında konuya ilişkin literatürden bahsedilecektir. Son bölümde ise ekolojik ayak izi ve yeşil finansal gelişmenin sürdürülebilir kalkınma üzerindeki etkileri ampirik olarak test edilip bulgulara yer verilecektir.

KAVRAMSAL ÇERÇEVE

Toplumların çevre üzerinde yarattığı tahribatı hesaplamak için çeşitli muhasebe araçları geliştirilmiştir. Bu araçlar aynı zamanda sürdürülebilirliğin sağlanması açısından da önemlidir. Bu araçlardan bir tanesi olan ekolojik ayak izi kavramı ilk kez 1996'da "Ekolojik Ayak İzimiz: Dünya Üzerinde İnsan Etkisinin Azaltılması (Our ecological footprint: reducing human impact on the earth)" isimli kitapta Mathis Wackernagel ve William Rees tarafından kullanılmıştır(Açıkalın ve Apaydın, 2021: 127).

İnsanların doğaya olan bağımlılığını ölçen ekolojik ayak izi, tüketilen kaynakları yeniden üretmek ve ortaya çıkan atıkların bertaraf edilmesi için gerekli olan toplam üretken ve verimli toprak ve su alanını ifade eder(Irshad & Hussain, 2017: 6-7).

Her ülkenin ekolojik ayak izi farklıdır. Ekolojik ayak izi'nin alanı ülkelerin nüfuslarının büyüklüğüne, kullandıkları teknolojiye,malzeme standartlarına ve ekolojik üretkenliğe bağlı olarak ülkeden ülkeye değişmektedir(Kılınç, 2021: 529).
Ekolojik ayak izi ile doğrudan bağlantılı bir kavram olan biyolojik kapasite, coğrafi bir bölgenin yenilenebilir kaynakları üretme kapasitesini açıklar. Bir bölgenin biyolojik kapasitesini iki etmen belirlemektedir. Bu etmenlerden ilki; bölgenin sınırları içerisinde yer alan orman alanlarının yüzölçümleri, tarım arazileri, otlak alanları ve balıkçılık sahalarıdır. Biyolojik kapasiteyi belirleyen diğer etmen ise toprakların ve suların üretkenlik miktarıdır. Hem ekolojik ayak izi hem de biyolojik kapasite birim olarak küresel hektar (kha) cinsinden ifade edilmektedir. Küresel hektar, tüm dünyanın ortalama verimliliği üzerinden 1 hektar arazinin üretim kapasitesini temsil eder ve belirli bir süre dahilinde farklı arazi türlerinden sağlanan toplam kaynak miktarını ve bu kaynaklara olan talebi ortak bir birim kanalıyla sayısal olarak açıklamaktadır (WWF, 2012: 6-13). Tüketimin, üretim alanının ve nüfusun (ekolojik ayak izi = üretim alanı x nüfus x tüketim) çarpılmasıyla hesaplanan ekolojik ayak izi; otlak ve orman alanı, tarım arazisi, balıkçılık sahası, karbon ayak izi ve yapılaşmış alan bileşenlerinden oluşmaktadır (WWF, 2012: 9).
Sürdürülebilir kalkınma hedefine yönelik kullanılan enstrümanlardan yeşil finans fikri, 1974'te Almanya'da çevre koruma bankasının faaliyete geçmesiyle doğmuş ve sırasıyla 1992 yılında Rio Bildirgesi, 1997 yılında Kyoto Protokolü, 2002 yılında Ekvator Prensipleri ve 2015 yılında Paris Anlaşması ile gelişmiştir (Wang vd., 2021:265). Yeşil finanstaki en önemli husus ekonomik büyümenin çevreye zarar vermeden sağlanmasıdır. Bu açıdan iş dünyasını çevre dostu finans anlayışıyla birleştiren bir kavramdır. Bir diğer deyişle yeşil finans, çevreyi korumaya ve kaynaklardan sürdürülebilir nitelikte faydalanmaya odaklı bir modeldir(Zengin ve Aksoy, 2021: 369). Yeşil finans her ne kadar çevreye odaklansa da bu yönde hayata geçirilen politikaların ekonomiyi ve toplumu nasıl etkileyeceğini de göz önünde bulundurmaktadır. Bu haliyle yeşil finans çevresel olduğu kadar iktisadi ve sosyal yönleri de olan çok boyutlu bir kavramdır(Huang vd., 2022: 5).
Yeşil finansa yönelik üzerinde uzlaşılan net bir tanım olmamakla birlikte bu konuda yapılan çalışmalarda yeşil finans, çevre dostu, sürdürülebilir projelere yapılan yatırımlara fon sağlanması şeklinde açıklanmaktadır. Bir diğer deyişle üretimi ve tüketimi ciddi ölçüde azaltmayacak şekilde, sera gazı ve karbon emisyonunu azaltan nitelikteki yatırımların desteklenmesidir. Yeşil finans bu nitelikteki kredileri, tahvilleri, hisse senetlerini ve diğer tüm finansal araçları kapsamaktadır(Aren, 2022: 60-62). Ekolojik dengeyi bozmayarak, çevreyi kirletmeden ekonomik büyümeyi sağlamak, yeşil finans politikasının amacıdır. Yeşil finansın öne çıkan dört temel bileşeni vardır. Bunları yeşil tahviller, yeşil krediler, yeşil hisse senetleri ve yeşil sigortalar şeklinde sıralamak mümkündür(Güler ve Tufan, 2015: 84).

LİTERATÜR

Nüfus artışı, teknolojik gelişmeler, üretimdeki ve tüketimdeki niteliksel ve niceliksel artışlar doğal kaynaklar ve çevre üzerinde yıkıcı sonuçlar doğurmuştur. Bu durum daha çevreci, insan ve doğa arasında denge gözeten yani sürdürülebilir nitelikte büyümenin yollarını araştıran pek çok çalışmanın ortaya çıkmasına katkı sağlamıştır.
Gültekin, H. (2023) çalışmasında Türkiye'de finansal gelişme ekonomik büyüme ve inovasyonun karbon emisyonları üzerindeki etkisi araştırmıştır. Bu amaçla 1980-2020 dönemine ait yıllık veriler, ele alınan değişkenler arasındaki uzun dönem ilişkiyi saptamak üzere ARDL sınır testi yaklaşımı kullanılarak analiz edilmiştir. Elde edilen sonuçlara göre, üzerinde çalışılan değişkenler arasında uzun dönemli ilişki söz konusudur.

Çalışmanın sonuçlarından bir diğeri de finansal gelişmenin ve ekonomik büyümenin karbon emisyonlarında artışa; inovasyonun ise karbon emisyonlarında azalışa neden olduğudur.
Çetenak vd(2023) çalışmalarında Türki ülkelerdeki (Azerbaycan, Kazakistan, Kırgızistan ve Türkiye) finansal gelişmenin ekonomik büyüme üzerindeki etkisini araştırmışlardır. Ele alınan ülkelere ait 1995-2017 yıllarına ait veriler kullanılarak yapılan test sonucuna göre finansal gelişme ile ekonomik büyüme arasında pozitif bir ilişkinin olduğu saptanmıştır.
Kihombo ve vd. (2021), finansal gelişme ve ekonomik büyümenin ekolojik ayak izi ilişkisini Batı Asya ve Orta Doğu ülkelerine ait 1990–2017 yıllarını kapsayan verileri kullanarak yeni nesil panel veri yöntemiyle incelemiştir. Çalışma sonunda, finansal gelişme, kentleşme, ve ekolojik ayak izi arasında pozitif bir ilişkiye ulaşılmıştır. Ele alınan bu ülkelerdeki hızlı kentleşme ve finansal gelişme, ilgili ülkelerin çevre kalitesi üzerinde bozucu etki yaratmıştır
Ibrahim vd. (2022) çalışmalarında yenilenebilir enerji, yeşil finans, teknolojik yenilik ve ekonomik karmaşıklığın Çin'in sürdürülebilir kalkınma üzerindeki etkisini incelemişlerdir. 1996-2018 yıllarına ait veriler ARDL ile analiz edilmiş ve yenilenebilir enerji ve teknolojik yeniliklerin sürdürülebilir kalkınma üzerinde olumlu etkilerinin olduğu sonucuna ulaşılmıştır.
Usman ve vd. (2022), çalışmalarında sekiz Kuzey Kutbu ülkesine ait 1990'dan 2017'ye kadarki verileri kullanarak finansal gelişme, küreselleşme, doğal kaynaklar, yenilenemeyen ve yenilenebilir enerji tüketiminin sera gazı emisyonları ve ekonomik büyüme üzerindeki etkilerini incelemişlerdir. Çalışmanın sonunda küreselleşme, iktisadi büyüme, yenilenemeyen ve yenilenebilen enerji tüketimi ve finansal gelişmenin çevresel bozulmayı artırdığı sonucuna ulaşmışlardır.
Tamazian ve vd. (2009) BRIC ülkelerindeki ekonomik büyüme, finansal gelişme ve çevre kalitesi arasındaki ilişkiyi araştırmışlardır. Bu amaçla BRIC ülkelerine ait 1992-2004 yılları arasındaki verileri panel veri yöntemiyle analiz etmişlerdir. Çalışmanın sonucuna göre finansal açıklık ve finansal gelişme karbon emisyonlarını azaltmakta ve bu sayede çevresel bozulmanın gerilemesine katkı sağlamaktadır.
Al-Mulali ve vd. (2015) çalışmalarında finansal gelişmenin çevresel bozulma üzerindeki etkisini araştırmışlardır. Bunun için 129 ülkeyi gelir seviyesine göre gruplandırmış ve bu ülkelere ait 1980 ile 2011 yılları arasındaki verileri kullanarak panel veri yöntemiyle analiz etmiştir. Çalışma sonunda, finansal gelişmenin çevresel bozulma üzerindeki etkisinin hem kısa hem de uzun dönemde çevre lehine olduğu sonucuna ulaşmıştır. Bu sebeple ilgili ülkelerin kısa ve uzun vadede çevresel bozulmaların azalmasına yardımcı olması için enerji verimliliği ve tasarrufu sağlayacak projelere ve yatırımlara banka kredisinin sağlanmasını, kısaca yeşil finansal gelişmeyi desteklemeleri gerekmektedir.
Yang vd.(2022) bu çalışma G-7 ülkelerinde seçilen yedi sektörün sürdürülebilir kalkınma hedeflerine odaklanmıştır. 2010-2018 yıllarını kapsayan veriler kullanılarak yapılan analiz sonucunda yeşil finansın, temiz enerjinin ve yeşil ekonominin ve hem sektörel hem de bireysel açıdan sürdürülebilir uygulamalara katkı sağladığı görülmüştür.
Öztürk ve Acaravcı(2013) çalışmalarında Türkiye'de finansal gelişme, iktisadi büyüme, enerji tüketimi, ticaret, ve karbon emisyonları arasındaki nedensel ilişkiyi incelemişlerdir. Bu kapsamda 1960–2007 dönemine ait veriler kullanılmıştır. Yapılan analizin sonuçlarına göre dış ticaretin GSYH'ye oranındaki artış kişi başına düşen karbon emisyonunu artırmaktadır. Bunun yanında finansal gelişmişliğin uzun vadede kişi başına karbon emisyonu üzerinde anlamlı bir etkisinin olmadığı sonucuna ulaşılmıştır.

VERİ SETİ VE YÖNTEM

Bu çalışmada ekolojik ayak izinin ve yeşil finansal gelişmenin sürdürülebilir kalkınma üzerindeki etkisi G7 ülkeleri özelinde araştırılmıştır. Analizde kullanılacak değişkenler literatüre uygun olarak seçilmiştir. Buna göre sürdürülebilir kalkınmayı temsilen kişi başına düşen milli gelir alınmıştır. Bu değişken *(logSEG_N)* ile gösterilmekte ve bağımlı değişken olarak ele alınmaktadır. Modelin bağımsız değişkenlerinden ilki ekolojik ayak izi olup *(logEFP_N*) ile gösterilmektedir. Modelin ikinci bağımsız değişkeni ise yeşil finansal gelişmeyi temsil eden özel sektöre verilen banka kredilerinin gayrisafi yurt içi hasıla içindeki yüzde payıdır. Bu değişken modelde *(logGFD_N)* ile gösterilmektedir. Modelin diğer açıklayıcı değişkenleri kişi başı enerji tüketimi ve co2 emisyonudur(kişi başına metrik ton). Bu değişkenler sırasıyla *(logENPC_N)* ve (*logCO2_N*) ile gösterilmektedir. Sözü geçen değişkenlere Dünya Bankası ve Global Footprint Network kuruluşlarından erişilmiştir. Modelde kullanılan değişkenlere ait açıklamalar ve incelenen dönem tablo 1'de gösterilmiştir.

Tablo 1: Değişkenlere Ait Bilgiler

Değişkenler	İncelenen Dönem	Kaynak
(Sürdürülebilir Kalkınmayı Temsilen- Kişi Başına Düşen) (Yıllık %/)	1996-2018	(World Bank Https://Data. Worldbank.Org)
Ekolojik Ayak İzi (EFP)	1996-2018	Global Footprint Network (Https://Www.Footprintnetwork.Org
Özel Sektöre Verilen Banka Kredisi (GFD) (Yeşil Finansal Gelişmeyi Temsilen) (GSYİH'nin Yüzdesi)	1996-2018	(World Bank Https://Data. Worldbank.Org)
Kişi Başı Enerji Tüketimi (ENPC) (Kg Petrol Eşdeğeri)	1996-2018	(World Bank Https://Data. Worldbank.Org)
CO2 Emisyonu(CO2) (Kişi Başına Metrik Ton)	1996-2018	(World Bank Https://Data. Worldbank.Org)

Ekolojik ayak izi ve yeşil finansal gelişmenin sürdürülebilir kalkınma üzerindeki etkisinin test edilmesi için oluşturulan model aşağıdaki gibidir:

$$logSEG\_N_{it} = \alpha_0 + \alpha_1 logEFP\_N_{it}\ \alpha_2 logGFD\_N_{it} + \alpha_3 logENPC\_N_{it}\ \alpha_4 logCO2\_N_{it} + \epsilon_{it}$$

Çalışmada G7 ülkeleri olan Almanya, Amerika Birleşik Devletleri, Birleşik Krallık, İtalya, Fransa, Japonya ve Kanada ele alınmıştır. Ancak Kanada veri eksikliği nedeniyle analiz dışında bırakılmıştır. Son haliyle G7 gurubunda yer alan altı ülkenin 1996-2018 yıllarına ait veriler panel veri yöntemiyle Stata 15.0 programı kullanılarak tahmin edilmiştir.

TAHMİN SONUÇLARI

Çalışma için oluşturulan modelin tahminine dair sonuçlar ilgili tablolarda gösterilmiştir. Aşağıda sırasıyla değişkenlere ait temel istatistiki göstergeler ve tahmin sonuçları yer almaktadır. Çalışmada kullanılan tüm değişkenlerin logaritması alınmıştır. Değişkenlere ait verilerde eksikliğin olmayışı panel dengeli kılmaktadır.

Tablo 2: Tahminde Kullanılan Değişkenlere Ait Temel İstatistiki Göstergeler

Değişkenler	Gözlem sayısı	Ort.	Std. sapma.	Min	Max
logSEG_N	138	3.952	.942	0	4.927
logEFP_N	138	3.952	.942	0	4.927
logGFD_N	138	3.952	.942	0	4.927
logENPC_N	138	3.936	.944	0	4.92
logCO2_N	138	3.554	.83	0	4.277

Tablo 3: Jarque-Bera, VIF kriteri, Levene, Brown-Forsythe, DW ve LBI, Breusch-Pagan LM ve Pesaran CD Testlerinin Birlikte Gösterimi

	Jarque-Bera
	4,745chi(2) 0,9142
	VIF Kriteri
logEFP_N	1.60
logGFD_N	1.04
logENPC_N	1.60
logCO2_N	1.32
Mean VIF	1.39
	Levene, Brown-Forsythe Test
W0 = 3.5382838	Pr > F = 0.00491984
W50 = 2.7426761	Pr > F = 0.00216338
W10 = 3.2519400	Pr > F = 0.00084077
	DW ve LBI Testi
Durbin-Watson	.7191854
Baltagi-Wu LBI	.78582428
	Breusch-Pagan LM Test
chi2(1)	0.39
Pr.	0.3740
	Pesaran CD: 13.085
Pr	0.0000

Modelin normallik sınaması Jarqua-Bera testi ile yapılmıştır. Test sonucunda H_0 kabul edilmiştir. Buna göre model normal dağılmaktadır. Çoklu doğrusal bağlantı sorununa yönelik yapılan test sonuçlarına göre varyans artış faktörü (VIF) kritik eşik olan 1-5 arasında bir değer aldığından dolayı modelde çoklu doğrusal bağlantı sorunu olmadığı sonucuna ulaşılmıştır.

Üzerinde çalışılan modelde heteroskedasitenin varlığını sınamak için Levene, Brown-Forsythe Test ve otokorelasyonun varlığını sınamak için ise Durbin-Watson ve Baltagi-Wu LBI(1999) testleri yapılmıştır. Elde edilen sonuçlar, üzerinde çalışılan modelde hem otokorelasyonun hem de heteroskedasitenin olduğu göstermektedir. Modelde birimler arası korelasyonun varlığını test etmeye yönelik yapılan Pesaran CD testi (2004), sonucunda H_0 hipotezi reddedilmiştir. Bu sonuca göre modelde birimler arası korelasyon mevcuttur. Bu sonuçlar ışığında çalışmada kullanılan model, istatistiki olarak tüm varsayımdan sapmalara karşı dirençli olup, etkin, ve tutarlı tahminler yapan ve güvenilir sonuçlar sunan Driscoll-Kraay(1998) model tahmincisiyle tahmin edilmiştir. Driscoll-Kraay dirençli standart hatalar yöntemi, yalnızca yatay kesit bağımlılığı sorununda değil; aynı zamanda otokorelasyon ve heteroskedasite sorunlarının varlığında da uygulanmakta ve tutarlı tahmin sonuçları sunmaktadır(Şanlı, 2016: 95).

Tablo 4: Driscoll-Kraay Panel Regresyon Tahmini

Bağımlı Değişken: logSEG_N			
Değişkenler	**Katsayı**	**t istatistiği**	**p-değeri**
logEFP_N	-.0269103	-1.450	0.034
logGFD_N	.0245685	1.73	0.013
logENPC_N	.1365562	2.20	0.000
logCO2_N	.1845458	2.73	0.005
Sabit Terim	2.825329	5.03	0.000
N	138		
wald chi2(4)	20.80		
Prob > chi2	0.0003		
overall R-squared	0.1027		

Tahmin sonuçlarına göre ekolojik ayak izinin sürdürülebilir kalkınma üzerindeki etkisi negatif ve anlamlı bulunmuştur. G-7 ülkelerinde ekolojik ayak izinde meydana gelen %1' lik bir artış, ele alınan ülkelerde sürdürülebilir kalkınma üzerinde yaklaşık %2 oranında bir gerilemeye neden olmaktadır. Bir diğer açıklayıcı değişken olan yeşil finansal gelişmenin sürdürülebilir kalkınma üzerindeki etkisi pozitif ve anlamlıdır; yeşil finansal gelişmedeki %1'lik bir artış ise sürdürülebilir kalkınma üzerinde yaklaşık olarak %2 oranında bir gelişime olanak tanımaktadır. Modele dahil edilen değişkenlerden kişi başına düşen enerji tüketimindeki %1'lik bir artış sürdürülebilir kalkınmayı %13 oranında artırmaktadır. Karbondioksit emisyonundaki %1'lik bir artışın sürdürülebilir kalkınma üzerinde %18 oranında bir artış yarattığı test sonuçlarından bir diğeridir.

SONUÇ

Nüfus artışı, teknolojik ilerlemeler ve ülkelerin ekonomik büyümeye ilişkin politikaları üretimde ve tüketimde hem yapısal hem de miktarsal değişikliklere neden olmaktadır. Sözü edilen değişimlerin sınırlı doğal kaynaklarla karşılanmaya çalışılması çevrenin tahribatına ve nihayetinde ekosistemin bozulmasına neden olmuştur. Sınırlı olan kaynakların bilinçsizce ve gelecek nesilleri düşünmeden tüketilmesinin ağır sosyal maliyetlerinin ortaya çıkmasıyla sürdürülebilirlik kavramı iktisadi hedeflere konu olmaya başlamıştır.

Sürdürülebilir kalkınma özünde, bugünün ihtiyaçlarını gelecek nesillerin ihtiyaçlarını karşılayabilme imkanlarına zarar vermeden karşılama fikrini taşımaktadır. Burada gelecek nesiller vurgulanmış olsa da aslında ekosistemde yer alan tüm varlıkların gözetilmesi söz konusudur.

Ekonomik büyümenin çevre dostu politikalarla gerçekleştirilmesine yönelik çalışmalar, iktisadi büyüme ve kalkınma kavramını farklı disiplinlere ait kavramlarla bir araya getirmiştir. Çevresel bozulmanın ölçülmesinde kullanılan göstergelerden ekolojik ayak izi bunlardan biridir. Finans sektörünü çevreci yatırımlara yönelten yeşil finans kavramı yine sürdürülebilir kalkınma hedefine ulaşmada etkin rol oynayan aktörlerden biridir.

Sürdürülebilir kalkınmaya dair çalışmaların her birinde pek çok farklı faktörün etkisi araştırılmıştır. Bu çalışmada bu faktörlerden ekolojik ayak izi ve yeşil finansal gelişmenin sürdürülebilir kalkınma üzerindeki etkisi incelenmiştir. Bu etki G-7 ülkeleri özelinde ele alınmıştır. Çalışmanın sonucunda ele alınan ülkelerde ekolojik ayak izindeki artış sürdürülebilir kalkınmayı olumsuz etkilerken; yeşil finansal gelişme ise olumlu etkilemektedir. Elde edilen bu sonuçlar hem bireysel hem de toplumsal olarak iktisadi faaliyetlerin ne nitelikte olması gerektiğine dair fikirler vermektedir. Ülkelerin iktisadi hedeflerinin yalnızca büyümek olmaması; uygulanacak politikaların ekonomik, sosyal ve çevresel yönlerinin de önemsenmesi ekonomik faaliyetlerin ekosistem üzerinde yarattığı baskının azaltılmasında kilit rol üstlenmektedir.

Doğal kaynaklara yalnızca bugün değil gelecekte de muhtaç olunduğu ve bu kaynakların tükenebilir nitelikte olduğunu bilerek; ekosistemdeki tüm canlıların yaşam hakkına saygı duyarak üretmek ve tüketmek bugünü daha yaşanabilir yarını ise “mümkün” kılacaktır.

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DÖNGÜSEL EKONOMİ ÇERÇEVESİNDE ENERJİNİN DÖNGÜSELLİĞİ VE ÇEVRE ETKİSİ ÜZERİNE BİR İNCELEME

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Özet
Enerji insanlık tarihinde önemli bir yasam aracı olarak hem öneminin korumuştur. Bireysel ya da toplumsal yaşamda vazgeçilmez bir konumda olan enerji her gün gelişim göstererek gerek tür olarak gerekse miktarsal kullanım olarak sürekli bir gelişim içindedir. Bu haliyle ülkelerin iktisadi büyüme ve kalkınmasında önemli roller üstlendiği gibi modern toplumsal yaşamda da önemli roller üstlenmektedir. Enerjinin yatırım, yenilik ve istihdamı destekleyecek yeni sanayi kollarının inşasında önemli payı olması ve iktisadi büyümenin vazgeçilmez bir üretim faktörü olması nedeniyle Birleşmiş Milletler Sürdürülebilir Kalkınma Amaçlarını 17 başlıkta toplayarak bu amaçların 7 maddesini yedincisini 'Erişilebilir ve Temiz Enerji'ye ayırmıştır. Hiç şüphesiz enerji sektörünü, iktisadi kalkınmadan ve iklim krizi ile mücadeleden bağımsız düşünmek sürdürülebilirliğin doğasına zıt olan bir durum olacaktır.
Bu çalışmanın amacı döngüselliği enerji boyutu ile ele alarak enerjide döngüselliğin çevre ile ilişkisini ortaya koymaktadır. Bu bağlamda çevresel etki olarak kişi başına karbondioksit emisyonu ölçü alınarak döngüselliği olan enerjilerin kullanımı ile döngüselliği olmayan enerjilerin kullanımının gelişmiş ekonomiler için 1990 - 2020 dönemi için çevreye maliyetinin ampirik olarak ortaya konulması hedeflenmektedir. Bu kurgusal araştırma sonucunda döngüselliği olan enerji kullanımının döngüselliği olmayan enerji kullanımına göre çevre maliyeti daha düşük olması beklenmektedir.
Anahtar kelimeler: Çevresel kalite, Döngüsellik, Enerji

A REVIEW ON THE CIRCULARITY OF ENERGY AND ENVIRONMENTAL IMPACT WITHIN THE FRAMEWORK OF CIRCULAR ECONOMY

Abstract
In human history, energy has maintained its importance as an essential life means. Energy, indispensable in individual or social life, is continuously developed in terms of type and quantity of use. As such, it plays a vital role in countries' economic growth, development, and modern social life. Because energy has an essential share in the construction of new industrial branches that will support investment, innovation, and employment, and it is an indispensable production factor for economic growth, the United Nations has grouped the Sustainable Development Goals under 17 headings and devoted the seventh of these goals to 'Accessible and Clean Energy.' Undoubtedly, it would be contrary to the nature of sustainability to consider the energy sector independent from economic development and the fight against the climate crisis.

This study analyzes circularity in energy and its relationship with the environment. In this context, by taking carbon dioxide emissions per capita as the environmental impact, it aims to empirically reveal the environmental cost of using circular energies and non-circular energies for developed economies from 1990-2020. As a result of this fictitious research, the use of circular energy is expected to have lower environmental costs than the use of non-circular energy.
Keywords: Environmental quality, circularity, energy

ATIK YÖNETİMİ ÇEVRESEL KALİTE ÜZERİNDE ETKİLİ Mİ ? SEÇİLMİŞ AB ÜLKELERİNDEN KANITLAR

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Özet
İktisat biliminin temeline bakıldığında varlık nedeninin kıt kaynaklarla mücadele etmek olduğu anlaşılmaktadır. Kaynakların, üretim sürecinde verimli kullanılması bu mücadelenin bir tarafını oluştururken diğer tarafını da üretim süreci sonrası tüketim sürecinde ortaya çıkabilecek kullanılmayan atık olarak nitelenen kısmının yeniden ekonomiye kazandırılması ya da zararsız ve çevre dostu bir atık konumunda tutulabilmesidir. Atık yönetimi ürünün tüketim sonrası oluşan ve tüketilemeyen kısmının ekonomiye ve çevreye kazandırılma çabası olarak düşünülebilir. Atık Yönetim atığın oluşmasının önlenmesi, atığın minimizasyonu, atığın yeniden kullanımı, geri dönüşüm ve enerji geri kazanımı gibi aşamalar atık yönetiminde izlenecek yoldur. Bunların hiçbiri gerçekleştirilemiyorsa en son tercih olarak düzenli depolama veya yakma şeklinde çevreyle ilişkisini zararsız duruma getirmektir.
Bu çalışma AB ülkelerinde 2011-2020 döneminde atık yönetim aşamalarından geri dönüşüm aşamasının sürdürülebilir kalkınmaya ile ilişkisini panel veri analizi yöntemi ile ortaya koymayı hedeflemektedir. Bu bağlamda seçilmiş Avrupa Birliği ülkelerinde sürdürülebilir kalkınma için dört atık yönetimi göstergesinin ekolojik ayak izi üzerindeki etkisi araştırılmaktadır. Araştırmanın hipotezi atık geri dönüş oranlarının artması sürdürülebilir kalkınmaya pozitif katkı yapağı şeklinde kurgulanmıştır.
Anahtar Kelimeler: Çevresel Kalite, Sürdürülebilirlik, Atık Yönetimi

DOES WASTE MANAGEMENT IMPACT ON ENVIRONMENTAL QUALITY: EVIDENCE FROM SELECTED EU COUNTRIES

Abstract
When we look at the basis of economics, it is understood that the reason for its existence is to struggle with scarce resources. While the efficient use of resources in the production process constitutes one side of this struggle, the other side of this struggle is the recycling of the unused waste that may arise in the consumption process after the production process into the economy or keeping it in a harmless and environmentally friendly waste position. Waste management can be considered an effort to bring the post-consumption and non-consumable part of the product to the economy and the environment. Waste Management is the path to be followed in waste management, such as waste prevention, minimization, reuse, recycling, and energy recovery. If none of these can be realized, the last choice is to render it harmless to the environment through landfill or incineration.
This study uses the panel data analysis method to reveal the relationship between the recycling stage, one of the waste management stages, and sustainable development in EU countries in 2011-2020. In this context, the impact of four waste management indicators on ecological footprint for sustainable development in selected European Union countries is investigated. The study hypothesizes that increased waste recycling rates will positively contribute to sustainable development.
Keywords: Environmental quality, Sustainability, Waste Management

GERİ DÖNÜŞÜM ORANLARI ÜZERİNDEN SEÇİLMİŞ AVRUPA ÜLKELERİ ve TÜRKİYE KIYASLAMASI

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ÖZET
Sürdürülebilir kalkınma amaçlarına ulaşmayı sağlayacak bir üretim modeli olarak görülen döngüsel ekonomi, atık maddelerin geri dönüşüm yoluyla ekonomiye tekrar kazandırılması şeklinde ifade edilebilir. Döngüsel ekonominin tarihinin, antik çağlara dayandığını söylemek mümkündür. Araştırmacılar günümüzde Dubai'de yer alan Saruq Al Hadid arkeolojik sit alanında, 3000 yıl öncesine uzanan geri dönüşüm izlerine rastlamıştır. Savaşlar nedeniyle ortaya çıkan kaynak sıkıntısı, geri dönüşüm ihtiyacının doğmasında etkin rol oynamış; büyük devletler II. Dünya Savaşı devam ederken, ülke çapında geri dönüşüm kampanyaları başlatmıştır.
Döngüsel ekonomik sistemdeki 3R yaklaşımı, döngüselliği bütüncül bir şekilde ortaya koymaktadır. 3R ifadesi; İngilizce Recycle (geri dönüşüm), Reuse (yeniden kullanma) ve Reduce (azaltma) kelimelerinin baş harfini temsil etmektedir. Dolayısıyla geri dönüşüm oranları, döngüsel ekonominin en önemli bileşenlerindendir. Bu çalışmanın amacı, geri dönüşüm konusunda Avrupa ülkeleri ve Türkiye'nin konumu üzerine betimsel bir analiz yapmaktır. Çalışma kapsamında seçilmiş Avrupa ülkeleri ve Türkiye'de, 2010-2020 yılları arasında; belediye atıklarının, ambalaj türüne göre ambalaj atıklarının, büyük mineral atıkları hariç tüm atıkların, elektronik atık ve biyoatık geri dönüşüm oranları kıyaslanmıştır. Çalışma sonucunda; geri dönüşüm konusunda Hollanda, Almanya, Fransa, Danimarka, Norveç ve İsveç gibi ülkelerin örnek teşkil ettiği tespit edilmiş; bu ülkeler tarafından geliştirilen politika ve uygulamaların takip edilmesinin, Türkiye gibi gelişmekte olan ülkelere de ilham vereceği kanaatine varılmıştır.
Anahtar Kelimeler: Döngüsel ekonomi, Geri dönüşüm, Geri dönüşüm oranları

COMPARISON of SELECTED EUROPEAN COUNTRIES and TURKIYE on RECYCLING RATES

ABSTRACT
Circular economy, seen as a production model that will achieve sustainable development goals, can be expressed as the recycling of waste materials into the economy. It is possible to say that the history of the circular economy dates back to ancient times. Researchers have found traces of recycling, dating back 3000 years at the Saruq Al Hadid archaeological site in Dubai. The resource shortage resulting from wars played an active role in the emergence of the need for recycling; great powers start country wide recycling campaigns, while World War II continues.
The 3R approach in the circular economic system reveals circularity in a holistic way. 3R expression represents the first letter of the English words Recycle, Reuse and Reduce.

Therefore, recycling rates are one of the most important components of the circular economy. The aim of this study is to make a descriptive analysis on the position of European countries and Turkey regarding recycling. Within the scope of the study, in selected European countries and Turkey; the recycling rates of municipal waste, packaging waste by packaging type, all waste except large mineral waste, electronic waste and biowaste were compared between the years of 2010-2020. As a result of the study, it was determined that countries such as the Netherlands, Germany, France, Denmark, Norway and Sweden set an example in terms of recycling; it was concluded that following the policies and practices developed by these countries would also inspire developing countries such as Turkey.
Keywords: Circular economy, Recycling, Recycling rates

GELECEĞİN İKİ ÖNEMLİ AKTÖRÜ: YEŞİL BÜYÜME VE YEŞİL FİNANS

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ÖZET
Ekonomik büyüme bütün ülkeler için ortak bir hedeftir. Son yıllarda ekonomik büyümenin tek başına yeterli olmayacağı, bunun aynı zamanda gelecek nesillerin yaşam şartlarının bu günkü nesillerden daha kötü olmayacak şekilde destekleyecek bir dünyayı dizayn etme çabaları da ekonomik büyümenin sürdürülebilirlik boyutunu ortaya koymaktadır. Yeşil ekonomi olarak ifade edilen bu durumun en önemli ayağı da iktisadi hedeflerin yakalanmasında ve uygulanan politikalarda çevreci (döngüsel) bir iktisadi yapı inşa edilmesidir. Zira kaynakların sınırsız olmaması ve yaşanabilir bir dünya tesis etme amacı bu yapının inşasını zorunlu kılmaktadır. Söz konusu iktisadi yapının inşasında finansman önemli bir yönü oluşturmaktadır. Çevre dostu mal ve hizmetlerin satın alınması veya yeşil altyapının inşası gibi çevre açısından olumlu faaliyetleri teşvik eden bir kredi veya yatırım olarak ifade edilebilen çevreci finans bir diğer ifade ile yeşil finans böyle bir iktisadi yapının ana unsuru olarak görülmeye başlanmıştır.
Bu çalışmanın amacı yeşil büyüme hedeflerine ulaşmada ve sürdürülebilirliğini sağlamada yeşil finans olarak ifade edilen çevre dostu kredi ve yatırım politikalarının en iyi olduğu gelişmiş ülkeler ve Türkiye'nin durumunu değerlendirmektir. Bu bağlamda yapılan araştırma sonucuna göre Türkiye'de dâhil olmak üzere ülkelerde tüketim ve yatırımların finansmanında yeşil finansman için gerekli adımların atılmaya başlandığı ancak olması gereken düzeyde olmadığı anlaşılmıştır. Bu sonuçlar bize yeşil finansman şeklinin artık bir tercih olmaktan çıkıp bir zorunluluğuna dönüşecek iktisadi, sosyal ve siyasi kararlığı gösterecek düzenlemeler gidilmesi gerekliğini ortaya koymaktadır.
Anahtar Kelimeler: Yeşil Büyüme, Yeşil Finans, Tüketim, Yatırım.

TWO KEY PLAYERS OF THE FUTURE: GREEN GROWTH AND GREEN FINANCE

ABSTRACT
Economic growth is a common goal for all countries. In recent years, the efforts to design a world in which economic growth alone will not be sufficient and, at the same time, support future generations' living conditions in a way that will not be worse than those of today's generations reveal the sustainability dimension of economic growth. The most important pillar of this situation, the green economy, is constructing an environmental (circular) economic structure to achieve financial goals and the policies implemented. Because resources are not unlimited and the aim of establishing a livable world necessitates the construction of this structure. Financing constitutes an essential aspect in the construction of this economic structure. Green finance, a loan or investment encouraging environmentally positive activities such as purchasing ecologically friendly goods and services or constructing green infrastructure, has become the central economic structure.

This study evaluates the situation of developed countries and Turkey, where environmentally friendly credit and investment policies, expressed as green finance, are best in achieving green growth targets and ensuring sustainability. According to the results of the research conducted in this context, it has been understood that the necessary steps for green financing in financing consumption and investments have begun to be taken in countries including Turkey. Still, they are not at the required level. These results show the need for regulations that will demonstrate economic, social and political determination so that green financing will no longer be a choice but will become necessary.
Keywords: Green Growth, Green Finance, Consumption, Investment.

GREENWASHİNG (YEŞİL YIKAMA) VE SÜRDÜRÜLEBİLİR ÇEVRE YAKLAŞIMI

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ÖZET
Son yıllarda yaşanan çevre kirliliği ve ekosistemi bozan oluşumlar tüm dünyanın ortak sorunu olmuştur. Özellikle çevrenin korunması, iklim değişikliği ve küresel ısınmayla mücadelede ele alınması gereken temel konular her geçen gün önem kazanmıştır. Çevre sorunlarıyla mücadele, çevreyi korumanın temel katılımcıları olan kamusal yönetim ve tüm şirketlerin önceliği olmuştur Özellikle çevresel sorumluluk üstlenmek sürdürülebilir bakımından önemlidir. Ekosistemi ve biyolojik çeşitliliği korunmaya yardımcı olan yüksek verimlilik stratejileriyle enerji, malzeme ve su tüketimini azaltmayı, sera gazı ve karbondan arındırmayı ve her türlü atık ve kirliliğin oluşumunu bertaraf edecek yeşil ekonomi anlayışı sürdürülebilir kalkınmanın sağlanmasında önemlidir. Yeşil ekonomi doğal kaynakların korunması ve kitlesel tüketim alışkanlığını çevreye duyalı ve çevreyi koruyan davranış kalıpları ve üretim sistemine yoğunlaştırmaktadır. Serbest piyasa ekonomisi çerçevesinde şirketlerin üretim ve pazarlama sürecinde ekolojik hareketin yanında çevre sorunlarına karşı toplumsal ve ekonomik reformlarda gereklidir. Çevre sorunlarının artmasıyla kamuoyunun bilinçlenmesi çevre duyarlılığını arttırmıştır. Son yıllarda hızlanarak artan çevre sorunları üretim sürecinde aktif olan şirketleri yeşil ürünlerin geliştirilmesi ve ticarileştirilmesine yöneltmiştir. Ancak çevre duyarlılığına yeterince önem vermeyen ve sadece bir pazarlama stratejisi olarak ele alan şirketlerde Greenwashing (yeşil aklama veya yıkama) adı verilen bir olguyla yanıltıcı veya aldatıcı davranış kalıpları gözlemlenmektedir. Bu sebeple çalışma kapsamının amacı Greenwashing (Yeşil Yıkama)'in sürdürülebilir çevre anlayışına olan etkisinin bu yöndeki farklı sektör uygulamaları bakımından değerlendirilmesidir. Çalışma literatür ve örnek olay değerlendirmesine dayanan yöntem ile sürdürülebilir çevre anlayışı kapsamında değerlendirmeyle sonuçlandırılacaktır.
Anahtar Kelime: Çevre Koruma, Sürdürülebilir Çevre, Greenwashing

GREENWASHING AND SUSTAINABLE ENVIRONMENTAL APPROACH

ABSTRACT
In recent years, environmental pollution and the deterioration of the ecosystem have the common problems in the world. For this reason, the protection of the environment is into consideration every day in the fight against climate change and global warming taken. Environmental protection and environmental sustainability are not just about protecting the physical environment. Environmental pollution also affects all living life, economic and social structure. To combat environmental problems, the main participants of environmental protection, public administration, and all businesses should implement environmental protection policies. These organizations should increase their investments in this direction. In particular, taking environmental responsibility is important in terms of ensuring sustainable development.

The understanding of the green economy, which aims to reduce energy, material, and water consumption, eliminate greenhouse gases and carbon, and minimize or completely prevent the formation of all kinds of waste and pollution, through high-efficiency strategies that help protect the ecosystem and biodiversity, is important in ensuring sustainable development.

The green economy makes the conservation of natural resources and mass consumption habits sensitive to the environment. For this reason, ecological movement is necessary in the production and marketing process of enterprises within the framework of the free market economy. Due to the increase in environmental problems, the awareness of the public has begun to emerge. In particular stakeholders, such as investors, consumers, companies and corporate customers put pressure on companies for environmentally friendly products.
Environmental problems, which have been accelerating in this context in recent years, have led businesses active in the production process to develop and commercialize green products. However, misleading or deceptive behavior patterns are observed with a phenomenon called Greenwashing in businesses that do not attach sufficient importance to environmental awareness and only consider the issue as a marketing strategy. For this reason, the scope of the study aims to evaluate the effect of Greenwashing on the understanding of sustainable environment in terms of different sector applications in this direction. The method of the study based on literature and case studies will be concluded with suggestions for its effects on environmental protection.
Keywords: Environmental Protection, Sustainable Environment, Greenwashing

GİRİŞ

Sürdürülebilirlik çevreyi muhafaza ederek, toplumsal refaha ulaşılması hedeflenen ekonomik büyümenin sağlanması bakımından insanlığın geleceği bakımından önemlidir. Özellikle sürdürülebilirlik anlayışına odaklı bir ekonomik büyüme toplumsal refah düzeyinin yükselmesi hedeflenmektedir. Bu sebeple toplumsal öneme sahip olan konu sürdürülebilir kalkınma hedefleri kapsamında öncelikle ele alınmalı ve bu konudaki içerik ve yöntemlere dikkat edilmelidir. Ancak çevreci sloganlar içeren sürdürülebilirlik konusu sürdürülebilir çevre yaklaşımına zarar veren, çevreye katkı sağlamayan ve haksız rekabet ve kazanç sağlamaya sebep olan riskli bir duruma sebep olmaktadır. Bu çevre dostu sloganlar, semboller ve açıklamalar çevrecilik ve sürdürülebilirlik anlayışına aykırıdır. Özellikle kısaca sözde çevreci olarak yapılan tüm uygulamalar sürdürülebilir kalkınma hedefleri ile de asla uyuşmamaktadır.

Çevrenin korunması, kamusal yönetimin ve toplumda yaşayan bireylerin ekolojik sistemler ile insanlar arasındaki etkileşimden kaynaklanan sorunların çözülmesine yönelik bütünsel çalışma konusudur. Bu tüm toplumun kamu, şirketler ve bireysel olmak üzere her kademesinin sorumluluğunu kapsamaktadır. Yanlış ve özenli uygulanmayan ekonomik kazanımların ağırlıklı olduğu uygulamalar kirlilik, biyolojik çeşitlilik kaybı, arazi bozulması, çevresel bozulmalar ve iklimsel gibi sorunlarla sonuçlanmaktadır. Bu sebeple çevre politikaları sürdürülebilir yaşamı destekleyici olmalarından dolayı son derece önemlidir. Özellikle çevre farkındalıklarını yeşil binalar, eko etiketler, sürdürülebilirlik raporları, sektör taahhütleri ve temiz teknolojiler aracılığıyla sürdürülebilir yaşamın sağlanması desteklemektedir. Ancak bu semboller ve buna yönelik turum ve davranışlar gerçek çevresel iyileştirmeleri her zaman sağlayamayabiliyor. Bazı durumlarda çevreye verilen zararın örtbas edilmesi veya çevreci gibi tutum ve davranışlardan çıkar sağlayan etik dışı olarak risk oluşturmaktadır.

Şirketlerin çevreye duyarlı işletmecilik faaliyeti sergileyen ve çevre dostu ürün ve hizmetlere yönelik tüketici talebini karşılayan üretimi destekleyen bir görüntünün son yıllarda hızlanması çevreci politikalara büyük oranda zarar vermektedir. Bu şirketlerin yeşil ekonomi ve sürdürülebilir çevre anlayışına aykırı yürüttükleri reklam ve tanıtıcı faaliyetleri konunun farklı açıdan ve farklı tanım ve kavramlarla ele alınmasını zorunlu kılmıştır.

Aslında çevreci ve yeşil ekonomi anlayışına uzak bir tutum yeşil ve doğa dostu üretim ve hizmet anlayışına dayanmayan aldatıcıdır. Bu sebeple yeşilmiş gibi davranan adeta bir aklama veya bir yıkama diye ifade edilen yanıltıcı durum olmaktadır.
Oxford İngilizce Sözlüğü'nde, 'yeşil yıkama' çevreye karşı sorumlu bir kamusal imaj sunmak amacıyla bir kuruluş tarafından yayılan dezenformasyon' olarak tanımlanmıştır(Oxford Dictionary of English 2012; Bowen, 2014; 33). Yeşil yıkama terimi, 1986 yılında Jay Westerveld tarafından misafirler için konaklama endüstrisini ve havluların yeniden kullanımını teşvik etmeye yönelik yanıltıcı çabalarını anlatan bir makalede ilk olarak yer almıştır(de Freitas Netto 2020; 2, Blesserholt, 2021; 6). Ancak yeşil yıkamanın uygulamada çok eskilere dayandığı yönünde bilgiler mevcuttur. 1960'lı yıllara dayanan Amerikan Westinghouse şirketinin nükleer santrallerin temizliğini ve güvenliğini açıklayan reklam uygulaması önemli bir örnek oluşturmaktadır(Guardian, 2016). Bu örnekler zaman içinde birçok alanda görülmüştür. Özellikle 1980'li yıllarda başlayan farkındalık ve 1990'lı yıllarda gelişen sürdürülebilirlik anlayışının gelişmesiyle çevreye olan bu ilgi, yeşil aklama konusunda farkındalığın artmasını da beraberinde getirmiştir.

"YEŞİL YIKAMA VEYA YEŞİL AKLAMA" VE ÇEVRECİLİK

Çevrenin korunması ve doğal kaynakların sürdürülebilir gelişimi küresel çapta bir hedefi gerektirmektedir. Bu amaçla ülkeler arasında işbirliği yoluyla evrensel nitelikte bir dizi uluslararası hüküm ve önlemler mevcuttur. Özellikle çevre duyarlılığının oluşması ve çevre konusunda bilinçli yaklaşımlar önemlilik arz etmektedir. Çevreci gibi davranan ve bu konuda kaynak ayıran şirketlerin gerçekte çevre korumaya katkı sağlamaması son derece ciddi bir sorun olarak görülmektedir. Çevreci gibi davranma şeklindeki bu konunun yeni olmamasına karşın literatürde yakın zamanda yer bulması çevre konusunda bilinçlenmenin bir sonucu olarak görülmektedir. Greenwashing veya Türkçe karşılığı olarak "Yeşil Yıkama veya Yeşil Aklama" gibi isimlendirilen bu durum çevre dostu ve çevreci yaklaşımı benimsemeyi tanımlamak için kullanılmaktadır.
Yeşil yıkama, bir kuruluşun çevresel çabalarını yanlış bir şekilde ve kuruluşu yeşil olarak tanıtmak için, çevreye duyarlı uygulamalara gerçekten katılmak için harcanan kaynaktan daha fazla kaynak harcama uygulamasını ifade eder. Dolayısıyla yeşil aklama terimi, bir kuruluşun çevresel stratejileri, hedefleri, motivasyonları ve eylemleriyle ilgili yanlış veya aldatıcı bilgilerin yayılması olarak tanımlanmaktadır(Becker-Olsen, Potucek, 2013; 1318). Yeşil yıkama veya aklama bir şirketin çevresel uygulamaları veya çevresel performansı konusunda tüketicileri yanıltma eylemi ve çevresel performans hakkında olumlu iletişim yaratırken(TerraChoice 2010; 6) psikolojik olarak, tüketiciler için konuşma ve eylem arasındaki bu tür çelişkilere şüpheyle tepki oluşabilmektedir(Nyilasy, v.d., 2014; 696). Yeşil yıkama veya yeşil aklama diye adlandırılan bu uygulamaların psikolojik boyutu ayrıca ele alınarak değerlendirilmesi gereken bir konudur.
OED'ye göre yeşil yıkama terimi, bir kişi veya kuruluşun itibarını korumak amacıyla hoş olmayan veya suçlayıcı gerçekleri gizlemeye yönelik kasıtlı bir girişim olarak 1999'da OED'nin baş editörü olan John Simpson tarafından yeni milenyumda ortaya çıkan iş dünyasının moda sözcüğü olarak literatürde yer almıştır(Simpson 2000, 12, Bowen, 214; 33). Özellikle "yeşil olmaya" ve yeşil dostu ürünleri satın almaya olan ilginin artması çevre dostu ürün pazarının hızla genişlemesine sebep olmaktadır. Tüketicinin çevreye duyarlı bir yaşam tarzı vizyonu ve buna eşlik eden satın alma kararları bu çevreci pazardan pay almak isteyen şirket sayısını artırmıştır(Orange, Cohen, 2010; 28).

Yeşil yıkama veya yeşil boyama veya yeşil aklama diye de literatürde ve günlük terminolojide yer bulan bu terimin kökeninin "bir kirin üzerini boya ile kapatmak" anlamına gelen ve genelde politika alanında olumsuz durumlarda kullanılan "Whitewashing" kelimesinden olduğu ifade edilmektedir. Ayrıca Greenwashing kelimesinin Brainwashing (beyin yıkamak)'den türetildiğine dair bir açıklamada mevcuttur. Sürdürülebilirlik konusunun gündemde olmasıyla yeşil badana diye bir terimi de görmek mümkün olmuştur(Vurdu, 2023; erişim 27.09.2023). Ancak bu çalışma içinde zaman zaman farklı kelime ile olan ifadelerine yer verilmekle birlikte yeşil yıkama olarak terim kullanılmaktadır.

Toplum ekolojik modernleşmenin büyüsüne ve onun piyasa güdümlü, kurumsal liderlik ve sürdürülebilirlik vaatlerine kapılırken, doğal kaynaklara erişime risk çevre sorunları olarak giderek artacaktır(Scalan, 2017; 1332). Çevre bilincinin oluşması ve çevre konusunda endişelerin oluşması tüketicilerin talebini doğa dostu ürünlere doğru yönlendirmektedir. Bu sebeple şirketlerin tüketici talebini etkilemek ve üretim ve hizmet faaliyetlerinin çevreye zarar verdiği gerçeğinden uzaklaştırmak için yeşil yıkama yöntemine yönelmeleri tamamen bir reklam kampanyasıdır. Tamamen çevrecilik faaliyetlerine destek gibi görünen çevre için zararlı bir uygulamanın şirketlerin kısa dönem itibariyle kazancını artırmasına karşın uzun dönemde sürdürülebilirliği olmayan sakıncalı bir durumdur. İşletmelerin sürdürülebilir tüketim hedeflerine eko-etiketler yardımıyla daha kolay ulaşılabileceğine yönelik uygulamalı çalışmaların çevre koruma sorununa zarar verdiği yönündedir.

Çevrenin korunması açısından sürdürülebilirlik anlayışı yeşil yıkama ile bağdaşmaz. Sürdürülebilir çevre anlayışı çevrenin doğal yapısının korunması ve insan faaliyetleri sonucu zarar gören ekolojik çevreyi geri kazanacak tüm faaliyetleri kapsamaktadır. Bu sebeple çevrecilik- sürdürülebilir çevre ve yeşil yıkama faaliyetleri birbiriyle örtüşemez. Yeşil yıkama şirketlerin kazanç güdülerine hizmet eden ancak çevreye ve çevrecilik anlayışına zarar veren bir uygulama olmaktadır.

YEŞİL YIKAMA VE SÜRDÜRÜLEBİLİR ÇEVRE BAKIMINDAN ÖNEMİ

Sürdürülebilir kalkınmanın en önemli unsurlarından olan sürdürülebilir çevre, bugünkü kuşağın gelecek kuşaklara olan bir borcu olarak Birleşmiş Milletler tarafından sürdürülebilir kalkınmaya yönelik olarak yapılan çalışmalarda önemli yer oluşturmuştur(Belli, Çelik, 2022; 85). 1992 yılında Rio Konferansı ile birlikte sürdürülebilir kalkınma kavramının kapsamı oldukça genişlemiş, kavram birçok disiplinin çalışma alanında yer almıştır(Yalçın, 2016; 752). Bu çalışmalar ile gelişen sürdürülebilir kalkınma kavramının literatürde çok önemli bir yeri vardır. Sürdürülebilir kalkınma kavramı, toplumu bilinçli hale getirmiş ve aynı zamanda çevresel faktörlerin rolünün ve öneminin yanı sıra çevrenin sağladığı işlev ve hizmetlerin de farkına varılmasını sağlamıştır(Bartelmus, 1986, Dogaru, 2013; 1344).

Son yıllarda çevre kirliğinin azaltılması, su kaynaklarının ve biyolojik çeşitliliğin korunması, ormanların ve verimli toprakların kaybının önlenmesi ve iklim değişikliği ile mücadele çalışmaları dünyanın öncelikli konuları olmuştur. Özellikle bu olumsuzluklarla birlikte iklim değişikliğinin sebep olduğu bozulan ekolojik denge ve ortalama ısı artışı sorunları çevresel ve sosyal konulara oluşan kaygıları arttırmıştır. Bu durum işlemelerin ve çeşitli grupların bakış açılarını etkileyerek çevresel veya yeşil pazarlama ve çevresel sürdürülebilir üretimi dikkate almalarını zorunlu hale getirmiştir(Akkan, 2022; 85). Özellikle ürünlerin pazarlanmasında çevreci yaklaşımların benimsenmesine yapılan vurgular çevre dostu ürünlere önemli bir talep artışı yaratmaktadır. Aynı zamanda çevre dostu ürünlerin fiyatlamaları da yüksek olmaktadır. Bu ise şirket bakımından karlı olurken tüketici için çevre dostu ürün kullanmanın verdiği memnuniyet aslında bir aldatmaca olmaktadır. Bu şirket kazancı için haksız kazanç ve haksız rekabet oluşturan bir durum olarak iş ortamında olumsuzluk olarak değerlendirilmektedir.

Ancak sürdürülebilir çevre – sürdürülebilir ekonomik büyümenin sağlanmasında bireysel tutum ve davranışların ve üretim yapan birimlerin üretim süreci ve pazarlama sürecindeki kararlarının önemli etkisi mevcuttur. Özellikle çevreci gibi davranmak sadece bir kazanç ve farkındalık yaratmak üzere kullanıldığında bunun olumsuz etkileri çok boyutlu olarak görülmektedir. Yeşil yıkama veya yeşil aklama gibi farklı şeklîler de isimlendirilen bu durum sürdürülebilir çevre anlayışı ile bağdaşmamaktadır.

Yeşil yıkama teriminin popüler kullanımı, insanları bir kuruluşun çevresel performansı, uygulamaları veya ürünleri hakkında aşırı olumlu inançlar benimsemeye yönlendiren bir dizi iletişimi kapsar(Lyon, Montgomery, 2015; 225). Bir şirketin veya ürünün çevresel etkisini anlamlı bir şekilde azaltmadan çevre dostu görünmesini sağlamak için kullanılan bir halkla ilişkiler taktiği olarak yeşil yıkama bir şirketin kamusal imajını güçlendirmeyi veya bizi onlardan satın almanın değerlerimizle uyumlu olduğuna ikna ederek daha fazla satış yapmayı amaçlamaktadır(Greenpeace, erişim 27.09.2023). Bu hedefleri içinde şirketler sosyal faaliyetlerinin kamuoyu tarafından kabul görmesi için itibar reklamları olarak büyük harcamalar yapmaktadırlar. Bu müşterileri çekmek, kamuoyunda itibar kazanmak, reklam yapmak ve hükümetler ile iyi ilişkiler kurmak olarak kullanılan bir durum olarak görülmektedir.

Yeşil yıkama şirketler için tamamen risksiz ve çok sürdürülebilir değildir. Çünkü çevre aktivistleri tarafından ve çevre farkındalığının oluştuğu bireyler, kurumsal çevre çabalarını giderek basit halkla ilişkiler kampanyaları olarak kınamaktadır(Lyon, Montgomery, 2015; 225). Bu sebeple bunun ile ilgili çok önemli tespitler literatürde bilimsel çalışmalarda yer almaktadır. Ayrıca uygulamada bu şirketler sık sık kamuoyunda da eleştirilere maruz kalmaktadır. Bu ise sürdürülebilir olma ve marka imajına zarar vermektedir.

YÖNTEM

Bu çalışma literatür ve örnek olay değerlendirmesine dayanan yöntem ile sürdürülebilir çevre anlayışı kapsamında değerlendirmeyi içermektedir. Özellikle bu konuda yazın taraması yapılarak erişilen kaynaklar arasında konunun sürdürülebilir çevre anlayışı ilişkisi değerlendirilmesine yer verilmektedir. Bu konuda şirket büyüklükleri ve farklı iş alanlarından 2000 yılı sonrasında literatür taramasında ulaşılan uygulama örnekleri ile konunun gelişimi irdelenmiştir. Literatür taraması konuyla ilişkili bilimsel makaleler, raporlar ve sınırlı sayıda doğrudan ilişkili kitaplar ile gerçekleştirilmiştir. Özellikle şirketlerin, sivil toplum kuruluşlarının, diğer konuyla ilgili web sayfalarının incelenmesiyle yeşil yıkama uygulamalarının hızlanması ve sürdürülebilir çevre bakımından olumsuzluklarının değerlendirilmesiyle sonuçlanmaktadır. İzleyen bölümlerde çalışmanın bu yöntem kapsamında Türkiye'de örnek olarak inşaat sektörünün de dikkate alındığı değerlendirme yer almaktadır.

Yeşil Yıkama Ve Sürdürülebilir Çevre Yaklaşımı Bakımından Yeşil Yıkama Örnekleri

Şirketlerin yeşil yıkama uygulamalarına sürdürülebilir çevre ve yeşil ekonomiye olan önemin artmasıyla çok daha fazlaca maddi kaynak ayırdığı ve uygulamada çok farklı şekillerde başvurduğu görülmektedir. Bu uygulamalar bazen doğrudan reklam kampanyaları ile sürdürülürken bazen de küçük sembol ve web sitelerinde dikkat çekici ifadelerle yapılmaktadır.

Yeşil yıkamanın uygulamada yapıldığına dair kanıtlar birçok ortamlarda paylaşıldığı gibi, bununla ilgili bilimsel çalışmalarda mevcuttur. Özellikle buna başvuran şirketlerin Birleşmiş Milletler İklim Zirveleri ve Çevre Konferanslarında yer almaları tamamen aldatıcı olarak çok fazla eleştiriye konu olmuştur.

Yeşil boyama diye de ifade edilen bu durum Paris'te düzenlenen iklim konferansında sponsor firmalar ile ilgili konuya dikkat çekilmiştir. Özellikle çevre dostu olarak algılanmanın sağlanması yanıltıcıdır. Sanayi devrimi sonrası dikkat çekici olan çevre kirliliği ve sonrası yaşanan süreç sürdürülebilir çevre anlayışı ile uyuşmayan bir duruma doğru evirilmiştir.
Yeşil yıkamayla ilgili tüm ilgi alanını değerlendirmek için, ticari dergiler, popüler basın ve raporlardan çalışma makalelerine, konferans tutanaklarına ve son olarak bilimsel dergilere kadar uzanan veri tabanında yer alan çeşitli yayın organları arasında yapılan incelemeler önemli olmaktadır. Özellikle, yeşil aklamaya yönelik ilk ilginin popüler basında gazete ve dergi makaleleri yoluyla ortaya çıkmıştır. Ancak çalışma yöntemi olarak kavramsal, amprik ve diğer olmak üzere bilimsel makaleler ikinci sırada önemli bir payı oluştururken, gazeteler, dergiler ve özellikle ticari dergilerin yeşil aklama tartışmasının ana çıkış noktaları olduğu görülmüştür. Ancak konunun gelişmesi ve yaygınlaşması bilimsel makalelerin sayısının artmasına ve niteliğinin gelişmesine etki etmiştir(Lyon, Montgomery, 2015; 240-241). 1960'lı yıllarda ilk izlerinin görüldüğü, ancak çevre sorunlarının dikkati çekmesiyle farklı ve daha masum örneklerle yer bulan yeşil yıkamanın 1980'lerde ilk ifade bulmasıyla kamuoyu, bilimsel çalışmalar ve ülkelerin çevre ile ilgili faaliyetlerinde yoğun olarak konuyu ele alınmıştır.
Yeşil yıkamanın yazılı basında yaygın bir tema haline gelerek, 2009 yılında Birleşik Krallık 'ta her yıl bu terimden bahseden iki yüzden fazla makalenin olması ve 2008 yılında yalnızca The New York Times'da yetmiş üç makalenin yeşil aklama ile ilgili olarak yayınlanması önemli bir göstergedir(Bowen, 2014; 34). Niceliksel ve niteliksel yeşil yıkama konusunu içeren çalışmaların çevre konusunda yapılan yayınlarla oldukça önemli bir ilgi alanı olduğu görülmüştür.
Niteliksel yaklaşımlar arasında vaka çalışmaları, röportajlar, anlatı ve söylem analizi, görsel imgeler ve etnografyalar gibi ampirik çalışmalar oldukça çeşitlidir. Daha da yeni ortaya çıkan niceliksel yeşil yıkama araştırması, anketlerin, deneylerin, simülasyonların ve büyük finansal veri setlerinin kullanımını içermektedir(Lyon, Montgomery, 2015; 240-241). Yeşil yıkamanın tespiti için farklı uygulamaların şirketler tarafından uygulanması sebebiyle geniş kapsamlı çalışmalar yapılması önemlidir.

Yeşil Yıkama Örneklerinin Sürdürülebilir Çevre Yaklaşımı Bakımından İncelenmesi

Çevresel duyarlılığın son yıllarda hızla artmasıyla yeşil aklama diye tanımladığımız bir şirketin çevreye olan hassasiyeti veya çevre dostu ürün ve üretim süreci hakkında olumlu inançlar oluşturmaya yönlendirmesi yönündeki çabalarında da artış olmuştur. Zamanla daha çok şirketin, tüketicileri çevresel performansları veya bir ürün veya hizmetin çevresel faydaları konusunda yanılttığını gözlemliyoruz. Özellikle bu yeşil aklama durumunun hızla artması, tüketici ve yatırımcıların yeşil ürünlere olan güveni üzerinde derin olumsuz etkiler oluşturabilmektedir. Aynı zamanda yeşil aklamanın kurumsal olarak, piyasa ölçeğinde, organizasyonel yapı itibariyle ve tüketici olarak bireysel etkileri önemli olmaktadır. Bu konudaki örnekleri şirket büyüklükleri ve farklı iş alanları itibariyle incelemek toplumun bütün bölümlerindeki etkinin görülmesi bakımından önemlidir.
HSBC, 2005 yılında Banka, on binden fazla ofis binasından ve yönetici seyahatlerinden kaynaklanan net karbondioksit (CO_2) emisyonlarını sıfıra indirmeyi taahhüt etti (Walck 2006, Bowen, 2014; 1). Ancak HSBC paranızı o kadar çok istiyor ki, aslında çevrimiçi bir hesap olan ve daha ucuz hava ve karayolu seyahat teşvikleriyle birleştirilmiş bir hesabı çevreciler için yeşil bir seçenek olarak gösteriyor şeklinde bir eleştiri yapıldı(Pearce, 2009; erişim 27.09.2023).

Ağaç dikmek, enerji kullanımını azaltmak, yeşil elektrik satın almak ve CO2 emisyonlarını sınırlamak için karbon kredisi ticareti yapmak amacıyla yılda 4 milyon £'a kadar yatırım yapmayı planladı (BBC 2004, Bowen, 2014; 1). HSBC'nin, 2007'de kağıtsız Yeşil HSBC Plus Hesabına geçiş yapan her hesap için "sanal ormanımıza bir sanal ağaç dikme" taahhüdü olumlu karşılanmayarak eleştiri almıştır. Bir gazeteci HSBC'nin (her 20 sanal ağaç için gerçek bir ağaç dikmeye söz veriyoruz) ve ilk iki yılda dikilecek stokta 400.000 sanal ağaçtan oluşan yığını olduğu gerekçesi ile eleştirdi. Daha sonra Londra'daki merkezlerine birkaç güneş paneli yerleştirmeleri ve çevrecilerin istihdam edilmesi yönündeki uygulamalar da yeşil yıkama örnekleri olarak kabul edilmiştir.(Pearce, 2009; erişim 27.09.2023). Ancak HSBC'nin eylemlerini yeşil yıkama olarak kınamak zamanla bankacılık sektöründe proaktif çevre yönetiminin gelişimini yavaşlatabilir(Bowen, 2014; 4).

Lin (2022) çalışmasında, 1886 yılından beri faaliyette olan Coca-Cola'nın yarattığı su kirliliği ve su kirliliği ile ilgili olarak Coca-Cola'nın son yıllarda uyguladığı sürdürülebilir kalkınma stratejileri ve uygulama sonuçları dikkate alındığında Coca-Cola'nın sürdürülebilir stratejisinin yeşil yıkama olduğu sonucuna varılmıştır(Lin 2022, 23-26).

Büyük mobilya devi olan İKEA için Earthsight'ın 18 ay süren araştırması sonucu yayınladığı raporda; Ikea'nın Ukrayna Karpatlar ormanlarında yasa dışı olarak kesilen ahşaptan yapılmış kayın sandalyeler sattığını ve her saniyede yaklaşık bir ağaç tükettiği yer almıştır(Earthsight, erişim 27.09.2023). Rapor yasadışı ağaç kesimi ile ilgili soruşturma raporları mevcuttur. Ancak bu sebeple İKEA'nın 2020 yılında başlattığı eski mobilyalarınızı geri satın almak için bir plan kampanyası çevreciler açısından şüphe ile karşılanmıştır(Frost, 2020, erişim 27.09.2023).

Starbucks, atıkları azaltmaya yönelik sürdürülebilirlik çalışmalarının bir parçası olarak, tüketicilere tek kullanımlık pipet içeren servis bardağı yerine açık yüzlü plastik bir kapak sunan "pipetsiz" bir kapak piyasaya sürdü. Bunun çevresel ayak izinin azaltılmasına etkili olacağı iddiası eski kapak ve pipet kombinasyonundan daha fazla plastik içerildiğinin belirtilmesiyle reddedildi. Şirketin, geri dönüştürülebilen bir malzemeden yapıldığını belirtmesi ise, dünyadaki plastiğin yalnızca yüzde 9'unun geri dönüştürülmesi sebebiyle çöp sahalarına daha fazla plastik gönderilerek atık oluşacağı yönünde eleştiri almıştır(Aytekin, 2023; erişim 27.09.2023).

McDonald's, 2009 yılında Avrupa'da daha çevre dostu bir imajı teşvik etmek için geleneksel kırmızı zeminini yeşili ile değiştirmiştir(NBC erişim 27.09.2023).

Yeşil boyamanın en uç örneği olarak Volkswagen firmasının emisyon sonuçlarını düşürmek için testlerde bozma cihazı kullanarak bu yöntemle firma çeşitli ünlü markaların motorlarında bulunan yazılımları da değiştirmesi verilebilir(BBC, 2015, Demirci, 2021; 43).

2010 yılında çevreciler, ABD'de Bush Yönetimi'nin " Temiz Gökyüzü Girişimi " aslında hava kirliliği yasalarını zayıflattığı yönünde eleştiriler yapmıştır. Bu bir yeşil yıkama örneği olarak önemlidir(Le Monde, erişim 27.09.2023).

Delmas, Burbano (2011), yeşil yıkamanın etik olmayan davranışların bir örneği olduğundan, etik kurallara ve açık firma davranış standartlarına sahip firmaların yeşil aklama olasılığı daha düşük olduğu yönündeki tespiti birçok büyük firmaların bu benzeri davranışları sebebiyle çok fazla karşılık bulamamaktadır.

Moda sektöründe H&M, Quartz News tarafından yayınlanan bir rapor sonucunda üretim uygulamalarını yeşil akladığı için eleştiriler yapılmıştır(Stern, erişim 27.09.2023).

Genel olarak büyük şirketlerin sürdürülebilir çevreye yönelik stratejilerini araştırmak önemli olmaktadır. Çünkü sektörde lider olan şirketler rol model olarak hizmet verebilir ve sektörü doğru yönde yönlendirebilirler. Aynı zamanda çevre bilincinin gelişmesi ve yanıltıcı uygulamalara karşı toplumsal duyarlılığın oluşması bakımından da önemlidir.

Bu çalışmalarla yeşil yıkamayı ele alan sınırlı pazarlama araştırmalarında, yeşil yıkama algılarının ürün kararlarını ve satın alma davranışlarını etkilediğini öne süren benzer bulgular elde edilmiştir. Bu sebeple olumsuzlukların bertaraf edilmesi için strateji geliştirmek için son derece önemli sonuçlara ulaşılmaktadır.

Türkiye'de Yeşil Yıkama Örneği olarak İnşaat Sektörü ve Sürdürülebilir Çevre Yaklaşımı Bakımından İncelenmesi

Sürdürülebilir çevre yaklaşımına tamamen uygun olmayan çevreci gibi davranışlar dünyada oldukça geniş bir uygulama alanı oluşturmuştur. Özellikle ekonomik yapı genişledikçe yeşil yıkamaya başvuran ve kar payını arttırmak isteyen şirketlerde sayıca fazlalaşmaktadır.

Dünya'da 1980'li yıllardan sonra yaygınlaşan bu yeşil boyama uygulamaları Türkiye'de ise 2010 yılı sonrasından itibaren görülmeye başlanmıştır (Yeşil Gazete, 2017, Demirci, 2021; 44). Yeşil aklamanın önüne geçilmesi sürdürülebilir çevrenin sağlanması bakımından son derece önemlidir. Özellikle bir sertifikasyon sistemi olan yeşil/eko etiket uygulamasının bir standart sağlamak ve çevreye olumsuz etkileri çok az olabilecek ürünlerin teşvikinin sağlanması bakımından önemlidir. Bu uygulama kapsamında eko-etiketler tüketiciler tarafından satın alma sırasında rehberlik sağlayan etkili bir iletişim aracı olarak kullanılabilir. Ancak, bunun daha sonra şirketler tarafından yeşil aklama için de kullanılabilmesi gibi olumsuzluk oluşabilmektedir.

Türkiye'de yeşil boyama veya yeşil yıkama olarak adlandırılan bu konudaki örnekler içinde inşaat-gayrimenkul sektörü ağırlıklıdır. İnsanın doğanın bir parçası olması ve sıkışan kalabalık ve çevre sorunlarını barındıran kent yaşamına karşı doğaya yakın olma arzusu son yıllarda hızlı bir artış eğilimindedir. Özellikle Covit 19 pandemi döneminde başlayan doğaya olan istek doğa dostu akıllı yaşam alanlarına talebi %235 oranında arttırmıştır. Bu sebeple talebe cevap verecek yapılar ve yerleşim yerleri yeni eğilim olmaktadır. Ancak bu talebi karşılayabilecek doğal alanların gittikçe tükenmesi sebebiyle inşaat firmalarını yanıltıcı reklam faaliyetleriyle bir pazarlama çabasına sokmuştur. Eko-kent anlayışını benimsediğini iddia eden inşaat şirketleri, tamamen korunaklı doğal çevreyi, temiz hava kalitesini ve çevre dostu yapılaşmayı mesaj olarak sunan reklamlar ile yeşil yıkama yapmaktadırlar.

İnşaat sektörü 2002-2017 yılları arasında %9,7 bir büyüme göstermiştir(Topkaya, 2023; 2). Sektörde 2021 yılında küçülme olmasına rağmen yıl genelinde cari fiyatlarla inşaat harcamamalarının %39,5 artış ile 874,8 milyon TL'ye yükseldiği görülmektedir. Özellikle Covid-19 salgınına rağmen kredilendirme gibi teşviklerinde etkisiyle toplam satışlar 2020 yılında %11,2 artmıştır(turkrating, 2022). Artan konut yatırımları ile talebi etkileyecek reklam faaliyetlerinde de artma eğilimi görülmektedir.

2003 yılında 202.854 konut satışı yapılırken, 2017 yılında 1.323.118 konut satılması (kobimedya, erişim 09.10.2023) ve halen satılmayı bekleyen konutlar uygulanan politikaların ve pazarlama taktiklerinin sonucu olmaktadır. Özellikle son beş yıldır pandemi ve ekonomik faktörlerle daralan konut piyasası ve inşaat sektörünü hızlandırmak farklı pazarlama stratejilerini gerektirmektedir. Bu sebeple yapılan yatırımların geri dönüşünü sağlayacak şekilde talebi oluşturmak için uygulanan konut piyasasını etkileyen reklam faaliyetlerinde çevre duyarlılığını öne çıkaran reklam faaliyetleri artmıştır. Ancak Türkiye'de ise 2954 Sayılı Türkiye Radyo ve Televizyon Kanunu halkı yanıltıcı, aldatıcı ve haksız rekabete konu olabilecek reklamları yasaklamıştır. Fakat konut talebini yeni gelişen eğilimlere cevap olabilecek şekilde çevre hassasiyeti olan reklam kampanyaları ile canlandırma çabaları yeşil yıkama durumunu oluşturmaktadır. Bu dürüst ve ilkeli olmayan reklam çabaları tüketiciyi yanıltarak güvenini zedelemektedir.

Ancak Yeşil Bina Sertifika Sistemleri uygulamaları bu konuda belli standartların oluşması ve yanıltıcı pazarlama taktiklerinin bertaraf edilmesinde etkili olmaktadır. İnşaat sektörünün son yıllarda adeta büyümenin itici gücü olması sebebiyle sektörde etkili olan firmalar basın ve diğer yayın organlarıyla çevreci ve çevreye dost yapılar oluşturduklarına dair reklamlara ağırlık vermektedirler. Doğa dostu, doğa temalı veya yeşil belgeli yaşam alanları reklamları tam tersi bir durum olarak çevre sorunları oluşturmaktadırlar. Şehir merkezlerinin aşırı büyümesi, kent kimliğinin bozulması, yeşil alanların gayrimenkul yatırımlarına ayrılarak tahrip olması, küçük yerleşim yerlerinin yapılaşmalar sebebiyle yoğunlaşmanın olumsuz etkilerine maruz kalması ve hava-su-gürültü kirliliğinin yaşanmasına sebep olmaktadır. Aynı zamanda kırsalın tahribi ve temel üretim olan tarımsal alanları tahrip ederek tarımsal üretimin olumsuz etkilenerek beraberinde bir dizi çevre sorunlarını da oluşturmaktadır.
Sürdürülebilirlik yaklaşımının temeli olan çevresel unsurları gözeten istikrarlı bir ilerlemenin sağlanması çevre sorunlarına sebep olmadan ve çevre koruma anlayışı çerçevesinde sağlanmalıdır. Ancak çevre dostu ürün ve hizmetlere yönelik tüketici talebini karşılamak amacıyla, bir yeşil pazarlama taktiği veya bir halkla ilişkiler çalışması olarak ve karını maksimize etmek güdüsüyle yanıltıcı olarak yapılan yeşil yıkamanın sürdürülebilir çevre anlayışına tamamen aksi bir durum olduğu görülmektedir. Özellikle çevre sorunlarına çözüm olmayan ve sorunların artarak devam etmesine sebep olan hatalı uygulamalara izin verilmemelidir.

SONUÇ VE ÖNERİLER

Dünya nüfusunun giderek artması tüketici talebinin farkındalık oluşarak artmasına sebep olmaktadır. Özellikle çevre dostu ürünlere olan talep doğrultusunda organik giysiler, enerji tasarruflu ampuller, tamamen organik olduğu iddia edilen bir dizi ürün ve yeniden kullanılabilir ev ve ihtiyaç malzemeleri satışları artmaktadır. Ancak bunlar bir reklam ve halkla ilişkiler faaliyetinin sonunda yeşil pazarlama stratejisinin ürünü olmaktadır. Çevre sorunlarına yönelik kamu, özel ve sivil aktörlerin duyarlılığının artmasına paralel olarak ortaya çıkan yeşil yıkama stratejilerini benimseyen şirketlerin, şirket veya tedarikçilerinin çevresel hatalarından uzaklaşmak için uygulamada başvurmaları son derece sakıncalıdır. Bu konuda BM çevre ve iklim zirvelerinde konunun çevre sorunlarına sebep olacak olumsuz bir durum olarak önlenmesi gerektiği vurgulanmıştır.
Yeşil yıkama bir yeşil pazarlama stratejisi, halkala ilişkiler olarak iletişim tekniği, reklam yöntemi, mal ve hizmet fiyatlama politikası veya toplumda çevre dostu bir şemsiye altında şirketlerin kendini aklama projesi olarak yaygın kullanım alanı oluşturmuştur. Ancak bu durum toplum genelinde yeşil yıkama kültürünün yalnızca çevre dostu ürünlerin satışına değil, aynı zamanda toplumun sürdürülebilir kalkınmasına da zarar vermekte olduğu bir gerçektir. Özellikle tüketici ve toplumsal olarak bu yanıltmanın sosyal boyutu ise ayrıca önemli bir konudur.
Bu araştırmada kavramsal düzeyde yeşil yıkamanın irdelemesi ve farklı sektörlerde ve büyük ölçekli şirketlerde yıllar itibariyle yeşil yıkamanın uygulamalarında artış olduğu tespitine yer verilmiştir. Bu konuda literatürde sınırlı sayıda yer alan çalışmalara katkı olması amacıyla çalışma yapılmıştır. Özellikle bu konunun çevre sorunlarının artmasına sebep olacağından dolayı sürdürülebilir çevre anlayışının ve yeşil ekonomi anlayışının benimsendiği bir politika kapsamında yeşil yıkamanın hiçbir şekilde uygulanmamasına dikkat çekilmek hedeflenmiştir. Bu sebeple yasal mevzuat ve kontrol mekanizmasının şirketlerin doğa dostu, çevre dostu, eko etiket, üretim sürecinin ve ürünlerin çevreye zararsız olduğu veya şirket politikasının çevre duyarlı anlayışa sahip olduğu şeklindeki aldatmalara yer verilmemesi şeklinde dikkatle ele alınması gerekmektedir.

Yeşil yıkama-yeşil aklama-yeşil boyama olarak farklı isimlerle ifade edilen bu kavram çevre sorunları ve sürdürülebilir çevre ve sürdürülebilir büyüme bakımından önemlidir.

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GREEN BRANDS AND SUSTAINABLE DEVELOMENT

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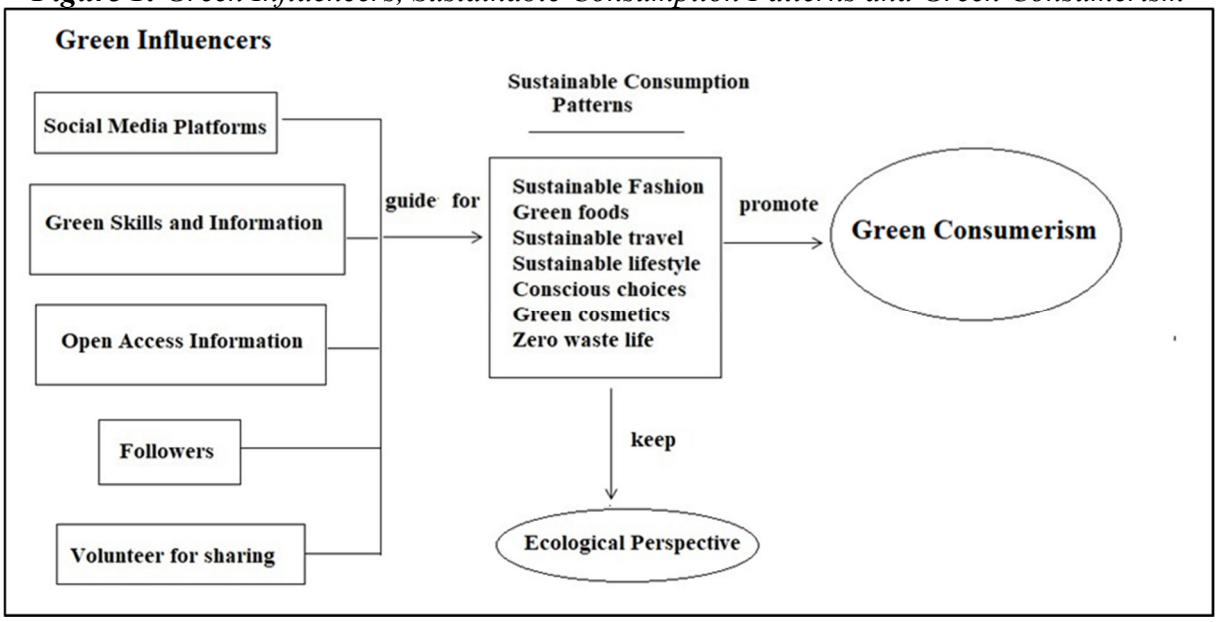
Abstract
The increasing effects of climate change and global warming prove how dangerous it is for the future for countries to continue according to traditional economic development models. As a result, there has been a rapid development of sustainability-focused initiatives. Some brands are introducing sustainable alternatives to their existing products, while others are marketing themselves as entirely green brands. This study aims to provide an overview of how green brands contribute to sustainable development, by examining their main contributions towards sustainable development goals.
Keywords: Sustainable development, green brand, 2030 Sustainable Development Goals

INTRODUCTION

The term of “sustainable development” changed everything in the usual human life. The world leaders agreed on achieving sustainable development in the long term to reach the future (Yıldırım et al., 2016; Yıldırım and Yıldırım, 2020). By 2015, United Nations launched 2030 Sustainable Development Goals (SDGs) and embodied the sustainability for individuals, governments and businesses. There are 17 key goals to be achieved by specific groups (individuals, governments and businesses) until the end of the year of 2030 (Yıldırım et al., 2023). Sustainable development can’t be achieved without collaboration of individuals in the long term. 2030 SDGs includes some main themes as “poverty, hunger, equality, health, climate change, responsible consumption, sustainable communities, clean energy, clean water and saving biodiversity (land and ocean)”. Each theme has its own goal and sub-goals to be achieved by the members of United Nations. The achievement of some goals is related with individuals’ collaboration. For example, the achievement of Goal-12 (Responsible consumption and production) needs individuals’ participation. As higher awareness of environmental quality and risks, higher quantity of individuals keeps sustainable consumption patterns. The rise of sustainability concern makes brands to be green or sustainable in the long term. This study aims to examine how green brands contribute sustainable development through their activities. As determined in Yıldırım (2021)’s study, sustainable consumption patterns mostly occur in fashion, tourism and food industries.

During the Covid-19 pandemic, significant changes have also occurred in brands. Brands, moving according to the changes in consumer trends, increased their digital investments and entered areas for new conditions.

Figure 1: *Green Influencers, Sustainable Consumption Patterns and Green Consumerism*



Source: *adapted from Yıldırım, 2021*

As seen in Figure 1, it can be said that some industries or sectors are more close to green consumerism in the context of digitalization. It can be said that sustainable brands performing in "fashion industry, restaurant industry, cosmetics industry, hotel industry" can be more competitive in the market. This study benefits from this model when selecting sustainable brands from various industries and also adds electronic industry due to zero waste principle. Accordingly, this study selected fashion industry, electronic industry, cosmetic industry, food/restaurant industry and hotel industry to be reviewed for determining green brands and their role on the 2030SDGs.

HOW GREEN BRANDS CONTRIBUTE SUSTAINABLE DEVELOPMENT

In this part, some green brands will be reviewed among the selected industries.

Restaurant Industry

Sustainable policies includes minimizing the impact of the food business on the planet – by pointing out sustainable agriculture, carbon footprint, shortening the supply chain, leftovers, packaging, water and energy consumption, recycling in restaurant industry (Berksü, 2021). Berksü (2021) determined three steps for sustainable policies as below:

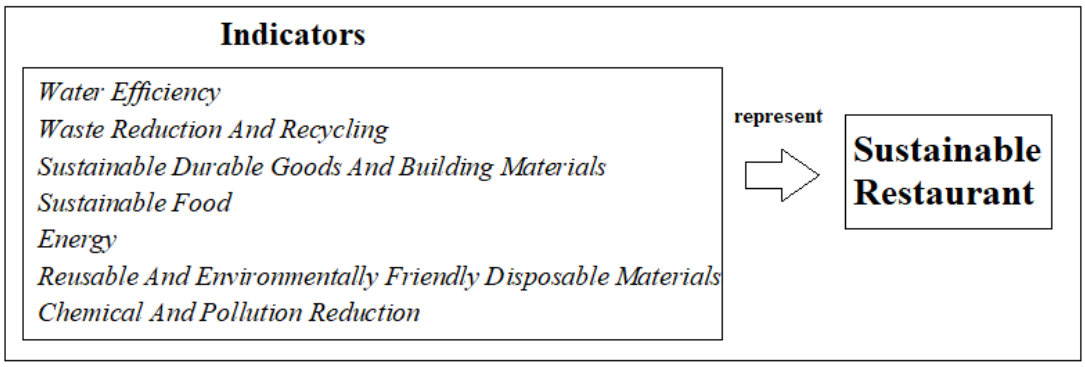
- **Sourcing:** It is extremely important for restaurants to use local and seasonal food, not only to improve the perception of the community, but also to eliminate the environmental effects of transportation. Sourcing materials from small-scale and local businesses and farms seems essential for a sustainable food industry, considering that every 1 kilocalorie of long distance travel we take consumes 10 kilocalories of fossil fuel energy.
- **Society:** An important step in supporting local farmers with a well-structured supply chain, conducting business ethically, and ensuring that small-scale producers have access to a fair and equitable trading system.

Organizations such as Fair Trade International also play an effective role in preventing the impoverishment of farmers who produce certified products such as sugar, cocoa, chocolate and tea.

- **Environment:** Not wasting food, valuing natural resources, lightening and recycling all materials, reintroducing raw materials into the production chain are among the main sustainable practices. Reducing waste and preventing waste from dumping on land is critical to minimizing the environmental impact of restaurants. Another step in minimizing environmental impact in sustainable restaurant business is to use less energy.

Figure 2 shows indicators (Tütüncü, 2020) representing being a green/sustainable restaurant as below:

Figure 2: Indicators Representing Being a Green/Sustainable Restaurant



Source: created by the authors based on data from Tütüncü, 2020

Tourism Industry

Tourism industry is responsible for harming the natural environment when considering its ecological footprint. Accordingly, enterprises began to transform into sustainable tourism concept in general. Karaköse (2021) summarizes green hotel brands as below:

- **Camp Glenorchy (New Zealand):** It is implemented using both simple and cutting-edge technology to help reduce water and energy use. In addition, planet-friendly resources such as solar garden, smart lighting, solar panels and energy management system are also successfully included.
- **Inhabit (England):** Located in the center of London, Inhabit stands out with its wellness applications. By including recycling in every possible way, the hotel respects the environment by supporting social initiatives and responsible businesses and connecting with local communities.
- **Fogo Island Inn (Canada):** Rain water is filtered for use in different departments, while solar panels provide hot water. Local food and material suppliers are preferred wherever possible, while the furniture is handcrafted and produced at the Inn's Woodshop, where local artisans work.
- **Villa Copenhagen (Denmark):** Strive to find better ways to be beneficial to both people and the planet, Villa Copengahen helps support local communities through numerous initiatives, while also choosing sustainable brands in its product selection.
- **Borgo Pignano (Italy):** As a founding member of Beyond Green, a group of eco-friendly luxury hotels, Borgo Pignano was built entirely using eco-friendly and locally sourced materials.

Pignano's gardens are fed by filtered rainwater, while natural and artificial lakes provide irrigation for farmland. In addition, vegetables and fruits unique to Tuscany are grown on-site with the organic farm.

Cosmetic Industry

In recent years, some businesses and brands began to offer sustainable products in the cosmetic industry. While some brands offer 100% organic, non-GMO products, environmentally friendly brands that use recycled plastic in packaging focus on efficient use of resources and energy saving (Eşkin, 2020). Eşkin (2020) gives some green brands from the cosmetic industry as below:

- **Love Beauty & Planet:** Unilever's world, animal and human friendly personal care and beauty brand Love Beauty & Planet enters the list of environmentally friendly products with many products from shampoo, conditioner, toothpaste to toothbrush. It contains ingredients such as organic and natural coconut oils or sustainably harvested Murumuru oil. No animal testing is carried out for any product anywhere in the world. It also carries vegan and "cruelty-free" (not tested on animals) certificates from V-Label and PETA. One of the prominent environmental features is that the brand's product bottles are produced from 100% recycled plastic and ensured that they are recyclable.
- **Zao:** Zao Make-Up is by far the best brand in the eco-friendly cosmetics category. The company is committed to providing make-up products with flawless formulas containing ingredients of 100% natural origin. Without petrochemical derivatives or synthetic preservatives, Zao products are healthy for your skin. One of the favorite eco-friendly features of this brand is its refillable packaging.. The primary packaging of Zao, which has the eco-design principle, is bamboo. Bamboo, an ecological raw material, has an extraordinary growth without the need for any fertilizer or pesticide. Bamboo used in packaging grows in endemic forests in conservation areas. The secondary packaging is made of cotton. Bamboo products are sold in elegant cotton bags. These bags can be reused for different purposes than disposable cardboard boxes.
- **Weleda Calendula:** More than 75% of the herbal content of the environmentally friendly Weleda Calendula products of German origin comes from biodynamic or organic farming or from controlled wild collection. Its commitment to biodiversity and ethical treatment of employees has been recognized by the Ethical BioTrade Association.
- **Biolage:** Biolage is one of the exemplary nature-friendly companies with the steps it has taken towards sustainability. The company has been neutral in CO2 emissions at its factories since 2015 and at company headquarters since 2017. All waste is reused thanks to innovative recycling processes with nanofiltration and reverse osmosis.
- **Davines:** Italian brand Davines has a number of sustainable initiatives. 100% of the electricity used in production is from renewable sources. It does not use disposable plastic in packaging. However, the company has announced that it has reached carbon neutral status in packaging production.
- **Isana Organic Ear Stick:** The ear stick is a product that requires careful use. For this reason, 100% biodegradable, sustainably grown, environmentally friendly cotton swabs are an environmentally friendly product.

Fashion Industry

As considering the responsibility of fashion industry in sustainable development goals, sustainable fashion is seen as a rising trend and many green fashion brands has been joining to the fashion industry (Sevik and Yıldırım, 2023). According to Barutoğlu (2021), the below green brands can be given:

- **Collina Strada:** Fabrics from old stocks are used and the brand supports sustainable research.
- **Marine Serre:** It is a brand that follows sustainable production processes.
- **Hereu:** It is a brand in the sustainable bag category. It aims not to harm nature by using natural materials.
- **Wolford:** The brand that follows sustainable production, biorenewable materials are used.
- **Musier Paris:** The brand, which produces using the fabrics of the previous collections, prevents wastage in the fabric.
- **Ganni:** The main goal of the brand is to reduce CO2 emissions by 30% per 1 kg of clothing. It also produces with sustainable fabrics.
- **Stella McCartney:** It is a brand that advocates sustainability in luxury fashion. Using vegan leather, the brand tries to reduce its carbon footprint.
- **Aya Muse:** The brand uses 95% recycled yarn and has stopped using single-use plastic.
- **Mother of Pearl:** It uses organic and natural fabrics for each product.
- **House of Sunny:** The brand prefers limited production. Sustainable fabric and production follow.
- **Stine Goya:** She prefers sustainable fabrics. It also follows the principle of sustainability in production.
- **Reformation**: Sustainable fabrics, fabrics from old stocks and fabrics of vintage clothing are used.
- **Faithfull the Brand:** It is a brand that supports local artisans.
- **Re/Done**: It is a brand that offers a sustainable denim alternative. It offers a sneaker collection made from recycled leather and plastic bottles.
- **Alohas:** Eliminates the risk of waste and unsold stock.
- **Gabriela Hearst:** It is a brand that does the carbon-neutral fashion show. It aims to reduce its carbon footprint and pursues sustainable production.
- **Simon Miller**: Working with manufacturers that develop organic and ozone technology that limits water waste.
- **Baum und Pferdgarten**: It is a brand that tries to reduce its carbon footprint. It produces without harming the environment and animals.
- **Veja**: It is a brand that produces vegan shoes.
- **Pangaia:** It produces from sustainable and recycled materials.

Electronic Industry

The electronic industry is also guilt for harming and polluting the natural environment. Due to its higher number of waste, products from this industry is seen as one the most pollutant. “Guide to Greener Electronics” has been published by Greenpeace (2007) and an alternative ranking of greener electronics was given to each selected brands in the related industry. Table 1 shows this ranking scale as below:

Table 1: Ranking of Greener Electronics-2007

Ranking (10)	Brand	Being a green
7.7	Sony Ericsson	Sony Ericsson stood out for its improved report on recycling for mobile phone.
7.7	Samsung	It produces products by eliminating the worst toxic chemicals.
7.3	Sony	It manufactures non-toxic PVC-free products.
7.3	Dell	It makes production free from the worst chemical materials.
7.3	Lenovo	It makes production free from the worst chemical materials.
7	Toshiba	It works to eliminate toxic chemicals.
7	LGE	There is a take-back policy on products other than phones.
7	Fujitsu-Siemens	It works to eliminate toxic chemicals.
6.7	Nokia	It works to eliminate toxic chemicals. Recycling needs improvement.
6.7	HP	It works to eliminate toxic chemicals. Recycling needs improvement.
6	Apple	It works to eliminate toxic chemicals. Recycling needs improvement.
5.7	Acer	It works to eliminate toxic chemicals. Recycling needs improvement.
5	Panasonic	It works to eliminate toxic chemicals. Recycling needs improvement.
5	Motorola	Weak performance in recycling and production free of toxic materials.
4.7	Sharp	Weak performance in recycling and production free of toxic materials.
2.7	Microsoft	Too Weak performance in recycling and production free of toxic materials.
2	Philips	Too Weak performance in recycling and production free of toxic materials.
0	Nintendo	There is no sustainable procedure.

Source: *SmartCompany, (2007)*

CONCLUSION

The trend of green consumerism has encouraged enterprises to produce green products through sustainable production principle. This study can suggest brands and enterprises to adapt green image and sustainable transformation. However, there are some mistakes in green image such as greenwashing, many successful enterprises and brands are performing really and honestly in the market (Yildirim, 2023; Yıldırım and Kantarcı, 2022).

Implementing sustainable policies is getting more important when there is a big danger coming from the global climate change and global warming in recent days (Yıldırım, 2022; Bostancı, 2022; Yildirim, 2023). In this point, many companies that play a leading role in the market competitive environment have passed through a sustainable transformation in their products and production technologies. While some brands are successful, some are accused of doing green washing.

In addition, some brands and businesses that target sustainability as an organizational culture structure directly perform as sustainable organizations. At this point, there are problems in terms of placing the green image in the organizational culture of brands and businesses that have subsequently undergone sustainable transformation. In this study, sustainable brands through various industries are explored. Fashion, restaurant, hotel, electronic and cosmetic industries are selected to be review. It is seen that some brands have transformed into sustainable brands and some enterprises adapted green values and sustainability for their operations from production to selling. This study can summarize the link between green consumerism, sustainable consumption patterns, sustainable brands and 2030 SDGs as Figure 3:

Figure 3: *A Model: The link between sustainable/green brands sustainable consumption patterns and 2030 SDGs*

Source: *created by authors*

Green brands support 2030 (Sustainable Development Goals) SDGs in the long term. Figure 3 summarizes the link between green brands and 2030 SDGs. Increasing green and sustainable consumption behaviors are thought to be the driving force in the formation of green businesses and sustainable brands. Sustainable consumption behaviors should be adopted for green consumerism. At this point, it can be said that the main factors such as "zero waste, less harmful for environment, fair trade, organic food, vegan and natural materials, recycling, less waste and energy efficiency" are the focal point in sustainable purchasing behaviors.

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ÇEVRESEL İNOVASYONUN KARBON AYAK İZİ ÜZERİNDEKİ DOĞRUSAL OLMAYAN ETKİLERİNİN DEĞERLENDİRİLMESİ: TÜRKİYE İÇİN EŞİK DEĞER ANALİZİ

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ÖZET
Bu çalışma, çevresel inovasyonun Türkiye'deki karbon ayak izi üzerindeki etkisini araştırmaktadır. Bu amaç doğrultusunda çalışmada1992 ile 2018 yılları arasındaki yıllık veriler kullanılarak değişkenler arasındaki doğrusal olmayan ilişkileri belirlemek amacıyla TAR (Eşik Otoregresif Model) analizi uygulanmaktadır. Elde edilen bulgular, çevresel inovasyonun %11,50 eşik değeri altında olduğu durumlarda karbon ayak izini artırdığını (0.085) ve eşik değeri aşıldığında ise, aynı etkinin hala pozitif olduğunu (0.189); ancak daha yıkıcı bir etki yarattığını ortaya koymaktadır. Başka bir deyişle, sonuçlar çevresel rebound etkisinin varlığını doğrularak çevresel inovasyonun karbon ayak izi üzerinde artırıcı bir etkisi olduğu ortaya çıkmaktadır. Bu çalışmanın bulguları, çevreye duyarlı inovasyonların potansiyel olumlu etkilerini en üst seviyeye çıkarmak için, politika yapıcıların yapılan düzenlemelerde çevresel rebound etkisini dikkate almalarını ve çevresel etkileri daha fazla göz önünde bulunduran çözümler üzerine çalışmalarına işaret etmektedir.
ANAHTAR KELİME: Çevresel İnovasyon, Karbon Ayak İzi, Çevresel Rebound Etkisi

ASSESSING THE NONLINEAR EFFECTS OF ENVIRONMENTAL INNOVATION ON CARBON FOOTPRINT: EVIDENCE FROM THRESHOLD ANALYSIS FOR TÜRKIYE

ABSTRACT
This paper investigates the impact of environmental innovation on the carbon footprint in Türkiye. For this purpose, TAR (Threshold Autoregressive Model) analysis is adopted in the study to determine non-linear relationships between variables by using annual data for the period 1992-2018. The findings reveal that environmental innovation increases the carbon footprint when it is below the 11.50% threshold value (0.085), and when the threshold value is exceeded, the same effect is still positive (0.189), but creates a more destructive effect. In other words, the results confirm the existence of the environmental rebound effect, pointing out that environmental innovation has an increasing effect on the carbon footprint. The findings indicate that in order to maximize the potential positive effects of environmentally friendly innovations, policy makers should take the environmental rebound effect into account in regulations and focus on solutions that take the environmental impacts more into consideration.
KEYWORDS: Environmental Innovation, Carbon Footprint, Environmental Rebound Effect

1. GİRİŞ

Sanayi devrimiyle birlikte enerji, üretimin her aşamasında önemli bir kaynak haline gelirken, son yıllarda küreselleşme hareketlerinin etkisiyle enerji talebinde artışlar yaşanmıştır. Bu süreçte ortaya çıkan yapısal değişimler, günümüze dek rekabet ortamını artırmış ve böylece üretimi ve geliri artırmak, ekonomik kalkınma politikalarının temel amacı haline gelmiştir (Aydin, Esen ve Aydin, 2019). Böylece artan üretim ve değişen tüketim kalıpları, başta enerji olmak üzere doğal kaynak kullanımını artırmıştır. Dünya nüfusu ve kentleşme arttıkça, insan ihtiyaçları ve insan kaynaklı kirlilikten kaynaklanan çevresel zararlar da buna paralel artış göstermiştir (Aydin ve Esen, 2018). Böylesi bir ortamda gelirlerini artırmaya odaklanan ekonomiler, çevre sorunlarını ilk etapta göz ardı etmişlerdir. Bu durum, doğal ve ekolojik kaynakların yok olmasına, atmosferde daha yüksek karbon emisyonun salınımına ve geri dönüştürülemeyen atıkların birikmesi gibi bir dizi çevresel sorunlara yol açmıştır. İnsan temelli meydana gelen bu tür sorunlar, halk sağlığını ve ekolojik sistemleri tehdit eder boyutlara ulaşmıştır (Esen ve Dündar, 2021). Bu süreçte küresel ısınma ve beraberinde ortaya çıkan iklim ve çevre değişiklikleri, önemli sorunlar yumağı haline gelmiş ve "enerji, ekonomik büyüme ve çevre kalitesi" arasındaki ilişkinin sorgulanmasına yol açmıştır (Aydın ve Esen, 2017; Aydın, Esen ve Özçoban, 2019).

Günümüzde hızla artan nüfus ve ekonomik faaliyetler, dünya genelinde çevre kirliliğinin artmasına ve nihayetinde bu soruna daha fazla dikkat çekilmesine neden olmuştur (Esen vd., 2021). Bu noktadan hareketle, kirliliği azaltmaya yönelik yapılan çalışmalar, ekonomilerin temel gündemlerini belirler hale gelmişlerdir. Bu çalışma alanlarından biri de çevresel inovasyonlardır. Çevresel inovasyonlar, ekolojik dengeyi korumak ve çevresel sürdürülebilirliği teşvik etmek amacıyla yeni fikirler, ürünler, stratejik yönetimler, teknolojiler ve iş süreçlerini geliştirmeyi kapsamaktadır. Bu inovasyonlar, doğal kaynakların daha verimli kullanılmasını, kaynak tasarrufunu ve çevresel etkilerin minimize edilmesini amaçlar. Böylece bu tür yapılar, insanların refah düzeyini arttırarak sosyal ve ekonomik faydalar sağlamaktadır. Kaynakların etkin ve verimli kullanımı, başta enerji kaynakları olmak üzere yeni kaynak bulunmasına eş değer bir etkisi olmakta ve bu da insan faaliyetlerinin çevre üzerindeki baskısını azaltan önemli bir unsur olarak karşımıza çıkmaktadır. Hemmelskamp (1997) çevre ile ilgili inovasyonu, çevre üzerindeki baskıyı azaltan üretim süreçleri olarak ifade etmektedir. Çevresel inovasyonlar belirli kriterlerde sınıflandırılmaktadır. Bu sınıflandırmalar; süreç, pazarlama, ürün veya yönetimsel alanlardır. Bununla birlikte temiz teknoloji ve kirlilik kontrolü olarak da görülmektedir (OECD, 2009; Rennings, 2000).

Yirminci yüzyılın sonlarına doğru çevre sorunlarının ekonomi için öneminin anlaşılmasıyla birlikte çevre kavramı birçok disiplinin ve araştırmacının ilgisini çekmiştir. Çevresel inovasyon, inovasyon türleri arasında yapılan çalışmalar üzerinden giderek, araştırma, geliştirme, fayda ve sürdürebilirlik kavramlarıyla yeni bir ar-ge bölümü oluşmaktadır. Yapılan çalışmalar gerek ekonomi gerek ise de teknoloji ve siyaset bilimi gibi kavramları barındıran çalışmalardır (Carrillo ve González, 2010). Çevresel inovasyonun yönetimsel tanımını ilk olarak Fussler ve James (1996) yaptıkları çalışmada yer vermişlerdir. Fussler ve James çalışmalarında çevresel inovasyonun tüketiciye ve üreticiye katkılar sağladığını ve bu katkılar neticesinde çevreye olan zararı en az şekilde paydaşlara sunabileceğini ortaya koymuşlardır (Bartlett ve Trifilova, 2010). Çevresel inovasyon, kavramsal olarak aynı zamanda literatürde ekolojik inovasyon, yeşil inovasyon, ve sürdürülebilir inovasyon olarak da kullanıldığı görülmektedir (Hellström, 2007). Bu kavramlar birbirlerinin yakın ikamesidir.

Dünyanın onun paydaşları oluşturan ekonomik karar birimlerinin karşılaştığı çevresel sorunlar ve sürdürülebilirlik endişeleri, dünya genelinde daha fazla ulusal ve uluslarrası kuruluş ve organizasyonlar tarafından ciddi bir şekilde ele alınmaktadır.

Bu bağlamda, çevreye duyarlı inovatif faaliyetlerin geliştirilmesi ve uygulanması, çevresel sürdürülebilirliği sağlamaya yönelik atılan adımların temelini oluşturmaktadır. Ancak, yapılan bir takım çalışmalar çevreye duyarlı AR-GE ve inovasyon çalışmalarının her zaman çevresel iyileşmeleri garanti etmediği ve hatta daha fazla doğal kaynak tüketimine ve haliyle atık birikimine sebebiyet verebildiğini ileri sürmektedir. Bu süreçte inovatif faaliyetler sonucu elde edilen çevresel kazanımların ekonomik karar birimlerini genellikle daha fazla tüketim veya kaynak kullanımına sevk ettiği vurgulanmaktadır. Bu yapı, verimlilikten sağlanan çevresel kazançların kısmen veya tamamen tersine çevrildiği bir durumu ifade eden çevresel reboud etkisi ile açıklanmaktadır.

Dünya genelindeki nüfus artışı, ekonomik faaliyetler, şehirleşme ve endüstrileşme yayıldıkça, doğal kaynaklar üzerindeki baskılarında arttığı bilinmektedir. Ayrıca, bu kaynakların sınırlı olması ve sürdürülebilir bir şekilde yönetilmesi gerekliliği, doğal kaynaklar üzerindeki baskıların tespiti ve değerlendirilmesini daha da önemli kılmaktadır. Aksi takdirde bu kaynakların aşırı kullanımı ya da yanlış yönetimi, ekolojik sorunlara ve sürdürülebilirlik krizlerine sebebiyet verebilmektedir. Bu sebeple, çevresel kaynakların nasıl kullanıldığı ve sürdürülebilirliğini nasıl tesis edilmesi gerektiği konuları irdelenmesi gereken konular hale gelmektedir. Bu bağlamda, ekonomik karar birimlerinin çevre üzerindeki etkilerini tespit etmeye ve azaltmaya yardımcı olan alternatif çevresel ölçütlerden biri de ekolojik ayak izidir. Rees (1992) ve Rees ve Wackernagel'in (1994) öncü çalışmalarını takiben, coğrafi bölgelere, ülkelere ve belirli üretken faaliyetlere uygulanan çalışmalarda ekolojik ayak izi ölçümü giderek daha fazla kullanılmaktadır. Mevcut teknoloji ve kaynak yönetimi uygulamaları göz önüne alındığında, belirli bir dönemde kişiler, ülkeler veya iktisadi faaliyetler tarafından tüketilen doğal kaynakların yeniden üretilebilmesi ve nihayi olarak oluşan atıkların absorbe edilmesi için gerek duyulan biyolojik açıdan verimli toprak ve su alanlarının (ekin arazisi, orman arazisi, otlak arazisi, yapı arazisi, balıkçılık alanları ve karbon tutma arazisi) miktarını ölçen ekolojik ayak izi ve onun alt parametreleri, yeryüzünün taşıma kapasitesinin sınırlarının ne kadar aşıldığı konusunda önemli fikirler verebilmektedir (Aydin vd., 2022).

Söz konusu ayak izi türleri içinde kişilerin çevreye bıraktıkları ayak izinin en büyük kısmını karbon ayak izi oluşturmaktadır. Karbon ayak izi diğer karbon bileşenlerine göre daha hızlı bir büyüme oranına sahiptir. Karbondioksit genel olarak bakıldığında dünyaya zarar veren en önemli madde olduğu görülmektedir. Atmosferde kalma süresi ve oranı dikkate alındığında yok edici bir etkisi olduğu sonucuna varılmaktadır (Reeves ve Lenoir, 2006). Bireylerin küresel ısınmaya farkında olmadan yaptıkları etkilerinden dolayı zararları azaltmak için karbon ayak izi hesaplamaları hayati öneme sahiptir. Karbon ayak izi, doğa üzerinde insanların sebebiyet verdiği zararı tanımlamanın bir ifadesidir. Literatür taraması yapıldığında karbon ayak izi ile ilgili birbirine benzer açıklamalar mevcuttur. Wiedmann ve Minx (2008) karbon ayak izini, insanlar ürün üretirken, ürünlerin üretiminden doğa da yok olmasına kadar olan süreçte ortaya çıkan karbondioksitin toplam miktarı olarak tanımlamaktadır. Karbon ayak izi farklı bir tanıma göre, küresel ısınmanın en önemli sebeplerinden biri olan sera gazları (GHG) içerisinde bulunan karbondioksitin absorbe edilebilmesi için ihtiyaç duyulan biyolojik üretken alandır (WWF, 2009). Lynas'a (2009) göre karbon ayak izi insanların yaşamlarını sürdürebilmeleri için yapılan tüketimin çevre ve doğa üzerinde oluşturduğu etkidir. Yapılan çalışmalarda sera gazı miktarı karbondioksit gazından daha kolay şekilde ölçülebildiği için kullanıldığı görülmektedir, bazı çalışmalarda ise sera gazları karbondioksit gazı eşdeğerliliğine çevrilerek kullanılmaktadır (Wiedmann ve Minx, 2008).

Hızlı nüfus artışının gerçekleştiği gelişmekte olan ülkelerde, sanayileşme sürecinin katkısıyla enerji ihtiyacı fazla olmaktadır. Jeopolitik konumu itibarıyla Avrupa ile Asya arasında bir köprü görevi gören Türkiye, genç nüfusu, kentleşme oranı, sanayileşme çalışmaları ile hızlı büyüyen gelişmekte olan ülkelerden biridir. Öte yandan Türkiye bulunduğu coğrafya sebebiyle Avrupa ile büyük petrol kaynaklarına sahip Orta doğu ülkeleri arasında enerji anlamında da bir koridor olarak görülmektedir. Türkiye'nin son yıllarda gelişen ekonomisine ve değişen sosyoekonomik yapısına paralel olarak başta enerji olmak üzere doğal kaynaklara olan gereksinimleri de arttığı görülmektedir. Artan enerji gibi ara ve yatırım mallarına olan gereksinimlerine karşılık enerji gibi kaynakların üretimi ya da tedariki aynı oranda sağlanamamakta, enerji açığı ya da arz güvenliği gibi ciddi bir dizi sorunu gündeme taşımaktadır (Bayrak ve Esen, 2014; Esen, 2016). Türkiye her geçen gün büyüyen sanayi sektörü ile yurt içinde giderek artan enerji ihtiyacı sebebiyle dışarıdan enerji ithal etmektedir. Ana enerji kaynağı olarak ham petrol ve doğal gaz gibi fosil yakıtları kullanan Türkiye neden olduğu karbon salınımı ile çevre kalitesini düşürmektedir. İleride yaşanacak çevresel felaketlerin en fazla hissedileceği ülkeler kategorisinde ilk sıralarda gelişmekte olan ülkeler bulunmaktadır. Her yıl atmosfere yayılan karbon oranında Türkiye'nin dünyadaki payı %1 olarak hesaplanmaktadır. Çoğu ülkede olduğu gibi Türkiye'de de ekolojik ayak izinin önemli bir bölümü karbon ayak izinden kaynaklanmaktadır. Bu noktadan hareketle bu çalışma, çevresel inovasyonun, Türkiye'deki karbon ayak izi üzerindeki etkisini araştırmaktadır. Bu amaç doğrultusunda, ampirik analiz için 1992 ile 2018 yılları arasındaki yıllık veriler kullanılarak değişkenler arasındaki doğrusal olmayan ilişkileri belirlemek amacıyla TAR (Threshold Autoregressive Model) analizi uygulanmaktadır.

Bu makalenin geri kalan kısmı şu şekilde yapılandırılmıştır: İkinci bölümde çevresel inovasyonların çevresel kalite üzerindeki etkileriyle ilgili literatür incelenecektir. Üçüncü bölümde, çalışmada analiz edilen veri seti ve model sunulacaktır. Dördüncü bölümde, araştırma metodolojisini açıklanacak ve ardından analiz ve elde edilen bulgular raporlanacaktır. Altıncı bölümde ise sonuçlar ve politika önerileri sunularak çalışma tamamlanacaktır.

2. LİTERATÜR TARAMASI

Çevresel inovasyon, ekonomilerin gelişmişlik düzeyinden bağımsız olarak Sürdürülebilir Kalkınma Hedeflerine ulaşmak için genellikle en etkili yol olarak kabul edilmektedir. Bu bağlamda, bazı akademik çalışmalar çevresel inovasyonun çevresel sürdürülebilirliği teşvik etme potansiyeline sahip olduğunu savunurken (Mensah vd., 2018; Wang vd., 2012; Zhou vd., 2013; Zhang vd., 2017); bazıları ise bu tür inovasyonların çevresel bozulmayı artırabileceğini ya da etkilemeyebileceğini öne sürmektedir (Ahmad vd., 2016; Erdoğan vd., 2019; Yıldırım vd., 2022).

Bu çalışmalar arasında, Wang vd. (2012) Çin ülkesine ait 1997-2008 yılları arasındaki ekonomik büyüme, karbondioksit emisyonları ve enerji teknoloji verilerini kullanarak yaptıkları Kao, Fisher ve Pedroni eşbütünleşme testleri ve Panel VECM testine göre karbonsuz enerji teknoloji patentlerinin artışı karbondioksit emisyonunu azalttığı sonucuna ulaşmışlardır. Zhou vd. (2013) Çin ülkesine ait 1995-2009 yılları arasındaki kişi başına düşen GSYH, nüfus, kentleşme, ölçek verimliliği, karbondioksit emisyon oranları, ticari açıklık ve endüstriyel yapının iyileştirilmesi verilerini kullanarak yaptıkları Panel GMM testine göre Çevresel erişim politikaları, endüstriyel yapının gelişimi ve enerji verimliliğindeki iyileştirmeler karbondioksit emisyonunu azalttığı sonucuna ulaşmışlarıdır.

Yii ve Geetha (2017) Malezya ülkesine ait 1971-2013 yılları arasındaki GSYH, enerji fiyatı, elektrik tüketimi, teknolojik inovasyon ve karbondioksit emisyonu verilerini kullanarak yaptıkları VECM ve TYDL Granger nedensellik testinde Teknolojik inovasyonlar karbondioksit emisyonunu azaltırken; kısa dönemde teknolojik inovasyonlar karbondioksit emisyonunun nedeni olduğu sonucuna ulaşmışlardır. Zhang vd. (2017) Çin ülkesine ait 30 eyaletin 2000-2013 yılları arasındaki GSYH, enerji tüketimi, Ar- Ge harcamaları, teknolojik buluşlar, nüfus, internet kullanımı, çevreyle ilgili kamu politikaları, kirlilik denetimi ve karbondioksit emisyonu verilerini kullanarak yaptıkları Panel regresyon testine göre pek çok çevresel yenilik önlemleri karbon emisyonunu azalttığı sonucuna varmışlardır. Fernandez vd. (2018) 15 Avrupa Birliği ülkesi, ABD ve Çin'e ait 1990-2013 yılları arasındaki Ar-Ge harcamaları, enerji tüketimi ve karbondioksit emisyonu verilerini kullanarak yaptığı Panel regresyon testine göre Ar-Ge harcamalarındaki artış karbondioksit emisyonunu azaltırken; enerji tüketimindeki artışlar ise artırdığı sonucuna ulaşmıştır. Bir diğer çalışmada, Dinda (2018) ABD'ye ait 1963-2010 yılları arasındaki Gelir, faydalı patentler ve karbondiokait emisyonu verilerini kullanarak yaptığı Johansen- Juselius eşbütünleşme ve VECM testine göre Artan gelir üretim teknolojisindeki ilerlemeyle birlikte CO2 emisyonunun artışını azalttığı sonucuna ulaşmıştır. Mensah vd. (2018) 28 OECD ülkesine ait 1990-2014 yılları arasındaki Ekonomik büyüme, yenilenebilir enerji tüketimi, yenilenemez enerji tüketimi, patent başvuruları, Ar-Ge harcamaları ve karbondioksit emisyonu verilerini kullanarak yaptığı STIRPAT modeli ve ARDL testine göre İnovasyonlar çoğu ülkede karbondioksit emisyonunu azaltırken; çoğu ülkede ekonomik büyüme karbondioksit emisyonunu artırmaktadır. Yenilenemez enerji tüketimi karbondioksit emisyonunu artırırken; yenilenebilir enerji tüketimi azalttığı sonucuna ulaşmıştır. Hashmi ve Alam (2019) OECD ülkelerine ait 1999-2014 yılları arasındaki Nüfus, gelir, çevreyle ilgili vergiler, çevresel patentler, çevresel olmayan patentler ve karbondioksit emisyonu verilerini kullanarak yaptıkları Panel regresyon analizi panel eşbütünleşme testleri, nedensellik testleri ve STIRPAT modeli testlerine göre çevresel patent sayıları ve çevreyle ilgili vergiler karbon emisyonunu azalttığı sonucuna ulaşmışlardır. Akyol ve Mete (2021) OECD kurucusu 18 ülkeye ait 2005-2018 yılları arasındaki Çevresel inovasyon, enerji tüketimi, gelir ve karbondioksit emisyonu verilerini kullanarak yaptıkları Panel GMM testine göre Çevresel inovasyonlar karbondioksit emisyonunu azaltırken; ekonomik büyüme ve enerji tüketimi artırdığı sonucuna ulaşmışlardır.
Çevresel inovatif faaliyetlerden beklenen çevresel faydanın her koşulda ortaya çıkmadığını ortaya koyan çalışmalar arasında ise Ahmad vd. (2016) 24 Avrupa ülkesine ait 1980-2010 yılları arasındaki GSYH, teknoloji göstergesi olarak patent başvuruları, yenilenebilir enerji kaynağı olan biyomas ve karbondioksit emisyonu verilerini kullanarak yaptıkları ARDL üç modeli testlerine göre Teknolojik ilerlemeler karbondioksit emisyonunu azaltmaktadır. Uzun vadede GSYH ile karbondioksit emisyonu arasında rebound etkisi ilişkisi olduğu sonucuna ulaşmışlarıdır. Erdoğan vd. (2019) 14 adet G20 ülkesine ait 1971-2017 yılları arasındaki Ekonomik büyüme, enerji tüketimi, patent başvuru sayısı ve karbondioksit emisyonu verilerini kullanarak yaptıkları Panel LM eşbütünleşme ve CCE ile AMG tahmincileri testlerine göre Sanayi sektöründeki inovasyon artışları karbon emisyonunu azaltırken inşaat sektöründe ise artırdığı sonucuna ulaşmışlardır. Yıldırım vd. (2022) 1997-2018 dönemini kapsayan 32 OECD ülkesi için çevresel inovasyonların enerji sektörü temelli CO2 emisyonları üzerindeki etkisini araştırmışlar. Değişkenler arasındaki doğrusal olmayan ilişkiyi saptamak için hem eşik seviyesini içsel olarak belirleyebilen hem de bir rejimden diğerine geçişin yumuşaklığını tahmin edebilen bir yumuşak geçişli panel regresyon (PSTR) modelini kullanmışlar.

Elde edilen bulgular, çevresel inovasyonun enerji sektöründen kaynaklanan CO2 emisyonları üzerinde belirli bir seviyeye kadar azaltıcı bir etkiye sahip olduğunu ancak, bu seviyenin aşılması halinde artırıcı etkileri olduğu ve bunun da bir rebound etkisinin varlığına işaret etmektedir.

3. VERİ SETİ VE MODEL

Bu çalışmada, Türkiye'de çevresel inovasyonların karbon ayak izi üzerindeki etkilerini incelemek için 1992- 2018 dönemine ilişkin çevreyi korumaya yönelik teknoloji patent sayıları ve kişi başı karbon ayak izi yıllık verileri kullanılmaktadır. Kontrol değişken olarak dolar cinsinden kişi başına düşen gayri safi yurtiçi hasıla, kişi başına düşen toplam nihai enerji tüketimi, Finansal Gelişim Endeksi, şehirleşme ve dışa açıklık değişkenleri modele dahil edilmektedir. Çalışmaya dair modele dahil edilen verilere ilişkin açıklamalar Tablo 1'de raporlanmaktadır.

Tablo 1: Veri Kaynağı ve Açıklama

Değişkenler	Açılımı	Sembol	Ölçü Birimi	Veri Kaynağı
Karbon ayak izi	Kişi başına düşen karbon ayak izi	CRB	Gha	Global Footprint Network (2022)
Çevresel inovasyon	Çevresel teknolojilerdeki patent sayıları	INV	Tüm teknolojiler içindeki yüzdesi	OECD (2022)
Kişi başı gelir	Kişi başına düşen GSYİH	GDP	Cari ABD doları	WD (2022)
Enerji Tüketimi	Kişi başına düşen toplam nihai enerji tüketimi	ENR	Ton petrol eşdeğeri	OECD (2022)
Finansal Gelişme	Finansal Gelişim Endeksi	FD	İndeks	WD (2022)
Şehirleşme	Kentsel nüfus	URB	Toplam nüfusun yüzdesi	WD (2022)
Dışa Açıklık	Mal ve hizmet ithalat ve ihracatının toplamı	OPEN	GSYİH'ya oranı	WD (2022)

Değişkenlere ilişkin tanımlayıcı istatistikler ele alındığında tüm değişkenler için 1992-2018 dönemine ilişkin yıllık verileri kapsayan 27 gözlem sayısı bulunmaktadır. Değişkenlere ait ortalama değer, medyan, maksimum, minimum ve standart sapma değeri yer almaktadır. Ayrıca değişkenlere ait çarpıklık, basıklık ve normallik sınamaları incelenmektedir. Çalışmada kullanılan değişkenlere ilişkin tanımlayıcı istatistikler ise Tablo 2'de yer verilmektedir.

Tablo 2: Değişkenlere İlişkin Tanımlayıcı İstatistikler

	CRB	INV	GDP	ENR	FD	URB	OPEN
Gözlem Sayısı	27	27	27	27	27	27	27
Ortalama	1.5833	0.0813	7105.472	983.1189	0.4114	0.6788	0.4766
Medyan	1.5300	0.0757	7369.340	951.5800	0.4300	0.6800	0.4800
Maksimum	2.2100	0.2137	12507.59	1279.520	0.5300	0.7500	0.6300
Minimum	1.0600	0.0381	2241.290	744.3500	0.2300	0.6100	0.3200
Std. Sapma	0.3314	0.0324	3620.701	157.8467	0.0884	0.0455	0.0683
Çarpıklık	0.0460	2.4968	0.048741	0.200750	-0.2967	0.0509	-0.4171
Basıklık	1.7556	11.4496	1.338466	1.842891	1.9016	1.7163	3.4492
Jarque-Bera	1.7514	108.3756*	3.116471	1.687617	1.7534	1.8652	1.0101

*, %5 önem seviyesinde istatistiksel olarak anlamlı olduğunu göstermektedir.

4. METODOLOJİ VE AMPİRİK BULGULAR

4.1. Birim Kök ve Durağanlık Testleri

İktisat politikasının asıl amacı, değişkenler arasında var olan bağlantıya yön vermektir. İktisat politikası parametrelerin doğru tahmin edilmesine sonucu önerilerde bulunur. Bu parametrelerin doğru tahmin edilebilmesi için elde edilen veriler durağan olmalıdır. Bu sebeple ampirik analiz yöntemi kullanılan çalışmalarda durağanlık önem arz etmektedir (Kahyaoğlu ve Duygulu, 2005).

Zaman serisinin durağan olabilmesi için zaman serisinin varyansı ile ortalaması sabit, iki dönem arasında olan kovaryansı hesaplandığı asıl döneme değil sadece iki dönem arasındaki uzaklığa bağlı olması gerekmektedir (Gujarati, 2016). Çalışılacak modelde anlamsız regresyon sorunu ortaya çıkmaması için zaman serisinin birim kök içermemesi gerekmektedir (Nargeleçekenler ve Sevüktekin, 2010). Bu nedenle çalışmada geleneksel ADF ve PP birim kök testleri ile serilerin durağanlığı test edilmektedir. Serilerin durağanlığını belirlemek için birim kök testi yapılmaktadır. Bu çalışmada, Genişletilmiş Dickey-Fuller(Adf) Ve Philips ve Perron (PP) birim kök testlerini kullanarak serilerin durağanlık düzeyleri sınanmaktadır. Bu süreç hem belirsizliğin hesaplanmasında hem de değişkenler arasındaki ilişkinin analizinde gereklidir. Değişkenlere ilişkin birim kök testi sonuçları Tablo 3'da yer almaktadır.

Tablo 3: Birim Kök Testi Sonuçları

Değişkenler	PP Birim Kök Testleri			
	Düzeyde		Birinci Farkında	
	Sabitli	Sabitli & Trendli	Sabitli	Sabitli & Trendli
LnCRB	-1.2336	-4.2467**	-12.1492*	-11.8186*
LnINV	-5.6143*	-5.4572*	-20.2498*	-19.1326*
LnGDP	-1.1704	-1.5581	-5.3082*	-5.281*
LnENR	-0.6144	-3.8116**	-9.3764*	-9.3245*
LnFD	-2.5067	-3.9097**	-6.0163*	-6.1783*
LnURB	-0.3932	-7.2559*	-20.0866*	-20.1342*
LnOPEN	-2.475	-3.8901**	-4.9661*	-4.9028*
Değişkenler	ADF Birim Kök Testleri			
	Düzeyde		Birinci Farkında	
	Sabitli	Sabitli & Trendli	Sabitli	Sabitli & Trendli
LnCRB	-0.6585	-4.2468	-8.0365*	-7.8598*
LnINV	-5.2655*	-3.4679***	-3.8183*	-5.9942*
LnGDP	-1.1704	-1.4232	-5.3129*	-5.2839*
LnENR	-0.2759	-3.8116**	-7.0515*	-6.9211*
LnFD	-2.4442	-3.9097**	-5.0404*	-4.8431*
LnURB	-0.6408	-7.5256*	-4.0141*	-3.9591**
LnOPEN	0.5959	-6.2912*	-4.8358*	-4.7417*

*, ** ve *** sırasıyla %1, %5 ve %10 önem seviyesinde istatistiksel olarak anlamlı olduğunu göstermektedir.

Tablo 3'de hem ADF hem de PP birim kök testi sonuçlarına göre lnGDP değişkeninin düzeyde birim kök içerdiği ve birinci fark alındığında durağan olduğu sonucuna varılmıştır. Diğer değişkenlerin tamamının ise düzeyde durağan olduğu anlaşılmıştır. Bu sebeple bundan sonraki süreçte lnGDP değişkeninin farkı alınarak analize devam edilmiştir.

4.2. TAR Analizi

TAR modeli, belirli bir eşik değerlerin üzerindeki ve/veya altındaki çevresel inovasyonların karbon ayak izine etkileri arasında bir farkın olup olmadığını belirlemek ve muhtemel bu etkilerin yönünü ve büyüklüğünü tespit etmek için tahmin edilmektedir. TAR modellemesinde doğrusallığı sınamak ve rejim sayısını belirlemek için çalışmada, Bai ve Perron'un (1998, 2003) sıralı prosedürü (Bai — Perron tests of L+1 vs. L sequentially determined thresholds) benimsenmektedir. Ayrıca, maksimum rejim sayısı ise beşe ayarlanmaktadır. Elde edilen TAR analizi ve tanısal testlerin sonuçları, Tablo 4'da yer almaktadır.

Tablo 4: Threshold Autoregressive (TAR) Modeli ve Tanısal Testlerin Sonuçları

Bağımlı Değişken	Karbon Ayakizi	
Eşik Değer Parametresi ($\hat{\gamma}$)	11.50	
Eşik Değişkeni	Çevresel İnovasyon	
Eşik Değeri	$\hat{\beta}_1$	$\hat{\beta}_2$
Gözlem sayısı	24	2
LnINV	0.085* (0.0087)	0.189* (0.0001)
Kontrol Değişkenler		
LnGDP	0.003*** (0.0787)	
LnENR	0.211* (0.0000)	
LnFD	0.204*** (0.0902)	
LnURB	1.686* (0.0000)	
LnOPEN	-0.047 (0.3042)	
Breusch-Godfrey Serial Correlation LM Testi:		
F(2,17)	0.009239 (0.9908)	
$\chi^2(2)$	0.028229 (0.9860)	
Breusch-Pagan-Godfrey Heteroscedasticity LM Testi		
F(2,23)	1.088182 (0.3535)	
$\chi^2(2)$	2.247564 (0.3250)	
*, ** ve *** istatistiksel olarak sırasıyla %1, %5 ve %10 anlamlılık düzeylerini ifade etmektedir. Parantez içi olasılık değerini göstermektedir. Trimming yüzdesi 0.10 ve maksimum eşik sayısı 5 olarak ayarlandı.		

Tablo 4'te raporlanan TAR analizinin tahmin sonuçlarına göre, çevresel inovatif faaliyetlerin karbon ayakizi üzerinde etkili olduğu görülmektedir. Çevresel inovasyonların %11,50 eşik değerin altında olduğunda, çevresel inovasyonun karbon ayakizi üzerinde %1 anlamlılık düzeyinde istatistiksel olarak anlamlı ve pozitif (0.085) bir etkiye sahip olduğu görülmektedir. Bunun yanında, çevresel inovasyonun %11,50 eşik seviyesinin üzerinde olduğu bir dönemde ise söz konusu etki yine pozitif (0.189) ve istatiksel olarak anlamlı bir etkisi bulunmaktadır. Bir başka değişle, çevresel İnovasyonun karbon ayak iyi üzerinde artıcı bir etkiye sahip olduğu görülmektedir. Bu sonuçlar çevresel inovatif faaliyetler sonucu enerji ve doğal kaynak verimliliği artışı ile kazanılan birtakım tasarrufların kaynak kullanımını azaltmak yerine daha fazla tüketime sebebiyet vererek karbon ayak izini artırdığına işaret etmektedir. Mevcut ampirik sonuçlar, çevresel yeniliklerden elde edilen kazanımları üretim ve tüketime kanalize ederek dengelemeyi ifade eden bir geri tepme etkisine işaret etmektedir.

Bunun yanında tahmin edilen katsayılarının etkinliğini ve yansızlığını kontrol etmek için yapılan analiz kapsamında oluşturan TAR modeline ait bazı tanısal testlerin yapılması gerekmektedir. Bu kapsamda serilerin otokorelasyon sorunu içerip içermediğini anlamak için Breusch-Godfrey Serisel Korelasyon LM testi ve kurulan modelde değişen varyans sorunu olup olmadığını belirlemek için de Breusch- Pagan-Godfrey Heteroscedasticity LM testleri uygulanmaktadır. Tablo 4'te yer alan otokorelasyon ve değişen varyans testlerinden oluşan modelin tanısal test sonuçları, 0.05 anlamlılık düzeyinde tahminin başarılı olduğuna dair güçlü deliller sunmaktadır. Buna göre çalışmada kurulan modelde otokorelasyon ve değişen varyans probleminin olmadığı sonucuna ulaşılmaktadır.

5. SONUÇ VE DEĞERLENDİRME

İnsanların temel ihtiyaçlarının karşılanmasında ve ekonomik büyümeyi desteklemede kritik bir rol oynayan doğal kaynakların sınırlı olması, bu kaynak üzerinde bir baskı oluşturmaktadır. Sözkonusu çevresel sorunlar ve sürdürülebilirlik endişeleri, dünya genelinde doğal kaynakların sürdürülebilir bir şekilde yönetilmesi gerektiği konusunda genel bir fikir birliği oluşturmaktadır. Günümüzde gelişmiş ve gelişmekte olan ekonomiler çevre kirliliği, iklim değişikliği ve küresel ısınma gibi insan sağlığını tehdit eden bir dizi çevresel problemle karşı karşıya kalmaktadır. Bu tür sorunlara sebebiyet veren başta fosil tabanlı yakıtların kullanımı olmak üzere yenilenemeyen tüm enerji kaynakların yoğun kullanımından dolayı artan enerji tüketimini azaltmak için enerjinin etkin ve verimli kullanımını sağlayacak tedbirlerin alınması kilit rol oynamaktadır. Bu bağlamda, çevresel inovatif faaliyetlerin ve AR-GE çalışmalarının artırılması, geliştirilmesi ve uygulamaya kullanılması, çevresel sürdürülebilirliği artırma amacı taşıyan birçok çözümün temelini oluşturmaktadır. Ne var ki, ülkelerin bu türden amaçları doğrultusunda uygulamaya koydukları çevresel inovasyon tabanlı kaynak kullanım verimliliğine yönelik politikaların her zaman kaynak kullanımını düşürmeyi garanti etmediği de literatürde tartışılmaktadır.

İlgili literatürdeki tartışmalara katkıda bulunmak için bu çalışma, TAR modelini kullanarak çevresel inovasyonun karbon ayak izi üzerindeki doğrusal olmayan etkisine ilişkin yeni ampirik kanıtlar sunmaktadır. Çalışmanın kapsamı, Türkiye'nin 1992-2018 dönemine ait veri setinden oluşmaktadır. Elde edilen analiz sonuçları, çevresel inovasyonun %11,50 eşik değeri altında olduğu durumlarda karbon ayak izini artırdığını (0.085 etkisi olduğunu) göstermektedir. Buna ek olarak, çevresel inovasyonun bu eşik değerini aştığı durumlarda, aynı etkinin hala pozitif olduğunu (0.189), ancak daha yıkıcı bir etki yarattığını ortaya koymaktadır. Başka bir deyişle, çevresel inovasyonun karbon ayak izi üzerinde artırıcı bir etkisi olduğu ortaya çıkmaktadır. Bu sonuçlar, çevresel inovasyon faaliyetleri sonucu elde edilen enerji ve doğal kaynak verimliliği artışının, kaynak kullanımını azaltmak yerine daha fazla tüketimi teşvik ederek karbon ayak izini artırabileceğine işaret etmektedir. Mevcut ampirik bulgular, çevresel inovasyonun elde edilen kazançları üretim ve tüketim yoluyla dengeleyerek bir geri tepme etkisi oluşturduğunu göstermektedir. Bulgular, çevre ve ekolojik sistemlerin geleceğine yönelik inisiyatifi tek başına bireylere ya da firmalara bırakılmaması gerektiğini ortaya koymaktadır. Bu süreçlerin temelinde, rekabetin arttığı piyasa koşullarında kar maksimizasyonu hedefiyle işletmeler ve fayda maksimizasyonu güdüsüyle bireylerin çevreye duyarlı inovasyona dayalı kaynakların daha verimli kullanımından kaynaklanan tasarrufları, daha çok fiyat ve maliyet düşüşleri olarak görmesi ve bu nedenle kaynak talebinin artmasını teşvik etmesi yatmaktadır.

Dünyada doğal kaynakların sınırlı olduğu giderek azaldığı bir dönemde, çevresel kaynakları etkin ve verimli bir şekilde kullanmak ve ekolojik ayak izini azaltmak, dünya ve gelecek nesillerin refahı için hayati öneme sahiptir. Bu noktada çevresel inovasyonlara büyük görevler düşmektedir. Ortaya çıkan muhtemel çevresel rebound etkisi, çevresel sürdürülebilirlik çabalarını daha zor ve karmaşık hale getirebilir; ancak bu olguyu dikkate almak daha sürdürülebilir bir geleceğe yönelik adımlar atılmasına katkı sağlayabilir. Çevreye duyarlı inovasyonların potansiyel olumlu etkilerini en üst seviyeye çıkarmak için, politika yapıcıların yapılan düzenlemelerde çevresel rebound etkisini dikkate almaları ve çevresel etkileri daha fazla göz önünde bulunduran çözümler üzerinde çalışmalıdır.

Notlar

Bu çalışma, 2022 yılında Tekirdağ Namık Kemal Üniversitesi Sosyal Bilimler Enstitü tarafından kabul edilen *"Türkiye'de Çevresel İnovasyonun Karbon Ayak İzi Üzerine Etkisi"* başlıklı Yüksek Lisans Projesinden türetilmiştir.

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THEORETICAL STUDY ON THE "SOCIAL SUSTAINABILITY" DIMENSIONS IN PRODUCTION

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ABSTRACT
Sustainability is an important concept integrated into the mission of many industries. The manufacturing sector is one of the sectors with the highest potential for being “sustainable”. Many studies involving economic and environmental sustainability in manufacturing industries can be mentioned. On the other hand, social sustainability has been a subject less included in the documents compared to others. However, in terms of sustainability, the social aspect must also be taken into account in the same way. This gap motivated the preparation of this study. This study turns to the manufacturing industry and focuses on social sustainability indicators examined in the literature. For this purpose, studies examining the social aspect of sustainability in the production sector were evaluated. The latest studies on the relevant subject were taken into account in order to understand how the concept of social sustainability was used. In this regard, the scope of this research consists of scientific articles published since 2015. Since the literature on social sustainability is considered insufficient, it is thought that it will be important for this study to present social sustainability indicators as a whole. One of the most important findings of the study is that there are no indicators accepted as standards that can be used in the manufacturing sector. As a result of the research, it is seen that studies examining social sustainability are mainly related to the social responsibility of their employees.
Keywords: Sustainability, Social Sustainability, Content Analysis

INTRODUCTION
While the effects of production on economic and environmental sustainability come to the fore, it is also necessary to take into account the effects of production on people in order to be sustainable. Considering the pressures of stakeholders, expectations of customers and demands of employees, the need for businesses to be sustainable increases day by day. The issue of sustainability has recently become very important for businesses to gain competitive advantage (Kim & Lee, 2018). Some pressures at this point have encouraged manufacturers to develop their own methodologies to move towards sustainability (Zhang & Haapala, 2014). Businesses that want to be sustainable adhere to a set of rules, including environmental protection and ethical behavior (Wales, 2013). Sustainability in production depends on raw material resources, the energy consumed throughout the supply chain, natural resources such as water, other impacts on the environment, economic indicators of businesses such as various cost items and profitability, and the social effects it creates on employees and society.
Definitions of sustainability focus on three concepts: economic, environmental and social. This is an indication that there must be a triple effect to talk about sustainability. However, both practitioners and researchers are more interested in the economic and environmental effects of production. Industries have difficulty evaluating sustainable development from a social perspective. Because it can be said that businesses have a limited perspective on how they can achieve social sustainability. This slows down the inclusion of social sustainability issues into processes. However, manufacturers are under increasing pressure to integrate social sustainability practices into their production management strategies (Mani et al., 2018).

If producers know how to contribute to sustainability by focusing on social problems, it can create significant awareness.

While there are abundant studies dedicated to investigating the economic and environmental sustainability of a manufacturing industry, there are limited studies on social sustainability in the literature (Papetti et al., 2018; Mani et al., 2018; Digalwar et al., 2020; Vafadarnikjoo et al., 2020; Khokhar et al., 2020b; Wei & Xiong, 2020; Shaharudin et al., 2022; Ciannella, S., & Santos,2022; Samadhiya et al., 2023). On the other hand, most of the studies have evaluated three pillars together: economic, environmental and social. However, many of the researchers conducting research in the field of sustainability have emphasized the lack of knowledge on social sustainability. There have been discussions about the social aspect of sustainability, but this has led to confusion and uncertainty in academia and industry (Mani et al., 2020). Therefore, there is a need to fill the research gap regarding the social sustainability of manufacturers.

This study presents the social parameters preferred by researchers in production sectors from a broad perspective in order to support the social sustainability literatüre. The scope of the study consists only of existing studies examining the issue of social sustainability since 2015. The study particularly includes research that conducts case studies on manufacturing enterprises. Each of these studies was evaluated with content analysis. This study can provide a broad perspective on the subject due to the use of various social parameters and different stakeholders in the manufacturing sectors.

THEORETICAL BACKGROUND

Existing Literature on Social Sustainability in Production

The terms 'sustainability' and 'sustainable development' came to the fore with the publication of the Brundtland report by the United Nations in 1987. While the report focused more on the economic and environmental impacts of sustainability, social concerns were not mentioned much. As in the report, social issues are a little further behind in studies on sustainability. Businesses also often focus less on social initiatives when trying to achieve corporate sustainability (Ahmadi et al., 2017).

The concept of social sustainability is part of the three impacts that constitute sustainability. There is a general lack of knowledge about what social sustainability is. Sustainability is meeting the social needs of current generations without compromising the social needs of future generations. Protecting or improving the quality of life of future generations is the basis of the social aspect of business sustainability (Aktin & Gergin, 2016). Social sustainability was basically developed to ensure sustainable development. Social sustainability includes human rights, responsibilities towards employees, and corporate governance (Shaharudin et al., 2022). On the other hand, social sustainability is about the management of social resources, people's skills and abilities, and social values (Sarkis, 2010). Alsayegh et al. (2020) looked at social sustainability more broadly and defined it as ergonomic working environment, co-adaptation, safety conditions, fundamental rights, equitable distribution, community participation and social responsibilities.

As it becomes necessary to focus on social issues to achieve overall sustainability, manufacturers can evaluate social issues within the supply chain (Mani et al., 2015). Social performance of businesses is to achieve social goals by fulfilling social responsibilities and considering social interests (Brockett & Rezaee, 2012). Businesses should focus on social problems to ensure sustainability, and socially conducted activities should be more on the agenda and should be an area of greater importance. Because focusing on social issues strengthens the overall sustainability of businesses.

Social sustainability in production consists of activities that can ensure the safety, health and welfare of employees within the production processes of enterprises. It can be stated that businesses that create a risk-free work environment for their employees, provide fair wages, fair workload and social rights, and invest in the talents of their employees are socially successful. In fact, manufacturers' perspective on social sustainability should not be limited to employees and should also pay close attention to the social issues of customers, stakeholders and society. Manufacturers' social sustainability is the management of social issues that potentially affect production workers, customers and society (Pullman et al., 2009).

Steps have been taken to determine social criteria in studies on social sustainability. In particular, the impact of social practices on supply chain performance has been one of the most studied topics. The impact of social practices in different industries on supply chain performance has been included in studies such as Chin and Tat (2015), Rajak and Vinodh (2015), Husgafvel et al. (2015) and Mani et al. (2018). Chin and Tat (2015) examined the effect of gender diversity as a social criterion on supply chain performance. Marshall et al. (2016) conducted a study to reveal the importance of social sustainability practices that include innovation and strategy and their impact on organizational performance.

Hami et al (2017) analyzed the relationships between innovation performance and social sustainability as a result of the use of sustainable practices in production. The impact of sustainable practices in production on improving social sustainability was also discussed. Mani et al. (2018) focused on how businesses integrate social issues into their supply chains and its effects on sustainability. The case study in the study was conducted on producers in Portugal.

Awan et al. (2018) conducted a study to identify factors that hinder social sustainability practices in manufacturing companies. Researchers have examined this issue in terms of the lack of internal incentive programs, lack of participation of operational staff in planning, and lack of supportive policies from institutions. Papetti et al. (2018) conducted a case study to improve and renew businesses socially from a digital production perspective. The application was carried out through a single manufacturer in Italy. In this study, the results were compared for two operators with different characteristics and social expectations by integrating advanced technologies such as the *Internet of Things* into the production facility. Shaharudin et al. (2022)'s study examined the impact of various practices on social sustainability in the manufacturing industry in Malaysia. For this purpose, the relationship between environmental practices, product responsibility, safety and health practices and social sustainability performance was examined.

Social sustainability studies focusing on social relations in developing economies have been limited (Mathiyazhagan et al., 2023). While it is known that the social aspects of sustainability have been neglected in the relevant literature, the social criteria used in the production sector have also been a matter of curiosity. It is possible that many different researchers may prefer different criteria. Because, unlike economic and environmental sustainability, assessing social sustainability is qualitative and based on human perception (Digalwar et al., 2020). Mani et al. (2015) examined the sustainability practices of two Indian producers operating in different sectors, namely oil and gas, in terms of various social criteria. Researchers used 6 basic criteria: "education", "health", "sanitation", "employment", "safety" and "philanthropy".

Rajak and Vinodh (2015)'s study aimed to evaluate the sustainability performance of an automotive company in India using social sustainability criteria. For this purpose, they used 5 basic social indicators in their studies by benefiting from the literature.

The first of these indicators was "internal human resources" and this main criterion evaluates social sustainability in terms of "job opportunities", "employment compensation", "health and safety practices", "research and development". The second main criterion was "external population" and this main criterion includes social sustainability, "health and education", "housing and service", "infrastructure", "security", "social cohesion", "regulatory and public services", "governance" and "wealth". The third main criterion was “stake holder participation” and this main criterion examines social sustainability with the criteria of “collective audience”, “selective audience”, “decision influence potential” and “stake holder empowerment”. The last main criterion was "macro social performance", and this main criterion examines social sustainability with the sub-criteria "macroeconomic welfare", "trading opportunities", "monitoring", "legislation", and "enforcement". Zhu et al. (2016) and Mani et al. (2016) examined social sustainability in terms of society and employees through 8 criteria in their study. These criteria were “fair wages”, “employee health”, “working conditions”, “living conditions”, “job opportunities”, “public education”, “public health” and “community literacy”.

Bai et al. (2019) focused on social issues in the selection of suppliers to take part in the production processes of companies. For this purpose, the study included seven criteria that include both employees and stakeholders. Researchers used the criteria of “workers health and safety”, “training education and community influence”, “contractual stakeholders' influence”, “occupational health and safety management system”, “interests and rights of employees”, “right of stakeholders”, “information disclosure” and “employment practices”. Munny et al. (2019) conducted a study in Bangladesh on the assessment of social sustainability in the context of the shoe supply chain. Within the scope of this study, it was aimed to adopt the importance level of various social criteria. Researchers focused on social issues that concern both customers and employees. The social criteria in the study were “workplace health and safety practices”, “wages and benefits”, “customer requirements”, “non-discrimination”, “commitment of top management”, “housing and sanitation”, “labor or forced labor”, “anti-corruption”, “working hours”, and “education and training of employees”. In Ren (2019)'s study, social criteria with the theme of "responsibility" were especially emphasized. Researchers evaluated social sustainability from the perspective of shareholders and partners beyond customers and employees. Other social criteria in the study were responsibilities to society, to the government, and to the public welfare industry.

Vafadarnikjoo et al. (2020) investigated the relationships between social sustainability criteria for improving social sustainability performance. In order to improve the social dimension of sustainability, researchers focused on "work safety and labor health", "training, education and community development", "contractual stakeholders' influence", "occupational health and safety management system", "interests and rights of employees", "rights of community”, “information disclosure” and “employment practices”. It is seen that the social aspects in the research were created through employees, stakeholders and society. Mani et al. (2020) conducted a study evaluating the relationships between social sustainability practices and supply chain performance. For this, researchers focused on SMEs in Asia. The social sustainability criteria included in the study were reached as a result of semi-formatted interviews with experts. The social criteria in the study were examined in six dimensions: “freedom”, “security”, “philanthropy”, “health and welfare”, “ethics” and “human rights”.

Khokhar et al. (2020a)'s study, social themes were determined with nineteen managers in twelve different production sectors to evaluate the socially sustainable supply chain. The companies in the study were selected from manufacturers in Pakistan.

As a result of the study, "organizational commitment to management", "occupational safety and health management", "wages", "labor rights", "educational training", "altruism", "child and bonded (age rule)", "worker welfare" and “research and development” criteria came to the fore. Khokhar et al. (2020b) conducted a study on fifty-three Pakistani companies with the aim of prioritizing social criteria by taking into account the social dimension of sustainability in the manufacturing industry. In this context, eleven social sustainability criteria were used. Researchers decided on social dimensions by considering both employees, society and stakeholders. The criteria in the study were "community education & training influence", "cultural values", "employment practices", "health and safety practices at work", "influence of contractual stakeholders", "information disclosure", "mobility and accessibility", "occupational health and safety management system”, “research development and innovation”, “employees' rights and interests” and “stakeholders rights”.

Digalwar et al. (2020) conducted their studies to weight social sustainability indicators in the machining industry. The social sustainability criteria in the study were obtained from the literature and practitioners. These criteria were examined around 4 main criteria: “workplace condition”, “workplace environment”, “work safety and training” and “skill development”. The sub-social sustainability criteria used in the study were “convenient and accessible work location”, “leave offered”, “employee welfare”, “job security”, “appraisal (incentives etc.)”, “comfort at workplace”, “effect of coolant/ oil (on health impacts)”, “effect emissions and waste”, “exposure to toxic chemicals”, “occupational hazards”, “safety”, “training and development” and “employee involvement”.

Petrudi et al. (2021) conducted a study to provide a social sustainability innovation framework for businesses to evaluate suppliers during the COVID epidemic. In the study, various social sustainability criteria were evaluated using the group grey-best worst method. Since the study was different from many studies, some of the criteria used were specific to this study. In this context, seven criteria were used: “safety and health practices”, “corporate social responsibility initiatives”, “improving the firm's social image”, “knowledge sharing”, “diversified portfolio of suppliers”, “remote working conditions” and “localization”. .

Ciannella and Santos (2022) evaluated social sustainability criteria to examine the impact of lean production practices on sustainability. The criteria in the study were reached as a result of expert opinions and literature review. These criteria were “autonomy and empowerment from the employees' perspective”, “employee health and safety”, “work stress (physiological and psychological response of employees regarding their coping abilities) and “an improved workplace (conducting safe and ergonomic work).

Asha'ari et al. (2023) conducted a study examining the impact of sustainable design on companies' social sustainability performance. In this study, 6 social criteria were used: "protecting the health and safety of employees or the community", "protecting the rights of the local community", “supporting local community initiatives,” “paying attention to the visual aspects of facilities and operations,” “publicly communicating organizational environmental impacts and risks,” and “stakeholder engagement.” Samadhiya et al. (2023) conducted a study in which they analyzed the most important Total preventive maintenance success factors to ensure social sustainability in SMEs in the manufacturing sector. The criteria used in the study were "employee health and safety", "elimination of hazardous waste", "quality of life", "participation and satisfaction of stakeholders", "improved working conditions", "fair workload", "reduction of work accidents related to psychological and social risks of employees", “minimization of work repetition”, “job satisfaction of operators”, “growth in the number of employees” and “job turnover rate”.

Mathiyazhagan et al. (2023) conducted a study in the Indian industry to evaluate social sustainability in manufacturing enterprises. The study comprehensively included 16 criteria in terms of social criteria. These criteria were “customer management”, “using reverse logistics”, “information sharing practices”, “employee well-being and equity practices”, “corporate social involvement practices”, “corporate sustainability reporting practices”, “sustainable supplier management practices”, “sustainable partner development”, “sustainable partner selection”, “designing and managing processes to achieve transparency and traceability”, “employment stability”. Another criterion in the study was "standardization and monitoring", which means adherence to environmental and social security standards. In the study, "sustainable packaging", "eco-friendly design and cleaner production practices", "sustainable material selection" and "life-cycle assessment" criteria were also used due to their effects on human health and society.

RESULT AND EVALUATION

There has been great interest in sustainable practices in production sectors, especially in recent years. While most of these studies focus on economic and environmental sustainability, it is thought that social sustainability still needs to be investigated. While the issue of social sustainability focuses on ensuring welfare in matters that concern people, on the other hand, it is an extremely important issue for businesses to gain a competitive advantage in the current market. However, how much importance it is given by both researchers and practitioners in the sector is open to debate.

Due to the limited study area in the literature investigating social sustainability, it has been a matter of curiosity in what ways "social" themes will be included. This study has been prepared in line with the necessity of social sustainability assessment. In this study, it was aimed to determine the social criteria included in the studies of researchers who conduct research in the literature on social sustainability in production sectors. The answer to question of “Are common social issues being examined across production sectors, or are they diverse without a specific framework?” is revealed by the findings of this study. For this purpose, studies in which researchers focused only on social sustainability problems and criteria in production were taken into account. Articles published since 2015 were examined and each study was evaluated with content analysis. The results of this study are expected to be helpful to those working in the production sector, decision makers and researchers investigating social sustainability.

When the existing literature was examined, very few studies on the theme of social sustainability were found. This means that it is decided that social sustainability issues are not mature enough and that studies need to be intensified, especially in the manufacturing sector. Due to the lack of conceptual clarity in the manufacturing sector, it is difficult to determine generally acceptable social sustainability dimensions (Khokhar et al., 2020b). Since the social aspect of sustainability is not very decisive, alternative criteria are needed to evaluate it.

According to the findings of this study, it can be easily stated that there are no generally accepted standards regarding social sustainability metrics. Because, unlike economic and environmental sustainability, evaluating social sustainability is based on human perception. Digalwar et al. (2020)'s study attributed this situation to the fact that social sustainability is qualitative. As a result of the research, it is seen that studies examining social sustainability in production sectors are mainly related to the social responsibility of their employees. In particular, the social sustainability criterion of "occupational health and safety" is the most used criterion. Other social concerns for employees focused on themes such as “equal rights”, “work environment”, “education”, and “fair workload”.

The other social group most focused on in the existing literature is the local community. “Employment” is one of the most evaluated criteria for its impact on society. In addition, information sharing, public health and community rights also come to the fore. One of the most important findings of the study is that the effects on “customers” were quite limited in previous studies. Social concerns were evaluated in terms of concepts such as "customer health and safety", "product and service labeling", "customer privacy", "customer management", "use of reverse logistics".

In the study, "emissions and impact of waste", "exposure to toxic chemicals", “sustainable packaging”, “environmentally friendly design and clean production practices”, “sustainable material selection”, “life cycle” criteria, which are related to environmental sustainability, were used by some researchers as social criteria. Ultimately, these criteria can be effective in terms of the health, safety and welfare of the society. These focuses in current studies are not sufficient to say that practices regarding social sustainability in production are carried out comprehensively and systematically.

However, this study summarized the subject by collecting the social sustainability metrics used by researchers for production sectors in a single document. These findings reveal metrics that can be used to ensure social sustainability in production sectors. Scientists who want to investigate the issue of social sustainability in more detail can also evaluate social sustainability criteria from a broader perspective by focusing on studies that evaluate the triple effect of sustainability together.

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DÖNGÜSEL EKONOMİ BAĞLAMINDA TÜRKİYE'DE ATIK TOPLAMA VE GERİ KAZANIM FAALİYETLERİ İLE İMALAT SANAYİNDE İSTİHDAM YAPISININ KARŞILAŞTIRMALI ANALİZİ

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ÖZET
Sanayileşme ile birlikte neoliberal ekonomik sistemin yarattığı al-yap-kullan-at modeli olarak bilinen doğrusal ekonomi başta çevresel kirlilik olmak üzere aşırı tüketim ve ciddi bir kaynak israfına yol açmıştır. Doğrusal ekonominin bu üretim modelinin sürdürülemez olduğu ve gerekli önlemler alınmazsa, yaşam standardının ve ekonomik kalkınmanın eninde sonunda düşeceği tahmin edilmektedir. Sonuç olarak, aşırı tüketim ve ekolojik kirliliğe yol açan sürdürülemez bir model olan doğrusal ekonomiden daha sürdürülebilir bir döngüsel ekonomiye geçilmesi bir gereklilik haline gelmiştir. Bu doğrultuda, döngüsel ekonomi atık ürünlerin kullanılabilir ürünlere dönüştürülebilmesi için bir *"geri dönüştür-yeniden yap-yeniden kullan*" endüstrisi kurmaya dayanmaktadır. Özetle, dönüşüm ekonomisi, malzeme ömrünün sonuna gelindiğinde yeniden dönüştürülerek yeniden kullanmayı esas alan bir ekonomik modeldir. Son yıllarda ABD, İngiltere, Çin ve özellikle AB ülkelerinde döngüsel ekonomiye geçilmesiyle siyasi ilgi oldukça artmıştır. Bu kapsamda dünyadaki döngüsel ekonomi ile ilgili gelişmeler Türkiye'nin de yoğun ilgisi ve yakın takibi altındadır. Bu çalışma, döngüsel ekonomi modeline önemli rolleri olan atık toplama ve geri kazanım faaliyetlerinde istihdamın yapısına odaklanmaktadır. Çalışma temel olarak ekonomik ve çevresel sürdürebilirlik odaklanan döngüsel ekonominin sosyal boyutunun eksik kalması durumunda, başarılı olamayacağını iddia etmektedir. Bu açıdan, mevcut çalışma Türkiye İstatistik Kurumu'nun Türkiye Hanehalkı İşgücü Anketi'nden elde edilen mikro verileri kullanarak demografik ve işle ilgili bağlamlar açısından atık toplama ve geri kazanım faaliyetleri ile arasında simbiyotik bir ilişki olan imalat sanayindeki çalışanların istihdam durumlarını karşılaştırmalı olarak analiz edilmesini amaçlamaktadır. Sonuçlar atık toplama ve geri kazanım faaliyetlerinde istihdam yapısının imalat sanayinden negatif ayrıştığını göstermektedir.
Anahtar Kelimeler: Geri dönüşüm, geri kazandırma, sürdürülebilirlik, düzgün iş, Türkiye.

IN THE CONTEXT OF THE CIRCULAR ECONOMY, COMPARATIVE ANALYSIS OF THE EMPLOYMENT STRUCTURE OF WASTE COLLECTION AND RECOVERY ACTIVITIES AND MANUFACTURING INDUSTRY IN TURKEY

ABSTRACT
The linear economy, known as the take-make-use-dispose model created by the neoliberal economic system with industrialisation, has led to excessive consumption and serious waste of resources, especially environmental pollution. It is estimated that this production model of linear economy is unsustainable and unless necessary measures are taken, the standard of living and economic development will eventually decline. As a result, it has become a necessity to shift from the linear economy, an unsustainable model that leads to excessive consumption and ecological pollution, to a more sustainable circular economy.

In this line, the circular economy is based on establishing a "*recycle-remake-reuse*" industry to transform waste products into usable products. In summary, the circular economy is an economic model based on recycling and reuse at the end of the material life. In recent years, political interest has increased considerably with the transition to circular economy in the USA, UK, China and especially in EU countries. In this context, the developments related to the circular economy in the world are also under the intense interest and close follow-up of Turkey. This study focuses on the structure of employment in waste collection and recovery activities, which has important roles in the circular economy model. The study argues that the circular economy, which fundamentally focuses on economic and environmental sustainability, cannot be successful if the social dimension is missing. In this regard, the current study aims to comparatively analyse the employment status of workers in waste collection and recovery activities, which has a symbiotic relationship with the manufacturing industry in terms of demographic and work-related contexts, using microdata from the Turkish Statistical Institute's Household Labour Force Survey. The results display that the employment structure in waste collection and recovery activities diverges negatively from the manufacturing industry.
Keywords: Recycling, recovery, sustainability, decent work, Turkey.

GİRİŞ

Yeryüzünde insanlar bazı tahminlere göre, yaklaşık 300 bin yıldır büyük ölçüde doğal kaynaklara ve ekosistemlere bağımlı olarak yaşamaktadır. İnsanlığın dünyada bu denli uzun süre varlığını devam ettirmiş olması, önemli ölçüde doğa ile uyumlu sürdürülebilir bir yaşam sürmesi ile yakından ilişkilidir. Ancak sanayileşme ile birlikte, insanların değişen yaşam tarzlarını devam ettirebilmek için doğayı kontrol etme hızı artırmıştır. Sanayileşme aynı zamanda "*Al-Yap-Kullan-At*" (take-make-use-dispose) kültürünün vurgulandığı bir "*doğrusal ekonomiyi*" ortaya çıkarmıştır. Ancak son yüz yılda hızla artan ve kentlileşen insan nüfusunun gezegenin sınırlı kaynaklarını aşırı derecede tüketmesi ve ekosistemleri kirletmesi, olağan dışı hava koşullarına ve deniz seviyelerinin yükselmesine yol açmıştır (Patil vd., 2020).

Özellikle, 2. Dünya Savaşı'ndan sonra küresel ekonomi benzeri görülmemiş bir büyüme göstermesine rağmen, kirliliğin kontrolü ve atık yönetimi ile ilgili ciddi endişeler ortaya çıkmış ve son 30-40 yılda küresel tüketim oranı sekiz kat artmıştır. Bu arada dünyanın kaynak kullanımının 2050 yılına kadar üç kat daha artması ve bu artışın büyük kısmının da gelişmekte olan ekonomilerde gerçekleşmesi beklenmektedir (Lamba vd., 2023). Ancak, al-yap-kullan-at modeli olarak bilinen mevcut ekonomik ve endüstriyel model, doğal kaynağın kullanımından sonra sonsuza kadar kaybolduğu, paranın ve kaynağın mutlak israfına yol açan doğrusal bir modeldir. Öte yandan, bu ekonomik etkiye ilave olarak, atık ürünlerin bertarafı sırasında çevre üzerinde büyük bir baskı da oluşmaktadır (Upadhyay vd.,2022). Ayrıca doğrusal ekonomi ile sağlanan bu büyüme, ekonomik kalkınma için çevre ve kaynaklar pahasına olup, kaçınılmaz olarak ekolojik kirlilik başta olmak üzere, biyo-çeşitliliğin kaybı ve doğal kaynakların hızla tüketilmesine yol açacak ve eninde sonunda ekonomik büyümeyi de ciddi bir biçimde tehdit edecektir (Liu, 2009). Sonuç olarak seller, sıcak hava dalgaları ve yağış seviyelerindeki düşüşler gibi iklim değişikliğinden kaynaklanan doğa olaylarındaki artışın genel ekonomiyi de olumsuz etkilemesi beklenmektedir. Bu bağlamda, iklim koşullarına doğrudan bağlı olan tarım, turizm, sigortacılık, ormancılık, balıkçılık, altyapı ve enerji sektörleri iklim değişikliğinden doğrudan etkilenecek hassas sektörler olarak tanımlanmaktadır (Martinez-Fernandez vd., 2010). Bu açıdan gelecek yıllarda insanların yaşam standartlarının korunabilmesi, sürdürülebilir ekonomik kalkınma, doğal kaynakların ve ekonomik faaliyetlerin nasıl yönetileceğine ve restore edileceğine bağlı olacaktır.

Ancak iklim değişikliği ve doğrusal ekonominin yol açtığı aşırı tüketim ve çevresel kirlilik ile başa çıkmak için gerekli önlemler zamanında alınmazsa, gelecek nesillerin yaşam standardı ve insani gelişme beklentileri eninde sonunda düşecektir (ILO ve OECD, 2012). Bütün bunlar aşırı tüketim ve ekolojik kirliliğe yol açan mevcut sürdürülemez doğrusal ekonomiden daha sürdürülebilir bir döngüsel ekonomiye geçişi gerekli kılmaktadır.

Döngüsel malzeme akışları kavramının kökleri 1960'lara kadar götürmek mümkündür. Ancak Boulding'in (1966) fikirlerine dayanan "*döngüsel ekonomi*" kavramı ilk kez 2 ünlü İngiliz çevre ekonomisti R. Kerry Turner ve David W. Pearce (1989) tarafından ortaya atılmıştır. Bu tip bir ekonominin fazlalıkların tasarlanması gibi bazı ilkeleri bulunmaktadır. Toksik maddelerin kullanımının ortadan kaldırılması, yenilenebilir enerji kullanımı ve yenileme yoluyla "*ömrünü tamamlamış ürün*" kavramı yerini "*döngüsel ekonomiye*" bırakmıştır (Upadhyay vd., 2022). 1990'lara gelindiğinde, küreselleşen sürdürülebilir kalkınmayla birlikte, gelişmiş ülkeler döngüsel ekonomiyi geliştirmiş ve sürdürülebilir kalkınma için önemli bir yol olarak döngüsel ekonomi odaklı bir toplumsal yapı inşa etmeye çalışmışlardır. Sonuç olarak, 1960'lardan bu yana insanlar doğal ekolojik sistemi taklit etme arzusu ile doğal ekosistemin malzeme geri dönüşümü ve enerji akışı yasasına uygun olarak, ekonomik sistemi yeniden yapılandırmakta, malzeme döngüsü sürecini doğal ekosistemlere uyumlu bir şekilde entegre etmekte ve yeni bir ekonomik yapıya, yani *döngüsel ekonomiye* geçmişlerdir (Liu, 2009).

Döngüsel ekonomi, dünyanın ekonomi ve çevrenin yan yana var olması gereken, sınırlı kaynaklara sahip döngüsel ve kapalı bir sistem olarak tasvir edilmektedir. Bu açıdan döngüsel ekonomi, bir ekonomik sistem içerisinde döngüyü kapatan üretim modellerinin benimsenmesini teşvik ederek, ekonomi, çevre ve toplum arasında daha iyi bir denge ve uyum sağlamak için kentsel ve endüstriyel atıklara özel olarak odaklanarak, kaynak kullanımının verimliliğini artırmayı amaçlamaktadır (Ghisellini vd. 2016; Hysa vd. 2020). Modern atık yönetimi uygulamaları sadece atıkların işlenmesine değil, aynı zamanda yararlı maddelere dönüştürülmesine de önem vermektedir. Ekonomik aktörler olarak, bu toplumlardaki çevreye duyarlı tüketiciler perakendecilerinden daha temiz ürünler talep edebilir ve bu da hizmet sağlayıcılar ile çevre koruma arasındaki ilişkiyi simbiyotik hale getirmektedir (Tulebayeva vd., 2020). Ayrıca bu simbiyotik ilişki ile bir işletmenin atığı başka bir işletmenin hammaddesi olarak geri dönüştürülebilir ya da yeniden kazandırılabilir hale gelmektedir. Bu açıdan döngüsel ekonominin odak noktası, atık ürünlerin kullanılabilir ürünlere dönüştürülebilmesi için bir *"Geri dönüştür-Yeniden yap-Yeniden kullan*" endüstrisi kurmaktır (Upadhyay vd.,2022). Yani dönüşüm ekonomisi, malzeme ömrünün sonuna gelindiğinde yeniden dönüştürülerek değer yaratmayı temel alan bir ekonomik kalkınma modelidir. Özü itibariyle, çevre ve ekonomik kalkınma arasındaki çelişkileri ve çatışmaları temelden ortadan kaldırarak, ekonomi ve çevre arasındaki sürdürülebilir kalkınmanın mükemmel bir uygulaması olan atık kullanımı ve çevrenin korunması işlevlerini gerçekleştirmesi beklenmektedir (Liu, 2009).

Döngüsel ekonomi kavramı esas olarak "*3R davranış kodu çerçevesi*" olarak bilinen Reduce (azalt), Reuse (yeniden kullan), Recyle (geri dönüştür) ile popülerlik kazanmıştır (Lamba vd., 2023). Dünyanın en önemli sorunları olarak kabul edilen "*3P*"ye, yani Pollution (Kirlilik), Population (Nüfus) ve Poverty'ye (Yoksulluk) karşı, önlem olarak döngüsel ekonominin 3R'si önerilmiştir (Yılmaz, 2019: 63). 3R davranış kodu çerçevesine Avrupa Birliği (AB) Atık Çerçeve Direktifi'nde (2008) dördüncü R olarak '*Geri kazandır*'ın da ilave edilmesi ile 4R'ye dönüşmüştür. Daha sonra bu 4R bazı araştırmacılar tarafından 6R'ye, hatta 9R'ye kadar çıkarılmıştır (Kirchherr vd. 2017).

Döngüsel ekonomi genellikle sürdürülebilir bir kalkınma ve sağlıklı bir toplum için yeni bir iş modeli olarak yorumlandığı için bu ekonomik yaklaşım, sürdürülebilir kalkınmanın sosyal veya ekonomik sürdürülebilirlik gibi yönlerini de içermektedir (Ghisellini vd., 2016). Bu çerçevede 2015 yılında Birleşmiş Milletler'e (BM) üye 193 ülke, 2030 yılına kadar herkesin uyum ve refah içinde yaşamasını sağlarken, gezegeni korumak için Birleşmiş Milletler Çevre Programı (UNEP) tarafından önerilen 17 Sürdürülebilir Kalkınma Hedefini kabul etmiştir (Lamba vd., 2023). BM Sürdürülebilir Kalkınma hedeflerinin döngüsel ekonomi ve sürdürülebilirliğin birbiriyle bağlantılı olduğu ve birbirini beslediği açıkça görülmektedir.

Son yıllarda ABD, İngiltere, Japonya, Çin ve özellikle AB ülkelerinde döngüsel ekonominin yanı sıra, yeşil ekonomiye geçilmesi düşüncesi büyük bir ivme kazanmıştır. Çin'de döngüsel ekonomi yukarıdan aşağıya ulusal bir politik hedef olarak teşvik edilirken, AB, Japonya ve ABD gibi diğer bölge ve ülkelerde aşağıdan yukarıya çevre ve atık yönetimi politikaları tasarlamaya yönelik bir araç olarak kullanılmaktadır (Ghisellini vd. 2016). Diğer taraftan 2019'da açıklanan Avrupa Yeşil Mutabakatı ile getirilen "*Sınırda Karbon Düzenlemesi Mekanizması*", AB ile ticari ilişkileri olan bütün ülkeler ve ekonomik aktörleri etkilemektedir. Bu kapsamda Türkiye de, dünyadaki yeşil ve döngüsel ekonomi ile ilgili gelişmeleri yakından takip etmektedir. Çünkü AB ülkeleri Türkiye'nin 1. en büyük ticaret ortağıdır ve 2022 yılında Türkiye'nin ithalatının %26'sı ve ihracatının %41'i AB ülkeleri ile gerçekleşmiştir (EC, 2023). Bu çerçevede Türkiye'nin AB ve diğer gelişmiş ülkelerdeki uluslararası ticaretini göz önünde bulundurulduğunda gerek AB gerekse diğer uluslararası aktörlerdeki gelişmelerin takip edilmesi oldukça önemlidir (Sapmaz Veral, 2021).

Aslında Türkiye'de yeşil ve döngüsel ekonomi modeline ilişkin çalışmalar 2017 yılında Çevre ve Şehircilik Bakanlığı tarafından yürütülen "*Sıfır Atık Projesi*" ile başlamıştır. 2019 yılında yayınlanan Sıfır Atık Yönetmeliği ile belediyelerin yanı sıra, hastaneler, okullar, üniversiteler, organize sanayi bölgeleri, özel sektör kuruluşları ve bazı üretim yapan firmalar da proje kapsamına alınmıştır. Aynı yıl plastik poşet tüketimini azaltmaya yönelik alışveriş poşetlerinin ücretlendirilmesinin yanı sıra, deniz ve kıyıların korunmasına yönelik "*Sıfır Atık Mavi Projesi*" de etkinleştirilmiştir (Mısır ve Arıkan, 2022). 2020 yılında Türkiye Çevre Ajansı kurulmasının ardından, İskoçya'nın Glasgow kentinde BM 76. Genel Kurulu'nda Türkiye'nin de Paris Anlaşması'na taraf olacağı ve Türkiye'nin 2053 net sıfır emisyon ve yeşil kalkınma hedefleri açıklanmıştır. Türkiye'nin yeşil kalkınma hedefleri kapsamında 29 Ekim 2021'de Çevre ve Şehircilik Bakanlığı'nın adı "*Çevre, Şehircilik ve İklim Değişikliği Bakanlığı*" olarak değiştirilmiş ve bakanlık bünyesinde İklim Değişikliği Başkanlığı kurulmuştur. Bu çerçevede İklim Değişikliği ve Uyum Koordinasyon Kurulu da yeniden yapılandırılmıştır.

Yeşil ve döngüsel ekonomiye geçişin temel olarak atık dönüşümü, enerji, finans ve işgücü olmak üzere dört önemli ayağı bulunmaktadır. Diğer taraftan sosyal boyutu eksik olan bir ekonomik dönüşüm sürecinin başarılı olması pek mümkün değildir. Bu açıdan Türkiye'nin yeşil ve döngüsel ekonomiye geçiş sürecine atık toplama ve geri kazanım (ATGK) faaliyetlerindeki istihdam yapısının incelenmesi ve sektördeki işgücü sorunlarının tespit edilerek yeşil ve döngüsel ekonomiye geçiş sürecine sosyal bir boyut kazandırılması ile geleceğe yönelik istihdam politikalarının ve planların yapılması ve işgücü piyasası hedeflerinin belirlenmesi açısından son derece önemlidir.

Bu çalışma, sürdürülebilir ekonomik kalkınma ve çevresel kirliliğin azaltılması ile karakterize edilen yeşil ve döngüsel ekonomi modeline önemli rolleri olan Türkiye'de ATGK faaliyetlerinde istihdamın yapısına odaklanmaktadır.

Bu doğrultuda, mevcut çalışma Türkiye İstatistik Kurumu'nun (TÜİK) Türkiye Hanehalkı İşgücü Anketi'nden (THİA) (2021) elde edilen mikro verileri kullanarak ATGK faaliyetleri ile arasında simbiyotik bir ilişki olan imalat sanayindeki çalışanların demografik ve işle ilgili bağlamlar açısından istihdam durumlarının çapraz tablolar ile karşılaştırmalı olarak analiz edilmesini amaçlamaktadır. Çalışma kapsamında, ATGK faaliyetlerinden 1.063 ve imalat sanayi sektöründen 35.847 15 yaş üstü çalışanın demografik ve işle ilgili bağlamları ile ilgili karşılaştırmalı bir analiz yapılacaktır. Çalışmanın geri kalanı bölümü veri ve değişkenlerin tanımlanması ile araştırma sonuçlarının analiz edilmesine dayanmaktadır. Ayrıca tartışma ve sonuç bölümünde, elde edilen bulgular tartışılacaktır.

YÖNTEM

Veri

Bu çalışmada TÜİK'in düzenli yayınladığı işgücü piyasasının özellikleri ile ilgili en temel veri kaynağı olan THİA'nın en güncel 2021 yılı mikro verisi talep edilerek kullanılmıştır. THİA'da "*hane*" istatistiksel birim olarak kullanılmakta olup, 2021 yılı için her yaştan 635.159 hane halkının işgücü durumlarıyla ilgili yüz yüze ve telefon yardımı ile anketler yapılmıştır (TÜİK, 2022).

Bağımlı Değişkenler

2021 THİA'da NACE2_ESAS_K kodlu soruda katılımcının çalıştığı esas işinin *"kuruluş veya işyerinin ana faaliyeti"* Avrupa Topluluğunda Ekonomik Faaliyetlerin İstatistiki Sınıflamasına (NACE2) göre sınıflandırılmaktadır. NACE2'de kuruluş veya işyerinin ana faaliyeti 2 dijit olarak kodlanmıştır. Buna göre, 38 kodlu "*Atığın toplanması, ıslahı ve bertarafı faaliyetleri; maddelerin geri kazanımı*" ve 39 kodlu "*İyileştirme faaliyetleri ve diğer atık yönetimi hizmetleri*" birleştirilerek, "*atık toplama ve geri kazanım*" olarak yeniden kodlanmıştır. Benzer yöntem kullanılarak, NACE2'de 10–33 arası kodlar birleştirilerek, "*İmalat sanayi*" değişkeni oluşturulmuştur.

Bağımsız Değişkenler

Bu çalışmada kullanılan bağımsız değişkenler demografik ve işle ilgili bağlamlar olmak üzere iki ana gruba ayrılmaktadır.

Demografik bağlamlar arasından katılımcıların cinsiyeti kendi öz beyanlarından "*kadın*" ve "*erkek*" olarak alınmıştır. Yaş değişkeni "*15-24'den" "65 yaş üstüne*" kadar yukarıdan aşağı 6 ayrı kategoriye ayrılmıştır. Katılımcıların eğitim durumu ortaokul, lise ve üniversite düzeyi eğitim kategorileri kendi içinde birleştirilerek, "*okul bitirmedi*"den "*üniversite ve dengine"* yukarıdan aşağı 5 ayrı kategoride incelenmiştir. Ancak "*5 veya 6 yıllık fakülte ya da lisansüstü eğitim*" düşük örneklem büyüklüğü nedeniyle analize alınmamıştır.

Çalışmada kullanılan "*işle ilgili bağlamlar*" 5 kategorik değişkenden oluşmaktadır. Katılımcıların çalıştığı işyeri büyüklüğü ise TÜİK ve Eurostat'ın tanımlarına uygun olarak katılımcıların kendi ifadelerinden "*9'dan az çalışanlı mikro ölçekli*'den *250'den fazla çalışanlı büyük ölçekli*"ye yukarıdan aşağı beş gruba ayrılmıştır. Katılımcıların aylık kazanç durumunu incelemek için yukarıdan aşağı "*1-TL'den 5001-TL'den fazlasına*" kadar beş ayrı ücret bandı oluşturulmuştur. "*2800-3000*" ücret bandı 2021 yılına ait asgari ücret miktarını göstermektedir. Son olarak katılımcıların çalıştığı işyerinde "*Kayıtlı ya da kayıt dışı çalışması*", "*Çalışma şekli*", "*İş sürekliliği"* ve "*Ek iş arama durumu*" değişkenleri, katılımcıların kendi ifadelerinden alınmıştır.

Analiz Tekniği

Atık toplama ve geri kazanım ile imalat sanayi sektörlerinde çalışanların demografik ve işleriyle ilgili bağlamlar açısından karşılaştırmalı olarak incelenmesi için gözlemlenen durumların frekans ve oranlarını gösteren "*çapraz tablolama*" yöntemi kullanılmıştır. Çapraz tablolar, satırdaki herhangi bir kategori ile sütundaki herhangi bir kategori arasındaki frekans ve oranı karşılaştırmalı olarak incelenmesine imkan sağlamaktadır.

Araştırma Sonuçları

Tablo 1'de ATGK faaliyetleri ile imalat sanayi sektörlerinin demografik ve işle ilgili bağlamlar açısından gözlemlenen frekans ve oranları karşılaştırmalı olarak gösterilmektedir. Tabloya genel olarak bakıldığında, ATGK faaliyetlerinde istihdam yapısının imalat sanayinden negatif ayrıştığı söylenebilir. Ancak yine tablonun ayrıntılı bir şekilde analiz edilmesi gerekir.

Tablo 1'e göre, ATGK faaliyetlerinin kadın istihdamı açısından daha az istihdam olanaklarına sahip olduğu gözlenmektedir. Buna göre, kadınların ATGK faaliyetlerinde (%12,4) istihdam edilme olasılığı imalat sanayine (%26,8) göre daha düşüktür. Yaş kategorileri incelendiğinde, her iki sektör ve yaş bantları arasında bir "*ters U*" ilişkisi gözlenmektedir. Diğer taraftan 15-24 yaş arası genç istihdamı açısından, ATGK faaliyetleri (%14,6) ve imalat sanayinin (%14,8) neredeyse benzer olanaklar sunduğu görülmektedir. 55-64 yaş bandında ATGK faaliyetlerinin (%11,7) imalat sanayine (%5,6) nazaran istihdam olasılığı daha yüksektir. Eğitim durumuna bakıldığında ise, bitirilen eğitim kategorileri ile incelenen sektörler arasında önemli farklılıklar olduğu gözlenmektedir. Buna göre ATGK faaliyetleri bir eğitimi olmayan ya da ilkokul mezunları açısından yüksek istihdam olanakları sunarken, lise ve dengi ile üniversite mezunları için daha düşük imkanlara sahiptir. Bu açıdan, hiçbir eğitimi olmayanların ATGK faaliyetlerinde (%22) istihdam edilmesi, imalat sanayi (%2,9) göre oldukça yüksekken, ATGK faaliyetlerinde üniversite mezunlarının (%22) çalışması imalat sanayi (%15,1) göre, oldukça düşük gözlenmektedir.

Sektörler işyeri ölçeği açısından incelendiğinde, ATGK faaliyetlerinde istihdamın %71,2 gibi büyük bir kısmı 1-9 çalışanı bulunan mikro ölçekli işyerlerinde yoğunlaşırken, imalat sanayinde istihdamın işyeri ölçeklerine göre daha dengeli dağıldığı görülmektedir. Diğer taraftan imalat sanayinin orta (%28,5) ve büyük (%23,4) ölçekli işyerlerinde yarattığı istihdam, ATGK faaliyetlerinden oldukça yüksektir (sırasıyla (%11,7 ve %2,7). Bu oranlar Türkiye'de ATGK faaliyetlerinin büyük oranda mikro ölçekli işyerlerinde yoğunlaştığını göstermektedir.

Tablo gelir bandı açısından incelendiğinde, ATGK faaliyetlerinde istihdam edilenlerin %14,1'i 2021 yılı asgari ücret bandından daha düşük bir ücret almaktayken, imalat sanayinde bu oran (%12,2) hiç de azımsanmayacak bir seviyededir. Öte yandan, her iki faaliyet kolunda da asgari ücret bandının neredeyse ortalama ücret olduğu görülmektedir. Buna göre ATGK faaliyetlerinde çalışanların %40,9'u asgari ücret bandında çalışırken, imalat sanayinde asgari ücret bandında çalışanların oranı %43,7'dir.

Faaliyet kollarının istihdam koşullarına bakıldığında, ATGK faaliyetlerinde çalışma şeklinin %12,8'i kısmi süreli iken, imalat sanayindeki işlerin sadece %5,9'u kısmi süreli işlerden oluşmaktadır. Benzer şekilde ATGK faaliyetlerinde geçici işlerde çalışanların oranı (%13,1) imalat sanayindeki geçici işlerde çalışanlardan (%6,2) daha yüksek izlenmektedir. Ayrıca ATGK faaliyetlerinde çalışanların %60,2'si bir sosyal güvenceden yoksun iken, imalat sanayinde bu oran %13,9'a düşmektedir. Kayıt dışılık ve kısmı süreli çalışma oranlarının doğal bir sonucu olarak ATGK faaliyetlerinde ek iş arayanların (%11,2) oranı imalat sanayinden (%5,7) daha yüksektir.

Tablo 1 genel olarak yorumlandığında, demografik ve işle ilgili bağlamlar ile incelenen ekonomik faaliyet kollarından ATGK faaliyetlerindeki istihdam yapısının imalat sanayine göre, değişen oranlarda daha olumsuz olduğu gözlenmektedir.

Tablo 1. ATGK ve İmalat sanayinde demografik ve işle ilgili bağlamlara göre istihdamın yapısı

		ATGK faaliyetleri		**İmalat sanayi**	
		N	%	N	%
Cinsiyet	Erkek	931	87,6	26.241	73,2
	Kadın	132	12,4	9.606	26,8
Yaş	15-24	155	14,6	5.317	14,8
	25-34	254	23,9	9.178	25,6
	35-44	289	27,2	11.633	32,5
	45-54	209	19,7	7.283	20,3
	55-64	124	11,7	2.025	5,6
	65+	32	3,0	411	1,1
Eğitim durumu	Bir okul bitirmedi	233	22,0	1.041	2,9
	İlkokul	406	38,3	10.233	28,9
	Ortaokul ve dengi	245	23,1	8.580	24,2
	Genel lise ve dengi	128	12,1	10.258	28,9
	Üniversite ve dengi	47	4,4	5.355	15,1
İşyeri ölçeği	1-9 mikro ölçekli	757	71,2	8.914	24,9
	10-19 küçük ölçekli	77	7,2	3.189	8,9
	20-49 küçük ölçekli	76	7,1	5.138	14,3
	50-249 orta ölçekli	124	11,7	10.226	28,5
	250+ büyük ölçekli	29	2,7	8.379	23,4
Aylık gelir	1-2799	54	14,1	3.558	12,2
	2800-3000 asgari ücret	157	40,9	12.772	43,7
	3001-4000	102	26,6	6.962	23,8
	4001-5000	39	10,2	2.973	10,2
	5001+	32	8,3	2.994	10,2
Çalışma şekli	Kısmi süreli	136	12,8	2.102	5,9
İş sürekliliği	Geçici iş	55	13,1	1.913	6,2
Sosyal güvenlik kaydı	Kayıt dışı	640	60,2	4.988	13,9
Ek iş arama durumu	Evet	119	11,2	2.059	5,7

Kaynak: 2021 Hanehalkı İşgücü Anketi mikro verisinden yazarın kendi analizi.

TARTIŞMA VE SONUÇ

Türkiye'de döngüsel ekonomi çalışmalarına katkı sağlamak amacıyla, demografik ve işle ilgili bağlamlar açısından ATGK faaliyetlerindeki istihdam yapısının, aralarında simbiyotik ilişki bulunan imalat sanayi ile aralarında farklılıklar olup olmadığını anlamaya çalıştık. Çalışmadan elde edilen sonuçlar, ATGK faaliyetlerindeki istihdam yapısının imalat sanayinden daha kötü olduğunu açıkça göstermektedir.

Çapraz tablolar ATGK faaliyetlerindeki istihdam yapısının erkek çalışan yoğunluklu olduğunu göstermektedir. Bu açıdan atığın toplanması, ıslahı, bertaraf edilmesi ve geri kazanım işleri kadın istihdamına uygun olmayan kirli ve sağlık iş ortamlarında gerçekleştirildiği için bu sonuç hiç şaşırtıcı değildir. Öte yandan imalat sanayinde de kadın istihdam oranının düşük olduğu görülmektedir. Bu sonuçlar Türkiye'de kadın istihdamının %30'lar seviyesinden yukarıya çıkarılamamasının ve istihdamda bir cinsiyet eşitliğinin sağlanamamasının bir sonucudur. Yaş kategori açısından, her iki sektörde de istihdamın 25-34 orta yaş grubunda en yüksek seviyede olduğu görülmektedir. Diğer taraftan genç ve yaşlı istihdamı bakımından sektörlerin birbirine benzediği gözlenmektedir. Ancak, ATGK faaliyetlerinde çalışanların eğitim profilinin imalat sanayine göre, kayda değer bir şekilde düşük olduğu dikkatlerden kaçmamaktadır. Bu açıdan ATGK faaliyetlerinde eğitim kazanımları arttıkça, istihdam olanaklarının imalat sanayine göre, çok daha azaldığı görülmektedir.

Analiz sonuçlarına göre, ATGK sektöründe çalışanların %71'i 1-9 çalışanlı mikro, %14'ü 10-49 çalışanlı küçük ve yaklaşık %12'sinin de 50-249 çalışanlı orta ölçekli işyerlerinde çalıştığı görülmektedir. Küçük ve orta ölçekli işletmeler (KOBİ) çalışma ortamı güvenliği açısından Türkiye'de iş kazası riskinin çok yüksek olduğu işyerleri olarak bilmektedir. Bu açıdan, Sosyal Güvenlik Kurumu (2023) istatistiklerine göre, 2022 yılında gerçekleşen iş kazalarının yaklaşık %55'i KOBİ'lerde gerçekleşirken, ölümle sonuçlanan iş kazası oranlarının yaklaşık %57'si 1-49 çalışanı olan mikro ve küçük ölçekli işyerlerinde, %24'ü ise, orta ölçekli işyerlerinde meydana gelmiştir.

ILO'nun düzgün iş konseptine uygun ücret yeterliliği açısından ATGK faaliyetlerinde ve imalat sanayinde çalışanların yarısından fazlasının (yaklaşık %55) referans yılın (2021) asgari ücret seviyesi ya da daha atında bir ücretle çalıştığı açıkça görülmektedir. Bu sonuç Türkiye'de ATGK faaliyetlerinde yabancı kaçak işçi çalıştırma oranının çok yüksek olmasının bir sonucu olarak değerlendirilebilir.

Diğer taraftan ATGK faaliyetlerinde yaratılan istihdamın %12'si tam süreli işlere göre, daha düşük vasıflı gerektiren, daha düşük ücretli ve sosyal güvence, mesleki gelişme, eğitime katılma ve kariyer fırsatlarından yoksun kısmi süreli işlerden (Görmüş, 2021) oluşurken, %13,1'i de geçici, günübirlik iş veya mevsimlik işlerden oluşan istikrarsız işlerde istihdam edilmektedir. Diğer taraftan ATGK faaliyetlerinde çalışanların %60 gibi büyük bir kısmı işsizlik, yaşlık, malullük, iş kazası, meslek hastalığı ve hastalık gibi sosyal risklere karşı savunmasız (ILO, 2015) olarak kayıt dışı istihdam edilmektedir. Ayrıca, ATGK faaliyetlerinde sosyal güvenceden yoksun düşük ücretli işlerde çalışanların %11'inin mevcut durumlarını telafi edebilmek için ek iş arama zorunda kaldıkları anlaşılmaktadır.

Bu çalışmadan elde edilen bulgular, ATGK faaliyetlerinde çalışanların istihdamı sorunuyla ilgili buz dağının sadece görünen yüzünü yansıtmaktadır. Bu sonuçlar döngüsel ekonomiye sağlıklı bir geçişin sağlanması çalışanlar, sendikalar, işverenler ve kamu otoritelerinin politikaların ve kararların oluşturulması süreçlerinde birlikte hareket etmelerine ve proaktif işgücü piyasası politikaları geliştirmelerine ve uygulamalarına bağlı olacaktır.

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SOSYAL HİZMET BAĞLAMINDA EKOPSİKOLOJİNİN DEĞERLENDİRİLMESİ

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ÖZET
Bireylerin sosyal refaha erişiminde bir köprü görevi üstlenen sosyal hizmet mesleği; kadınlar, yaşlı bireyler, yoksul bireyler, engelli bireyler, göçmenler, kimsesiz çocuklar gibi dezavantajlı olarak nitelendirdiğimiz birey, grup ve toplum ile çalışmaktadır. Sosyal hizmet mesleği bugünü ve yarını ile insanı anlamak üzerine inşa edilmiş olup toplumda ayrım gözetmeksizin her bireyin eşit haklara sahip olması gerekliliğini savunmuştur. Bu bağlamda sosyal hizmet uzmanları danışanların iyilik halini gözeterek her bireyin ve olgunun biricik olduğu anlayışından hareketle özgün müdahale sistemlerini uygulamaktadır. Örneğin madde bağımlısı birey ile çalışan sosyal hizmet uzmanı; spor, resim, doğa fotoğrafçılığı gibi kişinin bedenini ve zihnini maddeden uzaklaştırmaya yardımcı olacak yöntemler geliştirebilmektedir. Bakıma ihtiyacı olan yaşlı bireyleri doğa ile buluşturmak ve ruhsal anlamda onları beslemek amacıyla oluşturulan hobi bahçeleri de ülkemizde mevcut uygulamalardan olup özgün müdahale sistemlerine örnektir. Bu noktada ise güncel bir kavram olan eko-terapi ve ekopsikoloji karşımıza çıkmaktadır. Ekopsikoloji; insanların doğa ile engellenemez bir bağının olduğunu, doğanın insanlığa sunduğu güzellikler sonucu bireylerin iyilik halinin arttığını ve insan ile doğa arasındaki işlevselliğin artışının aralarındaki etkili iletişime bağlı olduğunu savunan bir yaklaşımdır. Ekopsikolojiyi ve amaçlarını anlamak, insan psikolojisi ile ilgilenen sosyal hizmetin yeni yaklaşımlar geliştirmesi açısından önem arz etmektedir. Bu nedenle ekopsikoloji yaklaşımı sosyal hizmet bağlamında artık daha çok değerlendirilen bir kavram olarak ortaya çıkmaktadır. Böylelikle ekopsikoloji uygulamalarının sosyal hizmet mesleği içerisinde daha görünür olması ve uygulama alanlarının her geçen gün artması kaçınılmazdır.
Anahtar Kelimeler: Doğa, insan, sosyal hizmet, ekoterapi.

EVALUATION OF ECOPSYCHOLOGY IN THE CONTEXT OF SOCIAL WORK

ABSTRACT
The social work profession acts as a bridge for individuals to access social welfare; It works with individuals, groups and societies that we describe as disadvantaged, such as women, elderly individuals, poor individuals, disabled individuals, immigrants and orphaned children. The social work profession is built on understanding people, today and tomorrow, and advocates that every individual should have equal rights without discrimination in society. In this context, social workers apply original intervention systems, considering the well-being of clients and based on the understanding that each individual and case is unique. For example, a social worker working with a substance addicted individual; It can develop methods that will help a person's body and mind get away from matter, such as sports, painting and nature photography.

Hobby gardens, created to connect elderly individuals in need of care with nature and to nourish them spiritually, are also among the existing practices in our country and are examples of original intervention systems. At this point, eco-therapy and ecopsychology, which are current concepts, appear. Ecopsychology; It is an approach that argues that people have an unstoppable bond with nature, that the well-being of individuals increases as a result of the beauties that nature offers to humanity, and that the increase in functionality between humans and nature depends on the effective communication between them. Understanding ecopsychology and its purposes is important for social work dealing with human psychology to develop new approaches. For this reason, the ecopsychology approach is now emerging as a concept that is more evaluated in the context of social work. Thus, it is inevitable that ecopsychology practices will be more visible within the social work profession and its application areas will increase day by day.
Keywords: Nature, people, social work, ecotherapy.

1.GİRİŞ

'Doğa bize aldırmadığından,
Doğanın ortasında kendimizi öyle rahat hissederiz ki'
(Friedrich Nietzsche)

İnsan, varoluşu gereği ana rahmine (cenin) düştüğü andan itibaren çevresel faktörlerden etkilenen bir varlıktır. Anne karnında iken çevreden gelen olumsuzluklar; annenin sinirli veya gergin bir ruh halinde olması, olumsuz doğa koşulları ve bu olumsuzlukların anne üzerinde bıraktığı endişe, sigara alkol gibi alışkanların devam etmesi ve benzeri olgular kişinin karakterini, dilini, fiziksel ve ruhsal gelişimini etkilemektedir (Akın, 2014). Henüz dünyaya gelmemişken çevresinden bu denli etkilendiği görülen insanın, doğumundan ölümüne kadar olan süreçte de yaşadığı çevreden fiziksel, bilişsel ve psikolojik olarak etkilenmesi kaçınılmazdır. Çevrenin insana etkileri sadece kişilik oluşumu ile sınırlı tutulmamaktadır. Bireyler yaşamlarında karşılaştığı stres, anksiyete, bağımlılıkla mücadele, umutsuzluk, depresyon gibi olumsuzluklarla baş ederken farkında olarak veya olmayarak doğanın iyileştirici gücünden yararlanmaktadır. İnsanın yaşadığı çevrenin iyilik hali ile kişinin ruhsal\duygusal iyilik seviyesi birbiri ile paraleldir. İyi bir sosyal çevrede yaşayan kişi daha mutlu, pozitif, üretken olabileceği gibi olumsuz koşullara sahip çevrede yaşayan kişi de daha negatif, sinirli, pasif özelliklere sahip olabilmektedir (Samuk, 1992).

Söz konusu çevresel etmenlerin temel yapısını oluşturan ekoloji; 1866 yılında Alman biyolog Ernest Haeckel tarafından kullanılmış olup canlıların yaşadığı çevre ile ilişkisini incelemektedir. (Bozdoğan, 2003). Ekoloji terimi, Yunanca ‘’oikos’’ kelimesinden türetilmiş olup, etimolojik olarak ‘’yaşanılan yer, yurt’’ anlamına gelmektedir (Maltaş, 2015). Ekoloji, çevresel sorunların insanların doğaya verdiği tahribat sonucu ortaya çıktığını savunmakta ve insanın kendisine gösterdiği saygıyı doğaya da göstermesi gerektiğini vurgulamaktadır (Çüçen, 2011). Ekoloji, 1970’ li yıllara kadar doğal yaşam sisteminde flora ve faunanın çevresiyle ilişkisini incelerken günümüzde doğada meydana gelen değişimlerin kişiye etkileri ve insan-doğa ilişkisini konu edinen disiplinlerarası bir bilim dalı durumuna gelmiştir (Bozdoğan,2003). Bu bağlamda ekoloji ile psikolojinin kesişimini ifade eden ‘’ekopsikoloji’’ kavramı karşımıza çıkmaktadır. Ekopsikoloji, insan ile doğa arasındaki ilişkiyi yeniden canlandırmayı amaçlayan ve bu ilişkinin insan sağlığına olumlu etkilerde bulunacağını savunan, ekolojinin farklı disiplinlerle birleşimini oluşturan bir yaklaşımdır. Ekopsikoloji ruhsal bilişsel anlamda insan sağlığını önemsemektedir.

İnsanın yüksek yararı için farklı tedavi yöntemleri geliştiren psikoloji, insan ve toplum arasındaki ilişkiyi inceleyen sosyoloji, tüm bunları kapsayarak bireylerin ait olduğu çevrede ekonomik, psikolojik, fiziki ve bilişsel yönden yüksek refah seviyesine ulaşmasını ilke edinen sosyal hizmet için ekopsikoloji yaklaşımı güncel ve önemli bir kavram olarak karşımıza çıkmaktadır. Sosyal hizmet mesleğinin bilimsel etik ve değerleri ışığında ekopsikolojinin değerlendirildiği bu çalışmada, yeni bir yaklaşım olan ekopsikoloji kavramına yer verilmesi alan yazınına katkı sağlaması bakımından önemlidir. Çalışmanın ikinci bölümünde ekopsikolojinin tanımına yer verilip üçüncü bölümde güncel bir yaklaşım olan ekopsikolojinin farklı uygulama alanları hakkında bilgi verilecektir. Dördüncü bölüm sosyal hizmet bağlamında ekopsikolojinin değerlendirilmesini içermektedir. Sonuç kısmında çalışmanın okuyucuya sunduğu bilgiler özetlenerek bir sonuca bağlanacak ve çalışma sonlanacaktır.

2. DOĞANIN İYİLEŞRİTİCİ YÖNÜ: EKOPSİKOLOJİ

Doğayı çalışın, doğayı sevin, doğaya yakın olun.
Sizi hiçbir zaman hayal kırıklığına uğratmayacaktır.
(Frank Lloyd Wright)

Ekoloji, pek çok bilim dalına ithaf eden ve farklı alt başlıklara sahip disiplinlerarası bir kavramdır (Çepel, 2006). Ekolojinin yaşamın her alanı ile ilgili olması bakımından psikoloji, sosyoloji, felsefe gibi alanlarda da gelişimi elzemdir. Literatüre bakıldığında ekoloji kavramı; ekopsikoloji, eko feminizm, ekososyoloji, derin ekoloji, ekosofi, paraekoloji gibi alt başlıkları içermektedir(Dindaroğlu, 2014). Sosyal hizmetin insan psikolojisi ile ilişkisi düşünüldüğünde ‘’ekopsikoloji’ kavramının tanımı çalışmanın bu aşamasında önem arz etmektedir.
Ekopsikoloji konusunda doğanın insan psikolojisine etkisi ve insanların duygu durumlarının doğaya etkisi hakkında yapılan çalışmalar son yıllarda ön plana çıkmakta ve günden güne literatürde yerini almaktadır. Bu noktada ekopsikoloji günümüzde çok fazla görülen depresyon, anksiyete, kaygı bozukluğu gibi problemlerin ve bu problemlerin sebep olduğu madde yönelimi suça sürüklenme gibi olumsuzlukların önüne geçmeyi amaçlamaktadır (Barut, 2020). Bu amaç doğrultusunda ekospikoloji insan ve doğayı bir araya getirmekte, bilişsel ve psikolojik sağlığın doğayla ilişkisini sürdürülebilir bir şekilde sağlanması gerektiğini ortaya koymaktadır. Barut (2020) ‘ a göre ekopsikoloji, doğa ile insan arasında geçmişten beri var olan küslüğü sona erdirmek ve kendine yabancılaşan bireyleri özüne döndürmek için çalışmaktadır. Ekopsikoloji,1982 yılında Paul Shepard’ ın doğa ve insan üzerine yürüttüğü çalışmasıyla ön plana çıkmıştır ve farklı alanlarda bilimsel çalışmalar yürüten akademisyenler tarafından 1990’ lı yıllardan sonra akademik çalışmalarla gündeme gelmiştir (Yürcü, 2016). Ekopiskoloji kavramından ilk olarak Theodor Roszak tarafından 1992 yılında kaleme alınan "The Voice of the Earth"(Dünyanın Sesi) adlı kitabında bahsedildiği bilinmektedir. Kitapta bahsi geçen ekopsikoloji kavramı, doğa ile insan psikolojisini birlikte değerlendirmekte; doğadan uzaklaşan insanların mutluluk düzeylerinde azalma olduğunu ileri sürmektedir(Metin vd., 2022). The Voice of The Earth kitabında Roszak, ekopsikolojinin amaç ve savunduğu düşünceleri sekiz temel ilke ile tanımlamaktadır:

- "Zihnin temelinde ekolojik bilinçdışı yatmaktadır; yani her insan doğuştan doğaya dair bir bilince sahip olmaktadır".
- "Ekolojik bilinçdışının içeriğinde, kozmik evrimin, tarihin ilk zamanlarına kadar uzanan kaydı bulunmaktadır".

- "Eko-psikoloji 'nin amacı, insanın ekolojik bilinçdışında bulunan ve doğuştan sahip olduğu, doğa ve insanın karşılıklı ilişkisine dair bilgiyi uyandırmaktır".
- "İnsan gelişiminin hayati aşaması çocukluk dönemi olmaktadır. Eko-psikoloji çocuğun henüz unutmadığı çevresel bilinci yetişkinlerde de uyandırmayı amaçlamaktadır. Çocukta bu bilincin gelişmesi içinse doğayla ilgili hikâyeler, masallar, ninniler çok önemli yer tutmaktadır".
- "Ekolojik bilincin gelişmesiyle insan, doğaya ve diğer insanlara karşı ahlaki bir sorumluluk duygusuna sahip olmaktadır. Eko-psikoloji bu sorumluluk duygusunun sosyal ilişkilerde ve politik kararlarda söz sahibi olmasını amaçlamaktadır".
- "Eko-psikolojinin en önemli terapilerinden birisi, doğayı bir yabancı gibi gören ve ona hükmetmeye çalışan, politik gücün de kaynağı olan "eril" karakter özelliklerini yeniden ele almak ve düzeltmek olmaktadır".
- "Eko-psikoloji sanayi kültürünün yıkıcılığını sorgularken, hayatımızı kolaylaştıran teknolojiye karşı gelmemektedir. Bu anlamda Eko-psikoloji antiendüstriyel değil, post-endüstriyel yapıya sahip olmaktadır".
- "Dünyanın ve kişinin iyiliği arasında "sinerjik" bir etkileşim olduğundan dünyanın ihtiyaçları insanın da ihtiyaçları, insanın hakları, dünyanın da haklarıdır " (Yürcü, 2016).

Ekopsikoloji insanlara doğayı korumaları için duyarlılık kazandırmakta, bireyler ile doğal çevre arasındaki uzaklaşmayı anlamlandırmaya çalışmakta bu bağlamda çözüm yöntemleri geliştirmektedir. Ekopsikolojinin etik değerlerini doğaya saygı göstermek ve zarar vermemek, doğal çevreye katkıda bulunmak oluşturmaktadır (Yürcü, 2016). Günümüz dünyasında artış gösteren teknoloji bağımlılığı insanları asosyal olmaya teşvik etmekte, doğa ile bağını zedelemektedir. Ekopsikoloji kişiler ile doğa arasında yapıcı bir köprü oluşturmayı hedeflemekte ve stres anksiyete kaygı gibi duygu durumu bozuklukları ile başa çıkma konusunda doğadan yardım almayı teşvik etmektedir.

3. EKOPSİKOLOJİNİN UYGULAMA ALANLARI

''Biz doğayı korudukça o da bizi korur''
(Mustafa Kemal ATATÜRK)

Ekopsikoloji insan ve doğa arasındaki ilişkiyi iyileştirmeye ve bu sayede insanın bilişsel, duygusal anlamda güçlendirici bir destek görmesine yardımcı olmaktadır. Bilindiği üzere Covid-19, etkili olduğu yıllarda evrensel nitelikte olumsuz sonuçlara yol açmıştır. Covid virüsünün insan psikolojisi üzerine etkileri hakkında yapılan çalışmalar; karantina, yalnızlık, teknoloji bağımlılığı, kaybetme korkusu, kaygı, anksiyete gibi sorunların bu sürecin olumsuz etkileri olduğunu ortaya koymaktadır (Zeybek, vd., 2020). İnsan sağlığını fiziksel ve psikolojik yönden olumsuz etkileyen pandemi sürecinin kişileri doğal ortamlara, köylere, ormana yönlendirmiş olması da muhtemel sonuçtur. Çünkü yaşanılan çevrenin insan sağlığı üzerindeki etkileri kaçınılmaz bir gerçektir. Doğanın ve çevrenin insan sağlığı üzerindeki etkileri birçok çalışmada konu olmuştur. Bu bağlamda çevrenin kişiye etkilerini fiziksel, psikolojik ve zihinsel şeklinde gruplandırarak ele almak ekopsikolojiyi anlamak için önemli bir adım olacaktır.

Fiziksel Etkiler	Psikolojik Etkiler	Zihinsel Etkiler
Bağışıklık sistemini çalıştırma ve vücudu iyileştirme.	Stresi azaltma ve genel iyilik halinin güçlenmesi.	Zihin yorgunluğunun azalması, dikkatin artması.
Hastalıkların daha kolay iyileşmesi.	İletişim becerilerinin artması, benlik saygısının yükselmesi.	Yaratıcılığın güçlenmesi ve merak duygusunun artması.
Koklama, dokunma, görme, tatma gibi duyuları uyarma.	Empatik olma, duygusal stabilite, yoğun sevgi hissi, özgecilik.	Dışa dönüklülüğün artması.
Temiz havada bulunarak canlılık hissinin artması	Yalnızlık ve sakinlik hissi.	Doğa tarihini öğrenme.

Tablo 1: Çevrenin İnsan Üzerindeki Etkileri (Filiz, vd., 2020).

Doğanın iyileştirici etkilerinden yola çıkarak oluşturulan ekopsikolojinin uygulama alanları bu bölümün konusunu oluşturmaktadır. Ekopsikoloji disiplinlerarası bir yaklaşım olarak kabul edildiğinden pek çok farklı yönde de uygulaması mevcuttur. Söz konusu uygulamalar: hortikültürel terapi, ekoterapi, yeşil egzersiz, macera terapisi, yeşil spor salonları ve doğa destekli terapi uygulamalarıdır (Filiz, vd., 2020).

- Hortikültürel Terapi:

Ekolojinin ve yeşilin korunması esasına dayanan hortikültürel terapinin uygulama alanını bahçeler oluşturmaktadır. Genel anlamıyla hortikültürel terapi, bahçelerin insanların rehabilite edilmesi için kullanılmasıdır. Yeşilin insanlar için olumlu etkilerinin keşfi çok eski zamanlara dayanmaktadır. Hortikültürel terapi milattan önceki dönemden itibaren kullanılan bir yöntemdir. Mezopotamya' da kurulan bahçeler, Orta Çağ Dönemi' nde hasta kişileri iyileştirmek amacıyla ortaya çıkan manastır bahçeleri, yaralı askerlerin sağlık gelişimleri için yeşilin gücünden yararlanması hortikültürel terapiye örnek uygulamalardır (Koçak, 2022). Terapi amacıyla kurulan bahçeler herhangi bir zararlı ürün içermemekte ve her yaşta her cinsiyetteki insanların rahatlıkla zaman geçirebileceği alanlardan oluşmaktadır. Hortikültürel terapinin uygulama alanlarına madde bağımlılığı tedavisinde yararlanılan kurum AMATEM (Alkol ve Uyuşturucu Madde Bağımlıları Tedavi ve Araştırma Merkezi), yaşlı ve engelli bireyler için inşa edilen bakım ve rehabilitasyon merkezleri, ruhsal ve fiziksel sağlıkla ilgili hastaneler gibi çeşitli kurum ve kuruluşlar örnek gösterilebilir. Hortikültürel terapinin gelişimine katkıda bulunan psikiyatrik sosyal hizmet uzmanı ve meslek terapisti Alice Burlinghame, 1950' li yıllarda hortikültürel terapinin uygulama alanları için araçlar geliştirmiş ve bu konuda bilimsel çalışmalar ortaya koymuştur (McDowell,1997). Hortikültürel terapi, kişilere ruhsal anlamda iyi geldiği kadar; fiziksel ve sağlık açısından da olumlu etkiler sunmaktadır. Özellikle hastanelerde bulunan bahçelerin hortikültürel terapi bağlamında kişileri olumlu etkilediği klinik bulgularla kanıtlanmıştır (Yılmaz, 2017). Lu ve arkadaşları demans ve alzeihmer hastalarına hortikültürel terapinin etkisini araştırmış ve çalışmanın sonucunda bahçeyle uğraşarak bunu bir rutin haline getiren bireylerin hastalıklarında olumlu gelişmeler yaşadığını ortaya koymuştur (Lu vd.,2020). Sonuç olarak hortikültürel terapi, bireylerin fiziksel ve ruhsal gelişimleri için bahçelerden yararlanılmasını içermektedir(Filiz, vd., 2020).

- Ekoterapi:

Ekoterapi, doğanın iyileştirici yönünden yararlanarak insanların dönem dönem veya devamlı olarak yaşadığı kaygı bozukluğu, anksiyete, stres, depresyon gibi duygu durumu bozukluklarının tedavi edilmesini içermektedir. Ekoterapi, kişilerin ruhsal durumuna olumlu katkılarda bulunmakla beraber kişilere özgüven artışı, farkındalık ve çevreye duyarlılık sağlamaktadır. Ekoterapinin diğer yöntemlere göre kolay ulaşılabilir olması onu etkili kılan unsurlardandır. Ekoterapiyi uygulamak için bir bahçe sahibi olmanız gerekmez; gökyüzüne bakmanız veya bir ağaç yaprağının rüzgarda dans edişini izlemeniz bile ruhunuzu beslemeniz için yeterlidir. Bu bağlamda ekoterapi; kolay ulaşılabilen, yoksulluk engellilik gibi dezavantajlı durumlardan etkilenmeyen bir yöntem olarak karşımıza çıkmaktadır. Ekoterapinin sağlamış olduğu faydalar yapılan araştırmalarla da desteklenmektedir. Mind' in yaptığı bir çalışmanın sonucuna göre zamanının çoğunu doğayla iç içe geçiren bireylerin % 95' i duygu durumlarının iyileştiğini çok daha rahat ve stressiz bir ruh haline büründüklerini ifade etmektedir (SuCo., 2020). Aynı şekilde Brazier tarafından gözlemlenen ekoterapi seansında; ormanda vakit geçiren bir grup insanın karıncaların yardımlaşarak çalışma stillerini gözlemlemesiyle birlikte kişilerde olumlu sonuçların ortaya çıktığı ve çevreye dair farkındalık düzeylerinin arttığı sonucuna ulaşılmıştır (Brazier, 2011). Faydaları hakkında bilgiler verilen ekoterapiyi hayatımıza dâhil etmek ve doğada daha fazla verimli zaman geçirebilmek için;

✓ Evinize en yakın yeşil alanda en az 30 dakika yürüyüş yapmak,
✓ Eğer işiniz ve vaktiniz buna uygunsa laptop veya kitaplarınızla beraber en azından bir saat doğada çalışmak, ilham kaynağınızı doğada bulmak,
✓ İlgilendiğiniz bir sanat dalı veya hobileriniz var ise bunu bazı zamnlar doğada uygulamak,
✓ Pilates, yoga, meditasyon, egzersiz gibi fiziksel aktiviteleri orman, sahil kenarı veya bir parkta gerçekleştirmek,
✓ Bitki sahibi olmak ve evdeki bitkiler ile ilgilenmek,
✓ Doğada geçirdiğiniz vaktin size neler hissettirdiğini anlattığınız bir doğa günlüğü tutmak önerilmektedir (SuCo., 2020).

Sonuç olarak ekoterapiyi anlamak ve yaşamımızın bir bölümünde doğaya yönelerek farkındalık kazanmak fiziksel, ruhsal ve zihinsel anlamda bizlere fayda sağlamaktadır. Ekoterapinin sınav kaygısı nedeniyle yeme bozukluğu yaşayan bir gence, yalnızlık ve ölüm korkusu nedeniyle depresyonda olan yaşlı bireye, ekonomik yoksulluğu nedeniyle akran zorbalığına uğramış bir çocuğa, tümör tedavisi alan bir kanser hastasına kısacası fiziksel veya ruhsal anlamda zorluk yaşayan tüm insanlara iyi geleceği unutulmamalıdır.

- Yeşil Egzersiz:

Orman, park, bahçe, sahil gibi yapaylıktan uzak doğal ortamlarda yapılan egzersizleri içermektedir. Doğal ortamlarda gerçekleştirilen egzersizlerin insan sağlığına fiziksel ve ruhsal etkisi yadsınamaz bir gerçektir. Yapılan araştırmalar doğada vakit geçirmenin kişinin biyolojik, fizyolojik ve ruhsal sağlığını olumlu yönde etkilediğini ve yeşil egzersiz uygulamasının bir sonucu olarak insanların doğayı sahiplenme ve koruma isteğinin arttığını ortaya koymaktadır. İnsanoğlu yüzyıllardır doğa ile iç içe olmuş, barınma, gıda ve bakım ihtiyacını doğadan karşılamıştır. Doğa ile insan arasındaki bağ avcı toplayıcı döneme kadar uzansa da; yeşil egzersiz kavramı güncel bir tanımlama olarak karşımıza çıkmaktadır. Yeşil egzersiz sürdürülebilir bir uygulama olup insan sağlığını olumlu etkilemesi ve doğayı koruma konusunda farkındalık yaratması bakımından önemli bir uygulamadır (Durusoy, vd., 2021).

- Macera Terapisi:

Macera terapisi, terapotik müdahale amacıyla kişilerin aksiyon alarak doğada vakit geçirmesini içermektedir. Keskin' göre macera terapisi, müracaatçıların macera olarak algıladığı, danışmanlar tarafından kasıtlı olarak seçilen, kontrol altındaki riskli faaliyetlere dayanan bir psikolojik müdahale biçimidir. Yeni bir yaklaşım olan macera terapisi, bireylerin ruhsal iyilik hali için uygulandığından daha çok rehberlik alanında faaliyet göstermekle beraber bazı ülkelerde de sosyal hizmet uygulaması olarak yürütülmektedir (Keskin, 2021). Kişilere yaşayarak öğrenme imkanı sunan macera terapisinde müracaatçıların macera etkinliklerine doğrudan katılım sağlaması terapi sürecinin etkili olmasında temel unsurdur. Deneyimleyerek öğrenme metodu sayesinde katılımcılar terapi boyunca cesaret, meydan okuma gibi öz gelişimlerini olumlu yönde etkileyecek sonuçlar elde etmekte ve başarı hissi ile beraber yeni kazanımlara istekli olmaktadır. Doğanın kendiliğinden gerçekleşen yağmur, fırtına gibi olayları, katılımcıların sorunlarla baş etme stilini geliştirmektedir. Macera terapisi faaliyetleri, problem çözme becerilerini geliştirerek açık hava macera aktivitelerini (kaya tırmanışı, halatla iniş, rafting, mağaracılık ve ormanda yürüyüş gibi) ve sırt çantasıyla seyahat, rafting, kayak turu ve/veya karlı uzun gece gezilerini içerebilmektedir. Yapılan araştırmalar sonucunda güncel bir yaklaşım olmasına rağmen macera terapisinin, zihinsel ve sağlık sorunlarının tedavisinde etkili olduğu görülmüştür (Bowen, vd., 2016). Macera terapisi uygulama şekillerine göre üç farklı kategoriye ayrılmaktadır: Macera temelli terapi, vahşi doğa terapisi ve terapötik kamplar. Macera temelli terapi, şehre yakın ormanlık alanlarda yapılan riskli aktivitelerdir. Vahşi doğa terapisi ise kişilerin içsel durumunu, özünü keşfetmek amacıyla doğaya yönelmesidir. Adından da anlaşılacağı üzere vahşi doğa terapisi; doğanın merkezine inerek ıssız ve sakin bir ortamda biyoçeşitliliğin farkına varmaktır. Bu farkındalık bireye ruhsal ve fizyolojik anlamda olumlu katkılar sağlamaktadır. Vahşi doğa terapisi için genellikle şehirden uzak ormanlık alanlar tercih edilmektedir. Son olarak terapötik kamplar, doğanın iyileştirici yönüne inanan ve ruhunu beslemek isteyen kişilerin çadırlarda veya barınaklarda kaldığı ve daha uzun süreli macera etkinliklerine katıldığı yöntemdir (Gass, vd, 2012).

Bowen ve arkadaşlarının oluşturduğu örnek plana göre; macera terapisinde ilk hafta veli, öğrenci ve öğretmen tanışması, grup toplantıları yapılmaktadır. İkinci haftada fiziksel aktivitelere başlandığı gece keşfine çıkıldığı görülmektedir. İlerleyen zamanlarda da rafting, doğa yürüyüşü, kaya tırmanışı gibi aktiviteler yapılmaktadır. Terapinin sonuna gelindiğinde tüm katılımcılardan geribildirimde bulunmaları istenir ve öz farkındalık sağlanarak terapi süreci sonlandırılır (Bowen, vd., 2016). Macera terapisi, grup çalışması olarak yürütüldüğünden ve benzer amaçları taşıdığından sosyal hizmet müdahale yöntemlerine uygun bulunmaktadır. Bu terapi yöntemi ile bireyler, doğadan ilham alarak doğadaki canlıların uyum içerisinde yaşadığının farkına varmakta bu sayede iyileşme sürecine geçmekte ve grup içi yardımlaşma\dayanışma becerilerini geliştirmektedir. Ayrıca yabani doğa terapisi, doğa ve sanat, açık hava etkinlikleri gibi yeşil alanda uygulanan ekoterapi uygulamalarının travma sonrası stres bozukluğu (TSSB) ile başa çıkmaya çalışan gaziler için oldukça etkili olduğu kanıtlanmıştır (Ak, 2021).

4. EKOPSİKOLOJİ VE SOSYAL HİZMET

'Doğa gençlere kuvvet, yaşlılara hikmet verir'
(Aristoteles)

Sosyal hizmet; insan hakları, sosyal değişim, sosyal adalet gibi değerleri vurgulayarak ilerici yaklaşımlar sergileyen ve daha çok radikal veya aktivist çağrışımlara sahip bir meslektir (Briskman, vd., 2022). Sosyal hizmetin kültür ve sosyal çevre ile ilişkisi göz önünde bulundurulduğunda farklı uygulama alanlarında farklı müdahale yöntemlerinin uygulanıyor olması, sosyal hizmetin spesifik nitelikleri arasında yer almaktadır. Sosyal hizmet yaşlı bakımı, madde bağımlılığı tedavisi, insan hakları savunuculuğu gibi disiplinlerarası alanlarda da yeri olan bir meslektir. Bu bağlamda güncel bir kavram olan ekopsikoloji, var olan sosyal hizmet uygulamalarına farklı bir uygulama alanı sunması bakımından önemlidir. Bilindiği üzere ekopsikoloji, insan yaşamı ile doğayı ortak bir noktada buluşturmayı ve kişileri doğayla barıştırmayı hedeflemektedir.

Ekopsikoloji ve sosyal hizmet arasında ortak noktalar mevcuttur ve en önemli olanı ikisinde de eklektik bilgilerin varlığıdır (Park, 1996; aktaran Filiz,2020).Her iki alanda farklı türde uygulamaları ve tarzları barındırmaktadır. Ekopsikoloji ve sosyal hizmetin bir arada düşünülmesi aynı amacı taşımaları ve uygulama tekniklerinde bazı ortak noktaları taşımalarından kaynaklanmaktadır. Örneğin ekopsikoloji uygulamaları, dil, inanç sistemi, yaş ayrımı gözetmeksizin bütün insanlar için uygulanabilir bir yöntemdir.

Ekopsikoloji insanların sosyal refahını arttırmayı ve iyilik haline ulaşılmasını amaç edinmekte ve bu noktada da sosyal hizmet ile örtüşmektedir. Sosyal hizmetin önemli yaklaşımlarından olan güçlendirme, ekopsikoloji uygulamalarında da görülmektedir. Güçlendirme, kişilere kendi hayatları ve yaşam şartları üzerinde daha büyük kontrol kazanmaları için yardım etmek şeklinde tanımlanabilmektedir (Thompson, 2007). Ekopsikoloji uygulama çeşitlerinde de güçlendirme yaklaşımına rastlanmaktadır. Örneğin macera terapisinde bireyler zorluklar karşısında içindeki güç potansiyelinin farkın varmakta ve kendi hayatlarını kontrol edebilme, sorumluluk alma konusunda beceriler kazanmaktadır.

1970' lerden itibaren sosyal hizmet mesleğine önemli katkılar sağlayan ve farklı bir bakış açısı sunan ekolojik sistem kuramı, kişilerin yaşadığı çevrenin, kültürün veya aile gibi yaşam sistemini oluşturan yapıların insanların duygu durumunu etkilediğini ve bununla beraber yaşanan sorunlarında çevresi içerisinde birey perspektifi ile değerlendirilmesi gerekliliğini savunmaktadır(Acar,2002). Ekopsikoloji, kişinin ruhsal ve fiziksel iyilik halinin doğrudan çevre sile ilişkili olduğunu savunmaktadır. Bu nedenle duygusal ve fiziksel rahatsızlıklar, insanlar doğa ile ilişkisini kestiğinde artış göstermektedir (Filiz, 2020). Bu noktada sosyal hizmet ve ekopsikoloji çevrenin insan yaşamı üzerindeki etkisi konusuna vurgu yapmakta ve terapötik bir yaklaşım olan ekopsikoloji, ekolojik sistem kuramı bağlamında sosyal hizmet uzmanlarına yeni bir bakış açısı sunmaktadır. Ekolojik sistem yaklaşımı aynı zamanda kişilerin var olduğu sistemi korumasını ve sorumluluk almasını da sağlamaktadır. Doğayı ve doğada bulunan canlıların yaşam kalitesinin insanların yaşam kalitesi ile eşdeğer olduğu görüşünden hareketle danışanlar, tedavinin merkezinde doğanın yer aldığı ekoterapi gibi uygulamaları etkili bulmaktadır.

Ekopsikoloji uygulamasının sosyal hizmet mesleğine farklı bir bakış açısı kazandıracağı ve mesleğin sürdürülebilirliğine katkı sağlayacağı görülmektedir (Barut vd.,2020). Tüm bunlardan hareketle sosyal hizmet uygulamalarının işlerliğinin artması ve dört duvardan oluşan terapi odalarına bir alternatif sunarak doğal çevrede müdahalenin gerçekleşmesinin kişilerin problemleri ile baş etmesini kolaylaştıracağı görülmektedir.

Ek olarak ekopsikoloji hakkında daha fazla bilgi sahibi olunması dezavantajlı kişiler için önem arz etmektedir çünkü ekopsikoloji ulaşılabilirliği yüksek bir terapi yöntemi olup, her yerde ve her zaman insanın iyilik halini arttırma konusunda yararlanılabilecek bir alan olarak karşımıza çıkmaktadır.

5.SONUÇ

Ekopsikolojinin amaç ve felsefesi tam olarak anlaşıldığında sosyal hizmetin müdahale teknikleri ile aynı çerçevede değerlendirilmesinin insan sağlığı ve sosyal çevresine katkıda bulunacağı görülmektedir. Çalışmanın içeriğini oluşturan ekopsikoloji ve sosyal hizmet kavramlarının bir arada düşünülmesi, sosyal hizmet müdahale yöntem ve tekniklerine yeni bir bakış açısı kazandıracaktır. Sosyal hizmet dezavantajlı bireylerin iyilik halini arttırmayı ve hak savunuculuğunu üstlenen bir meslek olmakla beraber hiçbir ayrım gözetmeksizin her insanın özel ve biricik olduğunu savunmaktadır. Ekopsikolojinin temel yaklaşımı ve amacı da aynı şekilde kişilerin doğal ortam aracılığıyla iyilik halinin arttırılmasıdır. Ekopiskolojinin gelişimi ile beraber, ülkemizde uygulanan pek çok tedavi yönteminin danışanlar tarafından farkındalık düzeyi artacak ve kişilere daha sürdürülebilir bir hizmet sunulacaktır.

Güncel bir yaklaşım olan ekopsikolojinin uygulama yöntemlerine ülkemizde çok fazla rastlanmamaktadır (Keskin, 2021). Hastanelerde bulunan ve hortikültrel terapiye örnek oluşturan bahçeler, okullarda çocuklara doğa sevgisini kazandırmak amacıyla yapılan yeşillik alanlar, Gençlik ve Spor Bakanlığı tarafından gerçekleştirilen deniz ve doğa kampları kişi ve grup temelli tedavilere örnek gösterilebilmektedir. Ancak bu tedavilerin ekopiskoloji bağlamında değerlendirilmesi için bu kavramın farkında olarak uygulamaların gerçekleştirilmesi elzemdir. Ekopsikoloji hakkında yürütülen akademik çalışmaların genel durumunu açıklamak amacıyla gerçekleştirilen bir çalışmada, son yıllarda bu konu ile ilgili çalışmaların arttığı görülmüş ve buna bağlı olarak da son yıllarda doğaya saygının, duyarlılığının, çevre bilincinin artış gösterdiği sonucuna ulaşılmıştır (Metin, 2023). Psikoloji sosyoloji, sosyal hizmet gibi toplum ve insan sağlığı üzerine çalışmalar yürüten meslekler, ekopsikolojiyi anlamak ve anlatmak konusunda istikrar sağladığı müddetçe ülkemizde ekopsikoloji çok daha etkin bir terapötik müdahale yöntemi haline gelecektir. Bu bağlamda sosyal hizmet uygulamasında ekopsikolojiyi değerlendirmek ve uygulama odağında yer vermek, kolay ulaşılabilir ve sürdürülebilir müdahale yöntemi sunması bakımından önemli görülmektedir.

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SÜRDÜRÜLEBİLİR KENTSEL ULAŞIM ÇÖZÜMLERİ: MUĞLA İLİNDE BİR UYGULAMA

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ÖZET
Kentler birer ekosistemlerdir. Ancak taşıma kapasitesinin çok üzerinde bir nüfusu ve bu nüfusun ihtiyaçlarını karşılamaya yönelik yapılı çevreyi içeren kent ekosistemlerinin dengesi bozulmuştur. Kentler günümüzde yaşanan ekolojik krizin hem faili hem de mağduru durumundadır. Kentsel krizin ortaya çıkmasına neden olan karbon salınımlarının önemli bir kısmı ulaşım faaliyetlerinden kaynaklanmaktadır. Mevcut ulaşım politikaları hem ekolojik sistem üzerinde geri dönüşü olmayan bir tahribat yaratmakta, hem de kentlilerin yaşam kalitesini azaltmaktadır. Hareketlilik ihtiyacını toplum ve çevreyi koruyarak karşılayan sürdürülebilir ulaşım, sürdürülebilir kentsel gelişmenin sağlanması için önemlidir.
Bir kentin, kentsel lojistik faaliyetleri sosyal, çevresel ve ekonomik faktörlere bağlıdır. Kent lojistiği kapsamında paydaşlar arasında entegrasyon ve koordinasyonunun göz önünde bulundurularak yerel yönetim politikalarının oluşturulması kentin ekonomik, sosyal ve çevresel boyutlarıyla sürdürülebilir kalkınmasının sağlanması açısından önem arz etmektedir. Bu çerçevede kentsel lojistiğin en önemli paydaşları olan kent halkının yaşam kalitesini artırmak için ulaşım konusunda yaşadığı sorunların belirlenmesi ve bu sorunlara çözüm önerilerinin getirilmesi kentsel ulaşım planlarının odak noktasını oluşturmaktadır. Bu bağlamda çalışmanın amacı; Muğla Büyükşehir Belediyesi Menteşe İlçesi'nde yaşayan halkın ulaşıma dair sorunlarının belirlenmesi, sorunlara ilişkin çözüm önerilerinin geliştirilmesidir. Bu kapsamda Muğla Büyükşehir Belediyesi Menteşe İlçesi'nde yaşayan halka anket uygulanmış elde edilen veriler IBM SPSS 22.0 programı ile analiz edilmiştir. Yapılan analizler sonucunda ekonomik, sosyal ve çevresel boyutlar çerçevesinde Menteşe ilçesinde toplu taşıma fiyatları yüksek bulunmakta ve bu sebeple özel araç kullanımının yaygın olduğu görülmektedir. Bununla birlikte sürdürülebilir ulaşım açısından önemli bir alternatif olan motorsuz ulaşım araçlarının gerektiği kadar kullanılmadığı, kent içi ulaşımda farklı ulaşım araçlarının entegrasyonunun sağlanmadığı görülmektedir. Bu konuda yerel yönetim tarafından yeterli politikaların üretilemediği sonucuna ulaşılmıştır.
Anahtar Kelimeler: Sürdürülebilir Kentleşme, Sürdürülebilir Ulaşım, Kent İçi Ulaşım, Kentsel lojistik, Muğla.

EVALUATION OF ECOPSYCHOLOGY IN THE CONTEXT OF SOCIAL WORK

ABSTRACT
Cities are ecosystems. However, the balance of the ecosystems of the cities, which includes a population far above the carrying capacity and the built environment to meet the needs of this population, has been disturbed. Cities are both perpetrators and victims of the current ecological crisis.

A significant part of the carbon emissions that cause the urban crisis arise from transportation activities. Existing transportation policies both create an irreversible damage to the ecological system and reduce the quality of life of the citizens. Sustainable transportation, which meets the need for mobility by protecting society and the environment, is important for ensuring sustainable urban development.

The urban logistics activities of a city in the framework of sustainability depend on social, environmental and economic factors. The establishment of local government policies, taking into account integration and coordination between stakeholders within the scope of urban logistics, is important to ensure the economic, social and environmental sustainable development of the city. In this context, identifying the problems experienced by the people of the city, who are the most important stakeholders of urban logistics, in terms of transportation in order to increase their quality of life and bringing solutions to these problems constitute the focal point of urban transportation plans. In this context, the aim of the study is to determine the transportation problems of the people living in Menteşe District of Muğla Metropolitan Municipality and to develop solutions for these problems. In this context, a questionnaire was applied to the people living in Muğla Metropolitan Municipality Menteşe District and the data obtained were analyzed with IBM SPSS 22.0 program. As a result of the analysis, it is seen that public transportation prices are high in Menteşe district within the framework of economic, social and environmental dimensions and therefore private vehicle use is common. However, it is seen that non-motorized transportation vehicles, which are an important alternative in terms of sustainable transportation, are not used as much as necessary, and the integration of different transportation vehicles in urban transportation is not ensured. It has been concluded that the local administration has not been able to produce adequate policies on this issue.

Keywords: Sustainable Urbanization, Sustainable Transportation, Urban Transportation, Urban Logistics, Muğla.

EVALUATION OF THE CIRCULAR ECONOMY MODEL FOR ADVANCED ECONOMIES WITH PANEL COINTEGRATION

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ABSTRACT
It has been concluded that today, in order to ensure the sustainability of developing economies on a global scale, they focus on the concept of circular economy and green growth and determine their waste management strategies in this direction. Therefore, it is seen that all countries aim to realize their environmental policies. In order for countries to design the cyclical economic process effectively, it is of great importance to first understand the relationship between this concept and sustainable development. In this context, econometric modeling of the process, which is also known as recyclable and compost waste, renewable energy supply, carbon dioxide emission and recycling economy, which constitutes the important pillars of the circular economy, is carried out by 24 OECD member countries (Austria, Belgium, Denmark, Finland, France, Germany, Hungary, Ireland, Made for Italy, Japan, Korea, Luxemburg, Netherlands, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, England, America). In the study, the relationship between economic growth and recycled-compost waste ratio, carbon dioxide emission, renewable energy supply was analyzed with two different models and the Average Group Dynamic Least Squares Model (DOLSMG), which is one of the panel data analysis methods, to reveal a long-term relationship. For the 24 countries mentioned in the analysis, 16 years of data for the period between 1995 and 2019 were obtained from the OECD official site and used with the STATA 16.0 program for analysis. According to the findings, 1% increase in the amount of recyclable + compost waste increases economic growth by 0.04%, while an increase in renewable energy supply by 1% reduces economic growth by 0.20%. According to another finding, a 1% increase in renewable energy supply increases carbon dioxide emissions by 0.10%, while an increase in the amount of recyclable and compost waste by 1% increases carbon dioxide emissions by 0.24%. According to the results, the increase in the amount of waste affects the economic growth positively, but does not cause an increase in the desired rate, while the increase in the renewable energy supply decreases the economic growth. The main reason for this is that renewable energy production is very costly and the data covers 16 years. In case of long-term data, it is estimated that the effect of renewable energy supply on economic growth will be positive. According to the results obtained in another model established in the study, it is seen that both the amount of waste and the renewable energy supply increase the carbon dioxide emission, and it is seen that a longer period is needed to clean the emission volume of the air. The green economy, made in the circular economy perspective, is a very time-consuming and costly factor. In this context, policies to combat climate change need to be put forward quickly and effectively.

The necessity of the policies created in this context is important in terms of adopting the understanding of recycling economy and taking the right steps.

Keywords: Circular Economy, Extended Unit Root Test (CIPS) or Second Generation Unit Root Test (CIPS), CADF Unit Root Test, The Mean Group Dynamic Least Squares Estimator (DOLSMG).

1. INTRODUCTION

From the point of view of the century we live in, the world is struggling with social and environmental problems as well as political, financial and economic problems. The important interaction between the environment and the human being since its existence has brought along a number of positive or negative events. Especially the industrial revolution and the two great world wars after it brought the environmental damage to seriouas dimensions. The current economic order has begun to be questioned due to reasons such as climate change, unemployment, poverty and economic crises. Although the reasons such as developing industry and increasing demand against population growth have existed for a long time, they have become more palpable today. The detrimental effects of the policies based on economic growth -which were based on economic growth after the Second World War- were felt as of the 1970s, causing the standard growth and development models to be questioned, and also revealed the concept of sustainable development and green economy (Şuekinci, 2022).

In the concept of green economy, which is a tool for sustainable development, production factors are seen as a cause of the climate crisis and therefore aim to protect the environment in supply chains (Akgündüz, 2022). The adoption of the concept of sustainable development has also revealed the concept of green economy. Green economy is defined as a concept that includes all countries and people, aims to protect the environment for future and present generations, and expresses sustainable societies and economy (UNEP, 2008a: 1). Green economy is expressed as all kinds of clean services, goods and technology production activities that aim to measure, prevent and, if not completely prevent, minimize environmental damages related to soil, water and air, as well as noise, waste and ecosystems (OECD, 1999). With the emergence of the concept of green economy, transitions from existing economic models to the concept of circular economy have begun. On the other hand, the concept of the circular economy is considered as an economic perspective in which the value of materials, products and resources is kept in the economy as long as possible and the amount of waste is realized at a low level, as defined by the European Union (Koçan, Gültekin ve Baştuğ, 2019). The circular economy concept aims to redefine consumption and production processes (Önder, 2018). It is expected that the wastes generated as a result of the implementation of the circular economy model will be transformed into raw materials through recycling and contribute to the country's economy. In addition, it is foreseen that the pressure on natural resources and the environment will be reduced through the recycling of wastes, and gains will be made in energy saving (Eskin, 2020: 120). In this context, the study includes the concept of circular economy by considering the transition process from green economy to green development in a conceptual framework. In the empirical application of the study, 24 countries including OECD member countries (Austria, Belgium, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Japan, Korea, Luxemburg, Netherlands, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, England, America) and the relationship between economic growth and recycled-compost waste ratio, carbon dioxide emissions, renewable energy supply were analyzed with the one of the panel data analysis methods which is the Average Group Dynamic Least Squares Model (DOLSMG).

The study was based on the period of 1995-2019, and annual data were compiled from the OECD official website.

2.CONCEPTUAL FRAMEWORK

The idea of green economy is a concept that emerged after the Second World War. The rapid increase in consumption and production on a global scale also increases the use of fossil fuels. Although this situation brought about economic growth, the global ecological crisis it created gave rise to the phenomenon of green economy. The acceleration of industrialization in the West and the East after the Second World War and the pursuit of this model by the third world countries based on the expression "development" caused the globalization of this industrial model. This situation has brought global climate change and ecological crisis, leaving our planet in danger. As a solution to this danger, the idea of green economy has been on the agenda as another economy model in the last 50 years (Aşıcı and Şahin, 2012:22-23). This economic model is a very comprehensive development model in the form of putting the environment at the center of economic activities, eliminating income inequality with the increase in welfare and ensuring sustainable development (Yalçın, 2016: 755). The term green economy was first used in the report Blueprint for a Green Economy prepared by Pearce, Markandya and Barbier (1989). According to this report, green economy was evaluated in terms of sustainable development policy specific to modern economies and recommendations were made in this report to improve environmental problems in the context of green economy (Pearce et al., 1989).

There is no definite agreement on definitions and principles in the international arena regarding the green economy. For example, in the literature related to this term, there are many different names and expressions such as green growth, low carbon development, sustainable economy (UN, 2012). In its report published in 1999, the OECD addressed the green economy with a more specific definition. According to the OECD, the green economy consists of all kinds of clean technology, goods and services production actions aimed at solving, eliminating and preventing environmental damage related to water, air and soil, as well as waste, noise and eco-system related problems (OECD, 1999: 9) .

According to the definition made by the United Nations Environment Program (UNEP), green economy can also be defined as "improving human well-being and social equality while reducing environmental risks and environmental scarcity". As can be understood from this definition, economic growth and industrial development should be environmentally sensitive and social welfare constructivist (Dereli, 2019: 4).

The United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) defines green economy as an environmental and sustainable economic development that supports low carbon emissions and social progress (Cited by Turan, Erkurt and Balcı, 2017: 83).

Another definition of green economy was made by the World Bank. According to the definition made by the World Bank, the green economy is defined as a growth process that minimizes the situations that cause environmental problems, gains efficiency in resource use, and has increased resilience against natural disasters. It is emphasized that there is no slowdown in the pace of growth while this growth is being realized and that it exhibits an inclusive growth characteristic (Yılmaz 2014: 10).

The main objectives of the green economy are briefly as follows: (UNEP, 2011).

- To provide a revival on the world economy
- To achieve sustainable growth in an economy in an inclusive way
- Ensuring the development of new business opportunities

- To prevent job losses
- To support the protection of vulnerable sections of the society.

These goals require a reduction in carbon dioxide emissions, an improvement in income and health, the participation of stakeholders in economic activities and an equal distribution in income distribution. In addition, various ways should be followed in order to achieve these goals. (Bass, 2013: 8) These ways are economic growth, sustainable natural resource management and flexibility. In order to achieve economic growth, growth must occur in sectors and regions with the highest potential. In order to ensure the management of sustainable natural resources, it is important to increase the productivity of natural resources per capita and to make the exploited resources sustainable. Finally, in order to provide flexibility, it is necessary to adapt to climate change, manage possible risks, and create a competitive environment (Bass, 2013: 8).

As a result of the realization of these goals, a large number of micro and macro scale economic and environmental benefits can occur in the current functioning of the economy (Yüce, 2021:38). The economic, social and environmental benefits of the green economy can be observed in Table 1. The fact that the green economy will create new jobs is an important situation both economically and socially. However, the point to be considered here is not to cause the destruction of natural resources while providing economic growth and to realize this process by giving priority to the protection of natural resources (Yılmaz, 2021: 233).

Table 1. Economic, Social and Environmental Benefits of the Green Economy

Economic Benefits	**Social Benefits**	**Environmental Benefits**
Improving economic growth, productivity and competitiveness Accelerated innovation through the correction of market failures	Reducing poverty Creation of new employment opportunities Better access to environmental services	Mitigation of climate change Ensuring improvement in resource efficiency Minimizing dependence on fossil fuels Reducing water and air emissions Reducing the loss of biodiversity.

Source: (Loiseau et al., 2016: 13).

2.1 From Sustainable Development to Green Development

The classical understanding of economic thought, which for many years assumed that natural resources were the limit, and aimed at economic growth without considering environmental problems, the emergence of environmental problems as a result of the Second World War and the Industrial Revolution, and the emergence of environmental problems became a priority, economic growth and development target (Yalçın, 2016:751). In the "Limits of Growth" report prepared by the Rome Club in 1972, it is thought that if industrialization, world population, food production, use of natural resources and the resulting environmental pollution continue, economic growth limits will be reached, but industrial production capacity and population decline will occur as a normal result (Sahin, 2004: 11). Although the concept of sustainability is seen as an achievable goal after the Brundtland Report, it has been said that the concept of sustainable development is not a renunciation of development, on the contrary, a development model should be adopted that will eliminate environmental problems that may cause negative externalities arising from development (Özçağ and Hotunluoğlu, 2014).

The Bruntland report highlights the fact that the sustainable development movement essentially includes a process of change, and that the environment and economy should act together in the decision-making process. As a result of the discourse of integrating the concept of green sustainability with the economy, the advantages and disadvantages of the economy have also started to be investigated.

Table 2. Possible Advantages and Disadvantages of Transition Process to Green and Sustainable Economies

ADVANTAGES	DISADVANTAGES
1. Economic goods that are compatible with the environment emerge.	**1.** Prices of energy and mineral resources rise.
2. With the development of new technologies in all fields of activity, it is possible to meet global and local needs more appropriately.	**2.** High prices occur in agro-food and agro-industrial resources.
3. The new functions of new products maximize their use-value.	**3.** High investment costs are needed for the development of new technologies in all areas.
4. Business competition develops in relation to the adaptation to sustainable management criteria.	**4.** Production costs and market prices of durable products increase.
5. Small and medium-sized service and technical assistance firms emerge and create new jobs.	**5.** There is a decrease in company relations, dimensions and the value of the products they produce.
6. The original environmental balances are restored.	**6.** In general, unemployment increases in large-scale enterprises.
7. Overall resource efficiency increases and the demand for energy and other natural resources decreases.	**7.** It is likely that declines in per capita incomes occur at the global level.
8. In sustainable cities, the quality of life is greatly improved.	**8.** There is a decrease in the purchasing power of families.
9. It redistributes income if the stage of development has started properly between industrialized and non-industrialized countries.	**9.** The costs required to transform cities and metropolises into sustainable business and living spaces are huge.
10. Personal needs and mobility in working time are reduced, resource efficiency is increased, pollution and energy intensity are reduced due to new materials.	**10.** The investment costs required for the production of new transportation systems which make positive ecological impact and which has economic advantages are high.

2.2. A Look at the Circular Economy Concept

The extent of the effects of climate change on the environment and economy has been felt much more in today's world and has taken its place on the agenda. The global financial crisis, which affected the whole world in 2008, made this dimension on the environment and economy even more evident.

As a result of this situation, there have been some searches for sustainable development in recent years and various approaches such as "green economy", "zero or low carbon economy" and "circular economy" have been put forward in order to fulfill the goals of sustainable development (Can, 2017: 139-140).

According to the circular economy thesis, there should be no waste on earth to be destroyed. Moreover, thanks to the circular economy, the pressure on a limited number of resources and the negative effects of eliminating waste can be reduced. This situation encourages the reuse of resources and products, and thus more value can be obtained from the acquired resources (Rodriguez et al., 2020: 2). In the light of this information, it is possible to state that the cyclical economic order is based on the absence of the concept of waste in nature and adopts this as a basis. According to the cyclical economic order, the waste that emerges as a result of each process is the source of the other process and the cycle proceeds in this way. This means that a network formed as a result of production allocates resources to a different production and creates cycles with this approach, which constitutes the basic principle of the circular economy (Domens 2018).

Apart from this basic principle, there are various principles of circular economy. These 4 principles of circular economy are briefly explained in Table 3.

Table 3. Basic Principles of Circular Economy

1.	Waste equals food.	The waste of one species is the food of another species.
2.	Establishing a relationship of flexibility with diversity method	A country or company can have a larger pool of resources based on the information it benefits from by sharing its events and, as a result, provide more value from diversity.
3.	Energy supply from renewable sources	Greenhouse gas emissions can be reduced by obtaining energy from renewable sources.
4.	Thinking with systems	For example, the use of energy-saving light bulbs in the garden does not meet the need for sufficient energy savings.

Source: Balbay, et. al.,2021:561.

There are many benefits after the transition from a linear economy to a circular economy. As a result of the implementation of the circular economy, not only economic benefits are provided, but also very comprehensive benefits are obtained by creating environmental and social awareness (Sumer and Yanık, 2021: 208). The multidimensional benefits of the circular economy are summarized below (Tahir, 2019: 44-4).

In today's linear economy model, the understanding of building and using is dominant. However, instead of the linear economy model, a more logical and sensitive production and consumption system model is emerging. This system, which is described as the circular economy system, essentially abandons the practices of the traditional system in the form of buying, making, using and disposing of pollution, and follows the processes of making, using, reusing, remaking and recycling in order to make the most effective use of resources (Keerthan et al. Aithal, 2020: 2). There are some principles of this system in the literature.

Although the origin of the principles of the circular economic system emerged through Boulding (1966), it was observed that this concept was first used by Pearce and Turner (1990). In their research, Pearce and Turner tried to describe the relationship between economics and environmental practices and to explain a closed-loop material system based on the principle that "everything is an input to something else" (Andersen, 2007). Here, a remarkable concept called closed loop emerges. The view of closing the loop is at the core of the industrial ecology paradigm. In addition, some authors emphasize that the concept of circular economy emerged by making use of the concept of industrial ecology (Yuan et al., 2008).

According to Szita (2017), the circular economy has some outstanding features and these are:

- Low use of natural resources and inputs
- Minimal and optimal use of resources
- More value generation from less material
- Reducing import dependency in natural resource use
- Efficient use of natural resources
- Minimal energy and water consumption.

3. RESEARCH FINDINGS

3.1. Literature Review

Apergis et al. (2010) examined the relationship between nuclear energy consumption, carbon emissions, economic growth, and renewable energy consumption using panel cointegration tests in 19 countries between 1984 and 2007. According to the long-term forecast results, a positive relationship was found between renewable energy consumption and emissions.

In their study, Shahbaz et al. (2011) aimed to explain the relationship between renewable energy consumption and carbon dioxide emissions in Romania between 1980 and 2008. The findings obtained from the analysis indicate a negative relationship between renewable energy consumption and carbon dioxide emissions.

The study by Stahel (2013) aims to identify the benefits of circular economic functioning and to reveal a circular economy in line with the principles of sustainability by targeting a small-scale change in public policy by taxing waste and not taxing renewable resources. In the study, the qualitative research method is discussed. The results show that on the basis of the relationship between the circular economy and social sustainability, their impressions on positive resource security and regional job creation will also reduce greenhouse gas emissions.

Allwood (2014) makes some criticisms of the circular economy in a study. These criticisms draw attention to the fact that the cyclical economy operation will be unfavorable in the face of today's consumption habits, and if this operation is successful, there will be an economic contraction.

Çoban (2015) examined the relationship between renewable energy consumption per capita, carbon emissions per capita from energy management and GDP per capita in Turkey, taking into account the 1990-2012 periods. According to the analysis findings, there is a negative relationship between energy consumption per capita and carbon emissions.

Çınar and Yılmazer (2015) try to explain the effect of renewable and non-renewable energy consumption on economic growth with the traditional production function. According to the analysis findings, the use of renewable energy is important in ensuring sustainable growth in developing economies in the 1990-2013 period.

Erdoğan (2015) calculated and compared greenhouse gas emissions such as CH4 and N2O from waste storage facility, composting facility, biomethanization facility, anaerobic stabilization pond, biological wastewater treatment plant (activated sludge process) and advanced wastewater treatment plants. According to the results obtained from the study, less greenhouse gas emissions occur when composting is preferred as one of the waste disposal methods.

Rizos, Tuokko, and Behrens (2017) examined the course of the circular economy in their studies. As a result of the examination, it has been concluded that the effects of the circular economy do not only consist of economic effects, but may also have economic, social and environmental effects.

Velenturf and Purnell (2017) analyze the violation of human rights in ecosystem management, waste and resource management in their studies, and state that increasing resource demand and waste production can alleviate the resource load and excessive waste load of the circular economy. At the same time, it is concluded that the communication between the stakeholders and the social sustainability principle will be strong with the contributions of the stakeholders.

Zink and Geyer (2017) identified insufficient situations of circular economy understanding in their studies. According to Zink and Geyer, the circular economy does not have the potential to replace the linear economy approach.

In the studies of Paker and Taş (2017), 91 architects who have registered offices in Bursa Chamber of Architects Bursa Branch between 2016-2017 periods have reached. In order to minimize the structural waste, the questionnaire prepared based on the assumptions in scientific sources was directed to the participants. The survey results were evaluated with the SPSS program and the results were analyzed by the correlation method.

Căutişanu et al. (2018) examine OECD countries and explain the relationship between the amount of municipal waste per capita and the waste recycling rate and the economic growth rate using clustering, correlation and Path analysis. Findings from the study show that there is a significant relationship between waste management and economic growth.

Durğun and Durğun (2018) analyze the relationship between the per capita gross domestic product values and renewable energy consumption between 1980-2015 in their study. In line with the results obtained, the increase in renewable energy consumption positively affects economic growth.

The study of Özsoyun (2018) is based on the development of the cyclical economic process. At this point, the cyclical economic situation of Germany is explained by referring to how Germany, which is the leading country, handles the cyclical economic process.

In their study, Vuță, Vuță, Enciu, and Cioacă (2018) performed an analysis with the panel econometric method with the 2005-2016 data of 28 European Union member countries. The aim of this study is to analyze the relationship between the recycling rate of household waste, packaging and bio-waste, expenditures for waste recycling and reuse, resource efficiency variables and economic growth. The findings show that there is a relationship between resource efficiency, recycling rate of household waste, and expenditures for recycling and reuse of waste and economic growth.

In his study, Söylemez (2018) seeks a solution to the question “What can be done in Turkey?” through the example applications of Los Angeles and Toronto for solid waste management in the world in line with the concept of smart city.

In their study, Pelău and Chinie (2018) analyzed the relationship between variables such as education, recycling rate, standard of living and internet access and national income per capita in the context of European countries.

The results show that low income level affects the recycling rate negatively, while having a high level of income affects the recycling rates positively.

Solak and Pekküşen (2018) aim to determine the problems experienced by local governments at this point and to develop solution proposals in this direction by considering solid waste management on the basis of Turkey. Comparing this study with the results of the study conducted in 2004, it is another goal to analyze the developments and changes experienced in the intervening time. The primary target in the study is the people who are responsible for solid waste activities. Detailed information is created by using the SPSS package program with the results obtained by applying a questionnaire to these people.

In their study, Usupbeyli and Airplane (2018) examined the relationship between renewable energy consumption and economic growth in Turkey, based on the period between 1970 and 2017. According to the results obtained from the study, the use of renewable energy in Turkey also increases the economic growth value.

Yaman and Sevimoğlu (2018) evaluate greenhouse gas emissions due to fuel consumption during the collection and transportation of household waste in Kocaeli in their study. According to the results obtained from the study, in order to reduce greenhouse gas emissions, the distances traveled by the vehicles should be reduced and wastes should be collected by considering the distances.

In a study, Busu (2019) tries to explain the relationship between labor productivity, the workforce employed in the production of environmental goods, waste conversion rate, environmental innovations and economic growth within the framework of the 2008-2017 period data, with panel data analysis method. According to the results obtained from the study, all variables have positive and significant effects on growth.

In the study carried out by Yılmaz (2019), a bibliometric profile of Science Direct journals, which published the most research and review articles related to sustainable development and circular economy in 2018, is tried to be revealed. 5 of these journals are Journal of Cleaner Production (46), Renewable and Sustainable Energy Reviews (14), Procedia CIRP (11), Ecological Economics (7) and Bioresource Technology (2). A total of 80 articles are analyzed. 12 of these articles are review articles and 68 of them are research articles. In the study, 9 questions were asked and the answers were tried to be found.

In the study, Başkaya (2019) examined the example of the Turkish non-governmental organization TİDER as a social innovation model in the transition to circular economy. He handled this situation with a qualitative study method.

Apaydın (2020) aims to reveal the relationship between waste management and economic growth with the 2000-2017 period data based on OECD countries. According to the results obtained from the study, all forms of waste management have a positive effect on economic growth.

Demirarslan (2020) deals with the mathematical modeling process of the greenhouse gas formed by waste disposal methods in the study. The findings obtained from the study show that as long as urban waste decomposes at its source, it will reduce greenhouse gas emissions.

Özyildirim (2020) aims to determine the energy and carbon footprint of city hospitals. The study is based on data from 2017, 2018 and 2019. At the same time, in this study, it is aimed to observe the greenhouse gas trace inventory and analysis, which has the largest share on the macro scale. It is thought that the findings obtained from the research will guide the target audience in reducing energy and carbon footprint.

In his study, Skrinjaric (2020) tries to identify the countries that perform the cyclical economic process in the best and worst way among the countries that are members of the European Union. In line with the results obtained from the study, it is concluded that the countries that perform the cyclical economic process best are Germany, the Netherlands, Denmark, France and Italy, and the countries that perform the worst are Romania, Greece, Cyprus, Slovakia and Bulgaria. Moreover, the fact that the best performing countries have high GDP in terms of infrastructure, education and research and development investments is stated as the reason for this situation.

Negiz and Yalçın (2020) analyzed the postgraduate theses prepared in Turkey with the qualitative research method and the document analysis technique in their studies. They implemented a method for graduate theses in the thesis center of YÖK, prepared with the words green economy, blue economy and red economy, which are related to circular economy. The findings were examined to what extent the research results were related to the city.

In their study, Ergülen and Büyükkeklik (2020) tried to determine the benefits to be provided by the recycling of electronic waste in line with the waste management principles of sustainable development within the scope of economic and environmental.

Ünüvar and Keskinkılıç (2020) aim to investigate the relationship between renewable energy production and economic growth for 19 G20 member countries in the 2000-2016 period. The findings show that there is a positive relationship between renewable energy production and economic growth.

Türkmen and Ağır (2020) examine the effects of non-renewable and renewable energy sources on economic growth in emerging market economies in the 1990-2015 period. The findings show that renewable energy production negatively affects economic growth in emerging market economies. Yılmaz (2021) carried out the study named Waste Management in the Context of Circular Economy in Turkey. It aimed to determine the direction of the point of view by revealing the current situation of Turkey towards the circular economy. It reveals the situations that can create opportunities and threats by using the PEST analysis method. In line with the findings, it was emphasized that Turkey should create a political infrastructure and that the sustainability of environmental awareness activities should be established.

The study by Yalçın (2021) aims to investigate the place and importance of cities in the perspective of circular economy discussions in Turkey. In the study, the "waste" issue, which constitutes an important dimension of the circular economy, is examined in the example of the city of Antalya and qualitative and quantitative research techniques are used together. The results obtained from the study show that the circular economy exhibits an environmentalist approach under current conditions and can be implemented in urban areas with a focus on improvement.

The aim of the study by Balbay et al. (2021) is to explain the applicability of the Circular Economy process in Turkey as a result of PEST and SWOT analysis. The results obtained show that as of 2019, the cyclical economic process has started in Turkey within the scope of sustainability. As of 2021, considering the effects of the pandemic, this concept is on the agenda with the European Union mandating the Green Agreement due to climate change. In this direction, it is thought that the cyclical economic process, which is on the agenda on a global scale, should be given due importance and measures should be initiated as soon as possible.

In the study conducted by Ateş (2021), the concept of recycling, which is one of the most important elements of the circular economy, is discussed with the panel data method for 30 countries in the 2008-2017 period.

In the study, the dependent variable is the gross domestic product (GDP) of the countries and the independent variables are the recycling rates of electronics, household, packaging, plastic, paper, metal, glass, old automobile accents and wood waste. According to the results obtained, it is observed that the recycling rate of old automobile accents and plastic waste affects economic growth negatively, while other variables affect economic growth positively.

In the study conducted by Güzel (2022), the founding identities, motivations and business models of circular entrepreneurs are evaluated. It is stated that this study was carried out in order to develop an understanding about circular entrepreneurs. In line with the results obtained from the study, it is thought that entrepreneurs with innovative identity can play a leading role in the transition to the new economy model by developing cyclical business models.

In the study by Çimen (2022), construction and the built environment in the circular economic process, the circular building life cycle framework From Start to Circulation (BS) and cyclic development score (DGS) are discussed. It is observed that the results obtained are in accordance with the circular economy principles that avoid new building construction. It is also thought that solutions without buildings should be investigated further.

The basis of the study by Gökkut (2022) is to reveal the consumer perspective in terms of willingness to pay for cyclical products in the fashion industry. Gökkut tries to explain this situation through a survey. According to the results of the survey, it is seen that the female participants in the survey are less inclined to pay for a product produced than the male participants. At this point, it is thought that determining the appropriate strategy by understanding the preferences of the customers in the circular economy process will help the manufacturers to be successful.

In the study conducted by Özgüven (2022), it is aimed to analyze waste management policies within the framework of the circular economy model of the European Union and Turkey. The study examines the waste management and economic perspectives of the province of Ankara and the location of Turkey and Ankara as well as their projects and objectives within the scope of circular economy are present. In line with the results obtained, it is seen that the level of harmonization and development of the European Union towards the goal of circularity is slow.

In the study conducted by Bayraktar (2022), the active roles of the circular economy, which is a fundamental transformation in the framework of production and consumption, in the fight against climate change in the international sense to prevent or reduce the effects that cause climate change are analyzed. According to the results of the analysis, it is determined that the reducing potential of the circular economy principles is inspiring in general.

In his study, Dişçioğlu (2022) deals with the next cycle of electric vehicle batteries, which have expired between 8-10 years in electric vehicles. The aim of the study is to examine the end-of-life electric vehicle batteries with the circular economy approach and to provide maximum benefit with the strategies of secondary use, reuse, recycling and remanufacturing. In addition, the rules to be followed after the end of the life of the batteries, whose roadmap was drawn in line with the Green Reconciliation Action Plan, are also included in this study. The application discussed in the study is modeled as closed-loop supply chain cost minimization and minimization of carbon emission value in this cycle. The multi-objective optimization model was solved with the epsilon constraint method with GAMS software.

The study by Memiş (2022) tries to explain the benefits of industry 4.0 technologies in activating the circular economy. The methods based on the study are: Multi-Criteria decision making approach, Fuzzy Best-Worst and Fuzzy VIKOR Methods.

A case study was conducted to identify the application of the recommended framework for manufacturing companies.
The main purpose of the study by Akarsu (2022) is to explain the concept of circular economy in detail and to create a resource that this concept can benefit all stakeholders. The method used in the research is seen as the Interval Type-2 Fuzzy AHP method. In line with the results obtained from the research, it is concluded that the criterion of 'devotion and leadership of the top management' is the tourism sector, the most important critical success factor in the transition to the circular economy.
In the study conducted by Tanç and Teksoy (2022), content analysis method was used on the relationship between social sustainability and financial performance in a circular economy perspective. The model established to explain the relationship between the social sustainability categories of the companies and the net profitability ratio was found to be significant, but the model established with the return on assets ratio and return on equity ratios was found to be insignificant. A negative relationship was found between the society variable, which is the category of social sustainability, and the net profitability rate.

3.2. Data Set

In the study, 24 countries including OECD member countries (Austria, Belgium, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Japan, Korea, Luxemburg, Netherlands, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, England, America) and the relationship between economic growth and recycled-compost waste rate, carbon dioxide emission, renewable energy supply were analyzed with the Average Group Dynamic Least Squares Model, one of the panel data analysis methods. Annual data for the period 1995-2019 for the 24 countries mentioned in the analysis were obtained from the OECD official website and the analysis was carried out with the STATA 16.0 program. Within the scope of definition of variables, abbreviations, explanation of variables, range of data and source of data are summarized in Table 4.

Table 4. Definition of Variables

Variable	Defining variables	Data range	Source	Number of observations	Type of Data
lgdp	Economic Growth Rate (%)	1995:2019 24 COUNTRIES	OECD	600	Dependent Variable
latik	Recycled + Compost waste rate (%)	1995:2019 24 COUNTRIES	OECD	600	Independent Variable
lco	Carbon Dioxide Emission (thousand kw)	1995:2019 24 COUNTRIES	OECD	600	Dependent Variable
lrene	Renewable Energy Supply (%)	1995:2019 24 ÜLKE	OECD	600	Independent Variable

The logarithmic values of the variables were used in the study. The linear equation below is planned to be used in order to investigate the effects of the independent variables, the recycled + compost waste ratio and the renewable energy supply ratio, on economic growth and carbon dioxide emissions.

In this study, in which investigates the relationship between the rate of recyclable waste and renewable energy supply, and the rate of economic growth and carbon dioxide emission, two different models were created. The models estimated in this study are included in the equation below.

$$lgdp_{it} = \alpha_{it} + \beta_{1t} latik_{it} + \beta_{2t}\, lrene_{it} + u_{it} \quad \textit{(model 1)}$$
$$lco_{it} = \alpha_{it} + \beta_{3t}\, latik_{it} + \beta_{4t}\, lrene_{it} + u_{it} \quad \textit{(model 2)}$$

In line with these predicted models, the hypotheses created to test for investigationg the relationship between the rate of recyclable waste and renewable energy supply and the rate of economic growth and carbon dioxide emissions are as follows:

Hypothesis 1: There is a relationship between recyclable waste + compost and renewable energy supply and economic growth.

Hypothesis 2: There is a relationship between the supply of recyclable waste + compost and renewable energy and carbon dioxide emissions.

The variables and calculation methods used in the study are given in Table 5 by looking at the descriptive statistics of the dependent and independent variables.

Table 5. Descriptive Statistics

	LGDP	LCO	LATIK	LRENE
Mean	1.086048	5.112639	1.390486	0.880209
Median	1.092469	4.918550	1.543484	0.906548
Maximum	1.536185	6.761613	1.873018	1.712168
Minimum	0.284555	3.879096	-0.346787	-0.526897
Std. Dev.	0.111605	0.640413	0.443246	0.466465
Skewness	-2.049046	0.492495	-1.845107	-0.525460
Kurtosis	13.21188	2.813216	6.012000	2.829384
Jarque-Bera	3026.919	25.12736	567.2454	28.33860
Probability	0.000000	0.000003	0.000000	0.000001
Sum	651.6286	3067.584	834.2916	528.1252
Sum Sq. Dev.	7.460891	245.6668	117.6837	130.3362
Observations	600	600	600	600

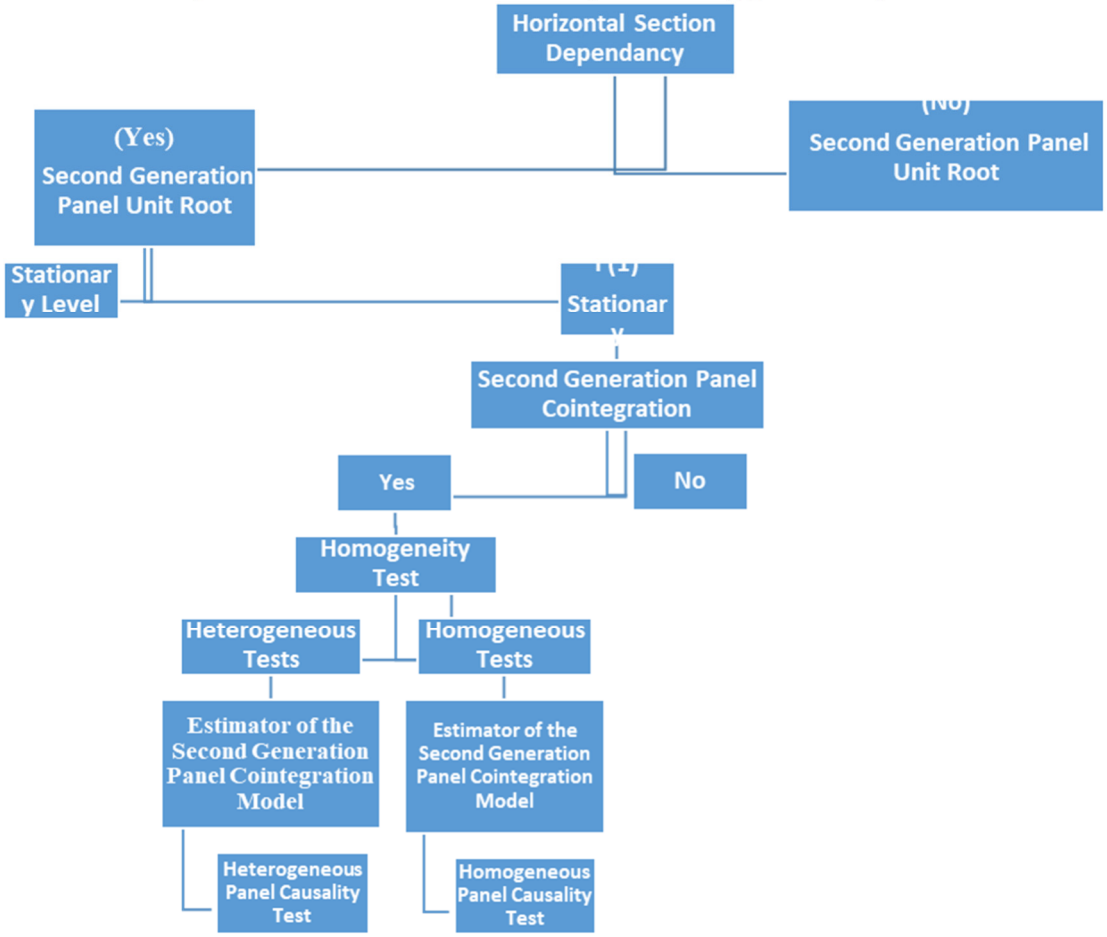
3.3. Methodology

3.4. Empirical Findings

The panel data set consists of time series and cross section data. In fact, panel data is a data type that provides a unit-specific multiple time dimension (Hsiao, 1985:121).

In line with the benefits of the panel data model, the stages shown below were taken into account to decide on the selection of analyzes to be applied in this study.

Figure 1. Panel time series analysis tests application phases



The stationarity and cointegration analyzes to be applied in the panel data series are divided into two as first and second generation. The tests to be used in the analysis were determined depending on the relationship between the units. In this study, in order to determine which generation unit root tests and cointegration test will be applied first, the corrected CD test was used to determine the presence of cross-sectional dependence. At the same time, the Swamy Test was used to test its homogeneity. According to the results obtained, cointegration tests were determined and it was aimed to reveal the long-term relationship of the models.

3.4.1. Interunit Correlation Test Results

The presence of cross-section dependence between the test series and the cross-section dependence significantly affects the results to be obtained from the absence of this test. For this reason, it is necessary to test whether there is a cross-section dependence in the series and the cointegration equation before the analysis were performed. If the cross-section dependency is not tested, deviations and inconsistencies occur in the results of the performed analyzes. For this reason, panel data methods were used, which takes into account the possibility that the shock effect that occurs in any of the countries to be examined in the analysis may affect other countries as well. First of all, the correlation relationship between the variables was determined in Table 6. Then, the presence or absence of cross-section dependency is evaluated in Table 7.

Table 6. Correlation Relationship Between Variables

	lgdp	latik	lco	lrene
lgdp	1			
latik	-0.19314	1		
lco	-0.04762	-0.03311	1	
lrene	-0.20297	0.27781	-0.16456	1

Table 7. Horizontal Section Dependency Test Results

	CD_{NT} Value	Prob Value	Hypothesıs Testıng
l(gdp) =f(latik,lrene)	55,095	0,000	Ho: Rejected
l(co) =f(latik,lrene)	20,404	0,000	Ho: Rejected

According to Table 3, it is seen that the correlation between units is low. According to Table 4, the main hypothesis of the test, "errors are cross-section dependent", is rejected according to the results of the Pesseran CD test, which is suitable for panel data series. Therefore, there is a cross-sectional dependence between LATIC, LGDP, LCO, LRENE variables in the 24 countries mentioned aboveIn other words, a change (shock) in any country affects other countries as well. According to the results of the cross-sectional dependency test, “second generation panel unit root tests” and “second generation cointegration test” were used.

3.4.2. Homogeneity Test Results

The homogeneity of the coefficient of the independent variable in the model was evaluated by applying the Swamy test and the test results are given in Table 8.

Table 8. Swamy Test Results

	Chi2 Test Value	Prob Value	Hypothesıs Testıng
l(gdp) =f(latik,lrene)	125.60	0,0000	Ho: Rejected
l(co) =f(latik,lrene)	21.03	0,0000	Ho: Rejected

When the Swamy S test is examined according to the level of significance, the H0 hypothesis is rejected in both models. In this direction, it was concluded that there is a long-term relationship between the variables and that all parameters are heterogeneous. According to the results, it has been concluded that the data has cross-section dependence and the slope coefficient is heterogeneous. It has been concluded that panel test statistics should be used under the assumption of heterogeneity in cointegration analysis.

3.4.3. Panel Unit Root Test Results

Based on the result of the Peseran CD cross-section dependence test, the panel unit root test of "Landscape Extended Im Pesaran and Shin (CIPS)", which is one of the second generation unit root tests frequently used in the literature and which takes into account the correlation between units, and Extended Im, Pesaran and Shin (CADF) Panel Unit Root Test was applied.

3.4.3.1. Extended Im, Pesaran and Shin (CIPS)Panel Unit Root Test results

In order to test the existence of a long-term relationship, the condition of all series being stationary at the same level was provided by the CIPS panel unit root test. CIPS Panel Unit Root Test results are given in Table 9.

Table 9. Pesaran CIPS Panel Unit Root Test Results

Variables	T statistic	10%	5%	1%	Conclusion
lgdp	-2,213	-2,01	-2,08	-2,20	I(0)
latik	-2,517	-2,07	-2,15	-2,30	I(0)
lco	-1,945	-2,07	-2,15	-2,30	I(1)
lrene	-1,975	-2,07	-2,15	-2,30	I(1)

When Pesaran's panel unit root test (CIPS test) results are examined, the series are stationary because the CIPS statistics for LGDP and LATIC variables are greater than the critical values given at 10%, 5% and 1% confidence levels in absolute value. Since CIPS statistics for LCO and LRENE variables are absolute value smaller than the critical values given at 10%, 5%, and 1% confidence levels, the series are stationary at first difference.

3.4.3.2. Extended Im, Pesaran and Shin (CADF) Panel Unit Root Test Results

Table 10. CADF Panel Unit Root Test Results

Variables	T bar	cv10	cv5	cv1	Z(t-bar)	P value	Conclusion
lgdp	-2,733	-2,070	-2,150	-2,300	-4,913	0,000	I(0)
latik	-2,112	-2,070	-2,150	-2,300	-1,807	0,035	I(0)
lco	-1,967	-2,070	-2,150	-2,300	-1,083	0,139	I(1)
lrene	-1,685	-2,070	-2,150	-2,300	0,325	0,627	I(1)

NOTE: CADF test critical values are determined according to the study of Pesaran (2007).

When the information given in the table is examined, LGDP and LATIC variables are stationary at the level according to the CADF panel unit root test results. The series is stationary because t-bar statistic |-2,733| , |-2,112| are greater than the absolute value specified for the given 10%, 5%, and 1% confidence levels. Similarly, it can be stated that the series is stationary according to the probability values of the Z[t-bar] statistic. However, LCO and LRENE variables are stationary at first difference.

3.4.3.3. Panel Cointegration Test Results

In order to determine the existence of a long-term relationship, the stationary condition of all series was met by the CIPS and CADF panel unit root test. In this direction, the "Mean Group Dynamic Least Squares Estimator", which is one of the second generation panel cointegration tests that takes into account the cross-section dependence and heterogeneity, was used, since the first generation panel cointegration tests were insufficient in the models containing the cross-section dependence for the panel cointegration test. After the stationarity study, the "Mean Group Dynamic Least Squares Estimator" method (DOLSMG) was used to investigate whether there is a long-term cointegration relationship between the series.

3.4.3.3.1. Mean Group Dynamic Eq (DOLSMG) Results

It was concluded that there is a long-term relationship between the variables used in the analysis. After determining the long-term relationship, the average group dynamic least squares estimator, which is a panel cointegration estimator, is used to determine the degree and direction of this relationship.

In this study, coefficient estimates are made for the variables using the Mean Group Dynamic Least Squares (DOLSMG) Estimator, which was developed by Pedroni (2001) and combined with the Peseran and Smith (1995) Mean Group (MG) estimator for the whole panel, for the analysis of the long-term relationship between the parameters.
The second generation DOLSMG estimator, which takes into account the inter-unit correlation, is also a test method used when the model is heterogeneous. It results in taking the average of the DOLS estimators and t statistics obtained for each unit of the DOLSMG estimator (Tatoğlu, 2018: 223-225).
For this reason, the Mean Group Dynamic Least Squares Estimator (DOLSMG) test results, which allow heterogeneous parameters, are shown in Table 11.

Table 11. Results of Mean Group Dynamic Least Squares Estimator (DOLSMG) Test

Variables	Model 1		Model 2		CONCLUSION
	Beta Coefficient	t-stat	Beta Coefficient	t-stat	
latik	0,04268	-7,741**	0,2493	5,321**	Cointegrated
lrene	-0,2022	-7,913**	0,1032	-9,539**	Cointegrated

According to the average group dynamic least squares estimator test results observed in Table 8, it has been determined that there is a long-term relationship between economic growth and the amount of recyclable + compost waste and the rate of renewable energy supply. The long-term t-statistic is significant and according to DOLSMG results, the amount of recyclable + compost waste in the long-term affects economic growth and carbon dioxide emissions. In addition, renewable energy supply also affects economic growth and carbon dioxide emissions. According to the results, a 1% increase in the amount of recyclable + compost waste increases economic growth by 0.04%, while increasing carbon dioxide emissions by 0.24%.
While a 1% increase in renewable energy supply reduces economic growth by 0.20%, it increases carbon dioxide emissions by 0.10%. These results are the result of the average of 24 countries. As observed from Model 1, the amount of recyclable-compost waste for 24 OECD countries does not have a large impact on economic growth. If Model 1 is evaluated in terms of renewable energy supply, it has a negative effect on economic growth. If the reason for this negative effect is considered in the short term, it is seen as a high cost, but in the long term, this negative effect will result in a positive effect over time. When evaluated in terms of Model 1, there is no study in the literature regarding the effect of the amount of recyclable + compost waste on economic growth. In the study discussed here, it is seen that the dependent variable for Model 1 is economic growth, and the independent variables are the amount of recyclable+compost waste and renewable energy supply. However, it has been observed in the literature that the dependent variable is the amount of waste and the independent variable is GDP.
According to the cointegration results, while there is a long-term cointegration relationship between all models, both models were found to be cointegrated for the DOLSMG estimator, and the long-term relationship of DOLSMG in both models was discussed and the results are given in Table 12.

Table 12. DOLSMG Cointegration Test Results of Countries for the Long Term

Country	Model 1				Model 2			
	latik		lrene		latik		lrene	
	Beta	T stat	Beta	T stat	Beta	T stat	Beta	T stat
Austria	-0,391	1,667	0,779	2,311**	-0,1737	-2,068**	-0,1737	-2,068**
Belgium	1,85	6,616**	0,9836	6,819**	0,3002	3,226**	0,1508	1,249
Denmark	-1,052	-29,17**	-1,529	-23,32**	1,419	20,680**	1,083	8,677**
Finland	-1,322	-4,261**	3,555	7,162**	0,422	2,395**	-0,1331	-1,208
France	0,802	2,541**	-0,2948	-1,898	0,436	9,329**	-0,072	-3,131**
Germany	-0,9269	-3,857**	-0,3592	-2,759**	-0,2756	-3,371**	-0,224	-5,058**
Hungary	0,01487	0,3352	-0,6442	-4,334**	0,3831	3,465**	-0,3896	-10,510**
Ireland	-1,247	-5,889**	0,1323	0,5737	0,1598	1,830	-0,2538	-2,667**
Italy	0,3945	1,019	-1,04	-1,504	-0,3275	-5,006**	0,04337	0,3714
Japan	0,2252	0,366	-0,6425	-1,777	-,001281	-0,1444	-0,1974	-3,788**
Korea	-0,723	-2,338**	-0,7636	-3,479**	-1,421	-9,797**	-0,2718	-2,639**
Luxembourg	0,1696	0,2473	0,02623	0,07959	4,514	3,084**	2,257	3,209**
Netherlands	-0,3877	-2,224**	-0,9308	-2,455**	-0,1711	-10,760**	-0,3891	-11,24**
Norway	0,5562	3,026**	-0,4501	-3,917**	-0,157	-2,526**	-0,1523	-3,920**
Poland	-0,04481	-1,753	-2,531	-5,200**	0,09244	7,168**	0,4512	1,838
Portugal	0,1308	0,5183	0,1309	0,4823	-0,3759	-18,770**	-0,05469	-2,540**
Slovakia	-0,427	-6,792**	0,4947	1,929	0,01204	2,205**	-0,4497	-20,190**
Slovenia	-0,1492	-3,399**	-0,5201	-1,746	0,009159	2,348**	0,05625	2,124**
Spain	0,3298	0,8183	0,1232	0,2886	0,6525	11,810**	-0,2547	-4,348**
Sweden	1,121	2,615**	-0,6407	-2,155**	0,6922	2,176**	-0,07601	-0,3445
Switzerland	0,4031	1,521	-3,345	-1,931	0,3022	4,456**	-0,1732	-3,907**
Turkey	0,7034	1,162	0,7592	1,304	0,01261	0,160	0,6729	8,878**
United Kingdom	0,03327	0,1326	-0,3056	-0,3456	0,1825	2,072**	0,3411	1,100
United States of America	0,961	2,514**	-0,8522	-2,894**	0,2089	5,705**	-0,09509	-3,371**

According to Model 1, which was established in line with the long-term cointegration results in Table 12, the first variable shows the waste amount for 24 countries and the second variable shows the renewable energy statistics. When the recyclable + compost waste amount statistical values are examined, cointegration relationship was found significant for Belgium, Denmark, Finland, France, Germany, Ireland, Korea, Netherlands, Norway, Slovakia, Slovenia, Sweden, and United States of America. While this significant relationship was positive in Belgium, France, Norway and Sweden, it was negative in Denmark, Finland, Germany, Ireland, Korea, Netherlands, Slovakia and Slovenia. Therefore, it is possible to say that the amount of recyclable + compost waste increases economic growth for countries with a positive relationship, while the amount of recyclable + compost waste decreases economic growth for countries with a negative relationship. According to Model 1, when the renewable energy statistical values for 24 countries were examined, the cointegration relationship was found to be significant for Austria, Belgium, Denmark, Finland, Germany, Hungary, Korea, Netherlands, Norway, Poland, Sweden and the United States.

While this significant relationship was positive in Austria, Belgium, Finland, it was negative in Denmark, Germany, Hungary, Korea, Netherlands, Norway, Poland, Sweden and the United States. When the statistical values of the amount of recyclable + compost waste according to Model 2 were examined, the cointegration relationship was found to be significant in 22 countries except Ireland and Turkey. While this significant relationship was negative in Austria, Germany, Italy, Japan, Korea, Netherlands, Norway and Portugal, it was positive in other countries. Therefore, it is possible to say that the amount of recyclable + compost waste increases carbon dioxide emissions for the countries with a negative relationship. According to Model 2, when the renewable energy statistical values for 24 countries are examined, the cointegration relationship was found to be significant in 20 countries excluding Belgium, Finland, Italy and the United Kingdom. While this significant relationship shows positive significance for Denmark, Luxembourg, Slovenia and Turkey, it shows negative significance for 16 countries.

4. CONCLUSION

The circular economy approach is a concept we hear frequently today and this concept includes all economic activities. The concept of circularity is also described as a concept directly related to the sustainability approach (Çoban, 2020: 192). This concept is extremely important for all economies. Because the circular economy has a great role in realizing development goals and ensuring the sustainability of limited resources. However, the developments in the environmental dimension in the national economies are considerably less compared to the developments in the economic and social dimensions. In order for the environmental dimension to develop in terms of national economies, waste management must be carried out effectively. The effective realization of waste management is possible with the sustainability of the circular economy process (Yanik and Sumer, 2021: 220). It is expected that the wastes generated as a result of the implementation of the circular economy model will be transformed into raw materials through recycling and contribute to the country's economy. In addition, it is predicted that the pressure on natural resources and the environment will decrease through the recycling of wastes, and gains will be made in energy saving (Eskin, 2020: 120). Other benefits that a circular economy will provide to a country are to save raw materials and energy, reduce costs, increase supply security, reduce dependence on raw materials and energy, reduce raw material price fluctuations, reduce waste, reduce greenhouse gas emissions, increase competitiveness of enterprises, ensure sustainable product exports, to increase its resilience, to create employment and new job opportunities, to reduce the environmental impacts caused by resource extraction and waste disposal (Development Library Report, 2022).

In this direction, some countries, including Turkey, have carried out important studies on a global scale in the process of zero waste management or the transition to a circular economy, and they are still working. In the light of the results obtained, it will be a right step for countries to adopt the cyclical economic system and fulfill its principles in order to achieve healthy, rational, inclusive and sustainable development goals. Countries should determine their strategies on a national scale in order to close the gaps by examining the studies on the transition to circularity carried out within the framework of the Global Circularity Gap Reports prepared by the “Circle Economy” and the New Circular Economy Action Plan (2020), which is a roadmap of the European Commission (Sam., 2020). In addition, it is important to put these strategies into practice in a way that ensures their sustainability.

Within the framework of the circular economy action in Turkey, the National Circular Economy Action Plan was prepared in 2022. In addition, the focus has been on completing the technical and administrative studies for the implementation of the Green OIZ and Green Industrial Zone Certification system in 2022. It is planned to complete the R&D studies in 2024 for the dissemination of the environmental labeling system in 2023 and the reuse of wastes for agricultural products. In the 2022-2027 periods, the contribution of the industry to the transition to a green and circular economy and emission reduction will be discussed by using IPA funds and international financial resources (Republic of Turkey Ministry of Commerce, 2021). In this context, it is important that our country, which has a significant potential in the circular economy dimension, draws a roadmap for itself by identifying the main areas and determining priority sectors in the transition process to circularity. In addition, it is necessary to increase academic studies on the circular economy in our country and to increase awareness by reaching more people on social media. It should be clearly shared with individuals that we can prevent the damage we cause to our environment by respecting the order and nature in which we live, so that our future generations can continue their lives with the existence of a system in which natural resources exist. By emphasizing that this situation contributes to social welfare in terms of the development of the country, sensitivity should be increased with necessary regulations. Thus, the sustainability of the circular economy approach together with the responsible production and consumption approach will be ensured and positive effects on economic development and growth will be provided by creating environmentally friendly economies.

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YEŞİL GİRİŞİMCİLİĞİN BİBLİYOMETRİK ANALİZ İLE İNCELENMESİ

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ÖZET
Küresel ölçekli hızlı değişim ve dönüşüm beraberinde iklim krizi, ekolojik dengede meydana gelen bozulmalar, özellikle çevresel sorunların yanı sıra sosyo-ekonomik sorunlar da getirmektedir. Özellikle COVID-19'un yarattığı değişim ve dönüşümü zorunlu kılan gelişmeler, sürdürülebilir kalkınma ve iklim değişikliğine yönelik ilginin ve faaliyetlerin artmasıyla birlikte sürdürülebilirlik konusu önem kazanmıştır. Ekonomik, sosyal ve çevresel sürdürülebilirliğin sağlanması ve makro ve mikro boyuttaki çevresel sorunlara çözüm arayışı yeşil girişimciliğin ortaya çıkmasını sağlamıştır. Bu çerçevede ülkelerin çeşitli teşvik ve düzenlemeler ile yeşil girişimciliği destekledikleri görülmektedir. Bu yeni düzende girişimleri gerçekleştirirken ekonomik büyüme ve doğal kaynakları korumayı entegre eden, çevresel sorunları çözmek için yenilikçi çözümler geliştiren, sürdürülebilir bir gelecek için çaba gösteren yeşil girişimcilik konusu ile ilgili yapılan akademik çalışmalar yıllar itibariyle artan bir şekilde devam etmektedir. Bu çalışmanın amacı literatürde yer alan yeşil girişimcilik konulu akademik araştırmaları ve kavramın ilişkili olduğu anahtar kelimeleri inceleyerek gelecekteki araştırmalar için rehberlik ve sağlam bir kavramsal çerçeve sağlamaktır. Bu doğrultuda Web of Science'ta çevrimiçi tarama yapılarak yayımlanmış tüm çalışmalar (makale, bildiri, kitap incelemesi vs.) çeşitli bibliyometrik göstergeler açısından incelenerek kategorize edilmiştir. Yeşil girişimcilik ile ilgili yapılan yayınlar ve ulaşılan anahtar kelimeler bibliyometrik analiz araçlarından VOSviewer haritalama yöntemiyle görselleştirilmiştir. Çalışma ile yeşil girişimcilik öncüller, sonuçlar, aracılar ve düzenleyiciler bakımından incelenmiş ve nomolojik ağ oluşturulmuştur.
Anahtar Kelimeler: Yeşil Girişimcilik, Sürdürülebilirlik, Bibliyometrik Analiz, Vosviewer.

THE REVIEW OF GREEN ENTREPRENEURSHIP WITH BIBLIOMETRIC ANALYSIS

ABSTRACT
Rapid change and transformation on a global scale brings with it climate crisis, disruptions in ecological balance, especially environmental problems as well as socio-economic problems. The issue of sustainability has gained importance, especially with the developments that necessitate the change and transformation caused by COVID-19 and the increase in interest and activities regarding sustainable development and climate change. Ensuring economic, social and environmental sustainability and seeking solutions to macro and micro environmental problems have led to the emergence of green entrepreneurship. In this context, it is seen that countries support green entrepreneurship with various incentives and regulations. Academic studies on green entrepreneurship, which integrates economic growth and protection of natural resources while carrying out initiatives in this new order, develops innovative solutions to solve environmental problems, and strives for a sustainable future, continues to increase over the years. The aim of this study is to provide guidance and a solid conceptual framework for future research by examining academic research on green entrepreneurship in the literature and the keywords associated with the concept.

In this regard, all studies (articles, papers, book reviews, etc.) published by online scanning in Web of Science were examined and categorized in terms of various bibliometric indicators. Publications related to green entrepreneurship and the keywords found were visualized using the VOSviewer mapping method, one of the bibliometric analysis tools. With the study, green entrepreneurship was examined in terms of antecedents, consequences, mediators and regulators and a nomological network was created.
Keywords: Green Entrepreneurship, Sustainability, Bibliometric Analysis, Vosviewer.

OVERVIEW OF THE CIRCULAR ECONOMY IN TURKEY AND AN ASSESSMENT OF CIRCULAR ECONOMY POLICIES

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ABSTRACT
The traditional growth model is based on a linear economy approach of take-make-dispose, which leads to excessive resource consumption and environmental pollution. In today's world, where competition among businesses is continuously increasing, new alternative approaches are being developed to enable more efficient production and minimize resource use. The circular economy approach is one of these new economic models, promising longer product lifecycles and aiming for maximum product utilization and recycling. This approach helps reduce waste generation and promotes efficient resource utilization, thereby reducing environmental pollution.
Turkey faces a serious waste problem but has not been successful in recycling. According to the 2021 report by WWF, out of the 2.2 million tons of packaging waste produced annually in Turkey, only half a million tons are recycled. Furthermore, only 12.3% of the collected waste is sent for recycling. In response to the growing waste issue, the Ministry of Environment, Urbanization, and Climate Change (MEUCC) in recent years has made circular economy a priority policy. In 2020, the promotion of the circular economy was included in environmental legislation. The ministry has also aimed to prepare a national action plan for the circular economy. This study evaluates the current status of the recycling economy in Turkey and its applications concerning the circular economy. Additionally, it examines the extent to which waste management in Turkey aligns with the circular economy approach.
Keywords: Circular economy, sustainability, recycling economy

SÜRDÜRÜLEBİLİRLİK KALKINMA İÇİN "YEŞİL LOJİSTİK" UYGULAMALARI

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ÖZET: Günümüzde teknolojik gelişmeler beraberinde hızlı sanayileşmeye, üretim ve tüketimde önemli derecede artışlara yol açmıştır. Ancak söz konusu sosyal ve ekonomik gelişmelere paralel olarak önemli sorunlar ortaya çıkmıştır. Bu sorunlardan en önemlisi çevresel bozulmalardır. Ekolojik dengenin tahribatıyla ortaya çıkan iklim değişikliği ve çevresel sorunlar canlı yaşamı için önemli bir tehdit kaynağı olarak görülmektedir. Sera gazı emisyonlarının yarattığı küresel ısınma ise en önemli çevre sorunlarından biri olarak kabul edilmektedir. Bu bağlamda, hızla artan rekabet ortamı ve küreselleşme doğal sistemin işleyişinde önemli dengesizliklere yol açtığı görülmektedir. Tüm bu yaşanan olumsuz gelişmeler altında, dünyada ekonomik sistemin sürdürülebilirliğinin sağlanmasına yönelik önemli adımlar gündeme gelmiştir.
Dünyanın en hızlı gelişen sektörlerinden biri olan lojistik sektörü, bir ekonomide ticaretin büyümesi için önemli bir aracı olarak hizmet etmektedir. Ancak lojistik sektörü, sera gazı emisyonlarının büyük bir bölümünden sorumludur. Ayrıca lojistik sektörünün gürültü, kirlilik ve ambalaj atığı gibi olumsuz çevresel etkileri de söz konusudur. Bu nedenle ülkeler ve firmalar, lojistik sektörünün ekonomiye sağladığı yadsınamaz faydalarını göz önüne aldığında, çevre dostu olmayan geleneksel lojistik kararlarından vazgeçmeye başlamıştır. Dolayısıyla lojistiğin çevre dostu olması fikri ve "yeşil lojistik" kavramı ortaya çıkmıştır. Bu çalışmada lojistik faaliyetlerinde çevre yönetimi ile ilgili kararları dahil eden yeşil lojistik kavramı üzerinde durulacak ve yeşil lojistik uygulamalarına ilişkin önemli bilgiler sunulmaya çalışacaktır.
Anahtar Kelimeler: Sürdürülebilirlik, Lojistik, Yeşil Lojistik

"GREEN LOGISTICS" APPLICATIONS FOR SUSTAINABILITY DEVELOPMENT

ABTRACT: Today, technological developments have led to rapid industrialization and significant increases in production and consumption. However, in parallel with these social and economic developments, important problems have emerged. The most important of these problems is environmental degradation. Climate change and environmental problems resulting from the destruction of ecological balance are seen as an important source of threat to living life. Global warming caused by greenhouse gas emissions is considered one of the most important environmental problems. In this context, it is seen that the rapidly increasing competitive environment and globalization cause significant imbalances in the functioning of the natural system. Under all these negative developments, important steps have been taken to ensure the sustainability of the economic system in the world.
The logistics industry, one of the fastest growing industries in the world, serves as an important intermediary for the growth of trade in an economy. However, the logistics sector is responsible for a large portion of greenhouse gas emissions. Additionally, the logistics industry has negative environmental impacts such as noise, pollution and packaging waste.

For this reason, when countries and companies take into account the undeniable benefits of the logistics sector to the economy, they have begun to abandon traditional logistics decisions that are not environmentally friendly. Therefore, the idea of logistics being environmentally friendly and the concept of "green logistics" emerged. This study will focus on the concept of green logistics, which includes decisions regarding environmental management in logistics activities, and will try to provide important information about green logistics practices.
Keywords: Sustainability, Logistics, Green Logistics,

MUDRA YOJANA – A BOON FOR MICROFINANCE IN INDIA

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ABSTRACT

Microfinancing is a common concept throughout the world, however it is popular in the developing countries. Some larger organizations work with the World Bank and other smaller groups operate in different nations. Microfinance institutions support a large number of activities including entrepreneurial education, investment decisions, technological skills etc. Like conventional banking services, Microfinance institutions also charge an interest on the loans and set up repayment plans with payments due at regular intervals.

Microfinance services are provided to unemployed or low-income individuals because most people are trapped in poverty, or who have limited financial resources do not have adequate financial resources to do business with traditional financial institutions. Microfinance allows people to take on reasonable small business loans safely according to the traditional lending practices without violating any procedures.

India has emerged as one of the fastest growing economies in the world. A prudent fiscal policy, range bound inflation figures and accommodating monetary policy in tandem with on ground developments such as lenient global commodity prices, growing private consumption, and a new thrust to stalled projects are key factors responsible for the realisation of this scenario. The MSME sector has emerged as a highly vibrant and dynamic sector of the Indian Economy over the last five decades. It contributes significantly in the economic and social development of the country by fostering entrepreneurship and generating employment opportunities at comparatively lower capital cost, next to agriculture.

The micro enterprises comprise of miscellaneous low scale activities such as clay pot making, basket weaving, broom and matchsticks making, fruits and vegetable vendors, transportation (three wheelers), food services, various cottage industries and small industries, handloom and handicraft workers, street vendors etc. These are collectively referred to as the Non Corporate Small Business Sector (NCSBS). These individuals have little access to credit which is mostly sourced from indigenous moneylenders, friends or relatives. Other weaker sections engaged in micro enterprises also face an enormous challenge in channelling institutional credit. An access to institutional finance could potentially turn these micro enterprises into strong instruments of GDP growth and employment. Around 94 per cent small enterprises are Own Account Enterprises (OAEs) operated by individuals belonging to financially weaker sections. To build on this opportunity the Government of India initiated the Micro Units Development and Refinance Agency Ltd (MUDRA) in 2015-16 with the vision of “funding the unfunded” micro entrepreneurs.

The Hon’ble Prime Minister of India Shri Narendra Modi presented the concept of MUDRA and its role in his budget speech in February 2015. Thereafter MUDRA – a wholly owned subsidiary of Small Industries Development Bank of India (SIDBI) was instituted as a public limited company in March 2015. It was registered as a Non Banking Finance Institution (NBFI) with the Reserve Bank of India on 7th April, 2015 and launched the following day on 8th April, 2015 by the Prime Minister to support micro enterprises sector in the country.

Alongside the inauguration of MUDRA, the Prime Minister also launched the Pradhan Mantri Mudra Yojana (PMMY) scheme for extending loans to the micro enterprises.

The setting up of MUDRA and Pradhan Mantri Mudra Yojana (PMMY) sought to fill the credit gaps in small, micro and tiny enterprises to provide thrust to the economic activities. The PMMY was set up with the objective of providing loans up to 10 Lakhs for such enterprises to start or expand their business activities. Funding this unfunded segment of entrepreneurs is the core purpose of MUDRA. In terms of financial inclusion, MUDRA aims to provide credit access to those small, micro, tiny enterprises that are unable to offer collateral assets to secure loans, record of business accounts or convincing business proposals to banks.

Keywords: MUDRA, PMMY, MSMEs Microfinance, Refinance, Financial Inclusion, Micro Enterprises, Entrepreneurship, Collateral Free, Economic Development, Social Development, Government of India, Unorganized Sector, Non – Corporate Small Business Sector, SIDBI.

INFLUENCE OF DIRECTORS COMPENSATION ON EARNINGS MANAGEMENT PRACTICES IN THE NIGERIAN BANKING SECTOR

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Abstract
The study evaluated the influence of director compensation on earnings management (EM) practices within the Nigerian banking sector. This stems from the fact that, while compensation contracts have been proposed as one tool for ensuring that both executive directors and non-executive directors (NEDs) effectively monitor the organization's affairs, they may induce EM practices due to being tied to accounting earnings (e.g. bonuses) or stock prices (e.g. stock based compensation). The adjusted population of eleven listed commercial banks was used as the census sampling method was employed. Anchored on the agency theory, the study measured directors compensation using a mix of executive directors and NEDs compensation while EM practices was proxied by discretionary provision for loan loss (DPLLs) measured using the Beaver and Engel (1996) model. Using the Ordinary least square regression, all forms of directors compensation except executive compensation were found to have positive effect on EM practices of the studied banks which shows that regulating compensation of directors should be a focus for regulatory agencies. Although only NEDs fees and allowances was found to significantly affect EM practices while other compensation variables has an insignificant effect on EM practices. The study thus recommended a shift of focus from just Chairmans compensation to include the totality of NEDs compensation and an institution of guidelines for mandatory disclosure of directors compensation.
Keywords: directors compensation, earnings management, discretionary provision for loan loss, fees and allowances, banking sector

KNOWLEDGE REPRESENTATION IN THE CORRELATIONAL ANALYSIS OF INNOVATIVE CAPACITY AND INNOVATIVE BEHAVIOR IN CONSOLIDATED COMPANIES

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ABSTRACT
This study aimed, from the representation of knowledge, analyze the correlation between innovative capacity and innovative behavior in companies consolidated with the reference of the ALI program (Local Innovation Agents) in Bahia. To the conceptual basis for the developed arguments, a bibliographic and documental research was carried out on the themes: Innovative Behavior, Innovative Capacity and Knowledge Representation Systems with emphasis on Conceptual Map and Taxonomy; ten consolidated companies were chosen as a benchmark for the study, namely: Apple, Disney, Facebook, Fiat, GE, Google, IBM, Natura, Pão de Açúcar and PIXAR. Due to the characteristics of the theme, Documentary, Exploratory, Descriptive and Comparative research were used, with a Quantitative and Qualitative approach through a documental research developed from two questionnaires created for this purpose: Innovative Behavior and Innovative Capacity. The Research was characterized by the use of structured questionnaires, both in the form of information collection, and by the treatment through statistical techniques, these questionnaires were applied in descriptive studies with the survey of opinions and attitudes of managers. The study shows the independence of correlation between Innovative Behavior and Innovative Capacity.
Keywords: innovative behavior, innovative capacity, innovation, knowledge modeling.

DETERMINANTS OF ACCEPTANCE AND USE OF TECHNOLOGY AMONG MICROFINANCE INSTITUTIONS EMPLOYEES

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Abstract
This study examined the determinants of organizational resilience and acceptance of new technologies among microfinance institutions in Ethiopia. The focus of this study was to offer a more accurate and fact-based conclusion about the determinants of acceptance and use of technology among microfinance institutions employees in Ethiopia that have not yet been thoroughly examined in the literature. Self-structured questionnaire was used to obtain survey data from a sample of 502 employees of microfinance institutions using a simple random sampling method. The statistical analysis was done using structural equation modelling with AMOS 26.0. The finding of the research showed that performance expectancy, effort expectancy and social influence have positive relationships with behavioural intention of employees. The research finding also showed that facilitating conditions and user behaviour not mediated by behavioural intention to accept new technologies. Microfinance institutions should broaden their employees' attitudes toward latest financial technologies in order to make their services more useful and perceived useful in the minds of their employees. Microfinance institutions should develop a strategy for adopting the latest financial technology and furnish information about the recent financial technology. The study offers valuable insights for managers, stakeholder and policy makers in understanding the determinants acceptance of new technologies among microfinance institutions in Ethiopia and advances the theoretical depth by contributing to the literature related to the organizational resilience and acceptance of new technologies.

JEL classification: N27, M21 &M15
Keywords: Digital Transformation Strategy, Technology, Modernization, Innovation Diffusion Theory, Organizational Resilience.

DETERMINANTS OF DIGITAL TRANSFORMATION STRATEGY IN MICROFINANCE INSTITUTIONS

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Abstract
This study examined the determinants of organizational resilience, digital transformation and innovation behaviour of microfinance institutions in Ethiopia. A self-structured questionnaire was utilized to obtain survey data from a sample of 502 employees of microfinance institutions using a simple random sampling method. The statistical analysis was done using structural equation modelling with AMOS 26.0. Behavioural factors, innovative characteristics, personal acceptance and social acceptance have a significant and positive effect on acceptance attitude. Behavioural factors, innovative characteristics, personal acceptance and social acceptance indirect effect on acceptance attitude. The study's findings support theory of planned behaviour, which states that an individual's behavioural factors and innovative characteristics positively affect the person's technology acceptance. This research aspired to fork over a more balanced and empirically grounded picture of digital transformation and innovation activities in microfinance institutions that have not yet been thoroughly evaluated in the literature. The study offers valuable insights for managers, stakeholder and policy makers in understanding the determinants of organizational resilience, digital transformation and innovation behaviour of microfinance institutions in developing countries and advances the theoretical depth by contributing to the literature related to the organizational resilience, digital transformation and innovation behaviour.
JEL classification: N27, M21 &M15
Keywords: Digital Transformation, Innovation Behaviour, Innovative Characteristics, Personal acceptance, Social acceptance

REGIONAL CO-OPERATION & DEVELOPMENT IN COMESA AND ITS IMPACT

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ABSTRACT

Theory of regionalism describes the all efforts of regionalism; it has different kind of behavior to serve for the states. The states cannot work itself and it need the cooperation for the states. The only regionalism can make a different kind of way for development for the developing or developed states. The regional identify formation is underpinned by a process that involves a group of states and people identifying a set of common problems linked to their geographical space and finding solution to these problems somewhere in between individual states initiative and the larger global intervention. In most recent economic condition (financial crisis) the terms 'regional cooperation or common market' have tended to become nearly synonymous with 'rapid economic growth. The process of regional integration is now inextricably linked to that of economic development. COMESA is also a regional cooperation, which is working all over the states of east Africa.

Objectives:

- To understand political requirement during the formation of COMESA;
- To understand economic condition for the formation of COMESA;
- Assess achievement and challenges of COMESA.

Methodology: This research paper is a continuous process of rethinking; as such it should be managed scientifically and systematically. This research paper is basically relevant to the historical, analytical method, and deductive reasoning has used to explain on this research paper.

Conclusion: Regional cooperation can fill the gap of economic, political and socio-culture in the in COMESA

Keywords: Theoretical background of regional cooperation, Impact of COMESA on states, Fabrication of COMESA and, Formation of Institution COMESA.

SIGNIFICANCES AND BENEFITS OF CPEC (CHINA PAKISTAN ECONOMIC CORRIDOR) FOR PAKISTAN AND CHINA A REVIEW BY DR FAISAL

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ABSTRACT

To improve the lives of people of Pakistan and China by building an economic corridor promoting bilateral connectivity, construction, explore potential bilateral investment, economic and trade, logistics and people to people contact for regional connectivity. China-Pakistan Economic Corridor is a framework of regional connectivity. CPEC will not only benefit China and Pakistan but will have positive impact on Iran, Afghanistan, Central Asian Republic, and the region. The enhancement of geographical linkages having improved road, rail and air transportation system with frequent and free exchanges of growth and people to people contact, enhancing understanding through academic, cultural and regional knowledge and culture, activity of higher volume of flow of trade and businesses, producing and moving energy to have more optimal businesses and enhancement of co-operation by win-win model will result in well connected, integrated region of shared destiny, harmony and development. China Pakistan Economic Corridor is journey towards economic regionalization in the globalized world. It founded peace, development, and win-win model for all of them. China Pakistan Economic Corridor is hope of better region of the future with peace, development and growth of economy. CPEC is a significant infrastructure and economic development project for Pakistan with various potential benefits. CPEC is a collection of infrastructure projects, including roads, railways, energy projects, and the development of the Gwadar Port. Here are some of the significant aspects and potential benefits of CPEC for Pakistan. CPEC aims to improve Pakistan's infrastructure significantly. This includes the construction and upgrading of roads, highways, railways, and ports, which can enhance connectivity within the country and with China. Improved infrastructure can facilitate economic growth and trade. CPEC has the potential to boost Pakistan's economic growth by attracting foreign investment and creating jobs. New infrastructure and industries can stimulate economic activity and contribute to GDP growth. Pakistan has struggled with energy shortages for years. CPEC includes several energy projects, such as coal-fired power plants and hydroelectric dams, which can help address Pakistan's energy needs. A more reliable energy supply can boost industrialization and productivity. With Gwadar Port as a focal point, CPEC can potentially serve as a trade gateway for Pakistan. It provides a shorter and more efficient route for Chinese goods to reach international markets and opens up opportunities for Pakistan to become a regional trade hub. CPEC enhances Pakistan's connectivity with China and other regional countries. It can promote economic integration and cooperation within South Asia and Central Asia, potentially reducing regional tensions. The development of CPEC projects is expected to create job opportunities for many Pakistanis. This can help alleviate unemployment and improve living standards. Gwadar, located in Pakistan's province of Baluchistan, is a key focal point of CPEC. The project can lead to increased development and economic opportunities in this historically underdeveloped region, addressing some of the grievances and issues faced by the Baloch people. CPEC can enhance Pakistan's strategic significance on the global stage. It cements China-Pakistan relations and can potentially provide Pakistan with geopolitical support in international forums. CPEC also has its share of challenges and controversies.

These include concerns about debt sustainability, environmental impacts, and questions about the distribution of benefits within Pakistan. The long-term success of CPEC will depend on how these challenges are addressed and how effectively the benefits are shared among different regions and segments of the Pakistani population.

Keywords: bilateral, win-win model, hydroelectric, potentially, effectively.

AKILLI ŞEHİR UYGULAMALARI VE SÜRDÜRÜLEBİLİRLİK: TÜRKİYE ÖRNEĞİ

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Özet

Günümüzde kentsel nüfusun hızla artması, şehirlerin sürdürülebilirliğine yönelik baskıyı artırmıştır. Bu noktada, akıllı şehirler, sürdürülebilirlik ilkelerini benimsemek ve teknolojiyi kullanarak şehir yaşamını iyileştirmek amacıyla dünya genelinde yükselen bir konsept haline gelmiştir. Bu bağlamda akıllı şehirlerin sürdürülebilirliğe nasıl katkıda bulunabileceğini anlamak önem arz etmektedir. Türkiye'de, farklı şehirler akıllı şehir uygulamalarını benimseyerek sürdürülebilir kalkınma hedeflerine odaklanmaktadır. Çalışmada Türkiye'nin farklı şehirlerindeki akıllı şehir projelerini ve bunların sürdürülebilir kalkınma alanındaki başarılarını inceleyeceğiz.

Bilgi iletişim teknolojileri (BİT), şehirler için küreselleşme fırsatlarına yol açan dijital ekonomiye katılımı teşvik ederek, ekonomik rekabeti ve verimliliği artırma imkânı sunmaktadır. Bu bağlamda, günümüzde çoğu şehir, şehirleri akıllı varlıklara dönüştürmeyi amaçlayan uzun vadeli projelere odaklanmaktadır. Amaç vatandaşlara sürdürülebilir bir çevre ve daha iyi bir yaşam kalitesi sunmaktır. Türkiye'de yenilikçi BİT destekli çözümler, kamu hizmetlerini iyileştirme ve vatandaşların yaşam kalitesini artırma konusunda büyük bir potansiyele sahiptir.

Çalışma, Türkiye'deki farklı şehirlerin akıllı şehir kavramı bağlamında gerçekleştirdiği çalışmaları ve sürdürülebilirlik hedeflerini değerlendirmeyi amaçlamaktadır. Türkiye'de akıllı ulaşım ve trafik yönetimi projeleri, yenilenebilir enerji kullanımı, çevre koruma stratejileri ve sürdürülebilir inşaat ve yeşil bina sertifikasyonu uygulamaları gibi örnekler, Türkiye'nin akıllı şehirlerde sürdürülebilirlik hedeflerine nasıl yaklaştığını göstermektedir. Araştırma, teknoloji ve politikanın birleşimi yoluyla enerji verimliliğinin, çevrenin korunmasının ve yaşam kalitesinin iyileştirilmesinde nasıl ilerleme kaydedilebileceğini değerlendirecektir.

Anahtar Kelime: akıllı şehir, sürdürülebilirlik, akıllı uygulamalar

SMART CITY APPLICATIONS AND SUSTAINABILITY: TÜRKİYE EXAMPLE

Abstract

Today, the rapid increase in urban population has increased the pressure on the sustainability of cities. At this point, smart cities have become a rising concept around the world in order to adopt sustainability principles and improve city life by using technology. In this context, it is important to understand how smart cities can contribute to sustainability. In Türkiye, different cities focus on sustainable development goals by adopting smart city applications. In the study, we will examine smart city projects in different cities of Türkiye and their success in the field of sustainable development.

Information communication technologies (ICT) offer the opportunity to increase economic competition and efficiency by encouraging participation in the digital economy, which leads to globalization opportunities for cities. In this context, most cities today are focusing on long-term projects aimed at transforming cities into smart assets. The aim is to provide citizens with a sustainable environment and a better quality of life. Innovative ICT-enabled solutions in Türkiye have great potential to improve public services and increase the quality of life of citizens.

The study aims to evaluate the studies and sustainability goals of different cities in Türkiye in the context of the smart city concept. Examples such as smart transportation and traffic management projects, renewable energy use, environmental protection strategies and sustainable construction and green building certification practices in Türkiye show how Türkiye approaches sustainability goals in smart cities. The research will evaluate how progress can be made in improving energy efficiency, environmental protection and quality of life through a combination of technology and policy.
Keyword: smart city, sustainability, smart applications

MODELING STOCK PRICES VOLATILITY

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ABSTRACT
This work provide a way to learn the volatilities of stock prices by presenting some models within the ARCH family, namely ARCH, GARCH, TARCH, EGARCH, and PARCH, with the data of the most popular 9 stocks reported on the Nasdaq website. By using the daily data of 253 observations with the criteria for choosing the appropriate models, it shows that only the volatilities of 3 stocks, namely AAPL, QCOM, and SBUX, can be explained by GARCH (1,1). This model forecasts the volatilities of AAPL and QCOM to increase in the days after the existing data set, while SBUX is forecasted to decrease. The recommendations from this study are that this model should be used for predicting volatility in the next few days as its power of forecasting declines as time is extended. Also, investors should be aware of the volatility of AAPL and QCOM, which are predicted to move in the same direction. As a result, they may not be beneficial for risk diversification.
Keywords: Stock price volatility, ARCH, GARCH, TARCH, EGARCH, PARCH,

Introduction
Financial market efficiency can affect the volatility of financial instruments' prices and returns because its specific level of efficiency reveals different information to investors, causing them to be willing to buy and sell at different prices and return.
Investors, as profit predators, invest their money with the goal of maximizing their returns. Their investments are made through various channels, with the stock market being one of them. Although this investment channel can provide investors with potential profits, it can also provide them with potential losses because investing in the stock market entails taking risks. As a result, in order to achieve their goals, investors must consider both return and risk at the same time. To leverage the risk from price volatility, many investors pursue the portfolio investment strategy. However, to use this strategy successfully, they need to be familiar with the volatility of stock prices and be able to guess their movement in the future so that they can rearrange the stocks within their portfolio properly.
To capture the risk persist in the stocks return, the analysts often use the models within the ARCH-family which have been developed since the 1980s. The models that often have been applied include the Autoregressive Conditional Heteroscedasticity (ARCH) to capture the time-varying conditional variance; a generalized ARCH model (GARCH) to capture the stochastic volatility. Over time, the GARCH type models have been developed to capture some characteristics of volatility, e.g., GARCH-M and Exponential GARCH (EGARCH) to capture the symmetric effect of past shock as well as Threshold GARCH (TGARCH) and Power GARCH (PGARCH) to capture asymmetric effects (Ahmed & Naher, 2021). The applications of these models in the empirical works by some scholars are as follows.

In the previous works, the scholars used, e.g., ARCH, GARCH, EGARCH, TARCH, and PARCH to appraise nature of volatility patterns of Nekkei Index in the Tokyo stock market (Beg et al., 2020); ARCH (1.1), GARCH (1.1), TGARCH (1.1), EGARCH (1.1), APGARCH (1.1) to capture the asymmetric effects of stock indices in Indonesia capital markets (Bahtiar, 2020); GARCH, EGARCH, and TGARCH to capture the volatility and effect of bad news in the stock markets of the selected countries during the period of Covid-19 (Ganguly, 2020); ARMA (1,1), TGARCH (1,1), APARCH (1,1) and EGARCH (1,1) to capture the asymmetric effect of negative shocks or bad news and positive shocks or good news and forecast the out-of-sample volatility for the returns of Dhaka Stock Exchange (DSE) in Bangladesh (Ahmed & Naher, 2021); and ARCH (1), ARCH (2), and GARCH (1,1) model to capture the conditional variance, and GJR-GARCH (1,1) to investigate the existence of asymmetric effect from bad news and good news in return of SRI-KEHATI and LQ45 return in Indonesian capital market (Ponziani, 2022).

To extend the application of some models within the ARCH family and provide investors who are concerned with the risks involved with the stocks included in this study, this study is designed to specify the models that best fit the volatility pattern of the most popular nine stocks reported on www.nasdaq.com and also forecast their volatility for the purpose of risk management in investment decisions. To ensure that the right model is obtained, this work is organized as follows. The next section will present the concepts related to the change in the stock price and also an overview of the most popular nine stocks. Following that, the model specification will be discussed. Then the findings will be presented.

Literature Review

The Efficient Market Hypothesis

The term "efficiency", in the Efficient Market Hypothesis (EMH), means that investors have no opportunity of obtaining abnormal profits from capital market transactions. The only way for an investor to make more money is to invest in higher-risk assets. This hypothesis, proposed in the 1960s, is then classified into three types of efficiencies: weak, semi-strong, and strong. The weak form of EMH assumes that the current prices of financial assets incorporate all the historical financial information. As a result, investors cannot obtain abnormal profits as prices will follow the random walk hypothesis, which states that the abnormal returns are mainly caused by chance. The semi-strong form of EMH assumes that the prices of financial assets reflect all the information existent in a market and historical information. As a result, the prices change rapidly and without bias to incorporate any new public information released on the market. The strong form of EMH assumes that prices incorporate all the available information, i.e., historical financial information, public information, and private information regarding a financial asset. As a result, neither technical nor fundamental analysis can determine the way an investor should split his funds so that the obtained profitability is higher than that achieved in the case of investment in a random portfolio of financial assets (Ţiţan, 2015).

II. THEORY OF RANDOM WALKS IN STOCK PRICES

The theory of random walks in stock prices involves two hypotheses: 1) successive price changes are independent and 2) the price changes conform to some probability distribution. The term "independence" in **the first hypothesis** means that the probability distribution for the price change during the current and future periods is independent of the sequence of price changes during previous time periods.

That is, knowledge of the sequence of previous price changes cannot be used to assess the probability distribution for the price change in the next period and thus cannot be used to increase expected gains. This independence of successive price changes for a given security reflects a price mechanism which is unrelated to economic and political events. That is, the stock price is simply the sum of many bits of randomly generated noise. The term "noise," in this case, means psychological and other factors that make individuals perceive different "intrinsic values" of stocks and affect their willingness to pay for different stocks. In fact, the intrinsic value of a given security depends on the earnings prospects of the company, which in turn are related to economic and political factors. In the random-walk hypothesis, it is assumed that the existence of intrinsic values for individual securities is not inconsistent. Thus, there can always be disagreement among individuals, and in this way, actual prices and intrinsic values can differ, which implies the uncertainty concerning intrinsic values or the "noise" in the market. The term "distribution" in **the second hypothesis** means that the price changes conform to some probability distribution. In the general theory of random walks, the form or shape of the distribution need not be specified. Thus, any distribution is consistent with the theory as long as it correctly characterizes the process generating the price changes. However, the form of the distribution is a major factor in determining the riskiness of an investment in stocks. That is, if the distribution of price changes has a high degree of dispersion, it may be inferred that the variability in the process of generating new information is high (Fama, 1965).

From another perspective, market efficiency can be learned by finding evidence of the inefficiency of the market. Such evidence can be obtained from the concept of the "calendar effect," which is an economic consequence or market anomaly related to the calendar. These effects include, e.g., 1) the January effect or turn of the year effect, which is a popular rule in the stock market; 2) the day-of-the-week effect, which typically shows low mean returns on Monday compared to the other days of the week and high mean returns on Friday compared to the other days of the week; 3) the turn-of-the-month effect, which shows higher mean returns at the end of one month and the beginning of the next month; and 4) public holiday effects, which vary in timing, duration, and frequency from market to market (Rossi, 2015).

The background of 9 stocks

Most Popular Historical Data Pages. Most Popular stock prices (Yahoo Finance, 2022)

Apple, Inc. (AAPL)

Apple Inc. is in technology sector, Consumer Electronics industry, and employs 154,000 full time employees. This Inc. designs, manufactures, and markets smartphones, personal computers, tablets, wearables, and accessories worldwide. It also sells various related services. In addition, the company offers iPhone, a line of smartphones; Mac, a line of personal computers; iPad, a line of multi-purpose tablets; AirPods Max, an over-ear wireless headphone; and wearables, home, and accessories comprising AirPods, Apple TV, Apple Watch, Beats products, HomePod, and iPod touch. Further, it provides AppleCare support services; cloud services store services; and operates various platforms, including the App Store that allow customers to discover and download applications and digital content, such as books, music, video, games, and podcasts.

Additionally, the company offers various services, such as Apple Arcade, a game subscription service; Apple Music, which offers users a curated listening experience with on-demand radio stations; Apple News+, a subscription news and magazine service; Apple TV+, which offers exclusive original content; Apple Card, a co-branded credit card; and Apple Pay, a cashless payment service, as well as licenses its intellectual property.

2. Starbucks, Inc. (SBUX)

Starbucks Corporation is in consumer cyclical sector, restaurant industry, and employs 383,000 full time employees. This corporation, together with its subsidiaries, operates as a roaster, marketer, and retailer of specialty coffee worldwide. Its stores offer coffee and tea beverages, roasted whole beans and ground coffees, single serve products, and ready-to-drink beverages; and various food products, such as pastries, breakfast sandwiches, and lunch items. The company also licenses its trademarks through licensed stores, and grocery and foodservice accounts.

Microsoft, Inc. (MSFT)

Microsoft Corporation is in technology sector, Software—Infrastructure industry, and employs 181,000 full time employees. This corporation develops, licenses, and supports software, services, devices, and solutions worldwide. Its Productivity and Business Processes segment offers Office, Exchange, SharePoint, Microsoft Teams, Office 365 Security and Compliance, and Skype for Business, as well as related Client Access Licenses (CAL); Skype, Outlook.com, OneDrive, and LinkedIn; and Dynamics 365, a set of cloud-based and on-premises business solutions for organizations and enterprise divisions. Its Intelligent Cloud segment licenses SQL, Windows Servers, Visual Studio, System Center, and related CALs; GitHub that provides a collaboration platform and code hosting service for developers; and Azure, a cloud platform. It also offers support services and Microsoft consulting services to assist customers in developing, deploying, and managing Microsoft server and desktop solutions; and training and certification on Microsoft products. Its More Personal Computing segment provides Windows original equipment manufacturer (OEM) licensing and other non-volume licensing of the Windows operating system; Windows Commercial, such as volume licensing of the Windows operating system, Windows cloud services, and other Windows commercial offerings; patent licensing; Windows Internet of Things; and MSN advertising. It also offers Surface, PC accessories, PCs, tablets, gaming and entertainment consoles, and other devices; Gaming, including Xbox hardware, and Xbox content and services; video games and third-party video game royalties; and Search, including Bing and Microsoft advertising.

Cisco Systems, Inc. (CSCO)

Cisco Systems, Inc. is in Technology sector, Communication Equipment industry, and employs 79,500 full time employees. Tis Inc. designs, manufactures, and sells Internet Protocol based networking and other products related to the communications and information technology industry. It provides infrastructure platforms, including networking technologies of switching, routing, wireless, and data center products that are designed to work together to deliver networking capabilities, and transport and/or store data. The company also offers collaboration products comprising unified communications, Cisco TelePresence, and conferencing, as well as the Internet of Things and analytics software. In addition, it provides security products, such as network security, cloud and email security, identity and access management, advanced threat protection, and unified threat management products.

Further, the company offers a range of service and support options for its customers, including technical support and advanced services.

QUALCOMM Inco. (QCOM)
QUALCOMM Inc. is in Technology sector, Semiconductors industry, and employs 45,000 full time employees. This Inc. engages in the development and commercialization of foundational technologies for the wireless industry worldwide. The company operates through three segments: Qualcomm CDMA Technologies (QCT); Qualcomm Technology Licensing (QTL); and Qualcomm Strategic Initiatives (QSI). The QCT segment develops and supplies integrated circuits and system software based on 3G/4G/5G and other technologies for use in wireless voice and data communications, networking, application processing, multimedia, and global positioning system products. The QTL segment grants licenses or provides rights to use portions of its intellectual property portfolio, which include various patent rights useful in the manufacture and sale of wireless products comprising products implementing CDMA2000, WCDMA,LTE and/or OFDMA-based 5G standards and their derivatives. The QSI segment invests in early-stage companies in various industries, including 5G, artificial intelligence, automotive, consumer, enterprise, cloud, and IoT, and investment for supporting the design and introduction of new products and services for voice and data communications, new industries, and applications. It also provides development, and other services and related products.

Meta Platforms, Inc. (META)
Meta Platforms, Inc. is in Communication Services sector, Internet Content & Information industry, and employs 77,805 full time employees. This Inc. develops products that enable people to connect and share with friends and family through mobile devices, personal computers, virtual reality headsets, wearables, and in-home devices worldwide. It operates in two segments, Family of Apps and Reality Labs. The Family of Apps segment's products include Facebook, which enables people to share, discover, and connect with interests; Instagram, a community for sharing photos, videos, and private messages, as well as feed, stories, reels, video, live, and shops; Messenger, a messaging application for people to connect with friends, family, groups, and businesses across platforms and devices through chat, audio and video calls, and rooms; and WhatsApp, a messaging application that is used by people and businesses to communicate and transact privately. The Reality Labs segment provides augmented and virtual reality related products comprising virtual reality hardware, software, and content that help people feel connected, anytime, and anywhere. The company was formerly known as Facebook, Inc. and changed its name to Meta Platforms, Inc. in October 2021.

Amazon.com, Inc. (AMZN)
Amazon.com, Inc. is in Consumer Cyclical sector, Internet Retail industry, and employs 1,622,000 full time employees. This Inc. engages in the retail sale of consumer products and subscriptions. It sells merchandise and content purchased for resale from third-party sellers through physical and online stores. The company also manufactures and sells electronic devices, including Kindle, Fire tablets, Fire TVs, Rings, and Echo and other devices; provides Kindle Direct Publishing, an online service that allows independent authors and publishers to make their books available in the Kindle Store; and develops and produces media content. In addition, it offers programs that enable sellers to sell their products on its websites, as well as its stores; and programs that allow authors, musicians, filmmakers,

Twitch streamers, skill and app developers, and others to publish and sell content. Further, the company provides compute, storage, database, analytics, machine learning, and other services, as well as fulfillment, advertising, publishing, and digital content subscriptions. Additionally, it offers Amazon Prime, a membership program, which provides free shipping of various items; access to streaming of movies and series; and other services.

Tesla, Inc. (TSLA)
Tesla, Inc. is in Consumer Cyclical sector, Auto Manufacturers industry, and employs 99,290 full time employees. This Inc. designs, develops, manufactures, leases, and sells electric vehicles, and energy generation and storage systems in the United States, China, and internationally. The company operates in two segments, Automotive, and Energy Generation and Storage. The Automotive segment offers electric vehicles, as well as sells automotive regulatory credits. It provides sedans and sport utility vehicles through direct and used vehicle sales, a network of Tesla Superchargers, and in-app upgrades; and purchase financing and leasing services. This segment is also involved in the provision of non-warranty after-sales vehicle services, sale of used vehicles, retail merchandise, and vehicle insurance, as well as sale of products to third party customers; services for electric vehicles through its company-owned service locations, and Tesla mobile service technicians; and vehicle limited warranties and extended service plans. The Energy Generation and Storage segment engages in the design, manufacture, installation, sale, and leasing of solar energy generation and energy storage products, and related services to residential, commercial, and industrial customers and utilities through its website, stores, and galleries, as well as through a network of channel partners. This segment also offers service and repairs to its energy product customers, including under warranty; and various financing options to its solar customers.

Advanced Micro Devices, Inc. (AMD)
Advanced Micro Devices, Inc. is in Technology sector, Semiconductors industry, and employs 15,500 full time employees. This Inc. operates as a semiconductor company worldwide. The company operates in two segments, Computing and Graphics; and Enterprise, Embedded and Semi-Custom. Its products include x86 microprocessors as an accelerated processing unit, chipsets, discrete and integrated graphics processing units (GPUs), data center and professional GPUs, and development services; and server and embedded processors, and semi-custom System-on-Chip (SoC) products, development services, and technology for game consoles. The company provides processors for desktop and notebook personal computers under the AMD Ryzen, AMD Ryzen PRO, Ryzen Threadripper, Ryzen Threadripper PRO, AMD Athlon, AMD Athlon PRO, AMD FX, AMD A-Series, and AMD PRO A-Series processors brands; discrete GPUs for desktop and notebook PCs under the AMD Radeon graphics, AMD Embedded Radeon graphics brands; and professional graphics products under the AMD Radeon Pro and AMD FirePro graphics brands. It also offers Radeon Instinct, Radeon PRO V-series, and AMD Instinct accelerators for servers; chipsets under the AMD trademark; microprocessors for servers under the AMD EPYC; embedded processor solutions under the AMD Athlon, AMD Geode, AMD Ryzen, AMD EPYC, AMD R-Series, and G-Series processors brands; and customer-specific solutions based on AMD CPU, GPU, and multi-media technologies, as well as semi-custom SoC products.
Basic financial statistics for each stock are presented in Table 1 to 2

Table 1 Basic financial statistics of stocks

Description	AAPL	SBUX	MSFT	CSCO
Market Cap (intraday)	2.29T	89.09B	1.98T	181.25B
Enterprise Value	2.36T	110.01B	1.94T	170.56B
Trailing P/E	23.03	20.77	27.65	15.36
Forward P/E	22.32	21.83	24.57	12.33
PEG Ratio (5 yr expected)	2.46	1.96	1.79	2.2
Price/Sales (ttm)	6.09	2.92	10.4	3.57
Price/Book (mrq)	34.02	N/A	12.16	4.49
Enterprise Value/Revenue	6.12	3.51	10.06	3.31
Enterprise Value/EBITDA	17.76	14.49	19.66	9.93
Beta (5Y Monthly)	1.2	0.97	0.94	0.98
52-Week Change 3	-2.18%	-31.51%	-6.51%	-19.59%
S&P500 52-Week Change 3	-11.93%	-11.93%	-11.93%	-11.93%
52 Week High 3	182.94	126.32	349.67	64.29
52 Week Low 3	129.04	68.39	241.51	41.02
50-Day Moving Average 3	146.35	75.35	265.33	46.34
200-Day Moving Average 3	158.31	95.74	298.62	53.96

Description	QCOM	META	AMZN	TSLA	AMD
Market Cap (intraday)	142.44B	458.69B	1.15T	761.50B	139.62B
Enterprise Value	146.58B	428.86B	1.20T	750.51B	135.25B
Trailing P/E	13.03	12.85	54.62	99.7	32.15
Forward P/E	9.57	14.22	68.49	61.73	20.28
PEG Ratio (5 yr expected)	0.57	1.04	4.27	1.71	1
Price/Sales (ttm)	3.7	4	2.44	13.41	5.81
Price/Book (mrq)	10.69	3.72	8.6	22.34	2.52
Enterprise Value/Revenue	3.73	3.58	2.51	12.07	7.17
Enterprise Value/EBITDA	9.74	8.24	19.89	58	27.35
Beta (5Y Monthly)	1.21	1.38	1.24	2.13	1.86
52-Week Change 3	-12.51%	-54.64%	-40.39%	3.37%	-22.02%
S&P500 52-Week Change 3	-11.93%	-11.93%	-11.93%	-11.93%	-11.93%
52 Week High 3	193.58	384.33	188.65	1,243.49	164.46
52 Week Low 3	118.23	154.25	101.26	620.46	72.69
50-Day Moving Average 3	134.24	185.55	116.54	760.45	91.5
200-Day Moving Average 3	153.24	263.65	151.3	910.86	115.13

Source: (Yahoo Finance, 2022)

Methodology

It is accepted that the autoregressive conditional heteroscedasticity (ARCH) family model can be used to justify the volatility of price and return in the financial market (Cicvarić, 2020). This model enables the analysists to trace the patterns of market fluctuation (N. A. Kyriazis, 2021) and it also supports the study of cryptocurrencies because it is designed to evaluate heteroscedasticity in periods of large alterations in the markets, which is a major attribute of the cryptocurrency market (N. A. Kyriazis et al., 2019).

To understand how the model within the ARCH family was formed for this study, this section will provide a brief overview of five models (Dritsaki, 2017): (Santillán Salgado et al., 2019): (Duru et al., 2022) (Stancu, 2017) using in this work. The detail of each model is as follows.
The Autoregressive Conditionally Heteroscedastic Model, ARCH (q), was suggested by Engle in 1982. This model is a statistical technique that describes the variance of the current error term. It is appropriate when the error variance in a time series follows an AR model and is commonly applied in modeling financial time series that exhibit time-varying volatility and volatility clustering. It is the first model of conditional autoregressive to heteroscedasticity of error variations. When the conditional variances are stated as a function of the squares of previous shocks, ARCH (q) can be mathematically stated as follows:

$$h_t = \alpha_0 + \alpha_1 \varepsilon_{t-1}^2 + \alpha_2 \varepsilon_{t-2}^2 + ... + \alpha_q \varepsilon_{t-q}^2, \quad (1)$$

where q is the number of lags. $\alpha_0 > 0$ and $\alpha_i \geq 0,\ i = 1,...,q$. This implies that the conditional variance depends on previously squared residuals and needs to be non-negative. When $\alpha_i = 0$, h_t equals a constant and under this condition, conditional variance is homoscedastic.
The Generalized Autoregressive Conditionally Heteroscedastic Model, GARCH(p, q), permits the conditional variance at time t to rely on a constant, past shocks, and past variances. The p and q in a GARCH (p, q) model denote the GARCH element and the ARCH element, respectively. The specification of the GARCH (p, q) process is as follows:

$$h_t = \alpha_0 + \sum_{j=1}^{p} \beta_i h_{t-j} + \sum_{i=1}^{q} \alpha_i \varepsilon_{t-i}^2, \quad (2)$$

Where p is the number of lags. $\beta_j \geq 0$. ε_{t-1} is an ARCH term that represents a previous shock or innovation.. h_{t-1} is a GARCH term, which represents the past forecasted conditional variance.
The Exponential Generalized Autoregressive Conditionally Heteroscedastic Model, EGARCH, controls asymmetry in financial data. Even if the estimated coefficients are negative, the logarithmic characteristics of the EGARCH model guarantee that the conditional variance is positive. The expression of the conditional variance for an EGARCH model is stated as follows:

$$\log h_t^2 = \alpha_0 + \sum_{j=1}^{p} \beta_i \log h_{t-j}^2 + \sum_{i=1}^{q} \alpha_i \left| \frac{\varepsilon_{t-i}}{h_{t-j}} \right| + \sum_{k=1}^{n} \omega_i \frac{\varepsilon_{t-k}}{h_{t-k}}, \quad (3)$$

the Threshold Autoregressive Conditionally Heteroscedastic Model, TARCH, uses a piecewise equation for the conditional standard deviation to permit asymmetry in the conditional variance. The TARCH model is mathematically defined as:

$$h_t = \alpha_0 + \sum_{j=1}^{p} \beta_i h_{t-j} + \sum_{i=1}^{q} \alpha_i \varepsilon_{t-i}^2 + \sum_{k=1}^{n} \lambda_i \varepsilon_{t-k}^2 h_{t-k}. \quad (4)$$

The Power Autoregressive Conditionally Heteroscedastic Model, PARCH. The PARCH model, introduced by Ding, et al. (1993), may be specified as follows:

$$h_t^{\delta} = \alpha_0 + \sum_{j=1}^{p} \beta_i h_{t-j}^{\delta} + \sum_{i=1}^{q} \alpha_i f_i\left(\varepsilon_{t-i}\right). \quad (5)$$

To estimate the model, this work obtained the 253 periods, between 3/6/2021 and 2/6/2022, of daily time series data of 1) Apple, Inc. (AAPL), 2) Starbucks, Inc. (SBUX), 3) Microsoft, Inc. (MSFT), 4) Cisco Systems, Inc. (CSCO), 5) QUALCOMM Inc., 6) Meta Platforms, Inc. (META), 7) Amazon.com, Inc. (AMZN), 8) Tesla, Inc. (TSLA), and 9) Advanced Micro Devices, Inc. (AMD) from www.nasdaq.com.

Results

In the following, the results of the analysis will be presented. Let's begin with the descriptive statistics presented in Figure 1 and Table 2.

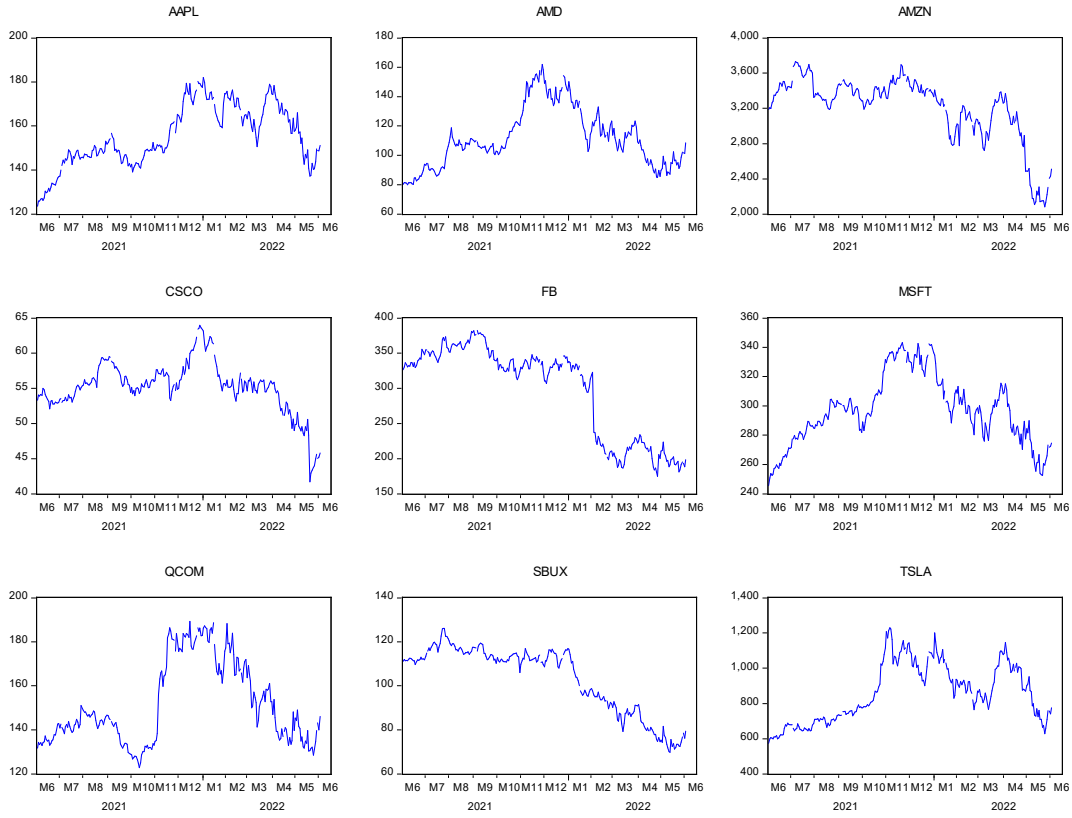


Figure 1 dynamics of the top five cryptocurrencies.
Source: Author' presentation

Table 2 Descriptive Statistics

Statistics	AAPL	AMD	AMZN	CSCO
Mean	155.43840	111.94650	3,208.70200	55.18134
Median	152.06000	108.41000	3,307.24000	55.37000
Maximum	182.01000	161.91000	3,731.41000	63.96000
Minimum	123.54000	79.96000	2,082.00000	41.72000
Std. Dev.	13.70435	20.15275	371.21750	3.69274
Skewness	0.00648	0.55186	(1.44981)	(0.70535)
Kurtosis	2.17410	2.47963	4.65653	4.96742
Jarque-Bera	7.19235	15.69625	117.55960	61.78283
Probability	0.02743	0.00039	-	-
Observations	253.00000	253.00000	253.00000	253.00000

Statistics	FB	MSFT	QCOM	SBUX	TSLA
Mean	297.39750	297.0412	151.7342	103.2322	860.1712
Median	330.05000	296.03	144.63	111.39	843.03
Maximum	382.18000	343.11	189.28	126.06	1229.91
Minimum	174.95000	245.71	122.95	69.9	572.84
Std. Dev.	65.76624	23.32958	18.75998	15.27341	166.3515
Skewness	(0.61186)	0.158381	0.585827	-0.731271	0.252357
Kurtosis	1.68271	2.407809	1.953479	2.124981	1.898267
Jarque-Bera	34.07862	4.754588	26.01661	30.62021	15.48099
Probability	-	0.092801	0.000002	0	0.000435
Observations	253.00000	253	253	253	253

Source: Author's calculation.

The stationary of the data is tested and the results are reported in Table 3. The movements of the residuals from the very simple regression models which assume the constant as the only dependent variable are expressed in Figure 2.

Table 3 Augmented Dickey-Fuller Unit Root Tests

test stat.	DAAPL	DAMD	DAMZN	DCSCO
t-Stat.	-15.73605	-16.58489	-15.98213	-15.94371
Prob.	0.0000	0.0000	0.0000	0.0000

test stat.	DFB	DMSFT	DQCOM	DSBUX	DTSLA
t-Stat.	-16.50131	-17.49447	-16.84554	-15.60972	-15.99999
Prob.	0.0000	0.0000	0.0000	0.0000	0.0000

Source: Author's calculation

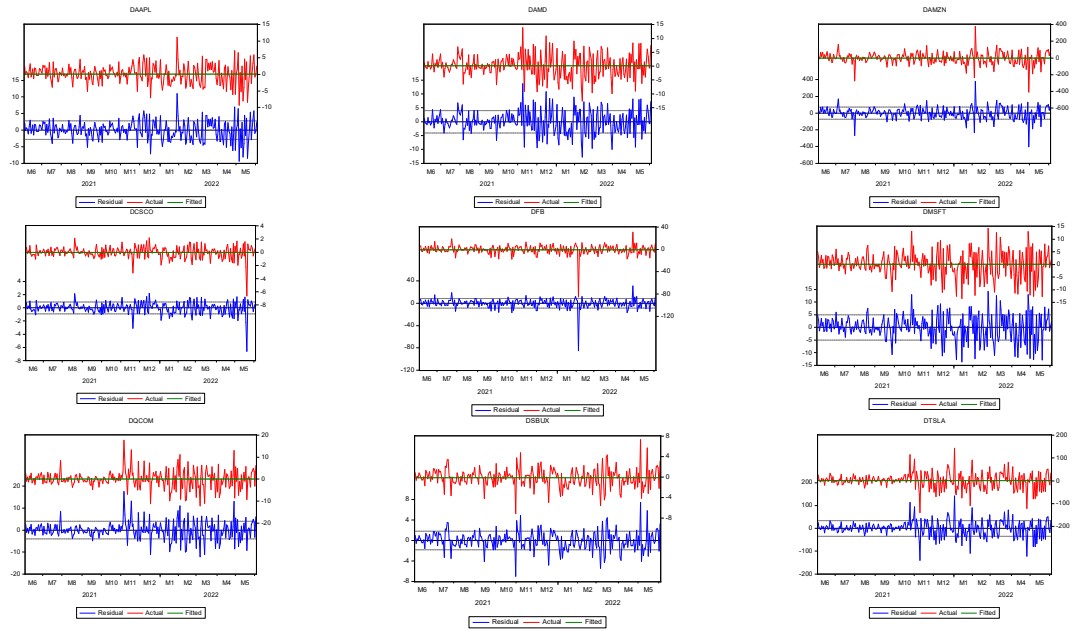


Figure 2 Dynamics of residuals of stock prices
Source: Author's presentation

Next, the ARCH effect is presented in Table 4.

Table 4 Heteroskedasticity Test

Stat.	AAPL	AMD	AMZN	CSCO
F-stat.	3.958807	0.005761	3.324219	3.087422
Prob. F(1,1121)	0.0477	0.9396	0.0695	0.0801
Obs*R-squared	3.928152	0.005807	3.306773	3.074104
Prob.Chi-Sq.(1)	0.0475	0.9393	0.0690	0.0795

Stat.	FB	MSFT	QCOM	SBUX	TSLA
F-stat.	0.051771	1.298261	4.661611	4.270633	0.021115
Prob. F(1,1121)	0.8202	0.2556	0.0318	0.0398	0.8846
Obs*R-squared	0.052176	1.301900	4.612698	4.232346	0.021283
Prob.Chi-Sq.(1)	0.8193	0.2539	0.0317	0.0397	0.8840

Source: Author's calculation.

Table 4 indicates that within 253 days of observations, only three stocks, AAPL, QCOM, and SBUX, have an ARCH effect. This indicates that the other stock prices' memories may rely on the longer term of series data that is not covered in this work. Thus, in the next presentation, this work will focus on these three stocks.
The models for AAPL, QCOM, and SBUX are selected based on the AIC, SIC, and HQC criteria such that the lowest value is the best model. The results are presented in Table 5 to 7.

Table 5 model selected for DAAPL

Models	AIC	SIC	HQC
ARCH(1)	4.902499	4.944516	4.919406
GARCH(1,1)	4.657695	4.713718	4.680237
TARCH(1,1)	4.710250	4.780278	4.738428
EGARCH(1,1)	4.881698	4.951726	4.909876
PARCH(1,1)	4.709766	4.793800	4.743579

Source: Author's calculation.

Table 6 model selected for DQCOM

Models	AIC	SIC	HQC
ARCH(1)	5.610789	5.652806	5.627696
GARCH(1,1)	5.294737	5.350760	5.317279
TARCH(1,1)	5.487938	5.557966	5.516116
EGARCH(1,1)	5.445538	5.515566	5.473715
PARCH(1,1)	5.433070	5.517104	5.466883

Source: Author's calculation.

Table 7 model selected for DSBUX

Models	AIC	SIC	HQC
ARCH(1)	4.028813	4.070830	4.045719
GARCH(1,1)	3.832949	3.888971	3.855491
TARCH(1,1)	3.901368	3.971397	3.929546
EGARCH(1,1)	3.908106	3.978135	3.936284
PARCH(1,1)	3.917493	4.001527	3.951306

Source: Author's calculation.

Lastly, the properties of the model will be investigated, i.e., serial correlation, ARCH effect, and normal distribution of residuals. The null hypothesis for each property is as follows: Null: There is no serial correlation in the residual; Null: there is no ARCH; and Null: Residual are normally distributed.
The tested results of AAPL, QCOM, and SBUX are presented, respectively, as follows:

Table 8 Serial correlation of DAAPL in the GARCH (1,1) model

Auto corr.	Partial Corr.		AC	PAC	Q-Stat	Prob*
.|. |	.|. |	1	0.033	0.033	0.2802	0.597
*|. |	*|. |	2	-0.079	-0.08	1.8774	0.391
.|. |	.|. |	3	-0.047	-0.042	2.4389	0.486
.|. |	.|. |	4	0.034	0.031	2.7451	0.601
.|. |	.|. |	5	-0.013	-0.022	2.7876	0.733
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.|. |	.|. |	33	0.004	0.02	30.331	0.601
*|. |	*|. |	34	-0.075	-0.092	31.978	0.567
*|. |	.|. |	35	-0.07	-0.063	33.412	0.545
.|. |	.|. |	36	-0.008	-0.048	33.433	0.591

Source: Author's calculation.

Table 9 Heteroskedasticity Test (ARCH test) of DAAPL

F-stat.	0.275088	Prob. F(1,87)	0.6004
Obs*R-squared	0.276992	Prob. Chi-Square(1)	0.5987

Source: Author's calculation.

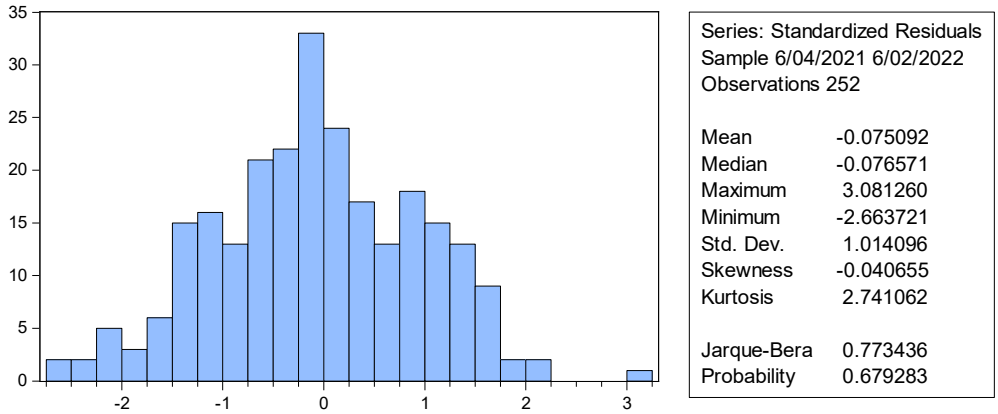


Figure 3 Normallity test of residual in DAAPL
Source: Author's presentation

Table 8 to 9 and Figure 3 showed that there is no serial correlation, no ARCH effect, and that the residuals are normally distributed in DAAPL, which satisfied the model specification. Hence, GARCH (1,1) is the proper model for explaining DAAPL 's price volatility.

Table 10 Serial correlation of DQCOM in the GARCH (1,1) model

Auto corr.	Partial Corr.	AC	PAC	Q-Stat	Prob*
.|. |	.|. |	1	0.038	0.038	0.3747	0.54
.|. |	.|. |	2	-0.016	-0.017	0.4403	0.802
.|. |	.|. |	3	-0.06	-0.059	1.366	0.714
.|. |	.|. |	4	0.039	0.044	1.7627	0.779
.|. |	.|. |	5	-0.006	-0.011	1.7707	0.88
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.|. |	.|. |	33	0.011	0.023	33.269	0.454
.|. |	.|. |	34	0.006	-0.011	33.279	0.503
.|. |	.|. |	35	0.037	0.029	33.675	0.532
.|. |	*|. |	36	-0.065	-0.098	34.913	0.52

Source: Author's calculation.

Table 11 Heteroskedasticity Test (ARCH test) of DQCOM

F-stat.	0.367726	Prob. F(1,87)	0.5448
Obs*R-squared	0.370133	Prob. Chi-Square(1)	0.5429

Source: Author's calculation.

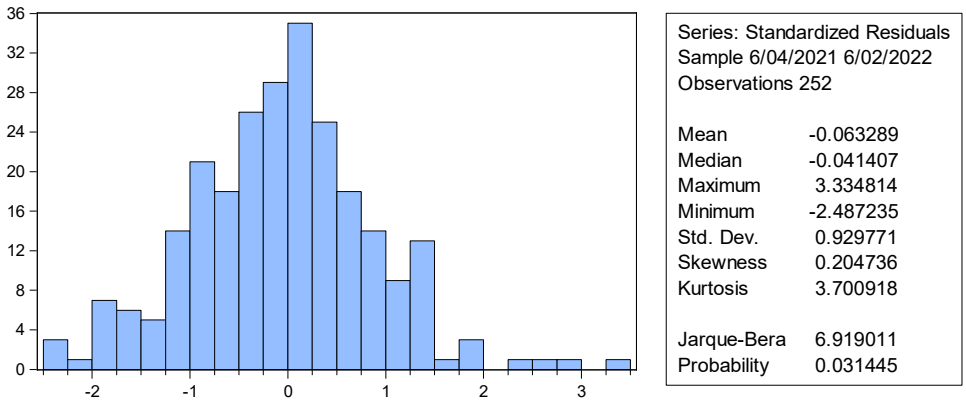


Figure 4 Normallity test of residual in DQCOM
Source: Author's presentation

Table 10 to 11 and Figure 4 showed that there is no serial correlation and no ARCH effect. However the residuals are not normally distributed in DQCOM. As a result, GARCH (1,1) is not a good model for explaining the price volatility of DQCOM. However it is better than other models under consideration.

Table 12 Serial correlation of DSBUX in the GARCH model

Auto corr.	Partial Corr.	AC	PAC	Q-Stat	Prob*
.|. |	.|. |	1	0.061	0.061	0.94	0.332
.|. |	.|. |	2	-0.002	-0.006	0.941	0.625
.|* |	.|* |	3	0.119	0.12	4.592	0.204
.|* |	.|* |	4	0.121	0.108	8.372	0.079
.|. |	.|. |	5	0.059	0.05	9.282	0.098
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.|. |	.|. |	33	-0.015	-0.023	31.47	0.543
.|* |	.|* |	34	0.137	0.14	36.97	0.333
.|. |	*|. |	35	-0.061	-0.096	38.09	0.331
.|. |	.|. |	36	-0.054	-0.061	38.94	0.339

Source: Author's calculation.

Table 13 Heteroskedasticity Test (ARCH test) of DSBUX

F-stat.	0.922532	Prob. F(1,87)	0.3377
Obs*R-squared	0.926509	Prob. Chi-Square(1)	0.3358

Source: Author's calculation.

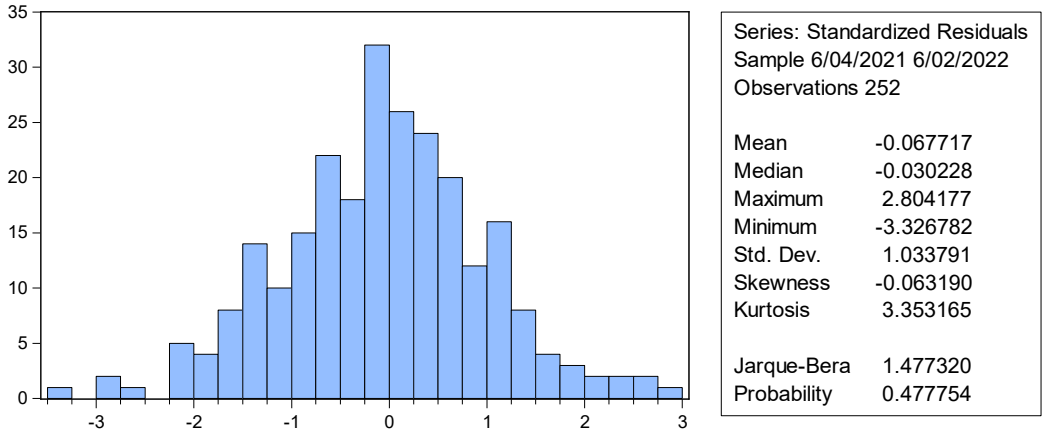
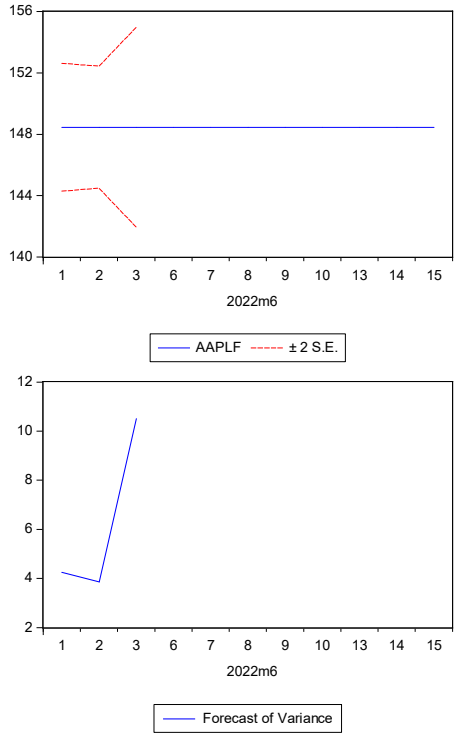


Figure 5 Normallity test of residual in DSBUX
Source: Author's presentation

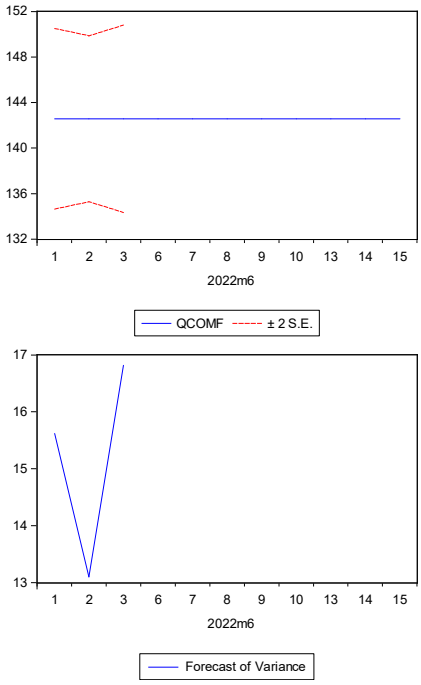
Table 12 to 13 and Figure 5 showed that there is no serial correlation, no ARCH effect, and that the residuals are normally distributed in DSBUX, which satisfied the model specification. Hence, GARCH (1,1) is the proper model for explaining DSBUX 's price volatility.

Lastly, the forecasts of DAAPL, DQCOM and DSBUX volatilities are shown in Figure 6 to 8.



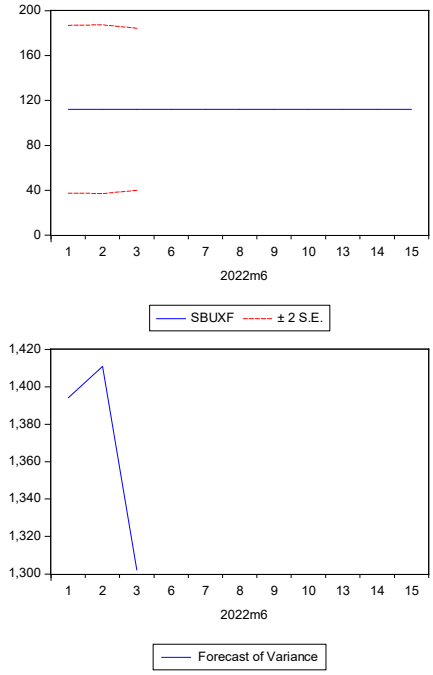
Forecast: AAPLF	
Actual: AAPL	
Forecast sample: 6/01/2022 6/15/2022	
Included observations: 11	
Root Mean Squared Error	1.956295
Mean Absolute Error	1.504856
Mean Abs. Percent Error	0.996626
Theil Inequality Coefficient	0.006556
Bias Proportion	0.591726
Variance Proportion	NA
Covariance Proportion	NA
Theil U2 Coefficient	1.101942
Symmetric MAPE	1.005074

Figure 6 Forecast of DAAPL' volatility.
Source: Author's presentation.



Forecast: QCOMF	
Actual: QCOM	
Forecast sample: 6/01/2022 6/15/2022	
Included observations: 11	
Root Mean Squared Error	3.136777
Mean Absolute Error	3.090000
Mean Abs. Percent Error	2.152039
Theil Inequality Coefficient	0.010979
Bias Proportion	0.029602
Variance Proportion	NA
Covariance Proportion	NA
Theil U2 Coefficient	0.587329
Symmetric MAPE	2.159423

Figure 7 Forecast of DQCOM' volatility.
Source: Author's presentation.



Forecast: SBUXF	
Actual: SBUX	
Forecast sample: 6/01/2022 6/15/2022	
Included observations: 11	
Root Mean Squared Error	34.27434
Mean Absolute Error	34.23836
Mean Abs. Percent Error	44.03850
Theil Inequality Coefficient	0.180435
Bias Proportion	0.997902
Variance Proportion	NA
Covariance Proportion	NA
Theil U2 Coefficient	10.40394
Symmetric MAPE	36.06821

Figure 8 Forecast of DSBUX' volatility.
Source: Author's presentation.

Conclusion

Financial market efficiency can affect the volatility of financial instruments' prices and returns because its specific level of efficiency reveals different information to investors, causing them to be willing to buy and sell at different prices and return. To leverage the risk from price volatility, investors pursue the portfolio investment strategy. However, to use this strategy successfully, they need to be familiar with the volatility of stock prices and be able to guess their movement in the future so that they can rearrange the stocks within their portfolio properly. Thus, to provide a way to learn the volatilities of stock prices, this work presents some models within the ARCH family, namely ARCH, GARCH, TARCH, EGARCH, and PARCH, with the data of the most popular 9 stocks, i.e., 1) Apple, Inc. (AAPL), 2) Starbucks, Inc. (SBUX), 3) Microsoft, Inc. (MSFT), 4) Cisco Systems, Inc. (CSCO), 5) QUALCOMM Inc., 6) Meta Platforms, Inc. (META), 7) Amazon.com, Inc. (AMZN), 8) Tesla, Inc. (TSLA), and 9) Advanced Micro Devices, Inc. (AMD), reported on the Nasdaq website. By using the daily data of 253 observations, between 3/6/2021 and 2/6/2022, and the criteria for choosing the appropriate models, it shows that only the volatilities of 3 stocks, namely AAPL, QCOM, and SBUX, can be explained by GARCH (1,1). This model forecasts the volatilities of AAPL and QCOM to increase in the days after the existing data set, while SBUX is forecasted to decrease. The recommendations from this study are that this model should be used for predicting volatility in the next few days as its power of forecasting declines as time is extended. Also, investors should be aware of the volatility of AAPL and QCOM, which are predicted to move in the same direction. As a result, they may not be beneficial for risk diversification.

Acknowledgment

This research is supported by the school of economics, Sukhothai Thammathirat Open University, Thailand.

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ADULT LITERACY RATE IMPROVEMENT IN QUANTILE REGRESSION MODEL

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Abstract
This study examined the effects of the primary completion rate, unemployment, and gross national income on adult literacy rates in cross-country comparisons using OLS and the quantile regression estimation method with the 2021 World Bank data for 29 countries. Comparing the results of OLS and quantile regression reveals that the quantile method is more appropriate. Quantile analysis revealed that the effects of the primary completion rate and gross national income are not uniform across quantiles. In other words, the primary completion rate and gross national income significantly influence adult literacy rates in all nations, but their influence diminishes as adult literacy levels increase. Total unemployment, however, exhibits a negative and insignificant correlation with the adult literacy rate. The policy implication is that, in order to improve adult literacy rates, it is necessary to increase the primary completion rate and citizen income.
Keywords: Primary completion rate, Unemployment, and Gross national income, Adult Literacy rate, Quantile Regression

Introduction

Literacy is a fundamental skill necessary for economic and social development. It is an important tool for the advancement of any society and it is essential for individuals to have the capacity to read and write in order to participate in their communities and beyond.
The link between literacy and development is well established. Studies have shown that literate people think and act in different ways from illiterate people, and that literacy has universal benefits regardless of context. This is especially true in developing countries, where the lack of literacy can mean the difference between life and death. Studies have found that reading, even at a very basic level, had an impact on accessing health facilities. Literacy also affects knowledge autonomy, decision-making autonomy, physical autonomy, emotional autonomy, as well as economic and social autonomy. Additionally, literacy is assumed to promote both traditional and 'modern' values, which can help to further empower communities and enable people to have better life. Also, literacy increases an individual's earning potential, empowerment and life satisfaction, political participation and levels of community involvement (Robinson-Pant, 2006).
Literacy has long been recognized as an indicator of social inequality, with those with higher levels of literacy often having access to greater opportunities and resources. Thus, policymakers have traditionally used literacy as a basis for developing policies and programs aimed at improving rights, educational attainment, and other related issues (Brian V., 2011)
Fostering literacy is essential to the development of a country, and should be a priority for any nation. It is important to ensure that all citizens have access to literacy education and resources in order to ensure that society can benefit from the advantages of literacy. Governments should invest in initiatives for literacy development and providing incentives for individuals to pursue literacy-related goals.
Due to the importance of literacy to the economy, this study is being conducted to determine the impact of the primary completion rate, unemployment rate, and gross national income on adult literacy.

This work contributed to the design of government policy by addressing the variability of the primary completion rate, unemployment, and gross national income at various stages of adult literacy improvement in countries. The following is an outline of the remaining items: The second section will highlight some works related to literacy improvement. Section 3 will describe the research methodology. The results and discussions will then follow.

Literature Review

I have been recognized that literacy is essential for social development as it provides individuals with the necessary skills to be able to engage in meaningful communication and thinking. It also enhances communication across different cultures, and helps to promote understanding which support for economic development.

To define literacy, it most basic and straightforward definition is an ability to read and write in a language. However, a more comprehensive view of literacy is that of critical literacy, which is the "ability to recognize the social essence of literacy" and "to understand its fundamentally political nature" (Enriquez, 1994).

To understand how literacy is developed, the remaining of this section will provide the summary from previous studies.

B. V. Street (2005) explained that adult literacy programmes have increasingly embraced the theories of learning that go beyond the conventional schooled literacy approaches, implying that literacy programmes focus on the learning methods evident in everyday life, rather than adhering to the formal learning methods of school. Also, the field of New Literacy Studies applies new conceptions of literacy to particular contexts, such as literacy events and literacy practices.

Robinson-Pant (2006) stated that poverty, early marriage, working, and religion are all social issues that closely linked to literacy and education. However, in order to ensure the effective of literacy programmes, it is important to provide supportive interventions such as access to credit facilities, skills training and health care. This can include the provision of family planning services and maternal health care, as well as the promotion of traditional scribes and community enterprises, such as newspapers, to reach a wider and more diverse audience. Moreover, the success of literacy programmes is dependent on the quality of the education provided and the ability to tailor to the needs of the individual, community and country in question.

B. V. Street (2015) provided that literacy which referred to social practice will focus on the everyday meanings and uses of literacy in specific cultural contexts. There are two models involve, i.e., an 'autonomous' model and an 'ideological' model of literacy. The 'autonomous' model of literacy assumes that literacy in itself will have effects on other social and cognitive practices, as evidenced in the early 'cognitive consequences' literature. In contrast, the ideological model of literacy offers a more culturally sensitive view of literacy practices as they vary from one context to another. This argument suggests that engaging with literacy is always a social act, even from the outset, and that literacy practices can only be understood in relation to the social, cultural, historical and political contexts in which they take place.

Smith-Greenaway (2015) stated that the mismatch between educational attainment and literacy among peoples is a reminder of the ineffectiveness of educational systems in many countries. Despite large proportions of peoples who have completed primary school being unable to read, the disparity is made worse in some countries where peoples are illiterate even after completing the highest level of primary school. This phenomenon suggests that educational attainment is a poor predictor of literact.

Wright et al. (2016) specified that integrating literacy instruction into content-area classes, such as science, can be a powerful way to support both literacy and content-knowledge acquisition. This can be done through the use of vocabulary instructional practices. Additionally, teachers have to create an environment that facilitates student literacy and content-knowledge acquisition.

Göçer (2016) proposed that to maximize the learning potential, it need to prepare books such as story books, fairy tales, and other texts that have proven to be effective in developing language skills. Additionally, the teacher's behavior, non-verbal communication, and use of language are fundamental to language skill acquisition. Furthermore, the classroom environment should be designed to be democratic, with sufficient technical equipment and a motivating atmosphere to create the perfect environment for effective teaching.

Saracho (2017) stated that to ensure that children become proficient readers, it is essential that they engage in language development experiences from the beginning. This concept, known as emergent literacy, focused on providing young children with developmentally appropriate experiences for their literacy learning. For a successful literacy programme, reading, writing, speaking, and listening must be effectively integrated into the children's language and literacy programme.

Webb & Williams (2018) provided that early childhood education services have a direct impact on children's language and literacy learning. Poor health of individual children, as well as the poor health of family members, can drastically impact a child's ability to attend school and benefit from learning experiences. To combat this, professional development for teachers must address explicit teaching strategies which can enhance acceptance and engagement of children in the classroom, thus increasing their chances of academic progress and success. Moreover, teachers' attitudes towards the classroom environment can significantly affect how well children are able to acquire language.

Fitria (2020) specified that there are two factors that influence a child's language development, i.e., internal and external factors. Internal factors include the child's age, genetics, etc., while external factors refer to the environment the child is in, the amount of information they are exposed to, etc. This language development plays an essential role in a child's cognitive development and future success.

Alsubaie (2022) stated that the physical environment, literacy practices, and challenges of creating an early literacy learning space at home are all key factors influencing the development of early literacy skills in children. An awareness of the importance of the home environment in their children's learning of early literacy skills is essential for parents, as well as sufficient time being spent with young children in the home environment. At-home literacy practices can be divided into two categories: intentional literacy practices, such as engaging in story-telling or reading aloud to children; and unintentional literacy practices, such as discussing everyday activities or providing opportunities for children to explore and play. It has been shown that the main determinant of children's literacy achievement is their early literacy self-efficacy, which is significantly impacted by a variety of home context variables such as the physical environment, literacy practices of parents, level of parents' education, or socioeconomic status of family.

It is evident from the summary that literacy is profoundly affected by numerous factors such as social contexts, learning practices, poverty, marriage status, working, and religion; health; learning materials; classroom environment; teacher attributes; family support; learning programs; and age range. These factors highlight the complexity of the literacy landscape and demonstrate how important it is to consider multiple aspects when looking at literacy outcomes for adults.

Methodology

The quantile model can be presented as follows: Let y_i and x_i denote the Adult Literacy rate (ALR), and let the explained variable vector encompass three variables, namely, Primary completion rate (PCR), Total Unemployment (TUN), and GNI per capita (GNI). y_i is dependent scalar observations of a continuous random variable with a common cumulative distribution function (CDF). The QR model (Huang et al., 2017) with θ-th quantile can be written by:

$$Q_{y_i}\left(\theta \mid x_i\right) = x_{it}^{'}\beta\left(\theta\right), \qquad (1)$$

where $0 < \theta < 1$ and the regression coefficient vector is estimated by minimizing

$$\sum_{i=1}^{n}\rho_\theta\left(y_i - x_{it}^{'}\beta\left(\theta\right)\right), \qquad (2)$$

where $\rho_\theta(\square)$ is the check function defined by $\rho_\theta\left(u\right) = u\left(\theta - I\left(u < 0\right)\right)$ and $I(\square)$ denotes the indictor function. The resulting estimator will be referred to as the pooled quantile regression estimator.

The data of Adult Literacy rate (ALR), Primary completion rate (PCR), Total Unemployment (TUN), and GNI per capita (GNI) for this study for 29 countries in year 2021 are downloaded from World Bank database.

Result And Discussion

The results of the OLS and quantile estimation are presented in Table 1 and Table 4, respectively. In Table 1, the OLS estimation provided a baseline of mean effects for comparison to the conditional distribution in the separate quantiles of ALR. Figure 1 and Tables 2–3 show the residual properties generated from OLS, which indicate that the residuals are normally distributed , do not serially correlate , and no contain heteroskedasticity, respectively. In Table 4 and Figure 2, which show the results from quantile estimation, they show that among the five quantiles, there is considerable variability for each parameter, which suggests that GNI and PCR have less impact on ALR in the high ALR countries, while TUN has, insignificant, more impact on ALR in the high ALR countries. On the other hand, the effect of GNI and PCR declines at higher levels of ALR.

Table 6-9 displays the remaining results. Table 6-7 shows that the slopes of the coefficient are not different across quantiles. Also, the inter-qualile slopes are not different except PCR in Quantile 0.5, 0.7. Lastly, Tables 8–9 show that coefficients are symmetric.

Table 14 OLS estimation results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GNI	0.003052	0.000913	3.341474	0.0026
PCR	0.545801	0.164593	3.316073	0.0028
TUN	0.155549	0.422237	0.368393	0.7157
C	17.45431	13.37850	1.304654	0.2039
R-squared	0.625232	Mean dependent var		77.26000
Adjusted R-squared	0.580260	S.D. dependent var		20.77045
S.E. of regression	13.45662	Akaike info criterion		8.164262
Sum squared resid	4527.018	Schwarz criterion		8.352854
Log likelihood	-114.3818	Hannan-Quinn criter.		8.223327
F-statistic	13.90266	Durbin-Watson stat		2.020338
Prob(F-statistic)	0.000016			

Source Author's computation

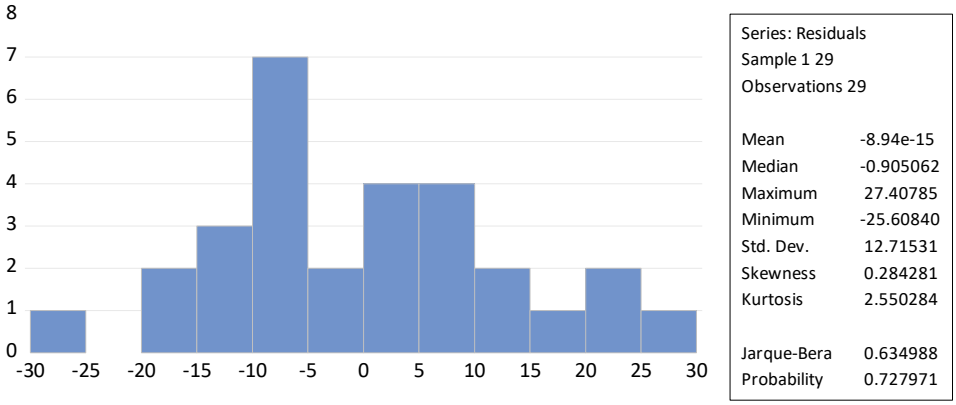

Figure 9 Residual normal distribution test

Source Author's presentation

Table 15 Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.992081	Prob. F(2,39)	0.3861
Obs*R-squared	2.303087	Prob. Chi-Square(2)	0.3161

Source Author's computation

Table 16 Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.913303	Prob. F(3,41)	0.0541
Obs*R-squared	7.512093	Prob. Chi-Square(3)	0.0572
Scaled explained SS	4.327392	Prob. Chi-Square(3)	0.2282

Source Author's computation

Table 17 Quantile Regression estimation result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GNI	0.003190	0.001018	3.135238	0.0044
PCR	0.926446	0.212565	4.358423	0.0002
TUN	-0.387804	0.542390	-0.714990	0.4812
C	-15.78078	17.58251	-0.897527	0.3780
Pseudo R-squared	0.407496	Mean dependent var		77.26000
Adjusted R-squared	0.336396	S.D. dependent var		20.77045
S.E. of regression	15.42524	Objective		136.9868
Quantile dep. var	82.70000	Restr. objective		231.2000
Sparsity	34.82908	Quasi-LR statistic		21.64011
Prob(Quasi-LR stat)	0.000078			

Source Author's computation

Table 18 Quantile Process Estimation

	Quantile	Coefficient	Std. Error	t-Statistic	Prob.
GNI	0.2	0.002992	0.001017	2.94311	0.0069
	0.4	0.003458	0.001063	3.252782	0.0033
	0.5	0.00319	0.001018	3.135238	0.0044
	0.6	0.002405	0.001195	2.012537	0.0551
	0.8	0.002746	0.00193	1.422577	0.1672
PCR	0.2	0.680295	0.238921	2.847364	0.0087
	0.4	0.891253	0.213569	4.173142	0.0003
	0.5	0.926446	0.212565	4.358423	0.0002
	0.6	0.756082	0.297813	2.538781	0.0177
	0.8	0.179673	0.405784	0.442779	0.6617
TUN	0.2	0.422335	0.625697	0.674983	0.5059
	0.4	-0.48664	0.601225	-0.80941	0.4259
	0.5	-0.3878	0.54239	-0.71499	0.4812
	0.6	-0.21006	0.60885	-0.345	0.733
	0.8	0.439028	0.596423	0.736102	0.4685
C	0.2	-6.22407	19.09729	-0.32591	0.7472
	0.4	-14.1996	17.69176	-0.80261	0.4298
	0.5	-15.7808	17.58251	-0.89753	0.378
	0.6	5.680717	25.89288	0.219393	0.8281
	0.8	63.80635	38.29542	1.666161	0.1082

Source Author's computation

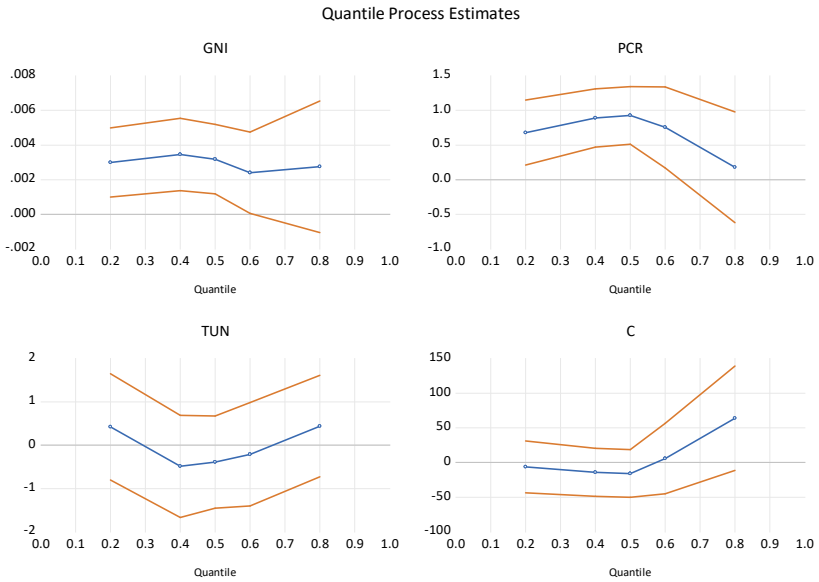

Figure 10 Quantile Process Estimation
Source Author's presentation

Table 19 Quantile Slope Equality Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Wald Test	7.058346	6	0.3155

Source Author's computation

Table 20 Inner quantile Slope Equality Test

Quantiles	Variable	Restr. Value	Std. Error	Prob.
0.25, 0.5	GNI	-0.00014	0.000921	0.8792
	PCR	-0.22258	0.206538	0.2812
	TUN	0.703784	0.540633	0.193
0.5, 0.75	GNI	-3.20E-05	0.001303	0.9804
	PCR	0.786601	0.349821	0.0245
	TUN	-0.23201	0.504288	0.6455

Source Author's computation

Table 21 Symmetric Quantiles Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Wald Test	7.107573	4	0.1303

Source Author's computation

Table 22 Symmetric Quantiles Restriction Value

Quantiles	Variable	Restr. Value	Std. Error	Prob.
0.25, 0.75	GNI	-0.00011	0.001628	0.9471
	PCR	-1.00918	0.400708	0.0118
	TUN	0.935792	0.796435	0.24
	C	91.32716	36.12048	0.0115

Source Author's computation

In countries with a high adult literacy rate, quantile estimation suggests that per capita income and primary education have less of an effect on the adult literacy rate. Possible explanations for these results include the following: When analyzing countries with a high adult literacy rate, there are a number of additional factors that may be at play. First, secondary and tertiary educations are significant factors in adult literacy. Countries with a high adult literacy rate tend to have a higher educational attainment and a wider variety of educational opportunities. In addition, countries with a higher educational attainment tend to have a higher adult literacy rate as a result of greater exposure to a variety of educational materials. A country's adult literacy rate can also be influenced by the presence of a well-developed public education system. A well-developed public education system can provide access to materials and educational opportunities, thereby enhancing an individual's literacy level. Moreover, public education systems are frequently accompanied by public libraries that provide access to a variety of resources. In addition, cultural and social factors can influence the adult literacy rate. For instance, countries with strong religious beliefs have a higher rate of adult literacy than those with weak religious beliefs. Similarly, countries with strong family values and/or social structures tend to have a higher adult literacy rate than those without.

Recommendations

The results of an analysis suggest that, in order to improve the adult literacy rate, the government should 1) invest in primary education with the appropriate learning materials, teacher skills, and environment, and 2) increase the number of jobs in order to reduce unemployment and increase the income of citizens, as these can increase the affordability of education for citizens.

Conclusions

Literacy is an essential ability for economic and social development. Therefore, promoting literacy should be a national priority. Using OLS and the quantile regression estimation method with data for 2021 from 29 countries downloaded from the World Bank database, this study is designed to examine the effects of three possible literacy determinants, namely the primary completion rate, unemployment, and gross national income, in order to determine the sources of improving literacy. Comparing the outcomes of OLS regression and quantile regression revealed that the quantile method is more appropriate. An analysis of quantiles revealed that the effects of primary completion rate and gross national income are not uniform across quantiles. In other words, the primary completion rate and gross national income have a significant impact on adult literacy rates in all countries, but their influence decreases as adult literacy levels rise. However, there is a negative and insignificant correlation between the total unemployment rate and the adult literacy rate. The policy implication is that in order to improve adult literacy rates, the primary completion rate and citizen income must be increased..

Acknowledgements

This research is supported by the school of economics, Sukhothai Thammathirat Open University, Thailand.

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THAILAND POVERTY IN SPATIAL REGRESSION MODELS

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ABSTRACT
This study examines how poverty in Thailand's provinces is impacted by geography. In addition to the effect of location, the analysis takes into account the quantity of factory workers, the quantity of factories, and the quantity of uneducated residents in the provinces. The National Statistical Office of Thailand provided the information for 77 provinces in 2020, which was downloaded for the analysis. When the OLS and spatial regression results were compared, it was found that the location, number of factories, and number of workers in the formal system all had a negative and significant impact on the level of poverty in the Thai provinces, while the presence of the uneducated had a positive but non-significant relationship with poverty. Therefore, it is advised to encourage investors to establish production facilities and generate employment opportunities in the formal market, especially in high poverty areas.
Keywords: Thailand, Poverty, Spatial Regression Models

INTRODUCTION
Poverty is often seen as a single problem, but the truth is that it has a wide range of effects on a variety of aspects of life. The effect of poverty on communities, social equality, quality of life, and economy is significant and can have long-lasting consequences. It is important to address the issue of poverty in order to ensure a brighter future.

People living in poverty may experience poor health and nutrition, limited access to education and employment opportunities, and a lack of recreational and leisure activities. This can lead to higher rates of mental and physical health issues, as well as an increase in homelessness and crime. Poverty can also lead to a downward spiral in terms of income, health, and life expectancy.

The effects of poverty on communities are far-reaching and can go beyond the limits of a single family or group. At the community level, poverty can lead to a lack of resources and services, resulting in a decrease in the quality of life for those living in poverty. Low-income communities often have higher levels of crime and violence, as well as lower educational attainment.

Poverty has far-reaching implications for society as a whole. It can lead to increased inequality, decreased social mobility, and increased political instability. Low-income individuals often lack access to healthcare, education, and other resources needed to succeed in life. People living in poverty often have less access to social activities and opportunities.

Low-income individuals are likely to have lower levels of consumption and investment, leading to a decrease in economic activity. Poverty can lead to an increase in government spending, as more resources are needed to provide assistance to those in need. Poor people are often unable to contribute to the economy in significant ways, such as through taxes or consumer spending.

In the case of Thailand, its progress in poverty reduction has slowed from 2015 onwards, mirroring a slowing economy and stagnating farm, business, and wage incomes. In 2019, the country witnessed the largest decline in poverty since 2015 even as average household income stagnated. As COVID-19 struck an economy already suffering from several structural weaknesses, poverty rose by 0.2 percentage points to 6.4 percent in 2020. Despite the large social assistance, problems persist.

Substantial income declines have forced households to resort to negative coping strategies. A fourth wave of COVID-19 in 2021 has slowed the recovery with vulnerable groups bearing a disproportionate burden. Slow vaccination rates and high levels of vaccine hesitancy could hamper the economic recovery and stall progress in poverty reduction. Thailand's poverty rate fell by 2.2 percentage points to 6.2 percent in 2019, offsetting a 0.8-percentage point increase in 2018. The decline in poverty was largely driven by transfer income as labor income growth was sluggish. Public assistance was the most important driver of poverty reduction during 2017 – 2019, followed by financial and in-kind income, and remittances. Social assistance programs acted as a redistributive mechanism, driving poverty reduction and improving shared prosperity. Over the period of 2017 to 2019, average household income per capita hardly improved. Income per capita among the bottom 40 percent of the income distribution grew by 3.4 percent per year. Poverty fell faster in poverty-stricken areas – the North and Northeast regions (*Thailand Poverty Brief*, 2021).

This study is intended to investigate where poverty exists in Thailand and how much of an impact related factors, such as the number of factories in the area, the number of workers, and the number of uneducated people in the area, have on the poverty by using the spatial statistics technique. The study is motivated by the significance of poverty's impact on the economy and the need for the government to continue improving the poverty situation in some areas in Thailand. The findings of this investigation will help the government create budgets and policies to reduce poverty in the region. The remaining items are broken down as follows: The literature will be reviewed in the following section. The methodology, findings and subsequent discussion will be presented, respectively.

LITERATURE REVIEW

Theory of poverty is a framework with core principles and concepts that enable predictions and testable implications across a range of settings. The most useful theories are accompanied by research programs that explain an expanding set of cases and reconcile anomalous cases. Explanations of the causes of poverty can be classified into three broad families of theories: behavioral, structural and political (Brady, 2019).

BEHAVIORAL THEORIES: Behavioral theories of poverty suggest that the poor are poor because they engage in counterproductive, poverty-increasing behavior or risks like single motherhood or unemployment. Poverty is high in a context because there is a high prevalence of those with demographic characteristics indicating such behaviors. According to behavioralists, for example, racial disparities in poverty result from a disproportionate amount of problematic behavior among racial minorities. Risk factors like single motherhood, low education, and unemployment are significantly associated with poverty in many settings. Major versions of behavioral theories tend to present incentives and culture as the principal sources of behavior. Much research tests whether generous social policies trigger moral hazards and welfare dependency and disincentivize against poverty-reducing behaviors like work and marriage. Education, especially of young women, is one of the most powerful antipoverty behaviors globally. New literature explores whether the cultural models and motives that poor internalize might have an 'exogenous explanatory power' that serves to inhibit socioeconomics. It was argues that poor neighborhoodsare more culturally heterogeneous, which causes problematic adolescent male sexual, violent, and educational behavior. There is a poverty trap if modest investments in education cause an opportunity cost of lower earnings and poverty only declines with unfeasibly high investments.

STRUCTURAL THEORIES: In structural theories of poverty, "structure" refers to macro- and meso-level demographic and economic contexts representing available opportunities and constraints. According to structuralists,for example, racial disparities in poverty are caused by differential exposure to deleteriousstructural contexts. Demographic context typically includes neighborhood disadvantage, age/sex composition, residential segregation, urbanization,and demographic transitions. Structural theories have a long history and may be the most subscribed to class of theoriesin sociology. These theories partly originate from scholars like Clark, who were trying to explain deep-seated racial inequalities in the United States. Many show how deindustrializationand skill/spatial mismatches cause joblessness, family change, and poverty. Economic growth increases labor demand, raises wages, and lifts the bottom of the labor market. Individual-level employment is consistently one of the most powerful predictors of individual-level poverty. Some structuralists emphasize that the poor are marginalized by economic growth.

POLITICAL THEORIES: Poverty is a political outcome driven by power relations over and collective choices about how to distribute resources. Political theories contend that power and institutions cause policy, which causes poverty and moderates the behavior-poverty link. Power resources theory contends that collective political actors mobilize less advantaged classes around shared interests and ideology. Poverty is lower in rich democracies where Left parties have controlled government, unionizationis higher, and women are a greater share of parliaments. In Latin America, leftist governments in periods of stable democracy resulted in generous social policies and lower poverty. A weak institutionalism claims that established institutions guide how and when politics can shape poverty. A stronger institutionalism argues that slavery and colonialism disadvantaged poor countries and perpetuate poverty. Such historical institutions help explain why the global economic hierarchy of countries is soremarkably stable. There are several emerging developments on the welfare state. Growing interest in how welfare generosity entails both legislated coverage and eligibility rates, as well as "takeup," access and barriers to programs and services. There is also growing interest in social policy and poverty in developing countries.

The three major factors of poverty (Sameti et al., 2012) different perspectives regarding poverty influenced government welfare policy toward poverty reduction. It was noted that understanding the real causes of poverty is important to enlighten perspectives on the causes of poverty. Understanding of the causes of poverty could be grouped under three major factors: individual factors, cultural and neighborhood factors, and structural factors.

Individual factors that fuel poverty include individual attitude, human capital, and welfare participation. The theory of individualism is rooted in American values and belief in the free market system. The poor tend to emphasize hard work, dislike for welfare system, and personal responsibility. Some people think that welfare is a re-distributive arrangement that violate individual rights. It was argued that the state and government should not intervene on the behalf of the poor because their poverty status is naturally ordained. It was believed that natural selection through the process of social competition promotes purification of the social system. The evolution serves a cleansing function that makes society more adaptable to its environment.

Cultural and Neighborhood Factors: The concepts of culture of poverty and social isolation provide frameworks that explain how poverty is created and maintained in some neighborhoods or among some groups. The cultural and neighborhood factors relate to the influence of people's residential environment that tends to shape poverty or success.

It was argues that the poor become poor because they learn certain psychological behaviors associated with poverty. The effect of social isolation and the concentration of deviant behavior among the underclass in inner cities. According to opportunity theory of poverty, the social system is structured such that it favors some group to succeed. The blaming-the-victim ideology used by politicians often focuses on character defects of the poor rather than the primary cause of poverty.
Structural Factors: Capitalism creates conditions that promote poverty. Functionalist theory accounts for the causes of poverty among certain people and groups in society. It was argued that the existence of economic inequality and poverty as a result of labor-wage deferential is justified.Theory fails to establish the functional necessity of a task for a society. The labor-market theories focus on income and earning disparities to explain the major causes of poverty. One weakness of Marx's thesis is that he treats labor as a homogeneous abstract in the labor market. In money economy the capitalist controls the reward system and they take more rewards themselves. Dual labor-market theorists argued that the free market does not work perfectly as proposed by neoclassical theorists. They pointed out that other factors in a competitive society tend to determine individual positions and earnings in society. One important consideration is the influence of gender and race on labor price. The dual-market-theorists also added that extensive alienation among workers suggests that the free market model doesn't work. Social constructionist stated that inequality is the result of an intentional construct, created and maintained by social institutions and policies. The concepts of exploitation and social exclusion are two phases of work-related experience used to explain the primary causes of poverty in industrialized countries. The Industrial Revolution has replaced workers' experience of exploitation with the experience of social exclusion. According to Marx a worker is alienated from his product, alienated from himself, from his fellow human beings and from the process of production. He suggested there is a struggle between the capitalist and the worker (proletarian) in a capitalist society. Unemployment occurs when a person is excluded or discriminated against from the labor market. A person's experience of unemployment can lead to loss of one's social class.

Other theory: (Abdullatif et al., 2017)
Progressive social theory: In communities that suffer from the political, economic and social imbalances, there is a wide category of society that is living close to the poverty line. The reason for this is racial, sexual, and sectarian or there is also a social stigma where tribal traditions prevail. Theory of development theory cannot be applied in Iraq because it does not address the problems that must be resolved.

Big push theory: The Big Push theory is that there is an urgent need in poor communities for a strong push or an intensive program with a specific minimum level of investment. It was proven that this theory cannot be applied successfully there because it requires a huge capital for the establishment of industrial projects, but poor countries do not have the money and a large enough market.

Basic needs theory: The theory of basic needs aims to increase the incomes of the poor by raising the level of development, which will lead to an increase in national income. This theory is ideal for social equality, but it only focuses on the consumer sector through its dependence on available resources to provide services to the poor without focusing on the production sector. An increase in production capacity will raise the standard of living in the long run.

In the empirical investigation, they found that:
Investing in education is the key to economic growth process. Education helps in reducing poverty and improving the socio-economic status of both the individuals as well as the society. The relationship between education, poverty, physical capital and economic growth has been examined. Both the SR and LR effect of PC on RGDP has been found to be positive and significant. The Pov and RGDP are inversely and significantly related to each other in the LR. On one side, poverty must be reduced to accelerate economic growth and on the other side, economic growth must be enhanced to reduce poverty. The success of poverty reduction depends upon economic growth of the country as well as the manner in which income is distributed (Afzal et al., 2012).
According to studies, test results showed that the training skills of children is weaker as the family is poor. The number of young people who do not participate or education or does not have a job is worrying and the need for a range of support for youth policy aimed at strengthening the link between education and training on the one hand and the labour market on the other hand. After a study she stated that the environments of low-income children differ in many dimensions from those of wealthier children (Mihai et al., 2015).
The negative effect of education upon poverty remains intact but its intensity declines. For both male and female regressions, it was see that experience and all educational levels are negatively related with the poverty status of the employed persons. Being a male person reduces the chances of being poor by 93.7% as compared to the reference category of female and the figure rises to 94.6% in 2001-02. For male bachelors level shown improvement as the proportional decline in probability goes from 95% to 96.1% whereas middle, intermediate, professional give downward trend and the effect of matriculation is same (Awan et al., 2011).
The study found that the higher the propensity to change jobs from informal workers to formal workers, the lower the chances of experiencing transient or chronic poverty. Education is an investment in human capital that not only describes the level of knowledge but also reflects the skills possessed. Besides human capital, there is also a knowledge capital in the form of science and technology that increase productivity. With better education for all, everyone has knowledge and skills along with the option to get a more relevant job and become more productive to increase income (Taufiq & Dartanto, 2020).
Unemployment Rate has a positive and significant effect on poverty, while Workforce Participation Rate has little or no effect. This could be due to the fact that higher participation in workforce does not necessarily lead to lower poverty due to low wage and/or big household size. The results imply that the workforce should be well prepared to enter labor market and to increase their income, or to create their own jobs. (Saifuloh et al., 2019).
Increasing employment in agriculture is not associated with reducing poverty by any of the poverty measures. Growth in manufacturing, trade, transport and communication sector strongly associated with poverty reduction. Employment share in trade and transport has improved but manufacturing share remained almost stagnant. Improving income distribution is important to make a significant impact on poverty. Fair allocation of resources, tax systems, social protection systems and redistribution systems need to be considered with an equity perspective (Sarangi, 2015).
That small scale enterprises can play very important role in the economic growth, employment generation and poverty alleviation. The economic policy makers should focus on the establishment off ormal financial markets to overcome the financial constraints faced by the SME sector. Simplification of lending procedures, enforcement of credit rights, and reduction in credit costs would be helpful for the establishment of a robust SME sector (Ali et al., 2014).

Urban poverty and upgrading of industrial structure show a stable long-term equilibrium relationship. should pay attention to the upgrading of the industrial structure. The breadth, depth and intensity of urban poverty have a weak negative effect on the upgrading of industrial structure, among others. The different poverty reduction effects of industrial structure upgrading on urban and rural areas are jointly affected by their growth effect, employment effect and distribution effect. Growth effect and employment effect brought by the structural upgrading are greater than the distribution effect, so the industrial structure upgrading has an obvious promotion effect on the breadth, depth and intensity of urban poverty. Corresponding to beginning of the rural industrial structure upgrade, in the process of the structural unemployment caused by the not perfect security system to guard against risks, the employment effect of the negative effect of short-term growth and distribution is greater than that of the positive effect (Chen, 2020).
Chinese enterprises, especially the local state-owned enterprises, not only build a good industrial development plan for poor areas and solve the problems of poor regions in terms of public poverty, but also contribute to the sustainable development of the regional economy. the impact of industrial poverty alleviation on regional economic sustainable growth is more pronounced in agriculture-related local state-owned enterprises(Lin et al., 2022).

METHODOLOGY

The spatial correlation between provinces on key variables is estimated by Moran's I test and visualized by the Moran scatter plot. These are described as follows (Vo et al., 2020).

$$I = \frac{n\sum_{i=1}^{n}\sum_{j=1}^{n}\left[w_{ij}\left(x_i-\overline{x}\right)\left(x_j-\overline{x}\right)\right]}{\left(\sum_{i=1}^{n}\sum_{j=1}^{n}w_{ij}\right)\sum_{i=1}^{n}\left(x_i-\overline{x}\right)^2}$$

Where x_i, $i=1,2,..,n$ provinces and x_j, $j=1,2,..,n$ provinces. w_{ij} is the element of standardized spatial weight matrix.
If the Moran's I statistic is statistically significant, there exists a spatial correlation between provinces for the concerned variable. If the Moran's I coefficient is positive, this means that the interest variable is positively correlated, and vice versa.
The regression model in this work is as follows:

$$POV = \beta_0 + \beta_1 LBI + \beta_2 FAC + \beta_3 UED + u,$$

where POV is Poverty proportion, FAC is Number of factory, UED is Number of uneducated people, LBI is Number of labor in formal system.
Spatial Lag Model (SLM) can be written as follows (Ervina & Jaya, 2018) (Vo et al., 2020):

$$y_{it} = \rho\sum_{j=1}^{N} w_{ij} y_{jt} + x_{it}\beta + \mu_i + \varepsilon_{it}$$

where ρ is spatial autoregressive coefficient; μ is spatial specific effect; and $\varepsilon \sim Normal\left(0,\sigma^2\right)$ is the error term.

Spatial Error Model (SEM) is in the following form:

$$y_{it} = x_{it}\beta + \mu_i + \lambda\sum_{j=1}^{N} w_{ij}\phi_{jt} + \varepsilon_{it}$$

where λ is the spatial autoregressive coefficient.

The data of 77 provinces in year 2020, which allow capturing variables, for estimating these models are downloaded from Thailand's National Statistical Office.

RESULTS AND DISCUSSION

The low-level interrelationship among the independent variables depicted by the correlation matrix is a signal that the selected variables lack multicollinearity. Also, the negative sign indicated that POV decreased when both LBI and FAC increased.

The POV is diagnosed for spatial autocorrelation using the Morans I scatter plot in Figure 2. The global Morans I in this estimation is 0.235. By considering each part of this scatter plot, it was found that the upper right quadrant, or the hot spot locations, have the Moran I estimate value of -0.034., the lower left quadrant has a value of -0.291, the lower right quadrant has the Moran I estimate value of 0.182, and the upper left quadrant has the Moran I estimate value of -0.328.

In Figure 3, a local indicator of spatial autocorrelation (LISA), the red color in this Figure depicts the hot spot location or the highest POV in 5 provinces in the south of Thailand, while the pink color represents the location of provinces that have the lowest POV which include 11 provinces.

To explore the effects of IBL and FAC on POV, a diagnostic check was conducted to identify spatial dependence in OLS regression (Table 1). The results from the Lagrange multiplier test show that SLM is an appropriate model at 10 percent significance.

Table 2 presents a summary of the SLM results. The spatial effect parameter, however, is significant. Thus, the locations have an effect on POV.

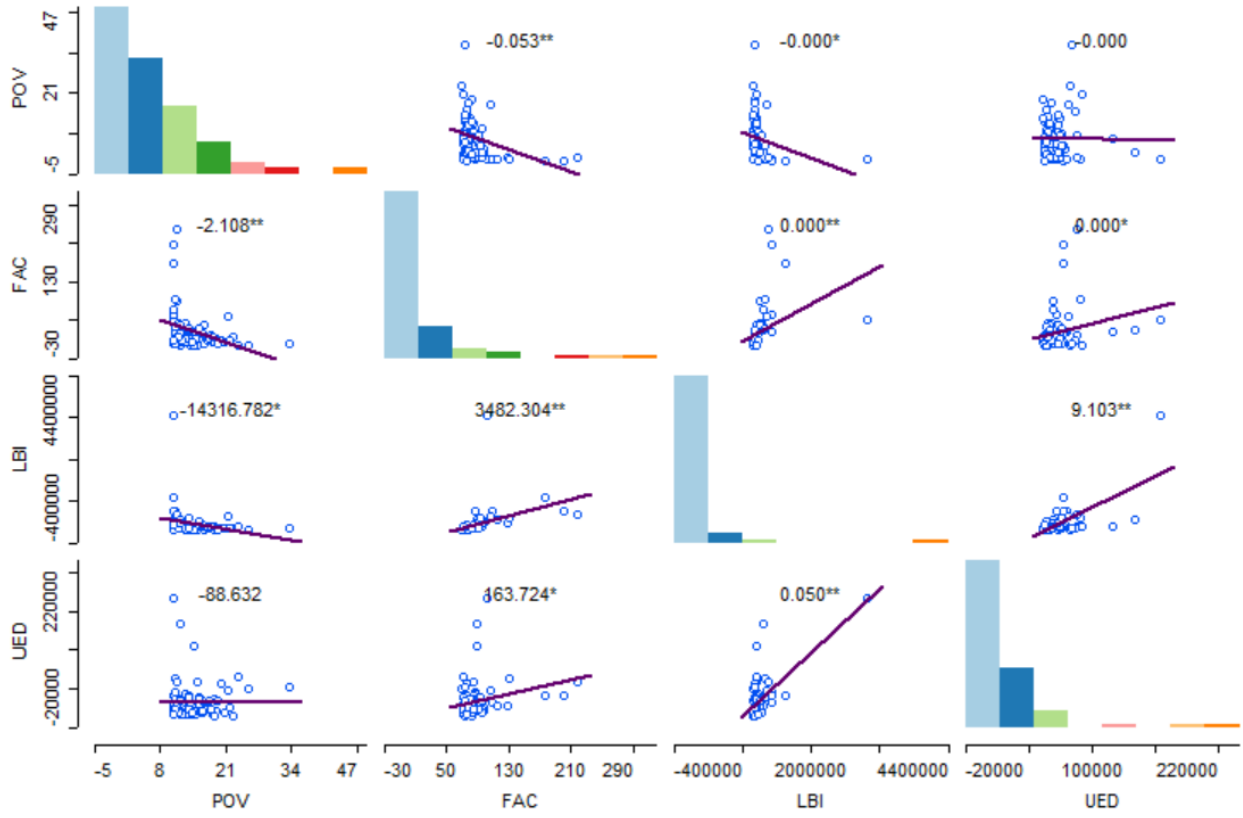

Figure 11 Variable correlations
Source author's presentation

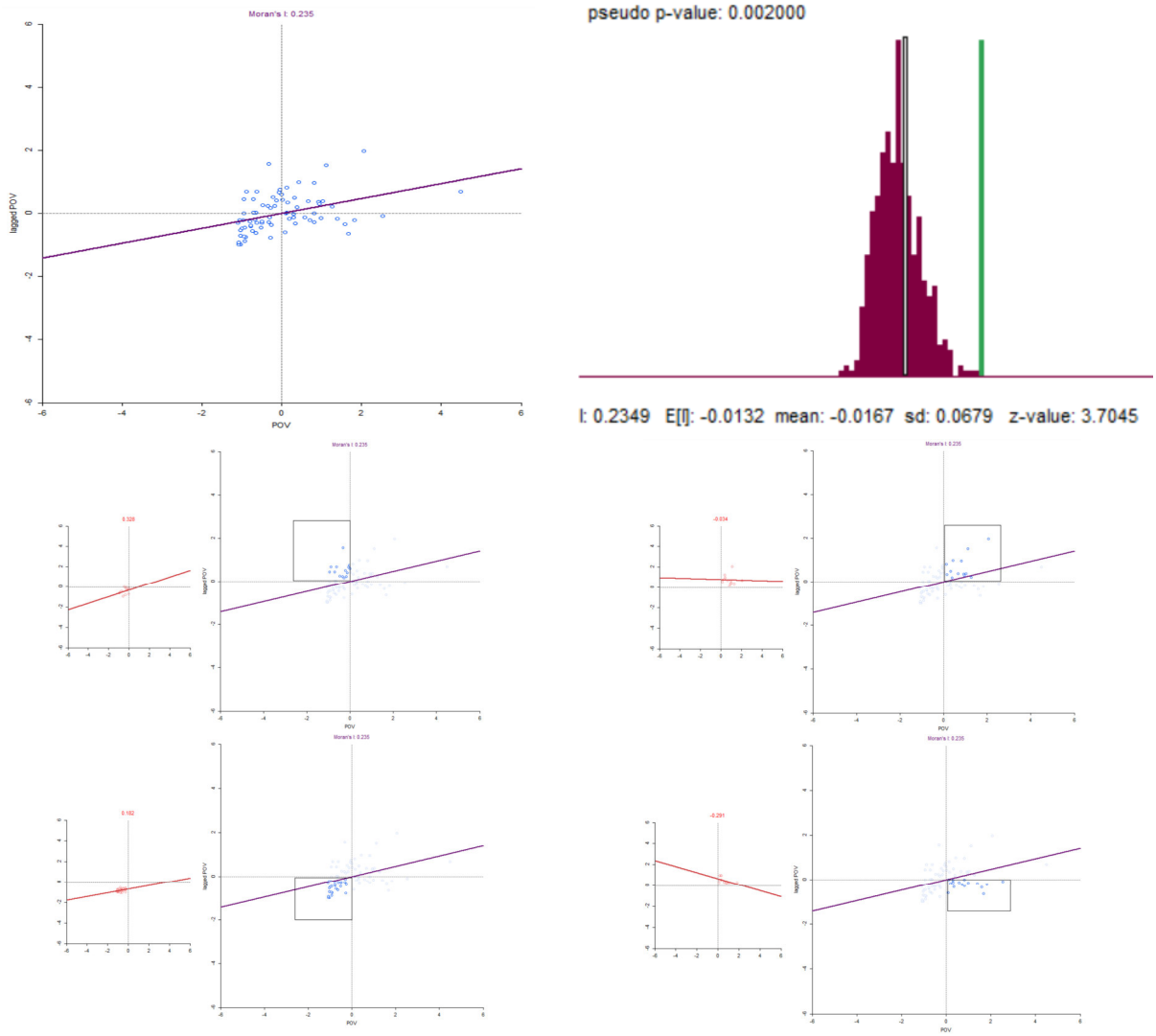

Figure 12 Morans I scatter plot
Source author's presentation

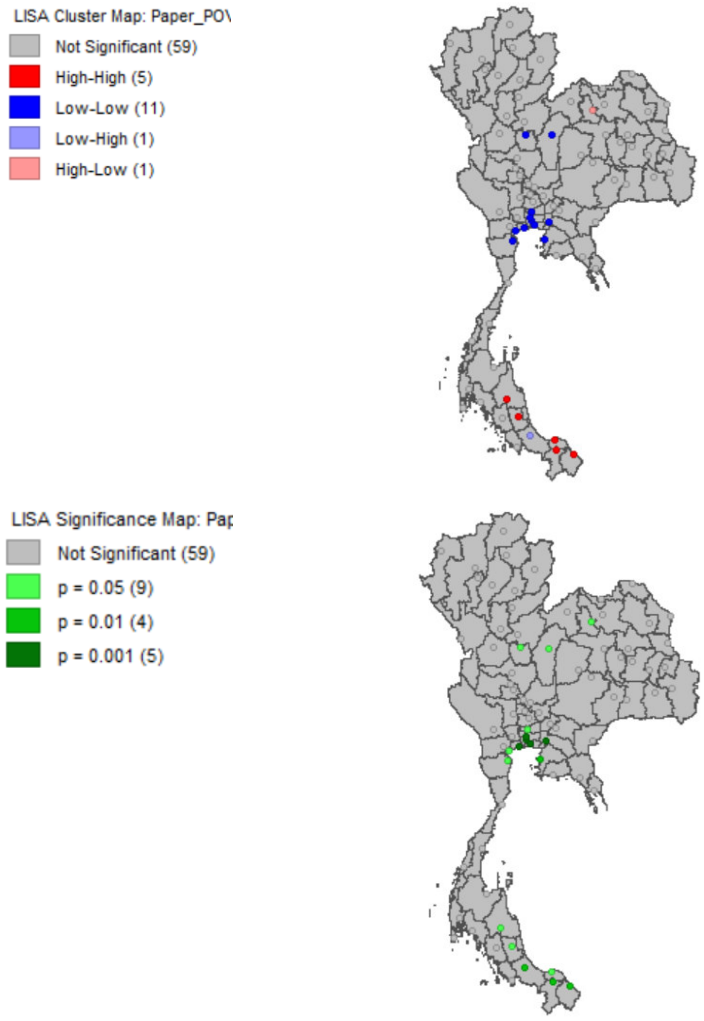

Figure 13 local indicator of spatial autocorrelation
Source author's presentation

Table 23 : ORDINARY LEAST SQUARES ESTIMATION

```
SUMMARY OF OUTPUT: ORDINARY LEAST SQUARES ESTIMATION
Data set            :  Paper_POV_2563
Dependent Variable  :         POV  Number of Observations:   77
Mean dependent var  :     8.61252  Number of Variables   :    4
S.D. dependent var  :     7.86483  Degrees of Freedom    :   73

R-squared           :    0.164304  F-statistic           :     4.78412
Adjusted R-squared  :    0.129960  Prob(F-statistic)     :  0.00424184
Sum squared residual:     3980.32  Log likelihood        :    -261.153
Sigma-square        :     54.5249  Akaike info criterion :     530.306
S.E. of regression  :      7.3841  Schwarz criterion     :     539.681
Sigma-square ML     :     51.6924
S.E of regression ML:     7.18975

------------------------------------------------------------------------------
       Variable      Coefficient      Std.Error    t-Statistic   Probability
------------------------------------------------------------------------------
          CONSTANT       9.70965        1.18085         8.2226     0.00000
               FAC    -0.0442472      0.0183156       -2.41582     0.01820
```

```
              UED   5.88882e-05    3.32311e-05        1.77208     0.08055
              LBI  -5.32724e-06    2.58477e-06       -2.06101     0.04286
------------------------------------------------------------------------------

REGRESSION DIAGNOSTICS
MULTICOLLINEARITY CONDITION NUMBER   3.735147
TEST ON NORMALITY OF ERRORS
TEST                  DF           VALUE             PROB
Jarque-Bera            2            71.3726          0.00000

DIAGNOSTICS FOR HETEROSKEDASTICITY
RANDOM COEFFICIENTS
TEST                  DF           VALUE             PROB
Breusch-Pagan test     3             9.1258          0.02766
Koenker-Bassett test   3             3.1754          0.36536

DIAGNOSTICS FOR SPATIAL DEPENDENCE
FOR WEIGHT MATRIX : Paper_POV_2563
   (row-standardized weights)
TEST                          MI/DF        VALUE          PROB
Moran's I (error)             0.1170        2.1369        0.03261
Lagrange Multiplier (lag)        1          3.7121        0.05402
Robust LM (lag)                  1          1.4066        0.23563
Lagrange Multiplier (error)      1          2.7391        0.09792
Robust LM (error)                1          0.4336        0.51025
Lagrange Multiplier (SARMA)      2          4.1456        0.12583
```

Table 24 SPATIAL Lag MODEL estimation

```
SUMMARY OF OUTPUT: SPATIAL LAG MODEL - MAXIMUM LIKELIHOOD ESTIMATION
Data set            : Paper_POV_2563
Spatial Weight      : Paper_POV_2563
Dependent Variable  :         POV  Number of Observations:   77
Mean dependent var  :     8.61252  Number of Variables   :    5
S.D. dependent var  :     7.86483  Degrees of Freedom    :   72
Lag coeff.   (Rho)  :    0.271546

R-squared           :    0.208851  Log likelihood        :    -259.613
Sq. Correlation     : -            Akaike info criterion :     529.227
Sigma-square        :      48.937  Schwarz criterion     :     540.946
S.E of regression   :      6.9955

------------------------------------------------------------------------------
       Variable       Coefficient     Std.Error       z-value    Probability
------------------------------------------------------------------------------
             W_POV      0.271546       0.155313        1.74839     0.08040
          CONSTANT       7.19157           1.83        3.92981     0.00009
               FAC    -0.0365356      0.0177748       -2.05547     0.03983
               UED   4.65532e-05    3.19789e-05        1.45575     0.14546
               LBI  -4.18431e-06    2.51691e-06       -1.66248     0.09642
------------------------------------------------------------------------------

REGRESSION DIAGNOSTICS
DIAGNOSTICS FOR HETEROSKEDASTICITY
RANDOM COEFFICIENTS
TEST                                  DF      VALUE        PROB
Breusch-Pagan test                    3         8.5056     0.03664

DIAGNOSTICS FOR SPATIAL DEPENDENCE
SPATIAL LAG DEPENDENCE FOR WEIGHT MATRIX : Paper_POV_2563
TEST                                  DF      VALUE        PROB
Likelihood Ratio Test                 1         3.0789     0.07931
```

RECOMMENDATION

To resolve poverty, governments can take several actions through the implementation of effective policies. For example, 1) provide subsidies and support to those most in need. This could include social assistance, housing, education, and health care; 2) creating job opportunities for those living in poverty. This can involve encouraging businesses to create jobs in the local area, and providing incentives to businesses that employ people from the local area; 3) creating employment programs specifically to help the unemployed, such as job training, apprenticeships, and internships; 4) Providing access to education and other services to help people who are in poverty improve their skills and gain better employment opportunities; and 5) Using taxation to encourage businesses to invest in their local communities, as this can create job opportunities and stimulate economic activity.

CONCLUSION

It has been recognized that poverty is distributed unequally within the country and that local characteristics are the main determinant of the poverty level. Thus, the government should try to resolve the problem of poverty by realizing the different characteristics of each area. To identify the sources of local poverty, this study detects the effects of three variables, namely, the number of workers in the formal system, the number of factories, and the number of uneducated people in the provinces, with the effect of location, on poverty by using the data of 77 provinces in 2020, downloaded from Thailand's National Statistical Office. When the results of the OLS and the spatial regression models were compared, it was discovered that the location had a significant effect on the level of poverty in the provinces within Thailand.

ACKNOWLEDGEMENT

This research is also supported by the school of economics, Sukhothai Thammathirat Open University, Thailand.

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IMPACT OF MICROFINANCE BANKS' SERVICES ON PERFORMANCE OF MANUFACTURING SMEs IN ILORIN, METROPOLIS

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ABSTRACT
In Nigeria, manufacturing SMEs operate in an adverse market climate characterized by numerous obstacles, such as low access and high finance costs, among others. However, the government has set up microfinance banks with the ability to provide solutions to these problems. Therefore this study examines the impact of microfinance banks' services on performance of manufacturing SMEs in Ilorin metropolis. In order to improve a detailed understanding of the research entity, the study adopted a survey research style through a systematic questionnaire. The study divided manufacturing SMEs into three (3) groups in both the formal and informal sectors, namely those located in Ilorin East, Ilorin West and Ilorin South LGAs, which constitute the entire metropolis of Ilorin. The reliability of the research instruments, were tested using the Cronbach's Alpha measure of internal consistency. In this study, both descriptive and inferential approaches to data analysis were employed. Particularly, the model parameters were calculated using the method of Principal Component Analysis (PCA) and Ordinary Least Squares (OLS). The independent variables employed include loan and advances, savings services Advisory services, and training services, while enterprise profitability, enterprise growth, market value, employee satisfaction, environmental performance and social performance serves as the dependent variable and was used as a measure of performance of manufacturing SMEs. The study revealed that all the independent variables used in the study (loan and advances, savings services and training services) in exception of Advisory services, all have positive and significant impact on the performance of manufacturing SMEs with coefficient value of 0.129, 0.075, and 0.128 respectively, and p-value of 0.000, 0.000, and 0.000 respectively. On the other hand, advisory services of MFBs in Ilorin Metropolis has a positive but insignificant effect on the performance of manufacturing SMEs with a coefficient of 0.000, with a p-value of 0.992 The study concluded that microfinance banks' services are important for an improved performance of small and medium-scale enterprises in the manufacturing sector. The study therefore recommended among others that the provision of financial services of loan and advances from microfinance banks should therefore, be increased for SMEs in the manufacturing sector. Also, a financial service of keeping saving deposit accounts should therefore be encouraged among SMEs in order to have their performance improved.

FACTORS THAT AFFECT THE INTENTION TO USE MOBILE BANKING IN SHARIA BANKS

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Abstract
The background of this research is the mobile baking service, which is slowly being considered as a service that must be provided bybanks to their customers. Thus, Sharia banks also adopt mobile banking services as a strategy to gain a competitive advantage. Service features, security, and convenienceare analyzed to determine direct and indirect effects on the intention to use BSI Mobile (a mobile banking service from the largest Sharia bank in Indonesia). This research uses a type of quantitative research with primary data obtained from questionnaires or online surveysvia Google Forms. The number of samples in this study was 100 respondents, namely BSI Mobile users.The data analysis technique used is SPSS 26 which includes the validity test, the reliability test, the multiple linear regression tests, the determinant coefficients test, the F-test, and finally the T-test. The results show that service features and perceived ease of use have a positive and significant effect on the intention to use BSI Mobile. However, security doesn't have a significant effect on the intention to useBSI Mobile. This study aims to help Sharia banks develop their mobile banking services, so they have a higher chance in competingwithconventional banks.
Keywords: BSI Mobile, Mobile Banking, Sharia Bank

THE INFLUENCE OF THE BASIS OF THE CONTRACT IN LEASING TRANSACTIONS ON BUSINESS SUSTAINABILITY

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Abstract
Lease transactions have become one of the methods commonly used in various types of businesses**.** The basis of the contract used in this transaction plays an important role in determining long-term business sustainability. This study aims to examine the effect of the contractual basis in leasing transactions on business sustainability. This study uses a quantitative analysis method involving respondents consisting of business owners, entrepreneurs, and business people involved in leasing transactions. The results of the study show that the basis of the contract used in leasing transactions has a significant influence on business continuity. Contracts that are based on the principles of fairness, honesty and equality tend to provide long-term benefits for the business. In transactions carried out with a strong contractual foundation, the level of customer satisfaction increases, the trust between the parties involved is strengthened, and the business can survive and thrive. This research contributes to the understanding of the importance of the basis of the contract in leasing transactions and its impact on business sustainability. The results of this study can be used as a guide for business owners and entrepreneurs in choosing and applying the right contractual basis in their leasing transactions.
Keywords: Contract, lease, business.

THE POSITIVE IMPACT OF DIGITAL FINANCE ON ISLAMIC ECONOMIC GROWTH

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Abstract
This abstract discusses the impact of digital financial developments on the Islamic economy, with a focus on financial inclusion and operational efficiency. This research is based on a literature review from various sources such as books, magazines and related websites. The results show that digital finance has increased access to Islamic financial services, helping previously hard-to-reach communities. In addition, Islamic financial institutions can improve operational efficiency and develop Shariah-compliant products through digital platforms.
This research is important to understand the potential of digital finance to support inclusive and sustainable Islamic economic growth. These findings are relevant in the context of the global conference you are preparing to attend. Digital finance plays an important role in changing the landscape of the Islamic economy, creating new opportunities and promoting Shariah principles in the global financial world.
Keywords: Digital Finance, Islamic Economy, and Financial Inclusion

INFLUENCE OF INFLATIONARY TRENDS ON STOCK MARKET PERFORMANCE IN NIGERIA

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Abstract
Since stock market performance indicators in Nigeria have shown remarkable volatility over the years, this study aims to objectively investigate the correlation between inflation and stock market performance in the country over a 40-year time frame. In order to determine the nature of the relationship between inflation and indicators of stock market performance in Nigeria, we obtained variables on stock market capitalization, stock market all share index, turnover ratio, and total values of shares traded from the financial report of the central bank of Nigeria and regressed them using the augmented dickey and fuller test for stationarity, the johansen test, and the ordinary least squares estimation method. In addition, the empirical results showed that stock market capitalisation was positively significant and correlated with inflation negatively across the study period. Since inflation has a direct negative impact on the standing of stock market all share index in the country during the period of this investigation, the study concluded that the government should formulate and implement economically friendly policies that would facilitate and improve the performance of the stock market during that time.
Keywords: All Share Index, Stock Market Capitalization, Turnover Ratio, Total Values of Share Traded, Inflation Rate.

Introduction
Inflation is defined as an increase in the overall cost of goods and services in the economy. Inflation is defined as an increase in the general average level of prices rather than an increase in any particular product. The consumer price index (CPI), which tracks changes in the average prices of consumer goods and services, is the most generally reported indicator of inflation. According to Sloman and Kevin (2007), inflation can be either demand pull or cost push. Demand pull inflation is induced by sustained increases in aggregate demand, which causes enterprises to respond by raising prices and, in certain cases, increasing output. Cost push inflation is characterized by a consistent increase in business costs. Firms respond by raising prices, passing on the costs to the consumer, and reducing production in part. According to Hendry (2016), inflation is the result of multiple surplus wants and supplies in the economy.

Inflation gradually diminishes the purchasing power of money, resulting in a loss of money's real value. As inflation rises over time, the value of money falls and returns fall as well (Ahmad and Naseem, 2018). Higher inflation uncertainty raises the needed risk premium, which raises the discount rate and lowers the discounted present value of expected future cash flows, causing stock prices to fall. Furthermore, inflation concern has a detrimental impact on economic activity, and because stock returns lead economic activity, there is a negative relationship between stock returns and inflation uncertainty (Azar, 2014). Inflationary pressures reduce the purchasing power of an economy's currency (Mugambi and Okech, 2016). Low and steady inflation rates, on the other hand, help the private sector to plan for the future, reducing the need for costly price adjustments, preventing tax distortion, and creating a stable economic environment (Alimi, 2014).

Although, Stock market return is the yield an investor obtains over a specified period. It is sometimes considered synonymous to stock prices. A strong market can be seen as one that incorporates new information on stock prices and hence making the stock prices for the firms stable and accurately valued (Mwangi and Mwiti, 2015). Stock market returns have predictive power for investment and output because stock market returns are a forward-looking variable that incorporates expectations about future cash flows and discount rates. Stock market returns serve as an index to investors or governments in making their investment decisions. Investors of different financial capacity are able to invest in the stock market as long as they are able to get a return that is higher than their cost of capital (Wang, 2012).

However, the relationship between inflation and stock returns, on the other hand, has garnered considerable attention in the extant literature. As such, the relationship between stock prices and inflation is based on Fisher (1930), who asserts that equity stocks, which reflect claims on a company's real assets, can be used as a hedge against inflation. When predicted inflation is high, investors will sell financial assets to buy real assets (Ioannides, Katrakilidis, and Andreas, 2005). Furthermore, according to the efficient market hypothesis (EMH), stock markets gradually integrate into the global market, and prices respond to global information such as inflation and other macroeconomic indicators. According to Mahedi (2013), based on market efficiency, inflation effects stock indices, where higher-than-expected inflation, which is economically bad news, implies a major impact on stock returns.

Furthermore, the understanding of stock market performance and inflation is imperative for investors because stocks are expected to provide protection from the effects of inflation (Mbulawa, 2015). However, a number of researches conducted to examine the effect of inflation on stock returns in both developed and developing economies around the world have provide mixed findings on the connection between inflation and stock market returns. For instance, Fama and Schwert (2017) found a negative relationship between the performance of the stock market and inflation. Some significant studies from Pearce and Roley (2015) and Hardouvelis (2018). It is on the basis of this mixed result, the study seeks to examine the influence of inflationary trends on stock market performance in Nigeria.

Study Aims and Objectives

The underling aim of this study is to examine the influence of inflationary trend on stock market performance in Nigeria. The specific objectives of the study are established to:

- Analyze the influence of Inflationary Trend on Stock Market Liquidity.
- Determine the influence of inflation on Turnover Ratio of the Nigerian Stock Market

Literature Review

Inflationary Trend in Nigeria

An advantageous effect of inflation to stocks is commonly believed. The reason is that the returns to shareholders are increased due to inflation since product prices increase faster than interest (Udoka, 2013). Hardin, Jiang and Wu (2012) stated that if investors are unsuccessful in adjusting nominal growth rates with nominal discount rates, stock prices will be undervalued (overvalued) when inflation is comparatively high (low). The relation of inflation to stock price is still unclear which makes studying the performance of these two variables vital for researchers (Saleem, 2013).

Inflation has been a concern of every ups and down of the economy. Granville (2013), had studies of the good effect of inflation on growth in the short-run.

A study showed that increasing money supply raised the output level of the firms in a short period of time creating demand shocks. An unforeseen inflation provided an increase in the growth rate while a decrease in inflation rate resulted in a declined growth rate. However, this view is applicable only in the short-run and does not consider its long-run effects. Modern economists believe that inflation rate negatively affects economic growth. It is because inflation brings out uncertainty as the study discussed due to lack of approximation techniques and less understanding of its variability. Thus, regulating inflation is a precondition for maximizing economic growth.

Kumari (2011) stated that today, because of the increasing growth and liberalization, the center of studies has been moved toward developing countries. There are two main channels in which inflation appears to affect stock prices. The first channel is the impact of inflation on the potential earnings of the firms. The other one is the way investors regulate their discount rate for future cash flows. A less stability was found in the prices of stocks and a higher investment uncertainty if there is an indication of inflation. The perception of this study is a negative relationship between inflation and stock prices since the latter are the reflection of future activity of the economy (Bhar, 2010).

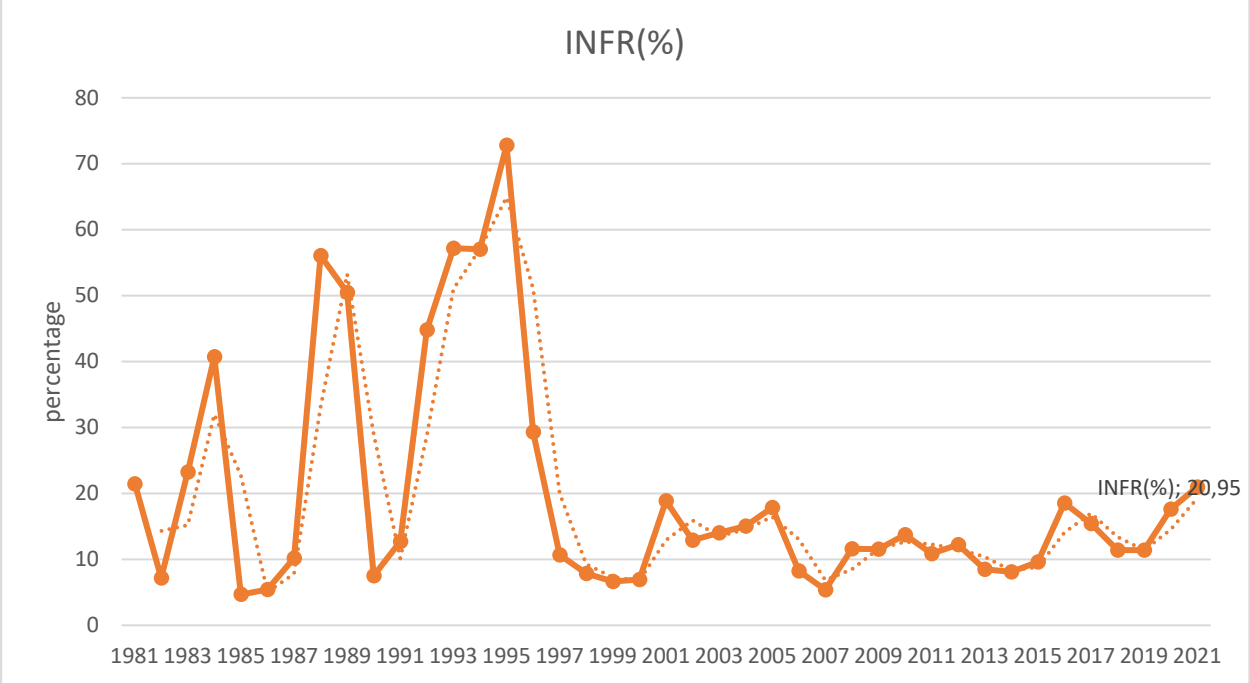


Fig 1: Inflationary Trend in Nigeria
Source: Authors Compilation 2023

The inflation situation in Nigeria is suggestive of a lack of control over core macroeconomic indicators, as evidenced by the distorted movement of the inflation graph during the last decade. Following the breakdown of monetary checkmating mechanisms, the inflationary trajectory in the country has been on a free rise and free fall approach, with average inflation of 8.48% in 2013, 2014, and 2015. Inflation in Nigeria reached an all-time high of 18.5 percent in 2016, before dropping to 15.4 percent the following year. Inflation fell sharply between 2018 and 2019, by an average of 11.4% annually, after having risen by as much as 17.59% in 2020 (the year of the global health crisis) and 20.95 in 2021. After the collapse of monetary policy, this situation has remained precarious (Alamba and Ejelonu, 2022).

Stock Price Growth

For years, a sustained growth in Gross Domestic Product signifies a strong and efficient nation. Later, a good stock market has been recognized as important for economic growth through investors and entrepreneurs being offered with interest. It is said that throughout the years, many researchers have been studying the relation of inflation to stock prices with equivalent effect to its returns (Kumari, 2011). Saleem et al. (2013) mentioned that a decline in nominal interest rates is caused by a decline in the expectations the consumers have in future inflation.

It provides higher profits even though prices are high since they are limited resources and a need for every country. Due to some other factors, the inflation may or may not affect the stock market return negatively or positively. Thus, studying inflation and stock prices is important to know how greatly or badly it plays its role in the economy (Saleem). Hardin, (2012) stated in their studies that investors are also interested in the relationship between inflation and stock prices.

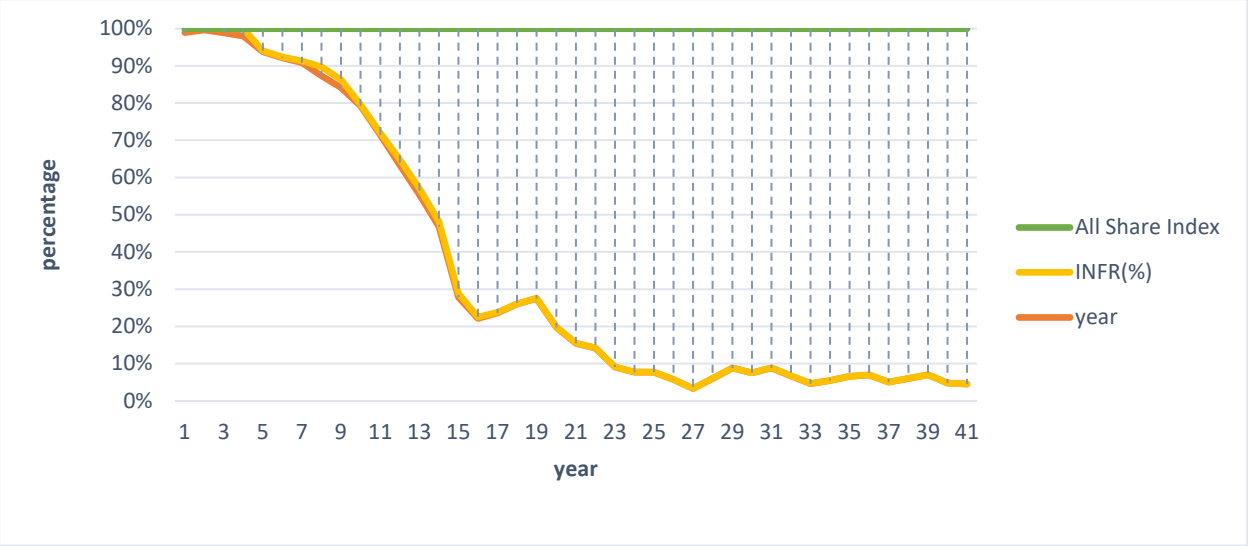


Fig 2: All Share Index and Inflationary Trend in Nigeria
Source: Authors Compilation 2023

A cursory look at the statistical relationship between inflationary trend in Nigeria and all share index for the same period, clearly shows that inflation exhibited a rather negative effect over the performance of stock market all share index for the period as illustratively demonstrated through the downward trend depicting the ugly relationship between inflation and the performance of stock market in Nigeria.

One hypothesis with regards to the negative relationship between inflation and stock price is about the damage brought by unexpected inflation to real economy which caused the stock price to fall when inflation rate fluctuates. Another hypothesis asserts that investors are becoming conscious in taking a risk when inflation rises. Investors want a higher stock returns and higher real discount rates. Thus, there is an understatement in stock prices when there is high inflation and overstatement when inflation is low. In addition, a negative relationship between inflation rate and the stock price was discovered from a test conducted in Pakistan (Saleem, 2013).

Inflation and Performance of Stock Market

The value and purchasing power of currency diminishes over time due to inflation. Inflation is a state in the economy of a country, when there is a persistent rise in aggregate level of price of goods as well as services. Repetitive price increase erodes the purchasing power of money and other financial assets with fixed values creating serious economic distortions and uncertainty. With increase in inflation, every sector of the economy is affected. Ranging from unemployment, interest rates, exchange rates, investment, stock markets. There is an aftermath of inflation in every sector. Inflation is bound to impact all sectors, either directly or indirectly. Inflation and stock market have a very close association. If there is inflation, stock markets are the worst affected (Jepkemei, 2017). Inflation within the entire domestic economy is estimated using GDP deflator while consumer prices are measured by the CPI.

Price stability is essential in determining whether an economy is stable or not. Inflation which is the constant increase in price creates uncertainty in the economy; Well inflation is known to wipe out the savings and investments of people. If Inflation goes out of control and increases too much, people will have to spend too much on the essential stuff, which means they will stop buying things which are not essential. This will make the economy stagnant as demand for various goods will drop (Ibrahim and Agbaje 2013, Choudhary 2015).

When there is threat of escalating inflation, the central bank tries to control this by raising interest rates. By increasing interest rate, they hope to attract investors to park their cash in fixed income instruments, there by siphoning off excess liquidity from the system. Theoretically, when there is less liquidity, there is less speculative demand for goods in the economy, hence slowing down the increase in general prices (Ong 2014).

An increase in the rate of inflation has an effect, including the level of unemployment, exchange rates, interest rates and the performance of stock markets in every economy. For this reason, central banks that aim to reduce inflation, being cautious of deflation, ensure the efficient running of monetary activities in the economy.

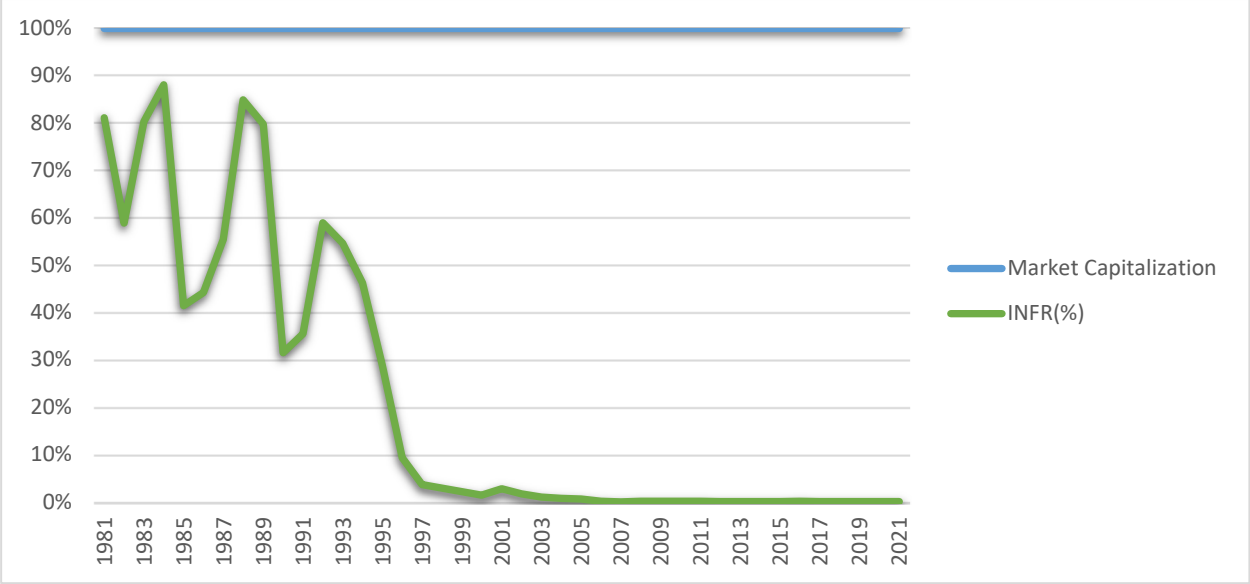


Fig 2: All Share Index and Inflationary Trend in Nigeria

Source: Authors Compilation 2023

In the wake of both (inflation and interest rates) being high, the creditor will have a tendency to compensate for the rise in interest rates. Therefore, the debtor has to avail of a loan at a higher rate. This plays a significant role in prohibiting funds from being invested in stock markets (Economy watch 2010). Rising inflation can cause the most damage in fixed income securities, because most likely going to lose the real terms if the agreed interest rate is less than the inflation per cent; it also encourages investors to lock in their cash from equities to more attractive, less risky securities, like money market funds. The stocks are one of the few assets that can rely on when it comes to beating inflation; the other asset that can consider is real estate which tracks inflation through value appreciation. However, this is not as liquid as stocks.

The lower the funds flow into the market, the lower the demand for stocks, hence lower share prices, the price of stocks are directly proportional to the performance of the company. In the event when inflation increases, the company earnings (worth) will also subside. This will adversely affect the stock prices and eventually the returns. If inflation continues to increase, the minimum return on stock investment will also be higher which will push market valuation lower. Share prices will fall until the estimated earnings yield increase to a point enough to offset the expected inflation (Ong, 2014).

Theoretical Framework

The study is anchored on inflation illusion hypothesis of Modigliani and Cohn (1970), which point's out, that the real effect of inflation is caused by money illusion (Omotor, 2011). The inflation illusion suggests that when expected inflation rises, bond yields duly increase, but because equity investors incorrectly discount real cash flows using nominal rates, the increase in nominal yields leads to equity underpricing and vice versa (Owolabi and Adegbite, 2013). Accordingly, the Modigliani-Cohn (1970) hypothesis suggests that disinflation may itself generate mispricing by confusing stock market investors who are subject to inflation illusion. It also implies that a successful stabilization of inflation will reduce the volatility of mispricing and thereby contribute to the efficiency of the stock market (Campbell and Vuolteenaho, 2004).

The inflation illusion hypothesis also claims that stock market investors suffer from money illusion is a particularly intriguing and controversial proposition, as the stakes in the stock market are obviously very high. Thus, when inflation is high (low), the rational equity-premium expectation is higher (lower) than the market's subjective expectation, and the stock market is undervalued (overvalued) (Cohen *et al*., 2005). Under the inflation hypothesis, an overly strong (weak) nominal discounting of future real cash flows in times of higher (lower) inflation expectations depresses (raises) current stock and prices and thus leads to an undervaluation (overvaluation) of equity markets (Schmeling and Schrimpf, 2008). The Inflation illusion theory generally makes identical predictions about the forecasting power of inflation for asset returns in the stock market. **Empirical Literature Review**

Several empirical studies have attempted to associate changes in the performance of stock market indicators with changes on the inflationary trend in the country. Inflationary trend has been seen as the predator to the performance of stock market in the globe. Some of this studies are reviewed **here in:**

Reddy (2012) explored the impact of real gross domestic product, interest rate and inflation rate on stock prices of quoted companies from 1997 – 2009. Using regression analysis the study established that real gross domestic product, interest rate and inflation rate accounted for 95.6% of the variation in stock prices.

The study also revealed that a reduction in interest and inflation rate resulted in increased stock prices, increased real gross domestic product had a positive impact. The study recommended that the government should therefore implement policies that will reduce inflation rate and improve the standard of living of its citizens and interest rate should be made moderate to encourage investment and transactions in stock.

Kuwornu (2012) explored the effect of macroeconomic variables on the Ghanaian stock market returns using monthly data over the period January 1992 to December 2008. The study employed the Johansen Multivariate Co-integration Procedure. The empirical results reveal that there is co-integration between the inflation, crude oil price, exchange rate and 91-day Treasury bill rate and stock returns in Ghana indicating long run equilibrium relationship. Further, the results revealed that; in the short run, Treasury Bill Rate and inflation rate significantly influences the stock returns. In addition, the study found out that in the end the stock returns are significantly influenced by inflation rate, crude oil prices, exchange rate, and the Treasury bill rate. Floros (2004) examined the relationship between stock returns and inflation in Greece, The study focused on various econometric techniques to test the relationship, using monthly values of the Athens Stock Exchange Price index and the Greek Consumer Price index over the period 1988-2002. The results from a simple OLS model revealed a positive, but not significant relationship, however, using a system of equations including lagged values of inflation the study found a negative but not significant effect of lagged inflation to stock returns. In addition, using the Johansen co-integration test, the study found that there is no long-run relationship between stock returns and inflation in Greece and that the inflation rate is not correlated with stock returns.

Mugambi and Okech (2016) explored the impact of macroeconomic variables on stock returns of listed banks in the Nairobi Securities Exchange. The study employed secondary from the Central Bank of Kenya for a period from 2000 to 2015. The study used correlation analysis, Unit Root test and the linear regression model to establish the relationship. The study findings revealed that interest rate, exchange rate and inflation have significant impact on bank stock return, while GDP had an insignificant impact on bank stock returns. The study recommended that the government should ensure a stable macroeconomic environment and moderate its monetary policy interventions.

Kirui, Wawire and Onono (2014) evaluated the relationship between gross domestic product, Treasury bill rate, exchange rate, inflation and stock market return in the Nairobi Securities Exchange. The study used the Engle-Granger two-step method was used to establish the Co integrating relationship between stock returns and the macroeconomic variables and Threshold Generalized Autoregressive Conditional Heteroscedasticity model to capture the leverage effects and volatility persistence at the NSE. The study findings revealed that gross domestic product, inflation and the Treasury bill rate had insignificant relationships while exchange rate showed a significant relationship with stock returns.

Research Design

An *ex-post-facto* research design will be adopted for this study. The ex-post-facto (or casual comparative) research design attempts to explore causes that affect relationship where causes already exist and looks backwards to explain why. Ex-post facto research design involves ascertaining the impact of past factor(s) on the present happenings or event. The ex-post-facto research design is a quasi-experimental study examining how independent variables, present prior to the study, affect dependent variables.

The ex-post facto research design is considered most appropriate for this study because it is not possible to directly manipulate or control any of the independent variables. This is because the events have already taken place and therefore the research is been conducted after-the-fact.

Model

The first equation of our model introduces the explicative factors of Inflation Rate.

$INF_t = \beta_0 + \beta_1 MCAP_t + \beta_2 TVS t + \beta_3 ASI_t + \beta_4 TOR_t + u_{1t}$ (1)

Where

$t=1,....,T$ stands for time,

INF = Inflation Rate

- MCAP = Market Capitalization Ratio
- TVS = Total Value of Shares Traded Ratio
- ASI = Percentage Change in All Share Index
- TOR = Turnover Ratio

βo = Intercept.

$\beta_1, \beta_2, \beta_3, \beta_4$= Parameters.

μ_t = Error disturbance term.

A - priori expectations of variables

β_1 MCAP > 0 (Negative) β_2 TVS < 0 (Negative)+ β_3 ASI < 0 (Negative) + β_4 TOR < 0(Negative).

Summary of Augmented Dickey Fuller Test

Variables	ADF STAT	CRITICAL VALUES @5%		PROB*	ORDER OF INTEGRATION
INFL	-4.016406	1% level 5% level 10% level	-4.226815 -3.536601 -3.200320	0.0167	**1(0)**
TVS	-3.733427	1% level 5% level 10% level	-4.219126 -3.533083 -3.198312	0.0320	**1(0)**
ASI	-6.318186	1% level 5% level 10% level	-3.626784 -2.945842 -2.611531	0.0000	**1(1)**
TOR	-3.727376	1% level 5% level 10% level	-3.621023 -2.943427 -2.610263	0.0076	**1(1)**
MCAP	-5.624882	1% level 5% level 10% level	-4.252879 -3.548490 -3.207094	0.0003	**1(1)**

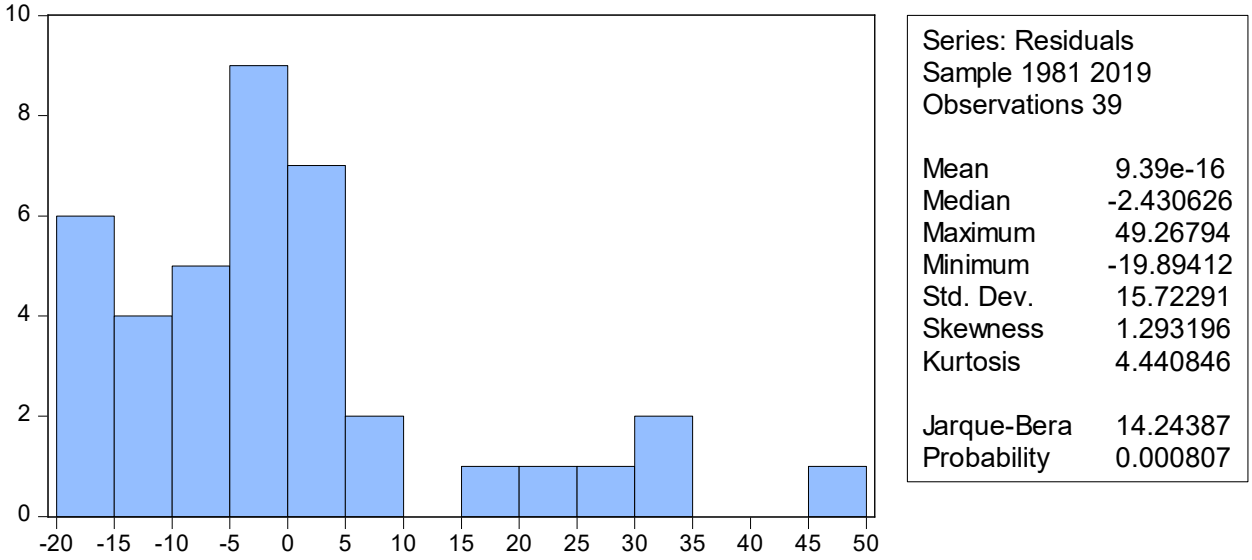
Stationarity of the variables is of great concern to the researcher, hence the need to carry out augmented dickey and fuller test for stationarity on the variables, whose outcome provides that, the statistical properties of inflationary level(INFL) and total value of shares traded (TVS) were stationary at levels, given their respective probability values of 0.0167 % and 0.03%. while the statistical properties for all share index (ASI), turnover ratio (TOR) and market capitalization for period were stationary at first difference, as their individual probabilities and trace statistics values were less than 0.05%.

Long Run Relationship (Cointegration Criterion)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.697460	80.33681	47.85613	0.0000
At most 1 *	0.466001	36.10178	29.79707	0.0082

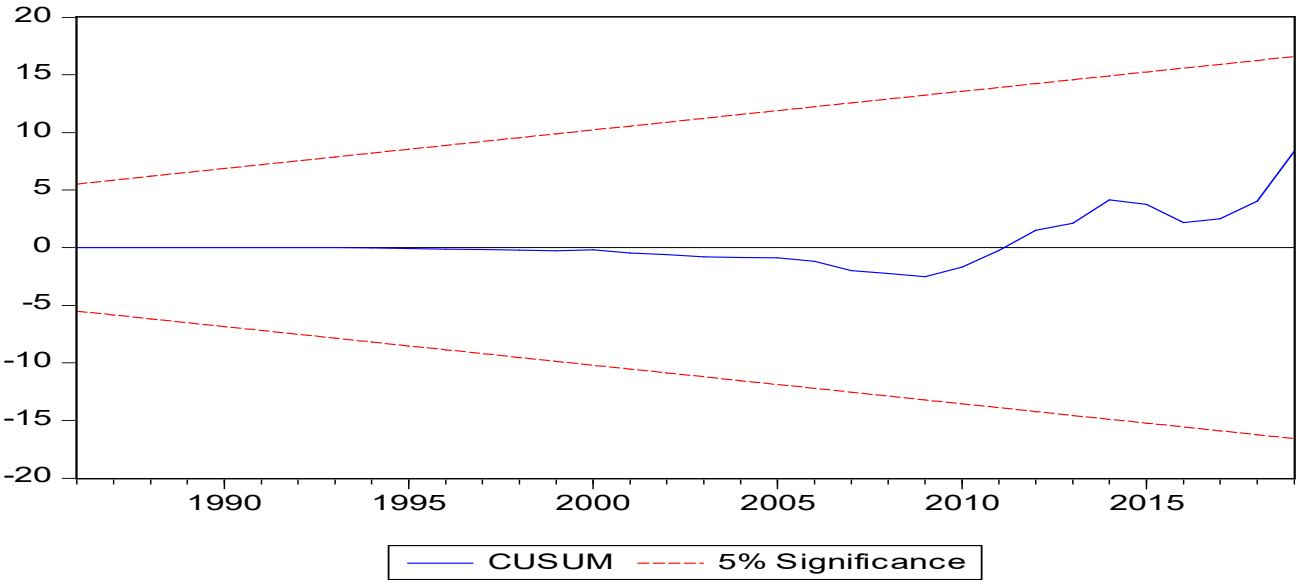
Test for long run relationship shows that the series in the model for the period of this investigation has an inherent long run association ship, judging from the probability values of 0.0% and 0.008% being less than 0.05% for the same period.

Test of Normality



The result of normality test proves that the jarque- bera statistic is 34.67% while the probability of 0.00%, which less than 0.05% implying otherwise that the error terms in the model are not normally distributed.

Model Stability



The outcome of recursive cusum test above indicates that the model is stable, given the trend line remaining within the boundary line for the period (1981-2021) of this study.

Ordinary Least Square.

Dependent Variable: INF				
Method: Least Squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	25.80370	3.964026	6.509468	0.0000
ASI(-1)	-0.000462	0.000402	-1.148621	0.2590
MCAP(-1)	0.000423	0.001107	0.382115	0.7048
TOR(-1)	-0.000926	0.002819	-0.328549	0.7446
TVS	-1.74E-06	1.07E-05	-0.163211	0.8713
ECM(-1)	-0.020821	0.005848	-3.560681	0.0016

R-squared 0.160326 Adjusted R-squared 0.058547 F-statistic 1.575237 Prob(F-statistic) 0.203973

Error Correction Estimate(ECM): Error correction coefficient in the model reflected a negative and significant sign, which proves that, it take's 20.81% for any long run relationship to be corrected back to short annually. **Coefficient of Determination (R^2):** The coefficient of determination (R^2) measures the proportion of the variation in IND which is explained by ASI, MCAP, TOR and TVS. The coefficient of determination measures the goodness of fit of the estimated model. The result of the estimations reveals that R^2 is **160326**.

This implies that approximately 16.03% of the total variations in the dependent variable INF is explained by the independent variables ASI, MCAP, TOR and TVS This implies that the model is a good measure of fit. **F-statistics:** The values of F-statistics is **1.575237** with the probability values of **0.203973%**, meaning that the variables in the model are not jointly statistically significant (Ejelonu and Okafor, 2022).

Inflationary trend was used as the predator in the model for the study period, with its empirical indications on stock market all share index depicting a negative insignificant relationship for the period. This implies that inflationary trend, especially rising inflation exerted a negative effect on stock market all share index in Nigeria for the study duration, which statistically translates that, increasing the coefficient of inflation in Nigeria during this situation by one percent would transform the performance of stock market all share index in Nigeria into a downward decline of 46.2%. This outcome therefore justifies the harsh economic impact rising inflationary trend has on stock market all share index in the country for the study scope, which further buttresses the economic assertions of Floros (2004) who examined the relationship between stock returns and inflation in Greece, The study focused on various econometric techniques to test the relationship, using monthly values of the Athens Stock Exchange Price index and the Greek Consumer Price index over the period 1988-2002. He found in consonance that, there is no long-run relationship between stock returns and inflation in Greece and that the inflation rate is not correlated with stock returns.

Furthermore, stock market capitalization rate for the study period indicated a positive influence over inflationary trend, implying that negative changes on inflation does not significantly deter the performance of stock market capitalization tendencies in the country for the study period. However, in the face of ascending inflationary trend in the country, stock market capitalization tendencies is expected to having an additive impact over this period. Although this result is not economically justified on the basis of apriori expectations but still very visible economically. This empirical findings, corresponds with the findings obtained by Reddy (2012) who explored the impact of real gross domestic product, interest rate and inflation rate on stock prices of quoted companies from 1997 – 2009 and revealed that a reduction in interest and inflation rate resulted in increased stock prices, increased real gross domestic product had a positive impact.

Also, hike in inflation shows a negative influence over total market turnover for the study duration, implying that increasing market turnover will adequately be met with the negative influence of inflationary trend in Nigeria. On the statistical notice, increasing the values of inflation by one percent would translate to a 92.6% decline in market turnover rate. We can also see that inflation has a negative influence over the total value of stock traded in the Nigeria stock exchange rate for the study period. This indices provides us a negative nexus between inflationary rise and stock market performance. When inflation rises, stock market indicator of total value of stock traded is expected to proportionately compensate the rise with an equal decline for the study duration.

Conclusion

Empirical research into the relationship between inflation and stock market performance in Nigeria has been extensive. Indicators of stock market performance were used as dependent variables in the regression line, while inflation rate was added to the model as an independent variable to measure the extent to which inflation affects stock market performance. The statistics characteristics were taken from the Nigerian Central Bank's annual financial report.

The variables were regressed using econometric methods, and the results showed that stock market capitalisation was significantly positively associated to inflation across the study period and that the all-share index was adversely related to inflation. Since inflation is known to have a direct negative effect on the standing of stock market all share index in the country during the time period of this investigation, the study further recommended that; government formulate and implement economic friendly policies that would facilitate and improve the performance of stock market all share index.

Recommendations

The following recommendation were reached based on the findings obtained for the period of this study.

i. The government is therefore advised to formulate and implement economic friendly policies that would facilitate and improve the performance of stock market all share index for the period of this investigation, hence inflation has a direct negative impact on the standing of stock market all share index in the country for the period of this investigation
ii. The statistical properties for stock market capitalization ability for the period of this investigation reflected a positive but insignificant positio0n in Nigeria during the period of inflation, it is therefore advised that government through monetary authorities in the country, especially the central bank of Nigeria should checkmate the activities of inflationary trend level in the country to avoid hyper inflationary trend that affects the performance of stock markets in the nation.
iii. Turnover ratio for the stock market is likewise seen to have a negative position in Nigeria in an event of increased or positive inflationary trend in the country. The central bank of Nigeria must take appropriate steps to curtail the tales of consistent increases in prices of goods and services in the economy that affects the performance of the stock market negatively

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MONETARY AND FISCAL POLICIES' EFFECTS ON AGGREGATE DEMAND IN NIGERIA: A SIMULATION APPROACH

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Abstract
The study examined monetary and fiscal policies' effects on aggregate demand in Nigeria using time series annual data from 1986-2017. The study used secondary data obtained from the Central Bank of Nigerian (CBN) Annual Statistical Bulletin, National Bureau of Statistics NBS), and World Bank Financial Report. The study constructs simple structural macroeconomic models made up of three blocks: consumption, investment, and export-import sector that contain 21 variables. The variables are linked to one another through 8 behavioural equations and 4 identities. The models were estimated and analyzed using Two Stage Least Square methods and a simulation experiment was also conducted on the simple structural macroeconomics models. The study finds that broad money supply, interest rate, government expenditure, taxation and public debt have significant influence on aggregated demand in Nigeria during the period under investigation. The baseline simulation demonstrates good tracking power of the actual from the baseline simulation as the nature of the oscillation suggested. The study, therefore, recommends that the government should encourage expansionary monetary and fiscal policies by lowering interest rate in order to encourage investors to borrow for investment, increase money supply in the economy, increase government expenditure channeled to infrastructure and other productive sectors of the economy such as agriculture and manufacturing; reduction in both direct and indirect taxes as it improve the purchasing power of the people which stimulate aggregate demand and growth. The government should encourage proper interaction between monetary and fiscal authorities for effective implementation through committee that will comprise of both members.
Keywords: Monetary Policy, Fiscal Policy, Aggregate Demand, Simulation

DEMİR-ÇELİK ENDÜSTRİSİNDE ATIKLARIN VE KALINTILARIN GERİ DÖNÜŞÜMÜ VE ENTEGRASYONU

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ÖZET
Demir-çelik üretimine ilişkin olarak birkaç on yıl önce "atık" olarak tanımlanan pek çok türde malzeme günümüzde "kalıntı", hatta "yan ürün" olarak düşünülmektedir. Bu değişim, ilgili üretim kısmı tarafından ortaya çıkarılan katı, sıvı ve gaz malzemelerin üretim hattının uygun kısımlarına eklenmesinde artışın ve daha yüksek bir oranda kalıntının yukarıda sözü edilen emisyonlardan geri kazanılabilmesine yol açan teknolojik olanaklardaki gelişimin bir sonucudur. Bu kısa derleme, demir-çelik üretimi birimlerinin her birinden gelen kalıntıların, yararlı malzemelerin geri kazanımına yol açacak şekilde, geri dönüştürülebilmesine olanak veren yeni tekniklere ilişkin bilgi içermektedir. Yazı, hem entegre demir-çelik tesislerinin hem de Elektrik Ark Fırını'na sahip küçük tesislerin bir kalıntısı olan tufal üzerine yoğunlaşmakta ve tufalin çeşitli oranlarda demir cevheri konsantresiyle karışımının yüksek fırınlarda kullanılabilirliğini tartışmaktadır.
Anahtar Kelimeler: Demir-çelik üretimi, Kalıntı, Tufal, Yüksek fırın, Elektrik Ark Fırını.

RECYCLING AND INTEGRATION OF WASTES AND RESIDUES IN IRON-STEEL INDUSTRY

ABSTRACT
Related to the production of iron and steel, several types of materials that were used to be defined as "waste" a few decades ago are considered "residue" or even "by-product" nowadays. This change is a result of the enhancement in the integration of solid, liquid and gaseous materials that are produced by the related facilities into the convenient parts of the flow line, and the improving technological opportunities that cause a higher ratio of residues to be re-gainable from the above-mentioned emissions. This brief review tells about the recent techniques that enable the residues to be recycled from each one of the iron-steel production facilities, leading to the re-gaining of useful materials. It specially focuses on mill scale, which is a residue of both integrated iron-steel plants and small plants with an Electric Arc Furnace, discussing its usability in a blast furnace after mixing it with iron ore concentrate in selected ratios.
Keywords: Iron and steel production, Residue, Mill scale, Blast furnace, Elektrik Arc Furnace.

URBAN GOVERNANCE AND DRINKING WATER MANAGEMENT IN TUNISIA

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Abstract
Water is an essential resource for the economic development of any community. It plays a fundamental role in the survival, food security, health and dignity of human beings (UNESCO, 2021). Since the middle of the 20th century, the demand for this vital resource has increased considerably, under the pressure of several factors: The strong demographic growth, the increasing use of water in several sectors such as tourism, agriculture and industry, the massive urbanization, and the progression of the standard of living. Warming due to climate and environmental change induced by human activities increase the risk of shortage. An unprecedented phenomenon that has drawn attention not only to the fact that water in certain circumstances is limited but also that it is to be considered as an exhaustible rather than renewable resource (Pontoni, 2014). In the Mediterranean, water stress, combined with a degradation of water quality is clearly observed. Water is becoming a major strategic issue. The inequity in the distribution of the resource contributes to the establishment of competition between uses and users of water. This scarcity of resources, aggravated by the inequality of their distribution between North/South and West/East, is now at the center of development and water resource management policies. Tunisia, an emerging country, located in the south of the Mediterranean basin, subject to a semi-arid climate in the north and center and arid in the south, is very poor in surface water. Today, the country, which mobilized almost all its resources in 2009 (Ministry of Agriculture, Hydraulic Resources and Fisheries, 2020) to meet its growing needs, is at risk of a water shortage that will be amplified by population growth, accelerated urbanization and poor planning of the distribution of the resource between the various economic sectors (agriculture, domestic needs, tourism and industry). In this context of scarcity, which is becoming increasingly acute due to the drought effects resulting from global warming, there is significant water wastage, reflecting a lack of awareness on the part of the essentially urban population, combined with poor governance. The continuous and individual connection to the national network of users facilitates the use of drinking water in daily life. In contrast, a large part of the rural population suffers from the lack of supply networks; the water often has to be transported with great effort miles from their homes. In this work, our interest will be focused on the study of a better governance to ensure the sustainability of the resource and guarantee accessibility, equity, and efficiency in the case of Tunisia. The results of our analyses based on a panel database on drinking water indicate the need to review urban development policy, improve basic infrastructure and governance.
Keywords: Drinking water, ecological transition, urbanization, social equity, sustainable governance, panel Data.

2100 MUNICIPAL SOLID WASTE PROJECTIONS OF OECD COUNTRIES

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Abstract
2100 projections of municipal solid waste are obtained by forecasting with wavelet analysis historical time series gathered by OECD from 35 countries excluding Australia, Canada and Costa Rica for lack of data. The annual growth rate of 2021-2100 projections of the amount of municipal solid waste is computed for each country to rank the 35 countries from highest growth of the amount of municipal solid waste to lowest growth. With the highest annual growth rate of +2.63%, Belgium will have the most difficulty controlling the generation of municipal solid waste, followed by Austria, the Slovak Republic, the Czech Republic and Colombia. With the lowest annual growth rate of -1.31%, Japan will be best able to control municipal solid waste generation, followed by Sweden, Denmark, Switzerland and the UK. In addition, the authors develop a ratio of municipal solid waste to GDP, assuming that producing more of goods and services, measured with GDP, means producing more municipal solid waste. Based on this ratio, Turkey was the least efficient manager in municipal solid waste in 2020, followed by Colombia, Mexico, Chile and Greece. Norway was the most efficient manager in municipal solid waste in 2020 with the lowest ratio, followed by Luxembourg, Ireland, Switzerland and Sweden.
Keywords: Municipal Solid Waste; OECD, forecasts; wavelet analysis; Burg model.

THE INFLUENCE OF THE EUROPEAN UNION'S ENVIRONMENTAL POLICY ON OUR EVERYDAY LIVES

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ABSTRACT
The purpose of this paper is to present the European Union's environmental policy, with what it means and with its history, in order to see, afterwards, how these laws have changed our everyday lives and mindset. We are constantly encountering campaigns which promote environmental care, by raising awareness about the negative effects of the way we use various machines and their degree of pollution. We know about noise pollution, as well as about the pollution caused by various industries and even by our own, personal cars, if they are not electric or using fuel that has less impact on the environment. We have also heard about the negative effects of pollution on our health, to the point we can get serious diseases that can affect our bodies. We could say that in this latter case, the environmental policy and the health policy promoted by the EU are in direct connection. The way we recycle and manage waste, the way we are advised to use public transport instead of personal cars, as well as alternative means of transport such as electric scooters, bikes, and electric bikes which have become part of the urban life setting, are direct consequences of the EU's environmental policy. In Bucharest, Romanian, events such as pedestrian streets also promote walking and using electric vehicles instead of cars, and also recently created parks encourage a green type of lifestyle. There are also alternative lifestyles around the world based on environmental care, such as zero waste and sustainable lifestyles.
Keywords: alternative lifestyle, electric vehicles, pollution, recycling, zero waste, sustainable lifestyle.

INTRODUCTION
Values in our contemporary world are definitely controlled from a higher, political level. We may or may not be aware of this. Young people, such as teenagers and young adults, who are still students, may believe that this is the way they are supposed to behave, with great consideration and care towards nature, and towards protecting it, by taking measures such as recycling correctly, not using vehicles that pollute a lot, sometimes taking the public transport instead of their personal car, and, at other times, taking their electric scooter, bike, or electric bike to school or for a walk during the weekend in the park. Many parks in Bucharest, Romania, where the author of the present paper lives, include renting sport for bicycles, and the city also has spors to rent electric scooters, where they charge and also allows taking them from where they have been left in the street. Parks also offer small cars to rent, attached bicycles for couples, for the entire family or for large groups of friends, and which are available for rent. Waste baskets grouped on materials that will be recycled, such as plastic, paper, metals, glass, batteries, are present in schools, universities, in the streets, in parks, in blocks of flats, and recently they have replaced the usual waste baskets everywhere in the city. They are all readily available when we need them, and we no longer need to take all the trouble to look for them and walk long distances to find them. Therefore, environmental care may become a usual part of everyone's everyday lives during the present-day times that we live in.

Students at university may have also been part of the generations that have been educated since lower school levels to volunteer to plant trees and to clean the waste in the school yard or in parks. They have been told about the issues our planet Earth is facing nowadays due to all the pollution coming from today's lifestyle's facilities, such as car fuel, industries' smoke and waste, rivers' and seas' being poluted with waste coming from factories, restaurants, etc. They are encouraged to use electric cars, and fuels for cars that do not pollute as much, or types of cars that, from a European Union standard, do not have such a negative impact on the environment.

The young generation may feel a strong, genuine connection with nature, and feel good during the time they spend during holidays and weekends in the parks, walking, on the scooters, bikes or reading in their hammocks. They may be well-aware of energy-saving means and alternative solutions to the old, pollution-causing means. As an example, they can use solar patterns and be aware of the concept of smart home.

At the same time, the living conditions nowadays have been made in such a way so as to save energy, since technological gadgets have been created in such a way so as to be environmental-friendly, with batteries that pollute less and with less emissions that are harmful to the environment. Light bulbs fabricated nowadays are made so as to consume less electrical energy, and thus to help save it, in order not to have to produce any more, which would be a process that can become harmful to the environment.

The young generation can become more sensitive to the environmental-friendly and preserving practices, and to honestly believe in them, seeing them as their natural surrounding reality, and as a fact of their everyday lives. They may not be aware of the ideological dimensions and of the rule-governed dimension of the laws and rules passed by the European Union at the level of the countries that are its members. What they believe is their lifestyle does not, in fact, come from a universal moral type of judgement which should be understood by every person. Yet, their personal beliefs resonate with those externally imposed rules, in this case, by the European Union.

Plenty of messages in brochures addressed to the population to raise their awareness to various environmentally-related issues can be seen as part of the consequences of the impact of the European Union's environmental policy. We do not only have materials for raising our awareness to the fact that the Earth depends on us to preserve it as a home, but also if it is maintained as a healthy home, then our bodies and our minds will be healthy as well. We have been told, through popular science articles, and through articles destined for women's magazines, as well as adolescents' magazines, that our bodies' health can itself be impacted by the environment we live in. If we have fresh and clean air, then we shall be in good health. If we live in cities where pollution is very high, then we have large chances of developing life-threatening diseases, such as cancers attacking various organs. Additionally, the same deadly illnesses can be provoked by industrial activities, just as they can be brought up by nuclear accidents. From this point of view, we could claim that the European Union's health and environmental policies can be seen as interconnected, and that we should take all these awareness-raising campaigns as warnings.

While the European Union has its own interests in having healthy citizens, in order to avoid large expenses for health issues, its policies have, eventually, beneficial effects on the citizens. As a result, the citizens' lives can become more qualitative and worthwhile. For the European Union, this would be beneficial both for the present and for the future. For the present, the citizens would be well both physically and psychologically, which would, in turn, mean that they would be able to work during their working perod and provide enough resources for the entire society, including retired citizens' and social expenses.

When making citizens resonate with the values of the European Union and its environmentalist policy, it ensures for the rules to be avoided to be imposed from the external sources only; the EU makes sure that, through promotional materials and popular culture products, these ideas and beliefs resonate with the citizens.

MATERIALS AND METHODS

Popular culture products such as books of fiction, articles, essays, films, music videos, are all permeated by the environmental care ideology. We can find science fictions stories in all mediums dealing with warnings regarding to the way human activity could harm for the generations that follow the Earth to the point where they may destroy so that life cannot be possible any more, or, at least, not in comfortable and healthy conditions. One such example is the films in the *Avatar* series, which started in 2009, directed by James Cameron, and had a strong impact worldwide, in particular due to this topic that it deals with. Research has also dealt with the need for a strong connection between humans and nature, which has been upset by the humans' relying on technology for destructive purposes (Adamson, 2012; Chandran & Shivan, 2019). One of the issues of the breaking of the connection between humans and nature is the loss of balance, as well spirituality on the part of the human beings in *Avatar* (Fritz, 2012; Taylor, 2013).

Ideology is a constant presence in our lives and, function of the times we live in, it dictates what values and mindset, as well as principles, we should live our personal lives according to. The way we apparently decide for ourselves to live is, in fact, dictated by ideology (van Deurzen, 2005).

Research by O'riordan (1981) claims that environmentalism can be understood as simultaneously "an attitude of mind," a "code of behavior," and "as an ideology." An ideology can resonate with and be accepted by certain groups or by a certain group since it "performs social functions for that group" (Harrison & Boyd, 2018). In the case of the young generation and, eventually, not only, environmentalism has more of a functional and necessity-based function, or even life and health-preserving function. It also has the function to ensure that, for the near and distant futures, we are going to have sufficient resources ensured for our survival, as far as the resources provided by nature are concerned, and as far as the basic survival resources such as healthy air and plants, healthy food that is grown in nature such as fruits and vegetables, as well as unpolluted water are concerned.

Paying attention to health is a side-effect of the environmentalist ideology. As a result, some young people choose to follow influencers advertising and giving tips for healthy alternative lifestyles based on different diets than the mainstream, omnivorous ones, such as vegan, vegetarian, raw vegan, pescatarian, flexitarian, and other varieties. These alternative lifestyles are based on using natural foods, meaning foods that are the least processed. The European Union supports for the member countries bio and natural products, which are also certified. With such products and with the coexistence of such alternative lifestyles which are tolerated by the side of the mainstream lifestyle, the EU manages to encourage, through the power of example coming from other members of society, that its citizens take care of their health and of the health of our planet which has been, after all, called our own home, which we should make efforts to keep healthy.

By allowing alternative lifestyles to coexist with mainstream lifestyle, the European Union and politics in general ensure a favourable climate which fits in with the expectations of citizens about a liberalist world, which should, ideally, be governed by the form called liberal democracy. People, nowadays, wish, in general, for the minimum of intervention in their private lives from the part of the state.

The older generations, at least in Romania, where the author of the present paper lives, in the majority, believe in and perceive the state as having the role to protect them as citizens and to provide for them, briefly, to ensure their well-being and to organize efficiently the resources for them all as members of the society.

Indeed, the environmentalist ideology it can be all of these, attitude and state of mind, code of rules to follow in our behaviour, and a political attitude, and, more recently, it can extend towards what is called an alternative lifestyle, consisting, in fact as more than one, such as zero waste lifestyle and sustainable lifestyle. As far as zero waste lifestyle is concerned, this way of life involves managing the waste we humans produce in an efficient way, through recycling or through avoiding having a negative impact on nature, on animals, "air, water, soil, plants", meaning without having a negative impact on the natural environment through smells and through noise pollution (Directive 2008/98/EC, qtd in Tran, 2019). To understand this lifestyle in a concise way, we could think of it as "Live way by throwing away less" (Korst, 2012), which means taking lots of care as to what products in various categories we consume and how they can be harmful or harmless to the environment, and how we can use recyclable and harmless products of which we can dispose in a harmess way. Such a lifestyle can pose some challenges regarding the degree of comfort which we can ensure for ourself, and to think well if we can live by working more and considering taking more time to know which products we can use, in comparison with other people who do not pay so much attention to these aspects. This zero waste lifestyle shows an extreme adoption of the values of environmental care, and, what is more, this is all done clearly out of personal convictions, and not since our choice of life is constrained by the rules and laws set forth by the European Union. Alternative lifestyles are a sign that people can agree with certain principles, values and beliefs, but they need to feel that they have a choice on them, and not simply be brainwashed by various ideologies, or simply be constrained by them.

Sustainable lifestyle is a similar one to zero waste lifestyle, in that it ensures, for example, "reducing gas emissions" (Munteanu et al, 2021). Individual actions matter, when it comes to environmental care, such alternative lifestyles seem to suggest (Barr & Gilg, 2006). We could, therefore, claim, that in today's world, an individual's example can feel more powerful and inspirational for the other individuals than externally-imposed rules, ideologies, and punishments. An individual can be understood as being completely honest in his/ her beliefs, which impressed the others the most, whereas politicians can be perceived as dishonest and as having larger interests, dictated by higher power sources that they serve.

RESULTS

Since people nowadays have a different psychological makeup than in the past, as they have been modelled by values such as individualism, wish for freedom, for personal choice, modelled, especially, by the influence of the American culture, we need to deal with allowing them to make their own choices, for their own benefit, and make them act for the collective interest out of their own free will. Once certain ideological values resonate with them and once they start believing in them and in their actual benefits, they will struggle to influence others as well that this is all for their own benefit.

People feel that ideologies that are imposed on them can be harmful and, what is more, that they can come out of the personal interests of the political elites. They hate to be used for the fulfillment of the interests of the elites and for their own personal benefits and well-being. They also hate to feel that they are constrained by various rules.

Once they are given enough resources for documentation and once they understand the risks of a certain course of action, and the benefits of another course of action, they will judge and make the choice that is not only beneficial for themselves, but also for the entire society. This is were popular culture and popular psychology come into play, with their informative materials.

DISCUSSION AND CONCLUSION

The present paper has examined various consequences that could be the result of the European Union's wish to raise awareness of the preserving of environmental health on the well-being of citizens. In order to make citizens take the necessary actions, it is necessary for them to understand the urgency of the issue and the severity of the consequences if they do not take any favourable action. The consequences will be at the level of the individual, of society, and also, eventually, at world level,affecting us all.

It is interesting to see how mainstream politics, ideologies, and lifestyles are losing their power to convince. At this point, individual, and personal, honest, examples become more efficient. Subcultures, or alternative lifestyles, are also more convincing, since, in these situations, the individuals have the power to choose, and they are not simply the victims of organizations that are even larger than they country's decisions, laws, and externally-imposed rules.

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ENVIRONMENTAL DEGRADATIONS: SOCIAL WORK INTERVENTIONS FOR WOMEN'S PARTICIPATION IN SUSTAINABLE RURAL DEVELOPMENT[1]

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ABSTRACT
The risks the world faces are largely the result of environmental degradation caused by human activities. Many forms of environmental degradation disproportionately affect disadvantaged communities that have no control over environmental resources. When it comes to environmental crises, gender can be a determining factor for vulnerability. In this context, being a woman in rural areas can lead to increased vulnerability. Environmental degradation such as land degradation, deforestation, water scarcity and pollution can increase rural women's risk of poverty and hunger due to their higher dependence on natural resources. At the same time, these women are the key actors and driving forces in realizing the economic, environmental, and social transformation, which is the basis of sustainable rural development. In this regard, women's important roles in environmental management require their full participation in rural development. Focusing on the importance of such participation, the study mainly aims to explain the impact of environmental degradation on rural women, the importance of the participation of these women in sustainable rural development from the perspective of empowerment approach, and the role of professional interventions of social work in ensuring such participation. As a result, this study argues that social work interventions can contribute to the empowerment of rural women and making them important actors in sustainable rural development. Therefore, the study is also important in the context of discussing the effects of environmental degradation on the lives of rural women and the importance of coping with these effects. In addition, it is valuable because it is the first initiative that emphasizes, from a social work perspective, the importance of empowering women to be the agents of change and transformation towards achieving sustainable rural development.
Keywords: Environmental degradation, rural women, sustainable rural development, sustainability.

Introduction
Environmental crises are one of the most important threats facing humanity and nature. Environmental risks take the first four places in the list of the ten most critical long-term risks to the world (WEF, 2023). These environmental risks are largely the result of environmental degradation caused by human activities.

[1] This study was compiled from a part of the first author's doctoral thesis study, which was carried out at Ankara University, Institute of Health Sciences, Department of Social Work, under the supervision of the second (advisor) author.

Environmental degradation is defined as ‘‘the deterioration in environmental quality from ambient concentrations of pollutants and other activities and processes such as improper land use and natural disasters’’ (UNEP, 2019 p. 693). The problems caused by environmental degradation are closely related to existing power dynamics that fuel all forms of injustice (Besthorn and McMillen, 2002). Therefore, environmental degradations are complex and multifaceted (Yeganeh, 2020). Depletion of natural resources, degradation of environmental aesthetics, poisoning of essential environmental resources such as air, water, and soil, and many other forms of environmental degradation disproportionately affect disadvantaged communities who have no control over environmental resources (Hawkins, 2010; Teixeira and Krings, 2015; Moxley, 2018; Bennett et al., 2023). Therefore, as Willet (2019, p. 133) states, the real victims of environmental degradation are also the victims of other injustices.

On the other hand, when it comes to environmental crises, gender is a determining factor for vulnerability. This is because environmental degradation such as climate change disproportionately affects rural women (Boetto and McKinnon, 2013; Meyiwa et al., 2014; Collantes et al., 2018; Nyahunda, 2021). In rural areas, women’s interactions with the environment are closely related to gender roles (such as cooking, elderly and child care, and agricultural activities) (Adak, 2010). Since rural women are more dependent on natural resources for their livelihood and survival than men, pollution and depletion of natural resources increase their risk of poverty and hunger (ILO, 2019).

The lives of rural women who experience environmental degradation may be related to demographic problems such as isolation, lack of resources, lack of access to services, and cultural and social conditions specific to the rural area (Boetto and McKinnon, 2013). These women, who are disproportionately affected by poverty and exclusion, lag behind rural men and urban women in almost all development indicators (UN, 2018). However, rural women are key actors in realizing the economic, environmental, and social transformation necessary for sustainable development (UN Women, 2023). Therefore, although rural women are the drivers of sustainable development (CEDAW, 2016), they are often excluded from decision-making processes on issues that directly affect their lives, such as environmental degradation and climate change (Nyahunda, 2021). Considering the contributions that these women can make to the well-being of their families and communities and to sustainable rural development, it is important that they participate in such a development process and are therefore empowered.

Unfortunately, current rural development strategies are far from sustainability. Especially in developing countries such as Turkey, rural development plans depend on the use of natural resources. Rural forest areas are being rapidly destroyed for economic development; olive groves and agricultural lands are opened to mining, energy, and tourism activities. Due to these economic activities, natural resources such as water, air, and soil are polluted, and biodiversity is endangered (Adıgüzel, 2023). Therefore, in order to achieve the Sustainable Development Goals (SDGs), existing rural development strategies need to be re-planned by considering sustainability. Rural women, who are affected by environmental degradation caused by current rural development plans, can make important contributions to sustainable rural development. However, for this to happen, their participation in decision-making processes must be ensured first. At this point, social workers, as part of an academic discipline and an applied profession that aims to empower and liberate people, can take an active role in this process.

Focusing on these roles, the current study aimed to explain the impact of environmental degradation on rural women, the importance of the participation of these women in sustainable rural development from the perspective of empowerment approach, and the role of professional interventions of social work in ensuring such participation.

How Does Environmental Degradation Affect Rural Women?

Yeganeh (2020) divides environmental degradation into two groups: pollution and deterioration. Both categories are divided into five categories: atmosphere, hydrosphere, lithosphere, biosphere, and food. These types of environmental degradation disproportionately affect disadvantaged individuals and communities. This includes rural communities (IEEP, 2022). Economic development in rural areas is among the main reasons why rural communities are exposed to the problems brought by environmental degradation. In terms of economic development and population growth in rural areas, many forms of environmental degradation lead to many problems such as loss of income and public health risks (An et al., 2020). In addition, the urban population obtains a large portion of its food and energy needs from rural areas and sends its waste back to rural areas (Kelly-Reif and Wing, 2016). Therefore, rural communities are more exposed to environmental degradation. Moreover, in developing countries such as Turkey, a large part of the forests in rural areas are allocated to mining, energy, tourism, and transportation areas. Especially with legal regulations allowing mineral exploration activities in olive groves, many olive groves have been destroyed. In addition to damaging the natural environment, these activities also cause rural communities to lose their livelihoods and be exposed to more pollution. Rural women are more affected by these negative changes occurring in their environment. A study conducted in Ethiopia (Sisay, 2017) explains this situation through the social and economic roles of rural women that require them to interact with environmental resources. Due to these roles, environmental degradation negatively affects the lives of rural women in many ways. Additionally, it is stated in that study that rural women affected by environmental degradation use their ecological knowledge to protect the natural environment, enhance agricultural production, and improve sustainable use of resources (Sisay, 2017). Land degradation, as a form of environmental degradation, also has unequal consequences for women and men. Rural women and girls are more affected by this form of environmental degradation, as agricultural activities are at the center of their livelihoods (Collantes et al., 2018). Therefore, solutions to the problems brought by environmental degradation in rural areas require consideration of its holistic dimensions at the intersection of gender inequality, poverty, and rurality (Meyiwa et al., 2014).

Ensuring Women's Participation in Sustainable Rural Development: An Empowerment Approach

Although there is no full consensus to define rural areas, areas where the environment is natural, the population is low, and the main economic activity is agriculture are generally accepted as rural areas (Tarım ve Orman Bakanlığı, 2021). Rurality refers to the rural environmental structure consisting of unique occupations, ecological and sociocultural elements (Daley, 2010). However, rurality is not limited to these. As Ruiz-Ballesteros et al. (2023, p.2) state, ''the rural world has its own conflicts, its inequalities and heterogeneities''. Rural development, in its most general definition, is the process of improving the economic and social welfare and quality of life of individuals living in rural areas (Tarım ve Orman Bakanlığı, 2021). The United Nations considers rural development essential to achieving sustainable development goals (UNDESA, 2021).

However, due to current rural development strategies that do not focus on environmental sustainability, natural resources are rapidly polluted and depleted. Therefore, significant changes are needed in rural development strategies.

It should be particularly noted that, given the primary responsibility of rural women in providing food, water, and fuel for the household (Meyiwa et al., 2014), it can be said that they have an important role in maintaining and improving rural livelihoods and strengthening rural communities (Ondiba and Matsui, 2021; CEDAW, 2016). Additionally, agriculture is the main source of income for rural areas, and women make up 41 percent of the world's agricultural workforce (ILO, 2019). According to the report of FAO (2011), closing the gender gap in agricultural inputs alone could save 100-150 million people from hunger. Furthermore, the responsibilities of rural women to find food, water, and fuel for their households require sustainable resource management. While carrying out these responsibilities, women develop their knowledge about nature and establish a bond with the natural environment (Aye, 2018; Ondiba and Matsui, 2021). In addition, considering that countries where women are more politically empowered have lower deforestation rates and are more willing to support environmental protection laws (Bijani et al., 2022), the empowerment of these women becomes more important.

Kabeer (1999, p. 435) defines women's empowerment as the ''process by which those who have been denied the ability to make strategic life choices acquire such ability''. Kabeer's definition of empowerment is based on three basic elements: resources, agency, and achievements. Resources include material resources as well as various human and social resources. Agency, on the other hand, is defined as the ability to determine one's goals and act in line with one's goals, rather than observable action. 'Agency' is generally associated with 'decision making' in social sciences (Kabeer, 1999). On the other hand, the success element in Kaaber's (1999) statement is generally measured through income, poverty, health, and education indicators. However, Quisumbing et al. (2023) state that although these measurements provide information about gender inequalities, they are not directly compatible with Kabeer's concept of empowerment. By the concept of success here, he means that individuals can achieve the goals they deem valuable. This definition of Kaaber (1999) has been used to express a change over time towards a person being able to make their own choices and focusing on their own strategic life choices (Quisumbing, 2023).

Social work, as an applied profession and an academic discipline that promotes people's empowerment and emancipation, can play an active role in empowering rural women. As Payne (2020, p. 379) states, the empowerment approach in social work aims to provide clients with the power to decide and act about their own lives by combating social and personal obstacles that prevent the use of existing powers. The empowerment process is a process in which people identify their own problems, become aware of the oppression and discrimination they are exposed to, and actively participate in the process of combating this oppression and discrimination (Teater, 2015). Therefore, in the economic empowerment of rural women, meeting the basic needs of families can make great contributions to ensuring gender equality and national welfare (Kuma and Godana, 2023). However, in order to empower women, existing gender inequalities within the home and communities must be considered first. As Bradshaw (2015) states, merely providing financial resources to women without focusing on gender inequalities may not make a difference in their lives.

Nyahunda (2021) has developed a five-step empowerment model, which social workers can implement to ensure greater participation of rural women in decision-making processes regarding climate change.

The stages of this model are (i) raising climate change awareness for social workers; (ii) awareness; empowerment campaigns and climate change education for rural women; (iii) policy lobbying, design, and implementation to address gender inequalities; (iv) women's promotion of good practices/roles; and (v) monitoring and evaluation. This empowerment model developed by Nyahunda (2021) can be applied to the participation of rural women affected by environmental degradation in sustainable rural development. First of all, studies can be developed to increase social workers' awareness of environmental degradation. Research and projects can be carried out on the effects of these environmental degradations on rural women and on coping with these negative effects. By sharing the results of studies carried out especially in rural areas, environmental degradation in rural areas, the disproportionate effects of these degradations, and gender inequalities can be focused on. Therefore, it is necessary to focus on local knowledge and determine intervention points based on such knowledge. Many studies conducted to empower women in rural areas focus only on providing economic resources to women. However, merely providing economic resources without focusing on gender inequalities may not create a permanent change in the lives of rural women. For this reason, it is important to identify the points of resistance that prevent women from participating in decision-making processes in rural areas. After these resistance points are determined, the practices of intervention at the individual, family, community, and society levels should be identified.

On the other hand, social workers can be involved in projects aimed at empowering women in rural areas by public institutions, non-governmental organizations (NGOs), or the private sector. They can take an active role in the execution and evaluation of these projects by benefiting from their professional knowledge and skills. For example, in Turkey, different trainings and projects are carried out for rural women by the Ministry of Agriculture and Forestry (Tarım ve Orman Bakanlığı, 2023). Trainings on home economics, sustainable agricultural production and improving product quality, support for establishing cooperatives, and trainings and projects to protect family farming are examples of these.

Conclusion

The 20th principle of the Rio Declaration (UN, 1992) states that "Women have a vital role in environmental management and development. Their full participation is therefore essential in achieving sustainable development." Thus, various initiatives are being taken to empower rural women and make them participate in decision-making processes, especially for sustainable rural development. However, the lives of rural women may be restricted due to rural-specific problems. For this reason, these women may not be able to participate in many decisions that affect them. In particular, development plans regarding the natural resources in their surroundings, where their livelihoods and lives largely depend on agriculture, are implemented without their participation or right to say. These plans lead to major environmental degradation in rural areas. As this study shows, the consequences of environmental degradation, especially in rural areas, are not equal for men and women. Therefore, since women in rural areas bear the disproportionate burden of environmental degradation, the risks of poverty and hunger may increase due to these degradations. In this context, it is important to prevent environmental degradation in rural areas and guarantee the sustainability of rural development. Social workers have the potential to support sustainable rural development and foster the participation of rural women in such a development process. Empowerment approach of social work can be used in interventions at the personal, interpersonal, and political levels to ensure the participation of rural women in decision-making processes that affect their lives.

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PASTORAL LAND RIGHTS AND ENVIRONMENTAL RESOURCE GOVERNANCE AND SUSTAINABILITY IN THE ETHIOPIA-KENYA BORDER

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Abstract
Past studies mainly focused on the effects of lack of pastoral land tenure security system. There is scarcity of evidence regarding the effects of pastoral land tenure insecurity in the context of cross-border environmental resource governance and sustainability that the present study attempted to contribute. The main objective of this study is therefore to assess how far the state land tenure system has impacted environmental resource governance and sustainability along the Ethiopia-Kenya border. The study employed a qualitative method in which key informant interviews, in-depth interviews, and focus group discussions were utilized as the primary data collection methods; moreover, the legal documents of the two states, journal articles, official reports of governmental and non-governmental organizations report and other relevant secondary sources were assessed in the review of the literature. Data were collected from various respondents from the pastoralists, non-governmental organizations, and government bodies from local, national, regional and international organization representatives. The findings of the study showed that in both states, the government laws and policies adopted have not taken into account the pastoral way of life. In addition, lack of tenure security for the pastoralists have endangered cross border environmental resource governance and sustainability. The pastoral landholding system is communal influenced mainly by states' interests and human encroachments. It is vital that pastoral policies should accommodate pastoral felt needs and interests in which the voices of pastoralists are heard in the policy making process; hence, there should be a special representation for the pastoral people in the regional and federal legislature (in Ethiopia) and central government parliament (in Kenya) and there should be a cross-border pastoralists forum to ensure better environmental resource governance in the borderland.

Keywords: Ethiopia-Kenya border, Pastoral Land Rights, Environmental Resource Governance, Sustainability, Moyale corridor

THE PRICE OF SERVITUDE: EXAMINING THE EXPLOITATION OF MAIDS IN THE 21ST CENTURY

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Abstract
The domestic work sector is largely made up of women, and it is often not well regulated or protected by labor laws. It is also often tied to societal and cultural norms, which can make it difficult for employers to recognize it as a formal job. Despite playing a crucial role in the labor, domestic workers—particularly maids—continue to experience exploitation, abuse, and prejudice today. This qualitative study investigates the modern lifestyles of domestic employees, especially maids. Through in-depth interviews with 12 current and former maids, ages 12 to 25, the study aims to gain a comprehensive understanding of to how these employees are mistreated and the influence it has on their lives. We discovered through thematic analysis to understand the broader perspectives of domestic workers across various demographics, the research sample was chosen from a diverse range of socioeconomic origins and ethnicity. The results of the study emphasize the greater need to address women and girls in exploitative domestic work - overworked, underpaid, isolated, constantly belittled, often violently punished, sometimes raped, even pushed to suicide – the results suggest the recognition and defense of their human and labor rights is an urgent necessity This study aims to investigate the problem and provide evidence-based solutions for promoting the rights and dignity of domestic workers and solving the structural problems that contribute to their exploitation.

AN ANALYTICAL STUDY RELATING TO THE SOCIO-ECONOMIC RIGHTS AND ITS RELEVANCE IN PROTECTION OF TRADITIONAL KNOWLEDGES IN INDIA WITH SPECIAL REFERENCE TO THE INTERNATIONAL LEGAL REGIME

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Abstract
"Patents and intellectual property rights are supposed to prevent piracy. Instead, they are becoming the instruments of pirating the common traditional knowledge from the poor of the third economy world and making it the exclusive property of the western scientists and corporations"
Vandana Shiva, the famous Indian social and environmental activist.
Traditional Knowledge (TK) can be described as the first *'is'* norm which is found through the constant observation of the mother nature. It is the *a priori* that has been discovered by the ancient people of the ancient civilizations of the world. These knowledges are transmitted orally from one generation to the other which used to be known as the *Shruti* under the Hindu philosophy. These knowledges were never considered to be the belonging of a particular individual, but the knowledge of the community. India is an agrarian economy mostly based on rural culture and the majority of the rural community in India depend on the biodiversity of plants and other plant genetic resources available in nature in order to lead a healthy, meaningful and dignified life. This knowledge of these rural communities developed around the world including India that can be counted on the basis of their economic values in the present globalized international market and there lies the problem which is the focus of this paper. As there is no specific individual person to claim to be the owner of such knowledge and traditions, as it belongs to a community from antiquity, hence, it is subject to piracy by the so called monopolistic and capitalist multi-national corporations. In this scenario, there is a need of specific and comprehensive legal framework for the protection of these community based intellectual properties or Traditional Knowledges in order to protect the Socio-Economic Rights of the people of the economically backward class of a nation.
Key words: Socio-Economic Rights, Community Rights, of Traditional Knowledge (TK), Intellectual Property Rights (IPR), and Biopiracy.

EXPLORING THE USE OF SERVICE LEARNING TO DEVELOP LIFE SKILLS AND ENHANCE ORAL COMMUNICATION WITH BENINESE ESP ADVANCED STUDENTS. CASE STUDY OF LYCEE TECHNIQUE ET PROFESSIONNEL DE PORTO-NOVO

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ABSTRACT
This study investigates the effect of service learning (SL) on learners' oral performance. The objective is to explore possibilities to provide an authentic learning environment where the target language is used to overcome real-life communication challenges and to enable learners' professional integration by developing life skills and by using the English language appropriately. Two aspects have been taken into account: oral communication and life skills development. A mixed-method has been used. The instruments include ten (10) questionnaires addressed to EFL teachers and five (05) interviews have been carried out. To test our hypothesis, an experimentation allows the researchers to assess the impact of SL by comparing learners' performances in Lycee Technique et Professionnel de Porto-Novo. The results revealed that effective oral communication development is possible using Service Learning activities which provide a motivating, flexible and relaxing learning experience in ESP context. The present study suggests SL teaching courses should be integrated into Benin EFL/ESP teachers training schools. Teachers should grab occasions to take part into workshops and training related to innovative teaching-learning methods. Well implemented in our secondary schools, SL strategies can sustainably develop learners' communicative and social skills.
Keywords: Service Learning, Advanced Classes, life skills, Oral Communication.

INTRODUCTION
The four Cs (Critical thinking, Collaboration, Communication and Creativity) are some of the crucial skills of the 21st century, and should be embedded in academic content standards. EFL/ESP students mostly fail in oral communication for many reasons despite the changes in the curriculum in Benin context. In fact, the current curriculum is supposed to be learners-centred to help them develop some skills. But the results are under expectation owing to the poor implementation of the Competency-Based Approach (CBA).
Moreover, the multilingual context prevents students from practicing out of class. This is also a break in their language proficiency development since they rarely use the target language (here English) in context. To overcome those challenges, many teaching-learning strategies and approaches are explored, and community service is one of them. Investigators demonstrate that service learning (SL) can be the right fertilizer to foster the four Cs.
Jan and Bud Richter (2022) stated, *"Research shows that service-learning benefits the recipient of the service, and is one of the best things students can do to maximize their academic, personal and professional (career) skills"*.

This means that with SL, language teaching-learning really takes place. Finding alternative teaching ways to change the present-day situation is the main purpose of this research work. Then, the current study is exploring the implementation of appropriate, innovative and creative strategies for students' better achievement not only in language classes, but also in their future workplace. To reach the goals assigned to this research paper, two hypotheses have been designed:

1. There are many defies related to active teaching-learning in Benin EFL/ESP context.
2. Service learning impacts the teaching-learning experience and students' oral performances.

To facilitate understanding, the current research paper has been organized around six subdivisions.

1 THEORETICAL KEY STONES

1.1 CONCEPT OF SERVICE LEARNING (SL)

The idea of SL is tightly related to community engagement. This means that students are accompanied to volunteering and working for their community. According to Joe Bandy (2011), *'Community engagement pedagogies, often called "service learning," are ones that combine learning goals and community service in ways that can enhance both students' growth and the common goods'*. In other words, SL incorporates significant public services with instructions and reflections to improve the education in many ways. In the same trend, Janet S. Eyler and Dwight E. Giles, Jr. (2003) confirmed that SL is *'a form of experiential education where learning occurs through a cycle of action and reflection as students. . . seek to achieve real objectives for the community and deeper understanding and skills for themselves'*. Consequently, students entering a language class are supposed not only to acquire knowledge but also develop skills, and SL can help them cultivate many skills, mainly leadership skills and their oral communication skills because some subskills (conflicts management, cooperation, problem-solving, listening, emotional intelligence, …) are promoted during SL process.

One can easily be aware of the leadership characteristic in those subskills. In fact, the leader has to interact with other. At that point, with the SL implementation process, the teacher can help students develop those exact skills by encouraging them to work on a given competence for the growth of their soft skills in order to succeed in real life. This corroborates our findings about leadership and oral communication skills development to fit with the 21st century demands.

1.2 SERVICE LEARNING AND STUDENTS' ORAL PERFORMANCE

Learners' achievement is regularly measured in all teaching-learning process. To optimize students' performance, scholars have been suggesting methods through ages. Communicative language teaching (CLT) approaches seem to meet more approval in the education field, and SL is quiet a communicative teaching method. In fact, classroom management and engaging activities for students are essential for a successful language class, and one can recognize that SL is an appropriate teaching-learning method to create a conducive learning atmosphere where context and content are offered to practice. Opponents to this learning trend wondered and wanted to know where the learning is. Actually, as found by Alexander W. Astin, et al (2000), *'SL shows significant positive effects on all academic performance, values, self-efficacy, leadership, choice of a service career, and plans to participate in service after college'*.

Their findings show that advantages linked with SL are perceivable with students' productions, especially writing skills, life skills and oral communication skills. Moreover, Foreign Language Anxiety (FLA) which inhibits communication, is significantly reduced with SL. Coupled with the students' motivation to do good for their community, this is a great advantage for the promotion of EFL/ESP. Consequently, service learning activities highly impact students' language performance.

1.3 DIFFERENT TYPES OF ACTIVITIES IN SERVICE LEARNING CONTEXT

Many researchers suggested numerous ways for incorporating SL in an existing curriculum. Joe Bandy (2011) suggested projects combining public actions and teaching-learning objectives. It means that the implementation of SL approach with learners acting for the same goal, is possible. And the current curriculum, the Competency-Based Approach (CBA), is perfectly adaptable since its main objective is to develop disciplinary (specific to a given subject), transdisciplinary (essential throughout all the school subjects) and transversal (required to face real-life situations) competencies.

In the context of the CBA, SL strategies match with the leaners-centred approach to languages teaching-learning and many SL activities can be integrated into the current curriculum to achieve our goals easily. So, while adopting Service Learning, the good news is that we do not need to change the present curriculum before integrating SL activities. In one of her works, Heffernan Kerissa (2001) suggested six (06) general models for integrating services learning activities in an existing course. The work mentioned: one-time group service projects, option within a course, required within a course, action research projects, disciplinary capstone projects and multiple course projects. The model used for the experimentation is the *'required within course'* and students of Lycee Technique et Professionnel de Porto-Novo (LTP/P-N) took an active part in a project called *'Planting tree'*. This project helps students to develop life-skills (taking actions for the planet), to design commercial correspondences (writing an official letter) and to learn vocabulary related to environmental protection.

2. METHODOLOGY

In the following section, the methodology used to conduct the study and to collect data is described. It includes the research design, the sampling, the data collection procedure and the data analysis procedure.

2.1 RESEARCH DESIGN AND SAMPLING

To collect both quantitative and qualitative data a mixed-method was used to conduct this research. An experimentation was also carried out to test the hypotheses in LTP/P-N, where classroom observations and oral tests took place. The topic of this paper clearly states the case study of LTP/P-N. Then investigations were piloted in the target school with questionnaires addressed to teachers. Interviews and classroom observations (at the beginning and at the end of the experimentation period) were also conducted in the same school.

Table 1: Sampling

School	Questionnaires	Interviews	Classroom observations
LTP/P-N	10	05	08

2.2 INSTRUMENTS

Instruments are essential in data collection procedure. During the current investigation, questionnaires, interviews and observations sheets are used to gathered different data.

2.2.1 QUESTIONNAIRES DESCRIPTION

Purposefully designed with almost close-ended questions (except the last one in order to collect suggestions from the respondents), to reduce time-consuming and to facilitate analysis, this questionnaire surveys teachers' qualifications and their experiences; their roles, responsibilities and management procedures, the significance of motivation and the motivational techniques; discipline problems and the timing. It also assesses strategies used by teachers to sustainably get their students' attention, and to help them develop the required skills. Ten (10) EFL teachers received the questionnaires and the return rate was hundred percent (100%) because all of them fill the forms on spot.

2.2.2 INTERVIEWS

Five (05) people were interviewed. During these semi-structured interviews, a guiding questionnaire was used by the researcher to collect information from the staff members and some community leaders about their collaboration with the schools, their needs and their contributions. The objective is to assess the link between community life and schools.

2.3 THE EXPERIMENTATION

A pilot study has been conducted to get reliable data as far as SL strategies effects on students' performance are concerned, and to check its real impact, tests have been made in CEG1 LTP/P-N. Forehand, one class of fifty (50) students were tested. The fifty (50) students were randomly split into two groups: a control group (CG) and an experimental group (EG). In the control group no particular management was applied, but in the experimental group, students are involved in SL model. The experiment is carried out using a quasi-experimental designed described in table 2.

Table 2: Experimentation Process

Stages	EG	CG
1	Pre-test	Pre-test
2	Treatment (SL-based strategies)	No-treatment
3	Post-test	Post-test
4	Comparisons and analysis	

The analysis is based on the students' scores for both the pre-tests and post-tests. The data are analyzed using SPSS 25 with the following conditions:

1. Two assumptions A_o (Null Hypothesis) and an assumption A_1 are verbalized:
   - ✓ A_o: There is no numerical significance concerning SL and students' performance.
   - ✓ A_1: There is a numerical significance (noted Sig. in the ANOVA Table) concerning SL and students' outcomes.
   - ✓ If A_o is excluded, then A_1 is verified.
2. Statistical significance (Sig) is established for a P-value noted $\alpha<0.05$

The level of statistical significance is expressed as a p-value between 0 and 1. A *p*-value less than 0.05 (typically ≤ 0.05) is statistically significant. It indicates strong evidence against the unacceptable assumption, as there is less than a 5% possibility.

3. The practical significance (the real-life significance) expresses the strength of the correlation between variables is evaluated through the *Effect size* conveyed in ETA squared value

The objective is to reject this null assumption using the analysis of variance ANOVA test for statistical significance. Two values are predictable: *p-value* $\alpha < 0.05$ indicating statistical significance and the *ETA squared* value expressing the Measure of Association measuring the effect size between the independent variable (taking part in SL projects) and the dependent variable (Students' results). The ETA square helps to measure the impact of SL within our sample.

3 RESULTS AND DISCUSSION
3.1 DISPLAY OF THE OUTCOMES
3.1.1 TEACHERS' SURVEYS OUTCOMES

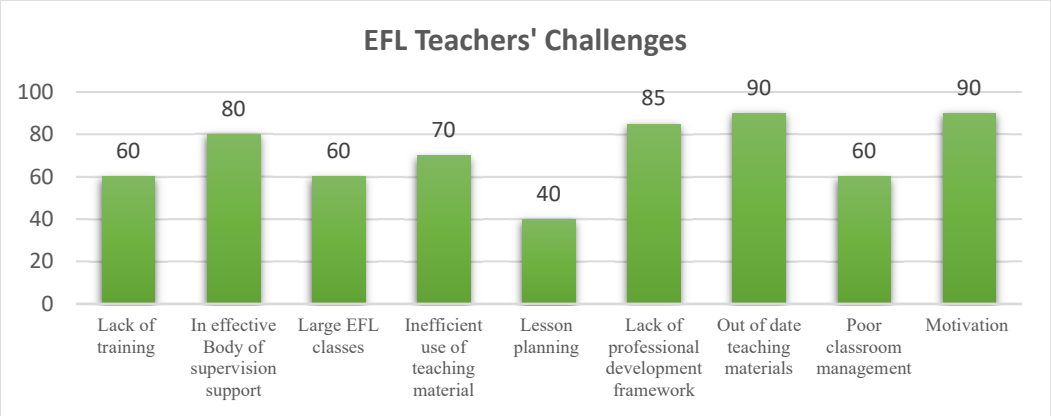

Figure 1: EFLT Defies

Nearly all teachers complained about the same difficulties when they are trying to boost students' oral communication skills. They talked about problems of materials, students' lack of interest, large classes, and absence of supervision.

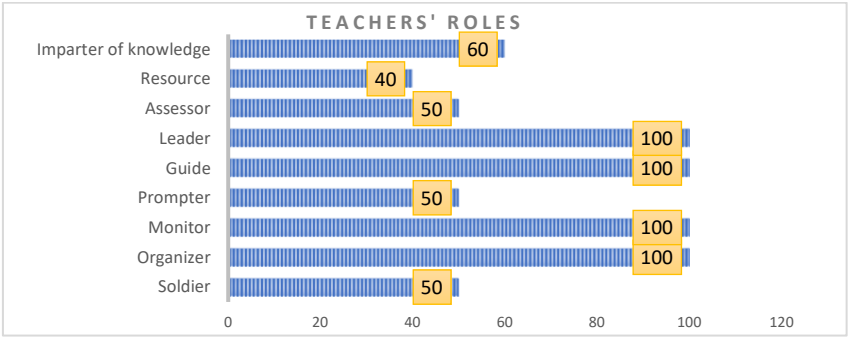

Figure 2: Teachers' Roles

Referring to figure 2, teachers in their majority are aware of their roles. Leader, guide; monitor, and organizer are put forth by all of them. Fifty percent added the roles of assessor and prompter. Regrettably, sixty percent think as imparter of knowledge, and fifty percent consider themselves as soldiers.

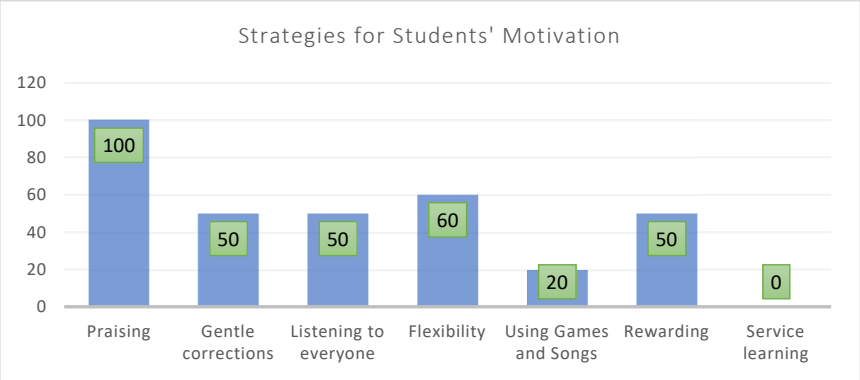

Figure 3: Motivation Strategies

Figure 3 displays the motivation strategies used by teachers. All of them mentioned praising and the half uses rewarding or practises gentle corrections. They also try to pay equal attention to students. Sixty percent of them state the importance of flexibility, and twenty percent of them use games and songs as motivational tools. But no one is using SL.

3.1.2 INTERVIEW REPORT

The interviewed people are school stakeholders and some community's authorities to check their involvement in such projects. It comes out that they are award of all the teaching-learning challenges and are ready to collaborate on any useful projects in order to overcome those challenges for better outcomes.

3.1.3 EXPERIMENTATION REPORT

3.1.4

Report
Overall Score

Group	Mean	N	Std. Deviation
Experimental	37.80	25	7.891
Control	22.75	25	4.778
Total	30.28	50	9.977

The experimentation shows the total mean of 30.28 and a standard deviation of 9.977 for the 50 participants.

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig
Overall Score * Group	Between Groups	(Combined)	2265.025	1	2265.025	53.230	.000
	Within Groups		1616.950	8	42.551		
	Total		3881.975	9			

Table 4: One-way ANOVA control group*experimental group

In table 4 the analysis of variance ANOVA shows that there is a statistical significance between both groups as *Sig =.000* or p-value noted $p=1.3383^{e-9} < \alpha=0.05$ (the significance level). This value allows to reject the Null Hypothesis asserting that no differences (related to service learning as treatment) exists between groups. The practical level of correlation/association between treatment and groups is assessed by the measure of association summarized in table 5.

Measures of Association

	Eta	Eta Squared
Overall Score * Group	.764	.583

Table 5: Measure of association of Overall Score * Group

3.2 DISCUSSION

3.2.1 TEACHING DEFIES

Teachers should address learners' needs concerning *content* and the *teaching strategies* by creating a favourable setting. To sustainably cultivate such teaching-learning atmosphere, suitable pre-service and in-service training are required. These trainings must not be an accumulation of a complete set of teaching concepts and academic procedural knowledge. Rather, they should be designed to initiate authentic teaching skills development process where teachers can reinvest, adapt and innovate.

Schoolroom observations revealed many challenges. The central being how to tie competencies growth, teaching methods, learners' requirements, and the teaching-learning environment. In Benin context, the CBA is implemented in plethoric classes of over sixty learners lacking the basic facilities with outdated teaching materials. Teachers do not know how to handle a conducive classroom because they are not supported. The majority of the visited teachers blame the lack of support from the supervision staff. They rely on weekly pedagogical meetings and peer teachers' assessment and professional development. Predictably, this results in the poor implementation of the learner-centre teaching witnessed during investigations. In such conditions, students' results are reduced. Then actions are needed to overcome those difficulties.

3.2.2 EFFECTS OF SL ON STUDENTS' PERFORMANCE

For the pilot study two groups have been taken into account. The first one is the Experimental Group (EG), which is a group of twenty-five (25) students who actively take part in the project. The second one is the Control Group (CG), another group of twenty-five (25) students, who do not belong to any SL programmed in the same school. The measure of association in Table 5 reveals in the current case, the Eta squared value expressing the Effect size (ES= .583) indicating a strong link concerning the dependent variable (students' overall score) and the independent variable (SL strategies). This essentially means that 58.3 % of the variability of students' performance is explained by the impact of SL strategies used. These data are interesting as they confirm the predicted positive impact of service learning, on students' oral performance.

As shown by the experimentation, service learning has profits for students, schools and community. SL is very benefit at several levels, such as students' learning and social outcomes, and for students' personal and career development. Both schools and communities benefit from SL.

In fact, a great satisfaction is noticeable with the quality of students' learning and the improvement of their retention. Fulfilment with students' participation and their perceptions of community's goods and services are also remarkable. Moreover, SL enhances community-schools' relationship and new dynamism, eagerness and perceptions are applied to civic works.

Developing emotional intelligence (EI) is very important because real life skills are crucial to sustainably keep students motivated. Student's emotions, if not well managed, can affect instructions, learning and performance. In his observation Walker (2009:122) noted that *'the best teachers do not simply teach content, they teach people'*. During this investigation, it comes out that SL is a good stimulus for students' motivation and their commitment that enhances effective teaching and learning can increase student's academic performance. And in the same trend, Moore (2008) assessed two hundred and seventy students and nineteen grammar school teachers and suggest that relationship exists between SL strategies and higher student's performance scores in diverse elementary settings.

This corroborates the outcomes of our experimentation revealing the influence of SL on the academic performance of students and teachers' as well. The results indicated that there is a significant and strong positive relationship between SL strategies and students' academic performance. SL-based activities are reliable benchmark of reflection to succeed in achieving the main goal of teaching-learning English as a foreign language (EFL) or for a specific purpose (ESP).

The findings of the study prompt to make some suggestions towards every actor of Beninese educational system.

4 SUGGESTIONS

Based on the findings of this study, the following suggestions are made:

✓ Teachers should be trained to be aware of the place of service learning and to integrate SL in their daily routines.

✓ Needs analysis should be conducted and government should revise curriculum in order to include SL projects. Each project should be well designed and address a specific need of a given region.

✓ Adequate educational facilities and resources should be provided in all communities in Benin without a concentration in a particular geo-political zone to enable a widespread and better academic performance of students.

✓ Parents should also ensure they play an active part at home to ensure that students do not abandon their studies at home. As many wise men asserted, *''practice makes perfect''*, then only continuous learning, repetition and doing by oneself is the right way. They should trust their children and free them to take part in extra-curricular and co-curricular activities.

✓

CONCLUSION

Service learning combines community service objectives and learning objectives, with the intent that the activities change both learners and their community. This is accomplished by combining service tasks with structured opportunities that link the task to self-reflection, self-discovery and the acquisition and comprehension of values, skills and knowledge content.

Despite their training and certifications, many fail to satisfy the needs of the students. To overcome their challenges, school authorities should organize appropriate training to integrate recent innovative and communicative teaching-learning methods. Well-managed classes with the right implementation of SL strategies impact positively the productivity of the students.

Based on the difference between the two groups (the progression rate, the teachers and students' performances), one can conclude that the more teachers use SL strategies, the more the achievement of the students is important.

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ASSESSING THE INFLUENCE OF COVID-19 ON HOUSEHOLD DIGITAL PAYMENTS: A STUDY

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ABSTRACT
The advent of the COVID-19 lockdown in India marked a turning point in the adoption of digital payment methods, particularly in terms of onboarding new users. Beyond the customary demographic considerations explored in existing literature regarding payment preferences, this study reveals that the transition to digital payments was notably shaped by factors such as familiarity with digital modes, accessibility to smartphones and debit cards, as well as the distribution of social assistance during the pandemic. Even individuals who had previously abandoned digital payment methods due to unfavorable experiences reverted to utilizing these modes. Through a comprehensive survey conducted across 100 households in Pune, this research scrutinizes the influence of COVID-19 on digital payments for household-related expenses. The findings underscore a substantial and affirmative impact on domestic financial transactions driven by the pandemic. These results offer encouraging prospects as India endeavors to materialize its aspiration of evolving into a highly digitalized economy.
KEYWORDS: COVID-19, Digital payments, Households, Impact

A STUDY ON FOSTERING ENVIRONMENTAL ETHICS TOWARDS SUSTAINABLE DEVELOPMENT OF ECOSYSTEM

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Abstract
The contemporary study fosters environmental Ethics toward sustainable development of the ecosystem. Humans and the rest of Nature have an interdependent relationship. The health of humans depends on the state of Nature. Sustainable development helps present generations while protecting their ability to provide for their future needs. It is a general idea that may be applied to many situations, such as the ones listed below, including some form of expansion. As an outcome, human beings are essential to Earth's survival. The negative outlooks of some people on environmental issues are to blame for the misuse of resources. A shift in perspective is necessary if humanity is to begin repairing the terrible harm it has inflicted on the planet's ecosystem. This study uses multidimensional values and environmental ethics to rethink sustainable development principles from the foundation level. However, the planet's condition has not improved. Committing to sustainable development promises to better people's lives while accepting the constraint that such progress must occur within the biosphere's natural bounds. These twofold metrics helps measure sustainable progress. Global warming, deforestation, and biodiversity loss are only worsening, and we should expect to see more drastic environmental problems, such as the extinction of entire species, in the future. The most pressing issue of our time is how to incorporate environmental sustainability into development discourse in light of the worldwide degradation of ecological situations. As an outcome of the growing awareness of the importance of addressing ecological issues responsibly, ecological ethics has emerged as a field of study. Depending on the context, an ecosystem can indicate either ethics for Nature or ecological ethics, which are included in the broader meaning of environmental ethics. The overarching purpose of such ethics should be to preserve natural systems and human cultures, which calls for working with Nature rather than against it. Unlike other species, we are responsible for maintaining a balance with our natural surroundings. However, as time goes on, our environmental ethics may become the norms by which we inevitably live for sustainable ecosystem development.
Keywords: Fostering, Environmental Ethics, Sustainable Development, and Ecosystem

Introduction
The global ecological crisis is an evident sign of mental and spiritual problems. Our behaviours and emotions impact everything. Preserving the environment is essential, given the severity of the ecological calamity. Reconsidering how people interact with the natural environment is one of the most significant challenges the modern world faces. People are starting to realize that as the environmental crisis worsens and the biological systems that support human life continue to fail, economic and legal solutions will not be adequate to overcome ecological imbalances and environmental degradation. We can only solve ecological inequalities and environmental harm once we have established a new moral coalition and taken a conscious approach toward the natural world. We will be able to recognize and naturally enjoy Nature after that. In this instance, environmental ethics and related actions can be very helpful in maintaining a healthy balance between humans and other living things in our immediate surroundings (Barman, M., 2017).

Ethics is the study of right conduct in society. In the framework of modern theories of ethics, right refers to good, and the purpose is to single out actions for special appreciation. Up until recently, current ethical concepts centred on the dynamics between individuals. Environmental ethics is the study of the moral effects that human activities have on the natural world. Those concerned about ecological issues now have two more things to fret over. It was evident from the start that including relationships with non-human entities in modern ethical frameworks would be challenging. The breadth of these concepts is a second concern; it might include everything from the interactions between humans and those with all forms of life to those with biological and abiotic systems (Robinson et al., 2001). Environmental ethics is the study of human actions' moral and ethical effects on ecosystems and environmental services for to sustainable development of ecosystems.

To put it another way, it looks into the moral justifications for taking care of Earth. A restoration system was developed to combat environmental problems caused by industrialization, population growth, and the overuse of synthetic fertilizers and pesticides. The main goal is to show its readers that caring for the planet is morally required. The field of study known as environmental ethics examines humans' moral and ethical obligations to the Earth. The morality of how people should handle the environment is debated (Barman, M., 2017). Ethical concerns inevitably arise when people make changes to the environment or create new policies meant to protect the environment. Conservation of natural resources is a primary concern for all humans, and environmental ethics adds a new dimension to sustainable development of ecosystem.

The Notion of Environmental Ethics

Environmental ethics emerged in the 1970s in response to growing concern over the ethical implications of human action in the natural world. The state of this field of study is quite encouraging. It provides an outline of the current secular literature on this topic. They were protecting people from harm, preserving environmental values and rights, and setting a precedent of eco-conscious behaviour, the dilemma at the heart of the debate over ecological ethics. The environmental movement and environmental realism are introduced briefly before we explore the complex ecological and ethical concerns posed by human-caused environmental change. Environmental ethics explores the ethical questions and concepts raised by human activities in the natural environment. When it comes to maintaining ecological balance and addressing serious environmental concerns, more and more individuals are turning to environmental ethics, a burgeoning subfield of applied ethics. The benefits of ecofeminism, holism, and the individualist perspective will be discussed. Its defining feature concerns the future happiness of all living things in the present. The precautionary principle and sustainable development policies are discussed in light of the Nature and basis of obligations to aid adaptation to global warming and mitigate human-made greenhouse gas emissions, which are widely recognized as one of its main contributors (Attfield, R, 2012). The study of Environmental Ethics explores the generally accepted issues and guiding principles related to human relations with the planet's ecosystems, their contexts, and their outcomes, as well as the most effective approaches to address ecological challenges. Environmental ethics is a branch of applied ethics that guides contributors like individuals, businesses, and governments on how to approach issues about the environment to ensure the sustainability of ecosystems.

Human involvement in Nature, especially when motivated by goodwill, raises ethical concerns. Environmental ethics offers an alternative perspective when looking at the urgent problem of how to protect ecological systems for future generations.

Thompson (1990) argues that environmental ethics should be broadened to include the definition of all life and the environment, not just humans and other sentient beings. However, it starkly contrasts the goals of both human beings and other sentient beings. In the opinion of many ecologists, it would be unethical to exclude the latter approach from a definition of environmental ethics because it gives both diagnoses and potential solutions to environmental problems. As long as ecological ethics is understood broadly, these constraints need not be considered a cause of value conflict, and the discussion of where to place genuine worth can proceed. Environmental ethics is sometimes seen as a supplemental field because of its differences from corporate and medical ethics. Increased awareness of the consequences of individual actions has contributed to the expansion of environmental ethics as an academic field. However, the direction in which the area will progress is still being determined. This leads me to propose at least three different explanations. Among the potential factors that could affect the current environmental and ethical landscape are political efforts to address environmental concerns. To put it up, ecological ethics is an exploration of what actions are and are not appropriate for human beings to take about the natural world to ensure the sustainability of ecosystems.

Historical Foundations of Modern Environmental Ethics

The ethical concerns of man's involvement with Nature are examined. Environmental ethics became a distinct field in the 1970s, even though many philosophers had previously written on ecological topics. The dawning awareness of the potentially disastrous results of industrialization, urbanization, and population growth can be traced back to the 1960s when this renaissance began. Two major works issued around this period are often credited with sparking this change in perspective. In her 1962 book Silent Spring, Rachel Carson warned of the loss of many plant and animal species due to chemical pesticides—Paul Ehrlich's seminal 1968 book. The Population Bomb predicted the destruction of Earth's limited resources due to a rapidly growing human population. A few instances of environmentally friendly challenges that have garnered recent public and political attention include pollution, depletion of natural resources, loss of biodiversity, fragmentation of ecosystems, and environmental change to ensure the sustainability of ecosystems.

Environmental ethics focuses on creating norms of behaviour that are environmentally responsible. Defend the value of teaching future generations about conservation. It is only possible to discuss environmental ethics if these problems are resolved. Before diving into the more theoretical aspect of why we have these responsibilities, it makes sense to find out what they are. When compared to the benefits to society now and in the future, how important are our environmental responsibilities? Many different philosophical traditions have developed as responses to this fundamental concern (Cochrane, A., 2006). The field of ecological ethics examines the ethical dimensions of man's impact on the natural environment. The Union of Concerned Scientists, which includes over 2,000 experts, affirms that climate change is occurring and is altering our environment. People's lives and health are in danger if things do not change. To solve environmental problems, this research presents ethical concepts and moral justifications. It proves that ecological ethics is now taught in schools across the industrialized globe as a required subject. It has been developed with the help of experts from countries with fewer resources. The striking similarity between outcomes of searches for environment, ethics, health, and crises reveals the overlapping concerns of environmental experts. The field of environmental studies has rapidly evolved from its early emphasis on quick remedies to include advocacy for long-term sustainability and enhancing people's quality of life.

Ecological self-respect is the bedrock of environmental ethics since it recognizes that humans have an unbreakable connection to the natural world. Ecological ethics is based on the moral need to preserve our planet's liability for future generations. All the ethical reasons for and against protecting the environment are considered. The deterioration of the environment, extreme weather, the extinction of classes, and the appearance of new diseases are all facts of life. These changes hurt health over the long term. The ethics of the environment must come first. The environmental ethics movement acted as a unifying force for ideas that were decades ahead of their time but developed around the turn of the twentieth century. Experts, leaders, and professionals of the past had the insight to pave the way for modern developments that have contributed to the growth of sustainable ecosystems.

Environmental Justice and Sustainability

The concept of environmental justice has been widely adopted in recent years thanks to the work of many grassroots organizations. Black neighbourhoods and Native American reservations in the United States have fought against polluting industries and waste dumps. Several scholarly works published in the United States have examined environmental injustices' extent and root causes (Hofrichter, 1993; Bryant, 1995; Edwards et al., 1996). Global cooperation is needed to address environmental problems, including resource exhaustion and damage. People's understanding of the interconnection of ecosystems and their capacity to place the current crisis in the context of previous generations has raised the public's awareness of resource scarcity and sensitivity to the implications for individual and equitable society. There is an ethical and moral component to the distribution and management of natural resources, and this perspective has been strengthened by the importance of justice in environmental concerns (Hussar & Horvath, 2011; Kahn, 2001; Kempton et al., 1995). There has been talk on the principles of environmental justice to ensure the sustainability of ecosystems.

The phrase environmental justice was first used by Chavis and Lee (1987) to describe the disproportionate impact of damage to the environment on people of race. It defines *environmental intolerance* as discrimination that leads to an inequitable distribution of environmental benefits and pollution burdens. It draws attention to the connection between racial minorities' disproportionate exposure to pollution and a lack of access to environmental protections. Environmental inequality has gained traction in recent years as a way to highlight the disparate impacts on the natural world that are attributable to factors such as socioeconomic level, gender, and immigration status. A social movement has developed to work for environmental justice to solve these problems (London et al., 2008). It ensured that protecting the environment and resources did not take precedence over social justice and civil rights issues. There is no untying the knot of poverty, racism, and environmental destruction. Several studies have linked pollution, hazardous waste, and other environmental challenges to negative health effects. Justice as it is today is insufficient to ensure the world's continued existence. Studies of justice have always concentrated on monetary gains, but environmental benefits are very different. The next generation will be responsible for fixing our environmental mistakes. The effects of a disaster in one place may spread to others. Since the inseparable Nature of ecosystems, no one has the right to plunder another country's natural riches. Environmental justice issues are relatively easy to pin down, providing much information for experts in the field. Environmental justice is based on similar concepts. The concept of environmental justice stresses that vulnerable communities should not have to pay an unfavourable cost to protect ecosystems.

Environmental Ethics as the Basis of Interaction

Environmental ethics explores ethical concerns of our interaction with the environment. Environmental ethics refers to moral knowledge that guides human action about the natural world (Keraf et al., 2010). Maximizing a few resources has long been a focus of environmental ethics. It is assumed that scarce resources would be shared fairly amongst all parties. If people were treated more evenly, the wealth disparity would narrow. We need to look at the issue of economic disparity from every possible perspective. There is a wide disparity between the rates of economic growth seen by different nations. There are wealthy neighbourhoods and poor neighbourhoods in every country. Humans are given precedence in environmental ethics. Despite meeting human demands, natural resources are exploited (Ohoiwutun B 2020). All socioeconomic levels were represented in our sample of families. As a nation's economy grows, so does the disparity between its richest and poorest citizens. Forests, meadows, and wetlands are crucial to city people's well-being. Similar patterns can be observed in the flow of money. The unequal distribution of money and land is a huge environmental threat. Equal distribution of common resources is the cornerstone of human cooperation to ensure the sustainability of ecosystems.

Many of the actions of our ancestors can serve as models for us in the future, whereas the heliocentric perspective holds. Human needs are secondary to environmental concerns. Respect must be shown to all forms of life. The biocentric viewpoint, which Taylor highlighted, places humans in a narrow context about the rest of the planet's ecosystem. The second is that there is an innate connection between all forms of life. Thirdly, the needs and motivations of one living being are not shared by another. The fourth and last point is that thinking humans are fundamentally different from other animals is a mistake. From an ethnocentric vantage point, we are responsible for everything in the natural world. This means that any hypothesis could be supported by natural observations (Taylor P W 2011). The field of study known as environmental ethics examines how people ought to act in light of their impact on the natural world. There is an emphasis on the morality of how humans manage the planet's natural resources, and there is an acceptance of the value of all forms of life to human society. One's conscience, values, and moral judgments are all examples of how the term ethics can be employed. These three principles make up the moral code. 'Environmental ethics' and 'environmental philosophy' are generic terms for studying moral concepts that try to reflect one's responsibilities towards the natural environment. By doing so, environmental ethics investigates how values affect how individuals treat the environment for sustainable development of ecosystems.

Sustainable Development through Environmental Ethics

Environmental ethics is a study of the ethical status of humans regarding non-human components of the environment, including our responsibilities to and the value of these components (Shrader-Frechette, 2015; Brennan & Lo, 2016). One of the most effective strategies for modern sustainable development and environmental protection is based on ancient ideas. Its relevance to concerns about progress has attracted interest from all corners of the globe. The problem is that only some people in developing or rich nations recognize its worth. A clear understanding of environmental ethics is essential to achieving the sustainable development we hoped for, in which future generations may live in peace and prosperity. It is a doctrine shared by the world's main religions. It is relevant to discussions on green economic growth and other aspects of sustainable development. It proves that advancing human civilization can be done without wiping out all life on Earth. This pre-eminence is firmly grounded in public international law.

Humanitarian law, human rights law, and environmental law are all subsets of public international law (Mohammad, N., 2011). Environmental justice is about equitably allocating environmental benefits and burdens (Schlosbergh, 2004). Given its significance in modern society, the field of science has a responsibility to the general public to do what it can to improve people's standard of living. Over the past few decades, human activity has significantly disrupted the once-balanced relationship between humans and their environment for sustainable development of ecosystems.

Significant environmental problems have arisen due to unchecked technological development and humankind's unmatched dominion over Nature. These problems threaten human existence on the planet and will only worsen if nothing is done about them. The only way for humankind to achieve sustainable development and live in peace with the natural world is to create a new connection. Humans' irresponsible consumption of the Earth's natural resources is the primary cause of the world's present environmental problems. To accomplish one of the Millennium Development Goals and ensure environmental sustainability, the public, and students in particular, must cultivate environmental ethics (Bhat et al.; M. A., 2022). The environmental functions provided by a healthy biosphere include maintaining genetic diversity, cleaning the air and water, controlling the weather, and recycling nutrients (Jacobs, 1999). When people act in extremes, it can harm ecosystems. Stability and resilience provide a useful framework for defining ecological health. Ecosystems are considered reliable if they can maintain a consistent regeneration rate despite external disturbances, such as those brought about by human activity. *Resilience* can be defined as the capacity of a system to recover rapidly from disturbances or stresses resulting from human economic activity (Holling, 1986). It is based on the idea that people should be afforded the same level of protection from environmental pollution as outlined in existing regulations and statutes (Bullard, 1996). Environmental ethics is an area of philosophy that looks at Nature and its non-human inhabitants from a moral and ethical standpoint for sustainable development of ecosystems.

Conclusion

Human wants can only be truly met by what nature provides. However, the ecosystem needs individuals who care about the preservation and long-term sustainability of the natural world. There have been recent setbacks in ensuring the long-term well-being of the ecosystem. This is the outcome of optimistic assumptions and adaptable plans. Humans will try to impose their will on the natural environment when given the chance. This has led to a significant depletion of the world's natural assets. The success of sustainable development depends on the joint efforts of economic and ecological professionals to protect the planet and its inhabitants. Creating a sustainable environment includes preventing land degradation, managing water supplies, reducing human population growth, reducing pollution, composting and recycling household waste, supervising city and factory maintenance, protecting biodiversity, harnessing renewable energy sources, and educating the general public. So that people can come up with more complex and nuanced solutions to environmental problems that combine scientific, economic, political, and ethical components, environmental experts must educate the public on the most essential and contested subjects in environmental ethics. Peaceful human coexistence with the natural world is the foundation of efficient environmental management, and the time to work toward this goal is now. Each citizen should take an oath to defend the environment. Long-term success in environmental reform requires a moral compass to steer policymaking. Environmental ethics encourages people to change their attitudes toward and treatment of the natural world.

When people adopt environmental ethics, more thought is given to the morality, economy, and ecology of sustainable development. Consistent behaviour and informal ecological education that bridges classroom learning with outdoor exploration and cultural immersion can foster a lifetime feeling of wonder and awe at the universe. Increasing opportunities for environmental education within formal settings is essential for the lasting wellness of ecosystems.

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Mövzu: **Beynəlxalq konfrans** **Tarix: 29.09.2023**
Sıra N:

28 sentyabr 2023-cü il tarixində aze-71/52-26 nömrəli məktubunuza cavab olaraq deyə bilərik ki, "12 oktyabr 2023-cü il tarixlərində
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Bakı Avrasiya Universitetinin
Rektoru: **prof. Nazim Hüseynli**

REF : Akademik Teşvik 23/10/2023

İLGİLİ MAKAMA

ULUSLARARASI GERİ DÖNÜŞÜM EKONOMİSİ VE SÜRDÜRÜLEBİLİRLİK POLİTİKASI KONGRESİ 12 Ekim 2023 tarihinde Bakü / Azerbaycan'da 12 farklı ülkenin (Türkiye-20, Diğer Ülkelerden-26) akademisyen/araştırmacılarının katılımıyla gerçekleşmiştir. Kongre 16 Ocak 2020 Akademik Teşvik Ödeneği Yönetmeliğine getirilen "Tebliğlerin sunulduğu yurt içinde veya yurt dışındaki etkinliğin uluslararası olarak nitelendirilebilmesi için Türkiye dışında en az beş farklı ülkeden sözlü tebliğ sunan konuşmacının katılım sağlaması ve tebliğlerin yarıdan fazlasının Türkiye dışından katılımcılar tarafından sunulması esastır." değişikliğine uygun düzenlenmiştir.

Bilgilerinize arz edilir,
Saygılarımla

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Member of Organizing Committee