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CHAPTER 1

THE MISMATCH BETWEEN THE CAMEROONIAN HEALTH REALITIES AND THE INTERNATIONAL POLICIES OF THE WORLD HEALTH ORGANIZATION: A POST-COLONIAL ANALYSIS

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Introduction

If the Covid19 worldwide outbreak is the most recent pandemic that is impacting the Cameroonian health security system, exposing its population to a sanitarian uncertainty, a close observation of the health reality of the said country presents a specific situation. The Cameroon is a geographic area where coexists, for several decades now, several important and serious illnesses that, taken individually, undermine its development and jeopardise its ambition to be an emergent country by the years 2035. Cameroon is member, since its foundation, of the World Health Organization. This organization is the most important intergovernmental organization in charge of the global health. Drawing a parallel between a critical health situation in Cameroon and the missions of the WHO seems difficult to understand. Logically, being member of a multilateral organization implies concrete advantages and well identifiable benefits for all the State members, but also conveys the interest of the said multilateral organization in favour of the realities of its members.

However, in the case of the World Health Organization in its relationship with the health security of Cameroon, there is a sort of abandon of the Cameroon case, if not, a mismatch between the Cameroonian health realities and the international policies of the World Health Organization. Why is the situation as described? How can be explained the prevalence of the said diseases, despite the effective presence of the WHO in the country? What are the reasons of this gap between the ambitions raised by the WHO and the health reality in the country? In which sense can be analysed this well identifiable imbalance between the initial official WHO's worldwide ambitions and the Cameroonian health system's expectations? Those are some interrogative points that will be developed through the post-colonial theory, this theory outlining the former colonised territories' way of understanding the axes and stakes of international relations and global governance. This theoretical approach will be done with a stopover on some key concepts such as domination, colonialism, or self-determination. More precisely, this research paper finds its originality in the willingness of the authors to address the question of the inadequacy or inadaptability of some international policies in disfavour of some countries, members of inter-governmental organizations. This will be done in the conceptual framework of the globalization and togetherness symbolized by the multilateralism.

Through the post-colonial perspective, this research intends to verify the validity of the principles and stipulations of this theory explaining and justifying the realities of third world and underdeveloped countries as the logical consequence of the Western former superpowers system of colonisation. This system which despite the years 1960 decolonisation has

left a polarised system that is still maintaining the said former territories under a permanent domination. To step further, it will be question in this article to check the divergence between the available disposals of the WHO and the Cameroonian health security income in the lenses of this controversial theory. This theory permanently keeps an accusing finger pointed on the international system, described by this post-colonial theory, as the perpetrator of the Western domination and the antechamber of the former imperial system. The said system which not only, doesn't consider the real wishes and expectations of former possessed territories, but which exist for the imperialism.

With key words as World Health Organization, Cameroon, Health Security, Post-Colonialism or Multilateralism, this article entitled "The mismatch between the Cameroonian health realities and the international policies of the World Health Organization. A post-colonial analysis" will be developed around some specifics points driving our reflexion under the lenses of a theoretical approach which is the post colonialism: the principle, the method, the objectives, the results and the finalities.

A Question of Principle

The principle of post colonialism stipulates that the politics are oriented and are designed in favour of developed countries. The post-colonial theory has been scientifically studied by authors such as the psychiatrist Franz Fanon (1961, p.251) who, through his concept of subjugation, has presented the colonialism and the imperialism as an essentially destructive policy for the colonised people. It is what the author has identified as "the imposition of a subjugation colonial identity". Fanon by so doing, presents the colonialism as a politic that change the mentality of the colonised people. It transforms them into something else that is stranger to them. It is destroying their essence, their culture, in short, it is destroying their original identity Fanon, 1967, p.222). The colonialism according to Fanon is dehumanising individuals and is a "systematic denial of all attributes of humanity" as same as describes Lenin as a higher level of imperialism (Lenin, 1967). It gives details related to the political, economic, cultural, and social sides of the presence of the former European superpower in the administration and cooperation system with their former foreign territories. It is in a simple line, the short explanation of the aftermath of western colonialism as explains the Palestinian critic Edward Said. The said principle goes with the principle of domination.

When Karl Marx was suggesting the end of every form or model of domination of the populations based on dictatorship, even the soft one, he was among the authors of the new revolutionaries' circles known as Circle of Light. This circle that raised in France had the ambition to erect

a new design of relations in the society based on the mutual benefit and the common interest of the participants in the said society. According to Marx, a few groups of individuals are the one controlling the entire society and are imposing to most participants their will. Even though it is not in line with the aspirations of these participants. It is the dictatorship of a few numbers on the majority with a scene presenting the said few numbers taking some policies and enacting them without reassuring themselves if the common interest is being preserved. Going in the same sense with Marx Karl, Herbert Marcuse, another author of the theorisation of the domination, suggests the reinvention of the relations in the society to take into consideration the majority. This suggestion has the advantage to be implemented for the global sake and the improvement of their ability to control the actions and decision produced under the togetherness principle. According to Bourdieu, every domination process lies on the acceptability of dominated individuals, bound with invisible ties because the domination is unconsciously accepted by the people under domination. Foucault suggests that the rational people that are the one deciding for their own sake are with difficultly subjects or exposable to external influences and determinisms. According to this author, every domination or power affirmation finds its roots on the establishment of a well-drawn strategy.

A Question of Method

By the pre-eminence of the P5 also known as the Permanent five countries that share the Veto Power at the United Nations Security Council which is the governing body of the entire system of the UN. It is pointing a finger to the United States of America, China, Russian Federation, United Kingdom and France. They are the main countries that won the first and the second World War and that govern the world since 1920 with the creation of the League of Nations replaced in 1945 by the actual United Nations. It is what Bertrand Badie in his book *La Diplomatie de Connivence* has described as a pentarchic system with a diplomacy among five close friends, the said friends piloting the system world and orienting as desired the international politics. The pre-eminence of the P5 suggests a critic on the above-mentioned system. In this model, the majority remains silent and receives the dictate of this club of Veto Power owner. It is a system that is been criticised by third world advocates authors such as Aminata Traore, Jean Ziegler or Amine Amine. Apart of scholars, emergent countries leaders, when an occasion is being given to address the situation are also pointing a finger on this system by expecting a reform and at times, the advent of a new era. It is the case of the Turkish President Recep Tayyip Erdogan as same as Mohammar Kaddafi from Libya some years before. While addressing to the international community during the annual speech to the United Nation General Assembly, the President of the Republic of

Turkey, one of the emerging countries and regional leading country, was highlighting through his statement ‘the word is bigger than five’ the fact that the international society should consider the diversity of its members.

According to this emergent country leader, the actual system is in disfavour of the global objectives targeted by the UN. By taking the case of the Syrian crisis that has started since 2011, during what has been called the Arab spring that recorded the dismissal of some Arab leaders such as Ben Ali from Tunisia, Kaddafi from Libya, Hosni Mubarak from Egypt to only use these cases, the Turkish president is outlining the incapacity of the United Nations to consolidate the peace in the country. The same observation is being made while taking into consideration the Palestinian crisis and the role that was expecting from the UN to play. It is also questioned to be the main donator to the budget of an intergovernmental organization to orient the politics. It is in this sense that at least two of the main P5 countries are among the top 10 contributors to the global budget of the World Health Organization. That position gives them the opportunity to be at the glance to influence the final politic adopted by the WHO.

No.	Contributor	Assessed contributions	Voluntary contributions specified	Core voluntary contributions	Total (Biennium)	Share
1	United States of America	237	656		893	15.9%
2	Bill & Melinda Gates Foundation		531		531	9.4%
3	United Kingdom of Great Britain and Northern Ireland	43	335	57	435	7.7%
4	GAVI, the Vaccine Alliance		371		371	6.6%
5	Germany	61	231		292	5.2%
6	Japon	93	122		214	3.8%
7	United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA)		192		192	3.4%
8	Rotary International		143		143	2.5%
9	World Bank		133		133	2.4%
10	European Commission		131		131	2.3%
Others		524	1,484	103	2,289	40.7%
Total		957	4,328	161	5,624	100.0%

Related to the above presented table, it is obvious to consider that the United States of America with its 237 assessed contributions and 656 voluntary contributions representing 15.9 percent shares specified is the main contributor to the global budget of the World Health Organization. Followed by the Bill and Melinda Gates Foundation with a 9.4 percent of the total of the financial needs of the Organization. In the third position comes the United Kingdom of Great Britain and Northern Ireland with a 335 core of voluntary contributions and 435 biennium and 7.7 percent of the whole share. The GAVI also known as the Vaccine Alliance is the fourth contributor in order of importance in the consolidation of the annual budget of the World Health Organization representing 6.6 percent out of the 100 percent of the global amount. Germany, with 61 assessed contributions and 321 voluntary contributions specified raising at 291 of the total biennium has a share of 5.2 percent of donations. Japan ranked sixth out the 10 most important donators to the budget of the WHO records 93 assessed contributions and 122 specified voluntary contributions giving the figure of 214 of the total biennium and drives out 3.8 percent of the said budget. The United Nations Office for the Coordination of Humanitarian Affairs UNOCHA is also part of the main contributors to the financial needs of the WHO. More precisely, being the seventh most important participant, tis organization, part of the United Nations global system galaxy, with 192 specified contributions and 192 of the total biennium represents 3.4 percent of the determined financial resource of the studied international health system.

A Question of Finality Goals and Objectives

Understanding the finalities, goals, and objectives of the World Health Organization towards the health security of Cameroon under the post-colonial theory will require a stop-over in some motions that highlight the incidences of the post colonialism. The objective and aim of the post colonialism is to maintain the former possessed territories under a stage of permanent and renewed expectations of foreign investments, of foreign assistance and foreign dependency. The said objectives will be more understood by developing some notions that are revolving around to this concept of post colonialism and that at their level of explanation give an overview of the goals, ambitions, and perspectives of the cooperation between the World Health Organization and the health security of Cameroon. It requires a reference to domination, a reference to imperialism, another reference to unilateralism and finally a reference to colonialism.

Reference to Domination¹.

When Karl Marx was suggesting the end of every form or model of domination of the populations based on dictatorship even the soft one, he was among the authors of the new revolutionaries' circles known as

¹ Caude Rivière, "domination" *Encyclopedia universalis*,-

Circle of Light raised in France wishing to see a new design of relations in the society based on the mutual benefit and the common interest of the participants in the said society. According to Marx, a few groups of individuals are the one controlling the entire society and are imposing to most participants their will even though it is not in line with the aspirations of the others. It is the dictatorship of a few numbers on the majority with a scene presenting the said few numbers taking some policies and enacting them without every time reassuring themselves if the common interest is being preserved. Going in the same sense with Marx Karl, Herbert Marcuse, another author of the theorisation of the domination suggests the reinvention of the in international relations in the society to take into consideration the majority will for the global sake and the improvement of their ability to control the actions and decision produced.

According to Bourdieu, every domination process lies on the acceptability of dominated individuals bound with invisible ties because the domination is unconsciously accepted by the people under domination. Foucault suggests that the rational people that are the one deciding for their own sake are with difficultly subjects or exposable to external influences and determinisms. Every domination or power affirmation find its roots on the establishment of a well-drawn strategy. It goes with the theory of dependency. This Marxist theory bases its analyses on the low level of development of third world countries. The poverty that they are experiencing, the political instability with permanent coup where one can assist on assaults to dismiss legal authorities regularly elected by populations, are the consequences of a well-planned agenda of western countries to maintain in a dependant mode the poor countries. Taking into consideration the WHO and the Cameroonian Health security, the domination appears in the obligation for the Cameroonian medical industry to refer itself to the obligatory authorization of the WHO before producing and making available for Cameroonian nay medical treatment. The main consequence of this blockage is that the local production cannot be boosted.

Reference to Unilateralism

Presented briefly as a one-sided action or unique pole of decision, the unilateralism is the practices that consists of not taking into consideration the observations, suggestions, points of views of other party before taking any decision. Even though the said decision is supposed to be implemented by the actors other than the ones that are taking and putting into force the said decision. The unilateralism takes its foundation in 1926 around the concept of unilateral disarmament and being reinforced in 1964 and presented as the main opposition to the multilateralism with the prescription of brainstorming among actors seeking the same objectives. Mentioning the unilateralism with regards to the post colonialism is

underlining the ideology according to authors such as Said stipulating that the objective of the superpowers is to impose to fewer representative states their willingness. They rather proceed by unilateral approaches that are not taking into consideration the real expectations of the dominated countries. The simple reason is that if a requested assistance is provided to third world countries, the said assistance will liberate them from any further assistance and will then impulse their own development. Those requesting state will strengthen their independency and so doing, will merge at their turn as free and untied countries with the pretention of challenging the former donators.

Aminata Traore or Jean Ziegler in their respective research (*Empire de la Honte*) put a light on the aspect that under the post-colonial theory, poor countries should not expect from their former dominating countries to benefit from them of conveyable politics that will free them from any sort of future assistance. It is the reason that why also according to Ziegler that international structures such as the World Bank or The International Monetary Fund will never develop poor countries. Through the politic of reinforcing the foreign debt of colonised territories, they will rather be maintained under the under-development barrier and not only will not be able to use the international dotation that are oriented and controlled but will also be in the incapacity to refund the assistance received due to the inadequacy between the received assistance and the use of the said dotation on the field. For Aminata Traore, the international assistance is rather an international measure to maintain the poor countries poorer and the rich countries richer.

Regarding the World Health Organization and the health security of Cameroon, the reference to the unilateralism suggests the reflection stating that the inadequacy and lack of concordance between the international politics of the WHO and the concrete need of Cameroonian populations on the field founds its origin on the nature of the international system where persist the unilateralism of dominators. The unilateralism of the WHO is being explainable through the principles that according to the direct observation on the field and the conversations with responsible of health sectors in Cameroon, what is being offered to the country by the WHO is not what the medical system is expecting. There is a gap between the projected need for the health sectors and the realisations of the WHO. Things are done as if the decision taking board of the World Health Organization is not taking into consideration the wishes, requests and various demands of the Cameroonian parts but are rather proceeding by unilateral decision with respect only to their own objective and perspectives and not the Cameroon health system.

Reference to Imperialism and Colonialism

As same as domination and unilateralism, the post-colonial theory refers itself in the philosophy and scientific approaches of social sciences to the imperialism. According to the online dictionary Oxford language, the

imperialism is ‘the state policy, practice, or advocacy of extending power and dominion especially by direct territorial acquisitions or by gaining political and economic control of other territories and peoples’(Oxford.com). In a simpler way, the imperialism intends to widen its own rules and pretentions on other people or countries by using hard power methods such as military forces or by soft power technics such as culture and politics. In this concept of imperialism is embodied the idea of superiority and influence of an actor or group of actors. The imperialism is the seed creating the colonialism.

All the above-mentioned references wouldn’t have a sense without the origin of everything which is the colonialism. Robert Young stipulates that the colonialism implies the invasion of a territory by another one. The submission of its government and its populations to the regulations enacted by the invader. According to Said, ‘imperialism involve the practice, the theory and the attitudes of a dominating metropolitan centre ruling a distant territory while colonialism refers to implanting the settlements on a distant territory’. Refers to the control of an entity by another entity. The control of its decision, the ruling of its politics and the subordination of its sovereignty. The coloniser under this approach is the builder, the one orienting, creating everything by a side and the colonised territory is the one implementing the measure taken even if it doesn’t math with its the concrete expectations. Taking into consideration the Cameroonian case, without the express authorization of the WHO, there are no local medical invention that can be freely developed and experimented on Cameroonian even though the said medical invention can be useful and provable and efficient on populations. There is the obligation to refer to the WHO which is the only international body that can validate a medicine and authorized its commercialisation and consumption with the official justification of international health concern and protection. The World Health Organization in its constitutional text stipulates that the main objective of the Organization is the attainment by all people regardless of their origins and geographical position of the highest level of health (WHO Constitution, Basic Documents, Forty-ninth edition). In other way, the WHO main target is to rise the life expectancy and the sanitarian conditions of humanity by promoting and easing the access to health facilities worldwide.

However, the non correlation between the health realities raises another angle of analyse. On the official side and publicly presented objectives, the WHO is the international health organization which addresses government health policy with two aims: Firstly, “to address the underlying social and economic determinants of health through policies and programs that enhance health equity and integrate pro-poor, gender-responsive, and human rights-based approaches” and secondly “to promote a healthier environment, intensify primary prevention and influence public

policies in all sectors so as to address the root causes of environmental threats to health. On another segment, the second point outlines the fact that the WHO has the duty to establish and to maintain effective the cooperation and collaboration with the United Nations which remain the main structure of international policy management. The same relations and cooperation must be maintained also with specialized agencies of the WHO and all the other agency participating to the implementation of the WHO global policy.

The mentioned mission of the WHO as prescribed by its constitution is to assist Governments upon request. It means that the WHO has the duty to be by the side of States and Government in the purpose to reinforce and so doing, to strengthen their health service and facilities. An duty of the World Health Organization in Cameroon is to furnish with concrete incidences, appropriate technical assistance and all the requested and available aid that can be helpful for the health issues of requesting parties such as governments. One of the other duties recognized to the WHO by its founding texts is to provide as much as necessary upon the express request of the United Nations some health services and assistance to identified needy groups. The case of people from trust territories has been used to illustrate the case of the enlargement of possibilities of intervention of the WHO beyond the classic intervention in favor of states or governments.

The World Health Organization sets, establishes, coordinates administrative and technical services with the requesting part and if necessary, conducts actions in epidemiological and statistical sectors in Cameroon. It is stated that the WHO stimulates and advance work in order to fight against epidemic worldwide, invents all the necessary actions and medicine in order to counter the spreading of all endemic and other diseases that might occur in order to protect and maintain the international health system. The World Health Organization promotes in accordance and cooperation with other specialized agencies intervening tin the sector of the health when the situation is requesting such action in order the stimulate the prevention when the entire eradication is not possible of accidental injuries. The willingness to eradicate, as mentioned above, all the possibilities of accidental injuries go with the mission of improvement of nutrition with the access to qualitative and quantitative food worldwide. Is also concerned the ambition of rising the availability of housing opportunities for people living without home called homeless people, sanitation, and recreation. By ensuring the basic and fundamental needs of human being listed above, the WHO while cooperating with strategic recognized specialized agencies, has also the duty to promote and guarantee the economic or working conditions of populations around the world and maintain other aspects of environmental hygiene.

The WHO promotes the cooperation among scientific and professional corporations which respectively according to their own ambitions are

also as same as the international health organization preoccupied by the questions related to the promotion of health and the improvement of the access to health facilities worldwide. To achieve its goals and mission listed above, the WHO might be invited to propose conventions to its partners, to suggest and sign some agreements and regulations that can reinforce the level of health around the world. The World Health Organization can also make some recommendations that the organization finds useful with observance to international health realities and concerns for implementation for the mutual benefit of the Organization and the populations around the world. According to the official information available on the website of the organization, it is stated that the World Health Organization resolves governmental health policies with two complementary objectives: “The mission to address the underlying social and economic determinants of health through policies and programs that enhance health equity and integrate pro-poor gender responsive and human right based approaches” (2012-2013 WHO Program Budget). The second clearly stated ambition is “to promote healthier environment, intensify primary prevention and influence public policies in all sectors so as to address the root causes of environmental threats to health” (2012-2013 WHO Program Budget). However, the concrete observation of the implementation on the field of the said politics, the Cameroonian health system picture presents a country where subsist some crucial points of health interest such as malaria, Hiv/Aids Covid19, ischemic heart diseases, cirrhosis among the top 10 causes of illnesses in the country. With a life expectancy at birth of 60 for women and 57 for men (World Bank 2018) Cameroon is a country having as top ten cause of death² the HIV/Aids, the Malaria, the ischemic heart disease, the Cirrhosis, the Road accidents, Covid19 out of others. In the fame of this article will only been developed the HIV/ aids and the Malaria diseases.

Hiv/ Aids and Malaria

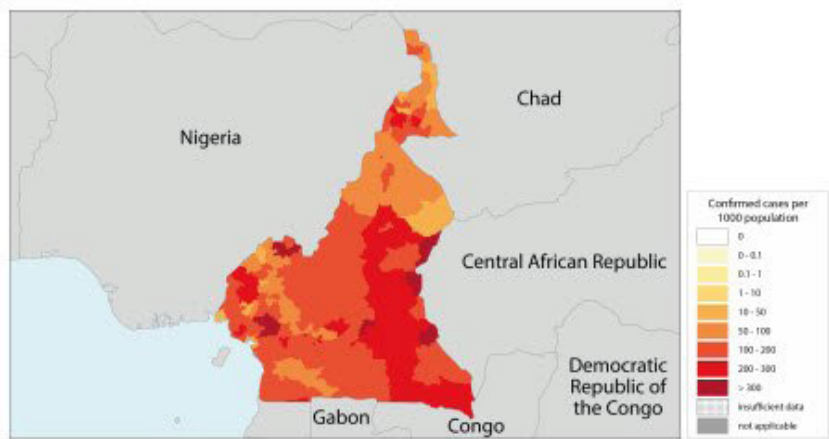
Officially identified in its long form the Human Immunodeficiency Viruses, the HIV which is from the family of retroviruses is the main cause of the of the acquired immunodeficiency syndrome provoking a gradual weakness of the natural defence of organisms known as immune system (Douek, 2009) and giving opportunity to some other illnesses to attack with less effort the said organism (Weiss, 1993, p.260). Transmitted through three main canals such as an unprotected sexual activity between an infected person with a non-infected one by the semen the vaginal secretions, the transfer of unsafe blood that has not been verified and checked before its transmission to a needy patient and from a mother to her child while breastfeeding it (Robert, 2019, pp. 451-452). Causing symptoms such as fever headaches vomiting or some unexplained tiredness through the apparition on infected bodies of signals like seizures, coma, yellow skin and in some drastic case the death of

2 Center for Disease Control and Prevention, July 2019.

individuals, the malaria is a mosquito infectious disease-causing illness of human being (Caraballo, 2014, pp.4-8).

Scientifically caused by a single-celled microorganism of the plasmodium group, the Malaria widens itself through an infected female anopheles' mosquito which bites and introduces the infected element of illness with its saliva into an individual blood. Present in the tropical and subtropical regions surrounding the equator, countries from Asia, Sub Saharan Africa and Latin America are the most exposed one with a dramatic figure of 228 million of cases worldwide in 2018 with a record of 405 000 deaths having among those 93 percent of the global cases and 94 percent of the total amount of deaths are from Africa (2019 World Malaria Report). Presented as the illness of poor people, historically, the malaria disease has been identified some 10 000 years ago with the development of the agriculture and the development of human settlement (Harper, 2011). It was under the research of important scientific researchers such as Hippocrates, Columella that the disease has been clearly studied by the medicine. It is presented as one of the main causes of the decline of the Roman Empire and identified later as the Roman Fever in reference to its predominance and its impact in the former Empire (Sallares, Malaria and Rome, 2002).

Malaria distribution in Cameroon



I. Epidemiological profile

Population (UN Population Division)	2017	%
High transmission (>1 case per 1000 population)	17.1M	71
Low transmission (0-1 case per 1000 population)	7M	29
Malaria free (0 cases)	0	-
Total	24.1M	

The above picture presenting the epidemiological profile of malaria distribution in Cameroon gives the possibility to identify 11 different types of zones of impact of the malaria in the country. the said zone represented

by 11 different colours being affected by the climate and the geography. The white colour representing 0 for a conferred case per 1000 inhabitants indicates that in the actual scheme in Cameroon there is no regions recording zero expositions of the population to the malaria disease. With the mention zero case confirmed, its simply implies that Cameroon is a country where there are no potentials zone that are spared against the malaria illness. The mixed yellow colour indicated from 0 till 0.3 out of 1000 inhabitants present the Cameroonian geographical area where one can record 3 inhabitants out of 1000 that have been confirmed with the virus of the malaria. The yellow colour presenting 0.3 till 1 out of 1000 inhabitants which are localised mainly in the northeast of the country suggest that out of 1000 populations there are up to 10 patients that were victims of the malaria virus in the sector. It also indicates the level where the confirmed case become more frequents. The mixed pink colour designates the regions were the scale of confirmed cases of malaria is between 1 to 10. Its indicates that from a population of 1000 inhabitants observed for a certain period of time, there ae up to 10 confirmed cases of malaria among the population. The pink colour corresponding to the frame 10- 50 confirmed cases presents the situation stating that in a population of 1000 inhabitants residing in a precise medical area of analysis there have been up to 50 people who have been diagnoses positively to the malaria virus.

This pink colour corresponds to some regions in the centre, in the north and the East regions of Cameroon. The mixed red colour with a 50 till 100 confirmed cases out of 1000 as same as the above-mentioned diagrams stipulates that there are up to 100 patient bearers of the malaria in a population of 1000 inhabitants. The regions of North and Northwest of the country are the regions recording most of these cases. The light red colour recording the 100 till 200 confirmed positive cases of malaria identified in the littoral regions and some points in the Adamaoua mention the situation where in those areas, there have been discovered for a thousand of population in density up to 200 confirmed case representing 20 percent of the entire populations of the identified zone. The red colour with its 200 to 300 confirmed cases and recorded in the East region is explainable with the fact that the East region is a region with high density of forest and humidity. Taking into consideration the fact that mosquitoes that are responsible of the malaria are insect that develop themselves easily in humid and forestry zones it is obvious that this red colour appear in this point of the country. The solid red colour indicating areas where there have been diagnosed more than 300 positive cases of malaria has as main signification that those zones are the most exposed to the malaria and in a population of around 1000 inhabitant at least 30 percent of the said population have already been confirmed as bearer of the malaria virus.

Taking into consideration the figures related to the statistics related to the epidemiological situation of malaria in Cameroon, one can easily conclude that the areas such as the East and the Far North region of the country are the main basis of malaria in the country. The white-grey colour indicates on the above picture the spaces in Cameroon where it has been difficult to collect data and so doing to have a clear and precise ideas on the malaria distribution on these zones. It was caused either by a difficult access to these zones by medical campaign or simply are zone where people do not live in sedentary mode and are always absents. The grey colour indicates the others geographical zones out of Cameroon where the analyses do not occur. It shows on the map the countries out of Cameroon where the study is not relevant and does not apply.

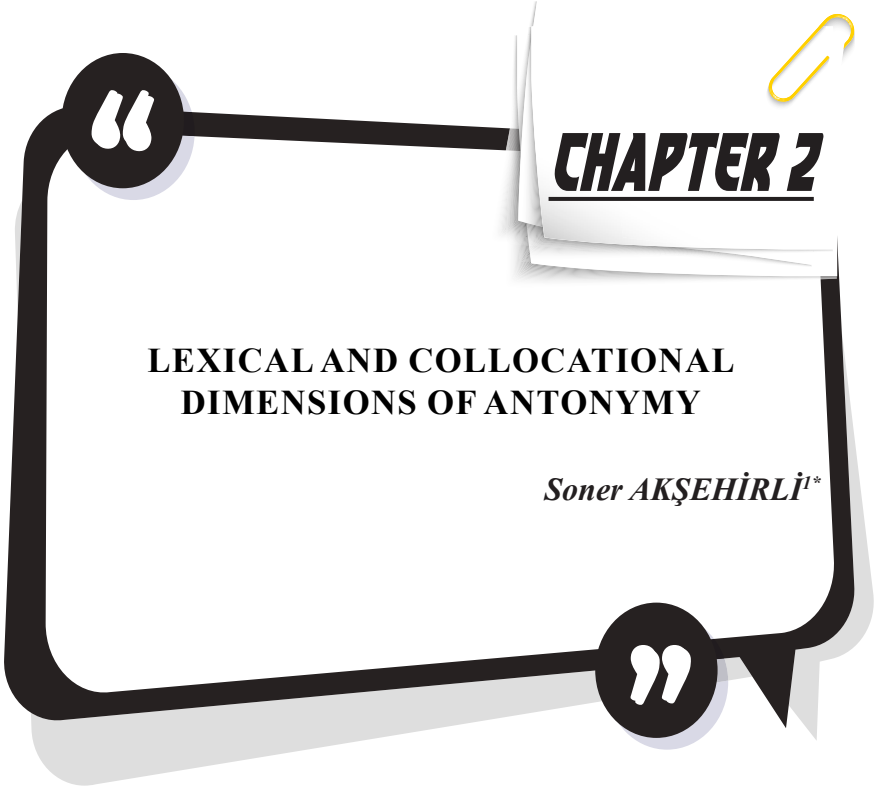
Conclusion

The mismatch between the Cameroonian health realities and the international policies of the World Health Organization that has been analyses throughout this article under the lenses of the post-colonial theory has brought the reader to bear the sense of observation of post-colonial authors such as Aminata Traore, Amir Amin, Edgar Said and some other authors. The objective through this theoretical approach was to understand the gaps, the inadequacy, and the mismatch between the concrete expectations of the Cameroonian health system and the yearly based international policies of the WHO towards the country. By painting the health realities of the countries and developing the principles, methods and objectives targeted by the post-colonial approach, it has been easy to conduct the research in the sense to explain the reason why the Cameroonian health system remain at the identified level. The said level which appears clearly in disfavour of the reinforcement of the health security of a country targeting to be emergent by the year 2035, invites the decision-making bodies of the Cameroonian Government in a strict sense and the countries where the same situations can be identified, to withdraw themselves from the World Health Organization and work on the establishment of a post multilateral era.

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0. Introduction

The relationship between language and thought is a double-faced relationship based on mutual existence. In other words, language is not only a means of conveying feelings and thoughts, but also plays an important role in the formation of these feelings and thoughts. Although the relationship of language with thought is like the relationship between two sides of a paper in Ferdinand de Saussure's famous analogy, the relationship of language with the world is different. Each language divides the non-linguistic world subjectively under the influence of the culture to which it belongs. Accordingly, we can say that the content-based line that separates languages from each other is this difference, which we can call "the way of conceptualizing the world". This subjective relationship of languages with the world combines with the objective and universal principles of thinking to form a whole. In other words, in every language, the general principles of thinking play a forming role as well as the ways of thinking specific to that language. Opposition, which is one of these thinking principles that finds its expression in the science of logic, is an extremely important phenomenon in terms of spreading throughout the language system.

Ferdinand de Saussure, who is accepted as the founder of modern linguistics, said that language is a system and that two phenomena, identity and opposition, lie both in the formation and functioning of this system (Saussure 1998; 163). In all the phonological, morphological, lexical and syntactical levels of the language, the meanings of the units or, in Saussure's words, their "values" are based on the identity and opposition relationship between them and the other units on the same level. According to Saussure (1998), the relation of identity in language is a relation of substitution. For example, a word can replace the meaning of that word. In this case, there is an identity relationship between the word and its meaning. Nevertheless, just like in the world of objects, in the world of language, our mind can only work by seeing the similarities and differences. For example, if we can say that something is moving, then there is something that is not moving. What makes "move" a concept for us is "standing" or "not moving". This shows that difference or opposition plays a major role in the formation of concepts. The same is true for language. In fact, language can also be described as the expression of the relations of identity and opposition, which are necessary for comprehending the universe, in a system that is based on subjective agreement and universal perception and acceptance. Starting from this definition, we should also emphasize that language is not just a means of transmission, but a transmitter shaped by what it conveys.

Some primitive oppositions can be found in all natural languages, while others are specific to certain languages. As a result, the first language

acquisition process can be considered as a process of acquiring and structuring both universal and native language oppositions. Children's language acquisition shows very effectively the decisive role of opposition in the language system. Researchs shows that children acquire the word *good* with the word *bad*, with *heavy* and *light* (Steven 2002: 1). In fact, this observation, beyond showing the way words are learned, also confirms what Saussure said about the nature of words and language system. Words gain meaning in our minds with their opposites. As clearly contrasting words such as *good:bad*, *heavy:light*; whether the words such as *friend*, *bird*, *human*, *pen* etc. are acquired in a certain oppositional relationship requires a separate research. However, if we take Saussure's principle as the center, there is no word that does not make sense in the relation of opposition. Because Saussure, while saying that the language system is based on oppositions, does not limit it to *some* word pairs.

Lexical semantics deals with opposition only with certain word pairs under the title of sense relations. This brings to mind the following questions:

(I) Why do some words have opposites and some don't?

(II) Does every word have an opposite?

(III) What makes the words opposite, in other words, what is the criterion of opposition?

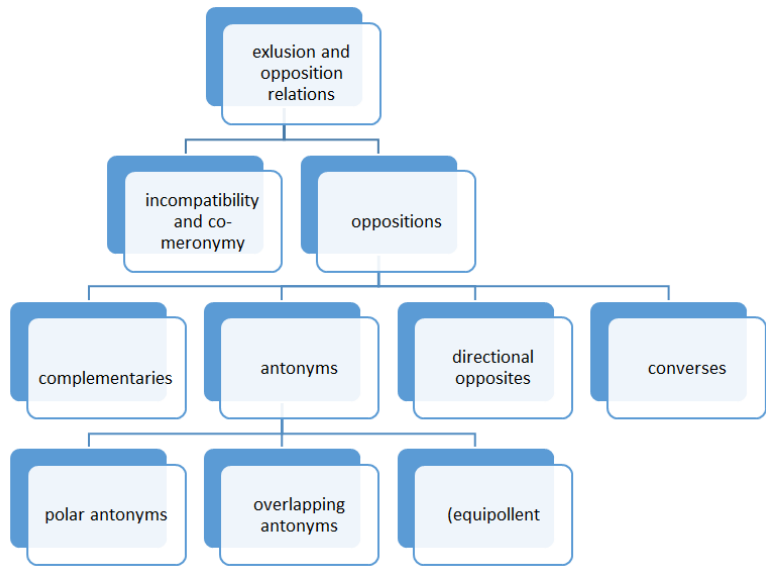
However, there are other limitations caused by the way lexical semantics handle opposition. Lexical semantics, which is based on structuralism, deals with opposition on the lexicon level. In other words, the oppositions that are studied and systematized are those that are coded within the language system and only at the conceptual level. However, opposition has both paradigmatic dimensions arising from the relations between concepts in the lexicon, and syntagmatic or collocational dimensions arising from the use of the language, namely, the relation of words with other words they take place together. This phenomenon, which we will call collocational opposition as opposed to lexical opposition, can bring a different perspective to antonymy. In this approach, "do words have only one opposite?" question is brought into focus. In this article, first of all, the issue of lexical opposition will be discussed, and then an answer to this question will be sought.

1. Sense relations and Antonymy

Lexical semantics deals with semantic relations in general under the title of meaning relations between words (sense relations). Because this subject is not about the relations of words with the extra-linguistic world. It is seen that the logical-semantic relations between the units that

make up the vocabulary of a language are based on the classification of semantic relations between words. Treating semantic relations in this way, Cruse (2003) first made the distinction between paradigmatic and syntactic relations that form the basis of the language system, and placed the traditional semantic relations defined by semantics in the class of serial relations (Cruse 2003:247). In this classification, there are two subgroups under the main heading of paradigmatic meaning relations, one being logical inclusion and identity, the other being logical exclusion and opposition. Meaning relations based on inclusion and identity are synonymy sub-synonymy, hyponymy and meronymy. According to Cruse (2003) there are opposites, incompatibility, and co-meronymy in the category of exclusion and oppositional relations. Cruse (2003) then divides opposites into four groups: complementaries, antonyms, directional opposites, and converses. Antonyms in this group of four also have three types as polar, overlapping and equivalent antonyms (Cruse 2003: 247-252). We can show the exclusion and opposition relations in this classification as follows:

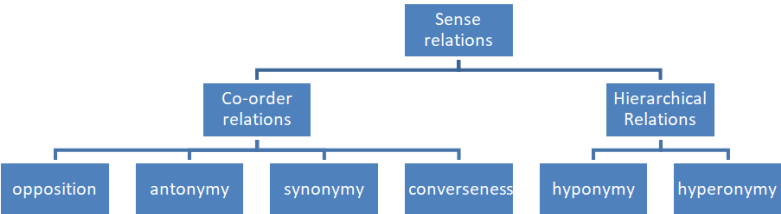
Table 1. Cruse’s Classification of Exclusion and Opposition:



Lyons (1963) has a different classification. According to him, every language has a semantic structure and this structure is shaped by the network of relations between semantic units or sense relations between words. These relations are grouped into two groups as co-order and hierarchical relations. While co-order relations are seen between units belonging to the same lexical field, hierarchical relations occur between two separate lexical fields that have a hierarchical relation between them. Co-order relations are opposition, antonymy, synonymy and converseness.

Hierarchical relations are hyponymy and hyperonymy relations. We can show Lyons (1963)’s classification in a table like this:

Table 2: Lyons’s Classification of Sense Relations



The most important difference of this classification according to Cruse (2003) is that synonymy and antonym are in the same category. The reason for this is that logical relations are the dominant starting point in the classification of Cruse(2003) and lexical fields in Lyons (1963). It is also seen that Lyons does not include the meronymy relationship. In fact, it should be noted that there is no complete convention in the classification of meaning relations between words. For example, Storjohan (2010: 1) emphasizes that paradigmatic relations constitute traditional meaning relations and states that these are opposition and contrast, meaning equivalence, hyponymy, hyperonymy. Here, unlike Cruse (2003) and Lyons (1963), it is seen that contrast is also included in addition to opposition.

1.1. Antonym as a Relation of Exclusion and Opposition

As seen above, the meaning relations between words can be classified in different ways. Here, we will try to briefly show how antonyms are handled in lexical semantics, based on Cruse (2003) and Lyons (1977). In order to question the collocational dimensions of antonymy, which is the basis of our study, we will try to explain which terms are used for antonymy in lexical semantics, how this meaning relationship is defined and what types there are, based on the main studies in the literature.

1.1.2. Terms and Definitions for Opposition / Antonymy

Perhaps the most difficult one to define in terms of sense relations is antonymy. As it is known, a scientific and objective definition must include three terms: genus, species and differentia. Genus is the parent term or concept to which the concepts/terms that have common features are connected due to these common features. In other words, the term under which the species is listed is called genus. Terms included in the scope of the genus constitute species of that genus. In other words, the species is the general concept that is under the genus and is partially identical with the genus to which it is related. Differentia is the main feature that distinguishes genera and species from each other. Species under a genus

differ from each other with these distinctive features (Emiroğlu 1999: 79-80). Accordingly, if we accept antonymy as the being defined specify, we need to define a genus and a differentia for it. Based on the information we have given above, we can say that antonymy is a sense relations, that is, genus is a sense relations. However, the difficulty in defining antonymy is in identifying the differentia. At this point, it is an important problem that the definitions and classifications in the literature include the term *opposition* apart from antonymy, and that no clear distinction is made between these two terms. For example, in Cruse's classification given above, antonymy is referred to as an *exclusion* and *opposition* relationship. In Lyons's classification, on the other hand, opposition and antonymy are two separate co-order relations. In this case, there is a possibility of confusion between the terms *antonymy* and *contrast* used in many of the definitions below. However, as can be understood from the definitions, we can say that opposition is a more general term than antonymy. Because opposition is a term used not only for a semantic relationship between words, but also for propositions, objects, facts and events belonging to the non-linguistic world, and is also a common term in many branches of science apart from semantics and linguistics. In other words, we can say that antonymy is the type of opposition in lexical semantics, or that the meanings are opposite to each other is called antonymy. However, since complementaries, directional opposites and converses under the title of opposites in Cruse's classification are also an opposition relationship just like antonymy, a meaning relationship and contrast as a general title are also used in literature.

Antonymy, which is much newer than the term opposition, is a term that started to be used for meaning opposition in the 19th century (Willners 2001: 17). According to Vardar (2002), antonymy, as one of the main phenomena that establishes the meaning structure of the word, is the feature of words that are opposite to each other in terms of meaning. Units in an antonymy relationship have a common axis of meaning and opposite semantic components (Vardar 2002: 130-131). The remarkable feature of this definition is that two criteria such as common axis of meaning and opposite semantic components have been determined. Accordingly, in order for two words to be opposites, they must have both common and opposite aspects. For example, the opposition of *large* and *small* arises from the differentiation of objects according to their sizes. We can say that the axis of meaning for this antonym is size. However, opposite semantic components are not always so easy to identify. Because it is sometimes very difficult and sometimes impossible to perform a semantic component analysis for each word. In the *mother: father* antonymy, we can easily say that the opposite semantic components are [MALE] and [FEMALE].

However, in the *large: small* antonymy, since these words are generally used as adjectives, it does not seem possible to determine the semantic components specific to each of the pairs without considering the concept they qualify.

Antonyms are often seen as co-hyponyms that fall under a concept. In order for two words to be opposed to each other, they must be connected to a single hyperonym. From this point of view, there is no antonymy relationship between the words *cow* and *water*. Because these two words are hyponyms of different words. However, the words *cow* and *ox* are co-hyponyms as domestic cattle species. What makes these two words opposite to each other is that one has [MALE] and the other has [FEMALE] semantic components (Günay 2007: 178).

Cruse (2003) considers the relationship between co-hyponyms as an incompatibility relationship. In some definitions, antonymy is thought of as the opposite of synonymy. Meaning similarity between words in synonymy turns into dissimilarity in antonymy (Murphy 2003: 169). However, this approach cannot be said to be acceptable. The similarity of meaning valid for synonymy also applies to antonymy, as emphasized above. In fact, in order for two words to have opposite meanings, they must first have a common axis of meaning between them. This is because antonyms are hyponyms of the same concept. However, if synonymy and antonymy are to be considered together, the most important point to be emphasized is that antonymy can always be between two words at the same time, although the synonymy can sometimes be between more than two lexical units (Finegan, 2008:185). According to Storjohan (2010) emphasizing this point, antonymy is a type of lexical opposition. There is an antonymy relationship between the lexical items that are interrelated and require each other, forming a gradable quality scale (Storjohan 2010: 95).

Expressing that antonymy is an extremely natural phenomenon for language unlike synonymy, Palmer (2001) states that because of this feature, antonymy can be defined clearly and comfortably, but semantics books generally avoid making this definition. Interestingly, Palmer himself does not make any specific definitions other than enumerating and explaining the types of antonyms.

In some sources, antonymy is not only a word meaning relationship, but also a relationship between concepts that are the predicate of a proposition, and in this case, the term *opposition* is used. In this context, opposition is the relationship between a proposition and its negative. The set of hyponyms applicable to the same proposition constitutes a set of antonyms or antonyms of co-hyponyms. Therefore, the opposite or negative of the proposition *X is a rose* is the proposition *X is not a rose* (Keith 1986:181).

However, the proposition that *X is not a rose* does not necessarily mean that *X* will be another type of flower. This proposition can also be linked to a proposition such as *X is an insect*. For this reason, there are points that the proposition-based definition of antonym leaves open. The main difficulty in making these and similar definitions is in constructing a general set of attributes to cover each type of antonymy. We can even say that some types of antonyms have aspects that do not fit with the definitions given above. Perhaps this is why theoretical sources generally prefer to describe antonymy types rather than describe to antonymy. When the following traditionally accepted types of antonyms are examined, it will be better understood that it is difficult to make a valid definition for all of these types.

1.1.3. Types of Antonymy

There are some common and basic classifications for antonymy, which we have stated that there are some difficulties in its definition. The first of these is the binary distinction made according to the grading criterion. If there is no third possibility or intermediate terms between two antonyms, they are called *non-gradable antonyms*. For example, there is no third possibility for pairs such as *exist:none*, *alive:dead*. Ungradable antonyms divide a concept or field of knowledge into two parts. On the other hand, gradable antonyms are two opposite ends of a continuous quality or value scale, and there are other degrees between these two poles. There are intermediate terms such as *warm* and *cool* in the antonymy of *hot: cold*, which is one of the most typical examples. In addition, gradable adjectives such as *more*, *much*, *a little* can be used for gradable antonyms. Unlike gradable opposites, which are based on comparison, non-gradable opposites, when used as predicative expressions, divide the universe of discourse, that is, objects that can take this adjective, into two complementary subsets (Lyons 1977: 271). Therefore, many sources use the term *complementaires* for non-gradable opposite word pairs; the term *antonym* is used for those that can be graded. This classification, which is based on Aristotle's distinction between contradictories and contraries, is used to include all other types of antonyms (Mettinger 1994:8). Lyons (1977) uses the concept of *contrast* as one of the types of relations between lexical units, in a way that includes opposition and antonymy. However, saying that the term *opposition* is ambiguous, Lyons preferred the term *complementaries* for the paradigmatically contrasting lexical units, that is, for the non-gradable ones, and *antonymy* for the gradable ones, and two more types called *converseness* and *directional opposition*. Converse pairs of words express two aspects of a relationship. Examples such as *husband:wife*, *teacher:student*, *doctor:patient* are treated as converse word pairs. In idirectionall oppositions, there are two opposing orientations. Pairs such as *coming:going*, *top:bottom*, *front:back* express movements

in opposite directions or opposite orientations around a center. Lyons further divides directional opposition into two subspecies, orthogonal and antipodal, giving examples of geographical aspects. There are two kinds of oppositions between the words *east*, *west*, *north* and *south* that make up this set. Each of them is in a vertical opposition relationship with the other two. For example, there is such a contrast between east and north and south, between north and east and west. The other contrast between the elements of the set is the antipodal opposition between *north:south* and *east:west*. (Lyons 1977: 270-287).

There is another category that Lyons calls *multiple incompatible* and is frequently included in antonyms classifications. Multiple incompatibility is the relationship between lexical units that make up sets with more than two members. In fact, Lyons says, it is very difficult to define incompatibility because, at least theoretically, there is no difference between incompatibility and unrelatedness of meanings. However, as Lyons later stated, incompatibility is seen within the same class or set, that is, within the set of hyperonym meanings attached to the same hyponyms. In other words, incompatibility is based on similarity just like antonymy. According to Lyons (1977), multiple incompatibility occurs in two different sets: serially and cyclically. A serially set of multiple incompatibility has two ends equidistant from the centre. All other lexical units are ordered between these two. A distinction is made between scale and rank, depending on whether the lexical units that make up the serially sets are gradable or not. For example, the set {excellent, very good, good, fairly well, bad, very bad, awful} creates a scale. On the other hand, {full general, lieutenant general, major general, brigadier general, colonel, lieutenant colonel, major, captain, first lieutenant, lieutenant, ensign, private} set is an example of a rank. For cyclic sets, Lyons gives examples of seasons, months, and days.

According to Cruse (2000), incompatibility is an exclusion relationship as opposed to hyponymy. Each of the incompatible terms refers to sets with no members in common. So if something is a cat, it cannot be a dog. An object cannot be in both a cat and a dog set at the same time. However, Cruse draws attention to one more point about incompatibility. There does not always have to be an incompatibility in this sense between the hyponyms of a word. For example, the words *mother* and *queen* can both be co-hyponyms of the word *woman*. There is no logical barrier to a woman being mother and queen at the same time.

For the antonymy, Cruse (1986) has a different classification, although it overlaps in some points with Lyons (1977). Cruse created two types of opposition categories and divided the opposition into two main types as complementarity and antonymy based on the grading criterion. Then, he talked about four types of complementarity: reversives, interactives,

satisfactories and counteractives. *Being born* and *dying* in the set of *being born: living: dying* is reversive; *living* and *dying* are complementary. For all complementaries that make up this group, the basic opposition is between continuing one state and transferring to another state. For reverses *start: continue: stop*; *learn: remember: forget*; *arrive: stay: leave*; *win: protect: lose* examples can also be given (Cruse 1986: 202). Interactive opposites, on the other hand, is an action-reaction relationship. An example of this is obeying an order and disobeying an order. In the context of commanding, obeying and disobeying are complementary, whereas command and obey are interactive because they are an action-reaction relationship. The term *satisfactive* is used for the relationship between an attempt to do something and the act of successfully doing it, such as *to work: to achieve*, *to seek: to find*, *to compete: to win*. Counteractives are complementary such as *attack: defense: defeat* (Cruse 1986: 203).

Cruse (1986) mentions the basic features of antonymy, which he includes in the first main category, especially grading and comparison, and says that there are two types of comparison between antonyms, real and fake. Accordingly, there is a false comparative relationship between the *long* and *short* pair; because we can describe something long but short of something else. However, there is a real comparison relationship between *hot* and *cold*. Because we cannot describe one thing as hot but from another as cold. Or we could say “this piece of string is shorter but longer than the other”; On the other hand, we cannot say “This soup is hot but colder than the other”. According to Cruse, once we attribute a hotness to an object, we can no longer characterize it as colder than another object. On the basis of these distinctions, Cruse (1986) divides gradable antonyms into three categories: polar antonyms (where both antonyms are false oppositions); overlapping antonyms (one of the opposites being fake and the other being real); equivalent antonyms (both antonyms being true oppositions).

Cruse’s second category of opposition consists of directional antonyms. Cruse makes a remarkable comment here. According to him, an directional opposition underlies most of the antonyms in languages. Other oppositions that derive from these basic or primitive oppositions, which he calls *encapsulated*, are examples of metaphorical extensions. For example, *front: back*, *foot of (mountain): top of (mountain)* antonyms are based on intentional oppositions (Cruse 1986: 223). Cruse talks about directional opposition under three headings: antipodals, counterparts, and reverseness, and finally, relational antonymy, which points to two aspects of a relationship (Cruse 1986: 223-227).

These classifications of Lyons and Cruse show the general acceptance in lexical semantics. These are also the antonymy classifications that are widely used in today’s lexical semantics. However, there are different approaches to antonymy. These differences are more related to the scope of

the term antonymy. Some researchers use the term antonymy to encompass all oppositions to meaning. For example, according to Egan (1968) (from Willners 2001) the types of antonyms are:

1. Contradictory terms: mutually exclusive terms with no intermediate possibilities (*perfect: imperfect*)
2. Contrary terms: Real oppositions with gradation (*black : white*)
3. Reverse terms: Terms that indicate the reverse or cancellation of an action (*constructive: deconstructive*)
4. Contrast terms: Terms that belong to the same scale but do not refer to the extremes (*rich : poor*)
5. Incompatible or volatile contrasts: terms that are in opposition but do not completely conflict because they are not on the same scale: (*outspoken : blunt*)
6. Relationship terms: Relationship terms that make sense with each other (*father: son*)
7. Complementary terms: Interrelationships that create each other (*question : answer*)

Egan then defines an antonym as a word that is opposite in meaning to another word, equivalent in breadth or area of use, and negates its use (Willners 2001: 18). The remarkable feature of this definition, which is not seen in other definitions, is that it emphasizes that the semantic range of antonyms is equivalent to each other.

2. Limitations and Problems with the Conception of Lexical Antonymy

The approach of lexical semantics to antonymy is based on the determination of the types of antonyms and their classification under some headings, as briefly shown above. However, antonymy, due to its privileged position in meaning relations, raises more problems and questions than meaning relations such as synonymy, hyponymy and meronymy. Antonymy is more elusive than other semantic relations, first of all due to the ambiguity of the term *oppositon*. At this point, the most important problem seems to be the criterion problem in determining the antonymy.

Perhaps the most striking of the efforts to set criteria for opposition among semanticists are the three features identified by Cruse (2000). According to Cruse, opposition has three basic features, which he calls diagnostic features: binary, inherentness and patency.

The binarity feature is based on the fact that opposites are also examples of incompatibility. Regardless of the number of elements of a

set containing incompatible members, there is an opposition between only its two members. For example, to say “X is tall” means to say that it is not “short” (Cruse 2000: 167). But to say that a fruit is not an apple is to say that it is any of all the other fruits. Here, Cruse emphasizes that although the logical entailment of a proposition such as “X is not an apple” is not clear, the object referred to as “X” in this proposition can be a single fruit type, and therefore there is a binary opposition again. That is, binarity is both a precondition and a logical necessity of opposition.

Cruse (2000) also makes a distinction between accidental and natural opposites. He explains this with an example: If a school canteen has only tea and coffee as beverages, then tea and coffee are opposites in this context. Cruse (2000) states that the contrast here is accidental, not due to the nature of the concepts of tea and coffee. On the other hand, the *up: down* opposition is a natural one. According to Cruse (2000), naturalness is one of the criteria of real opposition.

Cruse (2000), stating that naturalness is a necessary condition for opposition but not sufficient, develops another criterion based on the *Monday: Wednesday* example. Time is a linear dimension and Monday and Wednesday are in opposite directions with respect to Tuesday. But the relationship between these two is different from the opposition of yesterday and tomorrow. The opposition of Monday and Wednesday on the timeline is relative to Tuesday; that is, it is not a opposition arising from their meanings. Whereas, the words *yesterday* and *tomorrow* are opposites due to an obvious difference in their meanings. This feature, which Cruse (2000) calls patency, is one of the mandatory criteria of contrast.

The binarity among these criteria can be accepted indisputably when interpreted as the opposition of one concept to another. However, if binarity is understood as having a single opposite of a concept, some questions arise at this point. Because according to this criterion, every word has only one opposite. In other words, a word can only form a pair of antonymy with a single word. The antonym of *long* as an associative or independent concept is *short*; but this is not always the case.

The criteria of naturalness and openness, which seem to complement each other, are also open to discussion. It is understood that Cruse(2000) refers to the intensional meanings of the concepts by the term naturalness. From this point of view, in the case of tea and coffee, it follows that these two concepts are not antonyms in nature, that is, in their meaning. However, we do not have a precise method that we can apply to understand what the opposite of any word is in terms of meaning, not just for tea and coffee. There is an opposite orientation in the *up* and *down* pair that Cruse(2000) gives as an example of natural opposition. However, there are different

semantic criteria in the formation of opposite pairs such as *mother: father*, *black: white*, *long: short*, *heavy: light*, *enter: exit*. That is, even if naturalness is accepted as a criterion of opposition, it is unclear what the criterion of naturalness will be. In addition, the following inferential conclusion is reached from the criterion of naturalness: If accidental oppositions are only possible in some contexts, natural oppositions are always and in all situations. Because this is a requirement of their semantic nature. Some word association tests also confirm this inference. For example, as a result of the association test, Clark (1970) saw that if a word has a common or, in Cruse's words, a natural opposite, that opposite word is immediately spoken in response to the stimulus word. Deese (1960) reached the same conclusion in a similar study. However, in these tests, the participants said not only the opposites but sometimes synonyms and collocations for the given word. That is, antonym is only one of the meaning relationships of the given words for the participants. However, it should be kept in mind that word association tests yield results that are completely isolated from the actual use of language and are based on the participants' mental lexicon.

The absence of clear and uncontroversial criteria for antonym raises another possible question mentioned above: Why do only some words have opposites? Actually, based on the definitions given above, this question can be answered as follows: For two words to be opposite, they must be in the same conceptual set. Accordingly, black and white are opposites because they belong to the set of colors. At the same time, black and white are opposite in this set, whose members form a scale, because they are located at the opposite ends of the color scale. In other words, we can talk about both belonging to the same set and creating a scale for antonym (Jones 2002: 11). Whereas, an example of relational opposition, the words that make up the *teacher: student* pair neither belong to the same set nor are they at the opposite end of a scale. These refer to both sides of a relationship. Likewise, the opposition *enter: exit* indicates two reverse actions. *Summer* and *winter* represent two antipodal points of the seasonal cycle. From this point of view, we can say that the general criteria of antonym can be reached when the criteria for each of the opposite types, which are widely accepted in lexical semantics, are brought together. Thus, a word pair that meets any of these criteria can be considered an antonym, regardless of its type. If we follow this path, we will see that not only some words but all words can have an antonym in the language. Because, even if it does not fit any other criteria, every word belongs to at least one conceptual field, and within this conceptual field, it is in a non-gradable contrast or incompatibility relationship, even if it is not gradable. If we remember that the distinction between gradation and non-gradation is the most basic classification for antonymy and that Cruse (2000) determines incompatibility as a criterion

of contrast, there is an incompatibility relations for example, between the hyponyms of the concept of *furniture*, such as *bookshelves*, *dining tables*, *armchairs*, etc. In other words, if we put it in common terms, there is an opposition, if not antonymy, between the bookshelf and the dining table. In that case, we can say that antonymy is valid only for some word pairs in the language, as it requires conditions such as grading and creating a continuous quality scale, while the opposition is valid for all words, at least theoretically. However, this time, the difficulty of determining which concept set some words belong to, that is, what their hyperonyms are, stands as an obstacle. For example, what is the hyperonym of the *drinking*? More importantly, is it possible to determine a single upper meaning and therefore a single opposition, since many words such as the drinking are polysemious?

The limitations on this subject are the result of lexical semantics' handling of the subject within the framework of structuralism. Undoubtedly, the vocabulary of the language and the relations between the units that make up this vocabulary should be revealed in accordance with the descriptive principle of linguistics. In addition to being a structure, language is also a usage activity, and this activity causes some structural relations in the language to change temporarily or permanently. This phenomenon, which is valid for all sense relations, presents a more remarkable appearance in terms of antonymy.

3. Collocational Antonymy

The lexical units that make up the vocabulary of a language take place only in the dictionary and as separate units in some theoretical studies within this vocabulary they belong to. However, in the use of language, that is, on the only plane where we can describe the language as real, no word can be used alone. The lexical units that make up the vocabulary of a language take place only as independent units in the dictionary. However, in the use of language, that is, on the only appearance where we can describe language as real, no word can exist alone. The paradigmatic and syntagmatic axes that the language offers to its users form the basis of language use. Apart from its basic meaning in the lexicon, each lexeme is also equipped with meanings arising from the paradigm and syntagma in which it is located. In this case, three meaning dimensions of a word can be mentioned:

1. Lexical meaning
2. Paradigmatical meaning
3. Syntagmatical meaning

For example, the word *flower* means “the most fragrant, colorful part of a plant that bears the reproductive organs” in Current Turkish Dictionary.

However, the same word has entered a different paradigmatic and syntactic relationship in the sentence below, and thus new meanings have been given to its dictionary meaning:

- (1) I made a surprise for my flower.

Considering that no word in a language can be used without being selected from a paradigm and included in a syntax, lexical meaning should be seen as an abstraction of the most common meanings of a lexical unit in the paradigm and syntax it takes place. The lively and variable nature of the lexicon results in the fact that lexical units can take place in a wide variety of paradigm and syntaxes. As the frequency of this diversity and variability increases, the temporary meanings gained by the lexical units enter the lexicon as permanent meanings and are among the lexical meanings of that unit. Although the lexical meanings of a word change over a long period of time, the semantic relationship between words and other words can present some new appearances in every usage where the language turns into discourse. In fact, it is possible to say that the main process that provides and nourishes the vitality of the language is experienced in the dimension of meaning relations between words.

If we exclude the functional words, nouns have a more independent meaning than the other types. The word *book* has a specific referent and a lexical meaning determined based on this referent. However, almost all of the adjectives and a significant part of the verbs reach a real meaning with the other lexical units they are in the same syntax. For example, the adjective *effective*, has meanings such as “effective, influential, pathetic, important” in Turkish Current Dictionary. However, this word, which has a very wide usage area, can gain different meanings depending on the nouns it describes. In this context, an *effective teacher* does not mean only an influential or important teacher; It also has a meaning like “who teaches well what he wants to teach”. This feature of adjectives is called relative descriptiveness. The adjective *large* or *big* does not only indicate a feature of the name / being it describes, but is also determined by that noun/ being. In the phrase *big mouse*, the word *big* has a value only depending on the set of mouse. Because even the biggest mouse is smaller than the smallest elephant. Here, *big mouse* does not refer to both big objects and mice. On the other hand, the phrase *red hat* is a combination of words that refer to both the red objects and the set of hats (Cruse 2000: 68).

Verbs, on the other hand, show differences in meaning depending on the place or situation where the action they report is directed, originating from. These variations occur according to the meaning of other lexical units in which the verb is used together in the same syntax and the morpho-syntactic relations it enters with these lexical units. Verb such *dön-* (to turn)

in Turkish in the examples below has quite different meanings, although both have dative markers:

- (2) a. eve dön- (return home)
 b. deliye dön- (go crazy)

When the same verb assigns a locative marker, generally it produces a physical meaning.

- (3) çevremde dön- (to turn around me)

In linguistics, the regular association of lexemes and morphemes is called collocation. According to J.R.Firth, who used this term for the first time for the co-occurrence of lexical units, words get their meanings from other units with which they are co-occurrence (Müller 2008: 4). In every language, some words are constantly found together with some other words. Apart from the regular word associations that have entered the idioms dictionary by idiomatization, the word *hayat* (life) in Turkish shows a constant association with words such as *pahalılık* (expensiveness of life) *boy* (lifelong), *sür-* (to lead a life). Collocation is an important focus of today's linguistic studies in terms of seeing the lexical, morphological and syntactic patterns of a language. In addition, collocation becomes a basic knowledge in both mother tongue and foreign language teaching, and for this purpose, collocation dictionaries are prepared as well as general dictionaries of languages. Chief among these is the Oxford Collocation Dictionary.

Collocation is an extremely important language phenomenon in terms of observing the meaning relations between words. As we mentioned above, no word is used alone in the language. Each word is found in many syntactic relations, some regular and some temporary. This point becomes even more important in terms of the antonymy. Lexical semantics takes into account the first meanings of words in the dictionary, both while determining the types of opposition and giving examples. However, words can have different meanings in the collocation relations they enter without any metaphorical extension. In this case, not only the meanings of the words change, but also their opposite meanings. Drawing attention to this point, Justeson & Katz (1991) and Muehleisen (1997) say that antonymy is a situation specific to words, not meanings. However, in traditional studies of lexical semantics, every word has one opposite. Because in this type of studies, each word is treated only as a concept. For this reason, we can call antonymy as it is handled in lexical semantics as lexical antonymy. On the other hand, the antonymy of words arising from other words they are used together can be called collocational opposition.

The meanings of words arising from the collocation they are in form a framework of meaning for them in a way. Beyond the meaning of each word

within this framework, its semantic relations with other words also create a new system that may differ from their lexical or conceptual meanings. The traditional antonymy relations determined by the lexical semantics within the structural framework can create a new pattern in the syntactic associations of the words. Revealing this system, which is formed by the meaning relations between words in the dimension of usage, requires a corpus study.

3.1. A Corpus-based Collocational Antonymy Study: *ağır* and *hafif*

A corpus is a database consisting of written or spoken texts produced in a certain period of a natural language, and its scope is measured by the number of words. Thanks to the corpus, various operating principles of the language can be observed through actual data as opposed to intuitive or theoretical determinations. With the help of developments in computer technology, compilation-based linguistics studies constitute one of the focal points of today's linguistics, and in this context, a sub-discipline called corpus linguistics has been formed.

Turkish National Corpus (TNC) was used as the database in this study. TNC is a comprehensive, balanced and representative, general purpose corpus consisting of 50 million words, covering a period of 20 years (1990-2009), containing written and oral examples of today's Turkish from many different fields and genres (Aksan et al. , 2012). In the study, adjectives *heavy* and *light*, which constitute one of the common and regular antonyms of Turkish, were chosen as examples. The aim is to observe the collocations of these adjectives with the nouns they describe, and thus to detect collocational associations where they do not form an opposition with each other. For this, first of all, the nouns described by these adjectives were determined. At this point, it was necessary to determine a limitation because adjective + noun associations can be in the form of adjective(1)_adjective(2)_adjective(n) + noun. The limitation in question is for this study, +3 window spacing from the right is used for the qualifying field of the relevant adjective. The reason for this is that, as determined in (Akşehirli, 2016), the syntagmatic domain of qualifying adjectives in Turkish does not go beyond 3 words, with exceptions. In this way, semantic range consisting of the nouns it describes was created for each adjective. In the second stage, the nouns in these semantic ranges were compared. As a result of the comparison, it is aimed to determine the relations in which the adjectives *ağır* and *hafif* are not in antonyms to each other.

3.1.1. Findings and Interpretation

First of all, it should be noted that for Turkish native speakers, the antonym of *ağır* is *hafif* in the association level. Before moving on to detailed findings, as a general observation, we should say that this intuitive

determination, which is based on the principle that words do not enter into any syntactic relationship and that concepts bring each other to mind, has a different quality in collocation relationships. Both of these two words, which are mostly used as adjectives, have separate meanings and uses. These two words, which are antonym in the lexical level, have a different semantic and quantitative distribution in the usage level.

While the number of different nouns with which the word *ağır* has a qualifying relationship is 76 in the corpus, this number is 28 for the Word *hafif*. Even this finding alone shows that the antonymy relationship in question is not as strong at the level of usage as it is at the level of association. According to this first finding, the word *hafif* is not used as a opposite qualification for a significant part of the nouns qualified by the *ağır*. On the other hand, the number of nouns in the semantic range of both adjectives is only 10. In other words, 10 of a total of 104 names in both semantic ranges exemplify the realization of the *ağır:hafif* antonyms. The nouns in the semantic range of both adjectives are listed below:

Adım, ateş, hasar, hasta, iş, koku, makyaj, silah, vaka, yiyecek

Therefore, these nouns are included in the *ağır: hafif* canonical opposition. The concept of canonical opposition here is used for the power of the two words on the associative level. It can be said that the words *ağır: hafif* have such a canonicity because they are one of the first examples of antonyms that come to mind in Turkish. It cannot be expected that the words that make up canonical oppositions are used in opposition to each other in every context. Non-canonical antonymy expresses a concept that is directly proportional to the level of realization of this expectation. Antonyms in the lexical level form a scale that is graded from the canonical to the non-canonical in the collocational level. Therefore, a word does not form an antonymy relation with the same word in every context.

On the other hand, the syntactic and semantic nature of adjectives is also a factor in this non-canonization. Adjectives are semantically unsaturated words, just like verbs, and so they choose nouns as arguments so that they can happen semantically and syntactically. It is natural in this respect that the antonyms of the adjectives change as the nouns they describe change. Because each adjective gains a semantic integrity with the noun it describes.

In addition, it is not necessary for every noun in the semantic range of an adjective to take place in the semantic range of another adjective on the basis of antonymy. Although it is logically true that every adjective has a predicate and therefore an opposite predicate, it seems that this principle is not always valid in the use of language. For example, there is no opposite qualification between the adjective *hafif* and the word *tebessüm* “smile”

in its semantic space. In a way, the word light here is one of the internal semantic components of the smile and serves to emphasize this component. Table 3 lists the nouns in the semantic range of *ağır* and *hafif* adjectives. The mismatches between these two ranges should be evaluated depending on the reasons mentioned.

Table 3: Semantic Ranges of *Ağır* and *Hafif*

Ağır	Adım, Ateş, Baskı, Bedel, Bombardıman, Bunalım, Bünye, Ceza, Çekim, Çuval, Darbe Depresyon, Element, Eleştiri, Fatura, Felç, Hakaret, Hasar, Hasarlı, Hasta, Hastalık Hava, Hezimet, Hüküm, İfade, İş, İşkence İtham, Kapı, Kayıp, Kısıtlama, Koku, Koma Koşul, Kriz, Makaj, Mesuliyet, Metal Mineral, Opoerasyon, Perde, Sanayi, Sansür Sıklet, Silah, Sonuç, Sorumluluk, Söz, Suç Suçlama, Şart, Tablo, Tahribat, Tahrik, Taş Taşıt, Tedavi, Tempo, Tonaj, Top, Travma Vaka, Valiz, Vasıta, Vebal, Vergi, Yanık Yaptırım, Yara, Yaralı, Yenilgi, Yiyecek Yoksulluk, Yük, Yükümlülük, Zincir
Hafif	Adım, Araç, Ateş, Egzersiz, Hasar, Hasta İş, Koku, Kusur, Makyaj, Meltem, Metro Müzik, Öksürük, Rüzgar, Sakatlık, Ses Sıyrık, Silah, Sis, Şarkı, Şiddet, Tebessüm Ürperti, Vaka, Yağmur, Yiyecek, yorgunluk

This difference in distribution between two semantic ranges shows that antonymy is not a fixed relationship but a dynamic pattern. For example, *ağır* is used to describe *eleştiri* “criticism” as being severe in form and content, while the word *hafif* is not used to describe a lower degree. In other words, there may be an antonymy between *ağır* and *hafif* on the lexical level, but the opposite of *ağır eleştiri* is not *hafif eleştiri*. So the collocational dimension of antonymy can be defined as a continuous pattern rather than a pair of words. In order to trace this pattern, it is necessary to find other adjectives describing the low level of form and content of the word *eleştiri* chosen as an example here. In this direction, all adjectives describing the word *eleştiri* have been determined in the Turkish National Corpus:

Table 4: Adjectives that describing “*eleştiri*”

Sert , Olumlu, Acımasız, Yoğun, Olumsuz, Bilimsel, Haksız, Ciddi, Haklı, Siyasal, Şiddetli, İzlenimci, İlginç, Edebi, Enteresan, Akademik, Açık , Ahlakı, Aldatıcı, Cılız, Esassız, Hakaretimiz, Alaycı, Amatörce, Düzeysiz, Filolojik	Eleştiri
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In order to determine which of these adjectives can be the opposite of *ağır* in the context of *ağır eleştiri*, first of all, it is necessary to determine with which active zone the relevant adjective is used in this qualification. The active zone is one of the possible and immanent meaning dimensions of a word becomes evident as a result of syntagmatic relations. (Langacker, 1984). There is no morphological or statistical method to show in which context and with which active zone an adjective is used, and such a determination process requires a purely semantic interpretation. Although the adjective is a qualifier in adjective + noun combinations, the qualified noun determines the meaning of the adjective. It is understood from the word *eleştiri* that *ağır eleştiri* does not specify a weight-related feature that can be weighed. Among the definitions given for the adjective *ağır* in the Contemporary Turkish Dictionary, it is seen that the definition of “touching, outgoing, hurtful” is valid in this context. In that case, first of all, from the adjectives that describing *eleştiri*, the adjectives *sert*, *acımasız*, *şiddetli*, *hakaretamiz*, which have negative content as in this definition, can be eliminated. All remaining adjectives are the potential antonym of *ağır* in the context of *eleştiri*. For example, *ağır eleştiri* can be contrasted with *bilimsel eleştiri* and *siyasal eleştiri*. However, these are mostly incompatibility-type oppositions that do not take place on a graded or ungraded qualification axis and therefore do not create polarity. Relationships that can be included in the scope of antonymy should be placed on a graded or ungraded qualification axis. Among the adjectives that qualifying *eleştiri*, it is seen that the adjective *cılız* is the strongest candidate with the definitions of “weak, dull” and “weakly”. The fact that the nouns that create a similar relationship such as *muhalefet* and *tepki* are included in the semantic range of the adjective *cılız* and that the adjectives describing these nouns overlap with the adjectives describing criticism (*sert*, *ciddi*, *olumlu*, *olumsuz*, *yoğun*, *şiddetli* etc.) makes this determination stronger.

The main point to be interpreted on our findings is the other reasons why the *ağır:hafif* opposition does not show a collocational equivalence. Even as the size of the corpus increases, the use of the word *hafif* for some nouns qualified by the word *ağır* seems to be semantically extremely unlikely. Because in most of these examples, *ağır* does not indicate a measurable quality, and in some examples, it is not used as the end point of a scale suitable for grading. In these examples, *ağır* acquires other meanings as a result of the semantic interaction with the noun it describes and which is an example of collocation.

Another point to be interpreted here is whether or not speakers, when using the word *ağır*, really think of it as the opposite of *hafif*, when the opposition *ağır:hafif* is not collocational. In other words, the existence of the comparison process, which is a feature of gradable antonyms, is

doubtful in such uses. We can say that a clear comparison is made in the use of *ağır hasar* and *hafif hasar* for the word *hasar*, which has collocations with both *ağır* and *hafif* in the corpus. However, *hakaret* in the semantic range of *ağır*, for example, is not in the semantic range of *light*. In this case, it is unclear whether an insult-related violence comparison is made in the combination of *ağır hakaret*.

One of the points to be noted is that whether the collocations formed with the word *ağır* have an opposite formed with the *hafif* word does not depend on the use of the word in the literal or metaphorical meaning. It is not possible to say that the word *ağır* is used in the literal meaning in *ağır yiyecek*, which has a collocational counterpart, whereas it is used outside of its literal meaning in *ağır eleştiri*, which does not have a collocational counterpart. Although it seems possible to explain this with the polysemy of the word or the width of the meaning field, in our opinion, collocational meaning relations rather than a transition between the lexical meanings of the word play a major role. Explaining the phenomenon here as polysemy requires adding a new meaning to the dictionary as a result of almost all collocation relations.

4. Conclusion

Language is a system that offers its users the opportunity to produce an infinite number of products with limited possibilities. This dynamic system, in which generative grammar emphasizes the ability to produce an infinite number of sentences with a finite number of syntactic rules, presents a similar view in the semantic dimension of the language. Despite the fact that the meanings of words can change over a long period of diachrony, the semantic relations between words show a much more dynamic and rapid change. In this context, we can compare the general and coded patterns determined by structural semantics for the meaning relations between words, just like the syntax possibilities that the language offers to its users. Based on these possibilities, each new paradigmatic and syntagmatic relationship of words causes them to establish a new meaning relationship. This dynamism, which is valid for all meaning relations between words, has a more prominent feature in antonyms. Especially the relationship between adjectives and their opposites is a fruitful example to observe this dynamic aspect of language.

In this study, the static and dynamic aspects of antonym are emphasized. Static relations are, in a way, the product of a determination necessitated by the lexical structure. The lexical structure is formed by emphasizing the descriptive aspects of lexical units within the definition pattern. Therefore, the relationships that make up the pattern in question must be relatively stable. The change of lexical relations means that the definitional contents

of the units also change. The concept of lexical antonymy in this study should be handled within this framework. However, the descriptive content is the product of an abstraction arising from the use of these words. On the other hand, one of the pillars of this abstraction is the associative relation of some lexical relations in the speakers' mental lexicon. It is known that these canonical relations take place as co-occurrence in the textual level, and the most obvious examples of this appear in antonymy. However, different syntactic associations of units in regular relationships can also produce non-canonical and dynamic relationships. Collocation should be seen as a general categorization for such relationships.

The *ağır: hafif* pair was chosen in this study to exemplify the collocational aspect of antonymy. The corpus findings showed that the opposing use of *ağır* and *hafif* was limited to approximately 10% of total use. However, this does not mean that the words *ağır* and *hafif* are not antonyms. In fact, it can be said that the canonical opposition between *ağır* and *hafif* forms the basis of other non-canonical relations. Because adjectives gain meaning thanks to their lexical opposites. Even adjectives such as *kıskanç* "jealous", *şımarık* "spoiled", which do not have a canonical antonyms, gain semantic content with the presence of a certain opposite qualification. All of the collocational variability occurs within the framework of these lexical encodings, which are in some sense at the core. However, considering that the canonicalization process depends on the frequency of use, it can be said that there is a cyclical relationship between lexical and collocational antonymy.

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CHAPTER 3

THE ATTITUDES OF UNIVERSITY STUDENTS TOWARDS EARLY MARRIAGES AND RELATED FACTORS

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1. INTRODUCTION

The United Nations Convention on the Rights of the Child considers every human a child until the age of eighteen, unless the age of majority is attained earlier (UNICEF, 2004). Early marriages refer to marriages in which one or both parties are under the age of 18 (Montazari et al., 2016). Early marriages are the marriages of people who are not developed enough to assume the responsibilities brought by marriages. Early marriage, sometimes referred to as child marriage, can endanger the warmth and intimacy of the family. The United Nations Population Fund highlights that approximately one out of every three girls get married at an early age in many developing countries (Groot et al., 2018). Accordingly, 650 million women get married before the age of 18. Every year, 12 million girls are forced to get married before completing the age of 18 (UNFPA, 2020). These marriages, occurring in childhood, is one of the important global social problems and the violation of children's rights (Ergöçmen et al., 2020).

The Council Foreign Relations (CFR) reports that the rate of early marriages is 29% in Latin America, 46.90% in South Asia, 17.60% in Eastern Asia-Pacific, and 37.30% in Sub-Saharan Africa (Fujina and Setiyowati, 2021). The age of marriage also differs from country to country for girls and boys. While the age of first marriage is 14 for girls and 18 for boys in Afghanistan, it is 20 for girls and 22 for boys in China. The age of first marriage is 16 for girls and 18 for boys in Pakistan, Romania, and Iran, 17 for girls and 18 for boys in Armenia, Azerbaijan, Israel, Lebanon, and Ukraine, and 18 for girls and 21 for boys in Algeria, Bangladesh, and India (Norboboevna, 2021). Moreover, under different living conditions, the age of marriage can be reduced with the parent's permission in Argentina, Belgium, Bulgaria, Denmark, Brazil, Chile, Malaysia, Canada, the USA, Russia, Croatia, Japan, Kazakhstan, South Korea, and Turkey. In Turkey, a person needs to complete the age of 18 to get married with his/her own will. People who have completed the age of 17 can get married with the written permission of their parents or guardians. In extraordinary cases and the presence of a highly important reason, a judge may decide on the marriage of a girl or a boy who has completed the age of 16 (Official Gazette, 1985). The age of marriage changes from country to country depending on the following:

- The level of a country's socio-economic development,
- People's national and moral values,
- Characteristics of physical, psychological, mental, and social development of young people,
- Geographic and regional characteristics of the state,

- Demographic status in the country,
- Importance of the education of young people and professional development for the state and society (Norboboevna, 2021).

An important role in the continuation of early marriages. Gender inequalities are a violation of basic human rights and freedoms for women. In addition, gender inequalities, unequal power between men and women in society cause relationships. Underneath the fact that girls are often exposed to early marriages, society has a view towards women. It is a common belief that she will fulfill her duty as a mother, wife and be the woman of the house. Gender across cultures and generations their roles differ

In traditional society, it is perceived as “woman’s place is at home” (Zeren and Gürsoy, 2020). Child marriage is often the result of entrenched gender inequality, making girls disproportionately affected by the practice. Globally, the prevalence of child marriage among boys is just one sixth that among girls (UNICEF, 2022). Early marriage has an adverse effect on young people’s search for higher education, and this fact has significant health-related and social effects worldwide. It specifically has adverse effects on girls’ education and career goals (Duraku and Gashi, 2020). Early marriages sometimes occur when young girls do not want to continue their education or when low-income families cannot meet their education expenditures (Jisun, 2016, p.51). Many studies from Turkey mention that girls are married at early ages as a method of coping with financial problems, especially among low-income families. Bride price can be important for traditional families. The parent’s education level, socio-economic environment where children are raised, and family’s cultural value judgments may also promote early marriages. It has been determined that girls whose parents are illiterate and have low levels of education and who have fragmented families and live in a rural area face the risk of early marriage (Kaptanoğlu and Ergöçmen, 2012). Clark (2004) states that women who get married at an early age are more exposed to violence during their marriage (Clark, 2004). Regardless of the reason behind early marriages, they influence children’s health and welfare negatively, while increasing the possibility of catching sexually transmitted diseases and various infections, and leading to many problems such as reproduction complications, social isolation, a low level of education, and social, psychological and physical problems (Erulkar, 2013).

Considering the current situation in Turkey, the rate of women who got married at the age of 17 or before was found to be 26% in Western Marmara, 36.3% in Southeastern Anatolia, 37.3% in Middle Eastern Anatolia, and 37.4% in Northeastern Anatolia in the Turkish Family Structure Research (TAYA, 2016) of the Ministry of Family, Labor and

Social Services (TR Ministry of Family, Labor and Social Services, 2016). In Turkey, where marriages are common, there has been a slight increase in the age of first marriage and a decrease in marriages under the age of 18 over time. According to the official statistics that only address official marriages, the rate of women in the 16-19 age group within total marriages decreased from 26.3% to 15.9% between 2010 and 2019 (Ergöçmen et al., 2020).

With respect to the results of the 2018 Turkish Population Research (TNSA), the incidence of marriage before the age of 18 is 14.7%, and the incidence of marriage before the age of 15 is 2.0% among those who were in the 20-24 age group and got married before the ages of 18 and 15. The rate of early marriage is higher among women in the 20-49 age group. The rates of marriage before the ages of 18 and 15 among women in this age group are 19.9% and 3.6%. This rate is higher in rural settlement areas compared to cities (TNSA, 2018). According to the 2018 TNSA data, 64% of women who got married before the age of 18 first had religious marriage. Of these women, 7% only had religious marriage (TNSA, 2018).

Early marriages are one of the important public health problems. In almost all cases, adolescents are not mentally, socially, or financially equipped to give birth and care for infants. Early childbearing (ECB) also harms the mother—pregnancy and childbirth complications are the leading cause of mortality in girls aged 15–19 years—and works through multiple pathways to influence neonatal morbidity, neonatal mortality, and child growth (Scott et al., 2021). Studies on this issue are quite limited. While studies on university students' opinions about early marriages in our country were encountered (Aydın and Akay, 2017; Evgin et al., 2018; Kavlak, 2018; Yaşar, 2018), no studies on the determination of their attitudes towards this issue were found. University students, who constitute the educated part of society, have a significant impact on the shaping of the future society. Therefore, their attitudes are extremely important for their societies. The prevention of marriages in childhood, which is a social problem, is a case requiring interdisciplinary cooperation. Especially university students who are educated in the field of healthcare take on important responsibilities in this matter. It is necessary to do accurate, reliable, and true identifications so that studies can be effective. Therefore, this study was planned and conducted to determine university students' attitudes towards early marriages.

2. MATERIALS AND METHODS

2.1. Study Group

The study group consisted of 759 university students who were studying in the first and fourth years of the Faculty of Health Sciences in Turkey and agreed to participate in the study voluntarily. First-year students came from the society and reflected the society, and fourth-year

students received education on the subject. Therefore, they were included in the study. Students take common courses in the faculty, such as gender, domestic violence, child neglect and abuse, child and law, and family law. It was aimed to reveal to what extent students' attitudes towards early marriages differed during education and to detect whether some socio-demographic characteristics (year of education, gender, place of residence, age, mother's education) created a significant difference in the mean scores of attitudes towards early marriages. The survey model was employed in the study. The survey model is a research approach aiming to describe a past or current situation as it is. It is tried to describe the event, individual, or object addressed in the study under their own circumstances and as they are (Karasar, 2008).

2.2.Data Collection

To obtain the research data, the "General Information Form" and the "Attitude Towards Early Marriage Scale (ATEM)" were used.

General Information Form: There are questions about some socio-demographic characteristics of university students (year of education, gender, age, family income level, place of residence, family type, mother-father's education status, mother-father's age of marriage...).

Attitude Towards Early Marriage Scale (ATEMS): The ATEMS was developed to determine individuals' attitudes towards early marriages. For the overall test, Cronbach's Alpha value was found to be 0.871. There are a total of 23 items in the scale, and 6 of these items contain negative, and 17 contain positive statements. In the scale with a 5-point Likert-type grading, participants were asked to select one of the options "Strongly disagree" 1 point, "Disagree" 2 points, "Undecided" 3 points, "Agree" 4 points, and "Strongly Agree" 5 points for each statement. In the scale, items 8, 10, 11, 12, 17, and 19 belong to the Social Structure subscale, items 1, 2, 3, 6, 14, 20, and 21 belong to the Subjective Judgments subscale, items 7, 13, 15, 16, and 18 belong to the General Judgments subscale, items 4, 5, 9, 22, and 23 belong to the Effects on the Person subscale, and items 2, 3, 7, 14, 20, and 21 are reversely scored. The highest score to be received from the scale is 115, and the lowest score is 23. High scores refer to negative attitudes towards early marriages.

For the applicability of the study and collectability of data, the required Ethics Committee Approval, dated 01/14/2019 and numbered 1, was received from University Non-Interventional Ethics Committee. The study was conducted with students who wanted to participate in the research and submitted their written consent.

2.3.Data Evaluation

Data were analyzed using SPSS software. For selecting the appropriate test in analyses, normality analysis was performed, indicating that the scale score did not exhibit a normal distribution. For this reason, it was decided to use non-parametric test techniques.

Table 1. Normality test results regarding the study group’s subscale scores of the Attitude Towards Early Marriage Scale

	Normality Test Results					
	Kolmogorov-Smirnov			Shapiro-Wilk		
	Kolmogorov-Smirnov Statistics	Sd	P	Shapiro-Wilk Statistics	Sd	p
Social Structure	0.118	743	0.000	0.967	743	0.000
Subjective Judgments	0.199	743	0.000	0.800	743	0.006
General Judgments	0.147	743	0.000	0.919	743	0.000
Effects on the Person	0.116	743	0.000	0.953	743	0.000

When Table 1 is reviewed, it is observed that the normality test results belonging to the subscale scores of the Attitude Towards Early Marriage Scale do not exhibit a normal distribution ($p<.05$). When $p>.05$, the relevant variable is said to have a normal distribution. To apply a parametric test to a variable, the variable checked for normality needs to have a normal distribution in each group. If it does not exhibit a normal distribution even in one group, this will show that a parametric test cannot be used.

While examining intergroup differences, the Mann-Whitney U test was used for the variables of students’ year of education, gender, family type and place of residence, which did not exhibit a normal distribution for analysis between two groups. In more than two groups, the Kruskal-Wallis H test with Bonferroni correction was used for the variables of students’ department of studies, age, and mother’s education status without a normal distribution.

3.RESULTS

Table 2. Descriptive information of the study group (n=759)

Variable	Level	n	%
Year	1st Year	480	63.2
	4th Year	279	36.8
Gender	Female	681	89.7
	Male	78	10.3
Age	18-20	366	48.2
	21-23	275	36.2
	24 and over	118	15.6

Family Income Level	Income less than expenses	188	24.8
	Income equal to expenses	425	56.0
	Income higher than expenses	146	19.2
Place of Residence	City	409	53.9
	District	145	19.1
	Village	92	12.1
	Metropolis	113	14.9
Family Type	Nuclear	650	85.6
	Extended	109	14.4
Father's education status	Literate	18	2.4
	Elementary school	211	27.8
	Middle school	122	16.1
	High school	241	31.8
	University	167	22.0
Mother's education status	Literate	57	7.5
	Elementary school	344	45.3
	Middle school	128	16.9
	High school	171	22.5
	University	59	7.8
Mother's age of marriage	Under 18 years of age	208	27.4
	18 years of age and over	551	72.6
Father's age of marriage	Under 18 years of age	43	5.7
	18 years of age and over	716	94.3

In Table 2, descriptive information about the study group is given. In Table 2, 63.2% of the study group is first-year students, and 36.8% is fourth-year students. The majority of students consist of female students (89.7%). Thus, $\frac{1}{4}$ of students in the faculty are female students. Furthermore, 48.2% of students are in the 18-20 age group, and 56.0% stated that their family income was equal to their expenses. Of the study group, 53.9% lived in the city center, 85.6% had extended families, 31.8% of their fathers were high school graduates, and 45.3% of their mothers were elementary school graduates. While 27.4% of the students in the study group reported that their mothers got married under the age of 18, 5.7% stated that their fathers got married under the age of 18.

The results of the study performed to determine university students' *Attitudes Towards Early Marriages* and to analyze these attitudes in respect of various variables are presented in the tables below.

Table 3. Mann-Whitney U test results of university students who participated in the study regarding the subscales of the Attitude Towards Early Marriage Scale in terms of year of education, gender, and place of residence.

Subscales	Year	N	S.O.	S.T.	U	MWU	
						Z	p
Social Structure	1st year	480	362.97	170597.50	59912.50	-1.908	.046*
	4th year	279	393.99	109528.50			
Subjective Judgments	1st year	480	382.99	183070.50	63816.50	-0.844	.399
	4th year	279	369.38	102319.50			
General Judgments	1st year	480	389.85	185568.50	60761.50	-1.962	.036*
	4th year	279	357.78	99821.50			
Effects on the Person	1st year	480	382.25	182714.50	64172.50	-.706	.480
	4th year	279	370.67	102675.50			
Social Structure	Female	681	384.94	258296.50	18826.50	-3.924	.000*
	Male	78	283.50	21829.50			
Subjective Judgments	Female	681	388.60	263080.50	19928.50	-4.251	.000*
	Male	78	286.02	22309.50			
General Judgments	Female	681	388.21	262819.00	19490.00	-3.814	.000*
	Male	78	289.37	22571.00			
Effects on the Person	Female	681	389.69	263817.00	18492.00	-4.357	.000*
	Male	78	276.58	21573.00			
Social Structure	Metropolis	522	388.83	199082.50	53077.50	-2.687	.007**
	District-Village	237	343.40	81043.50			
Subjective Judgments	Metropolis	522	384.63	199238.00	57949.00	-1.261	.207
	District-Village	237	363.51	86152.00			
General Judgments	Metropolis	522	386.98	200456.50	56730.50	-1.683	.092
	District-Village	237	358.37	84933.50			
Effects on the Person	Metropolis	522	389.00	201504.00	55683.00	-2.059	.039*
	District-Village	237	353.95	83886.00			

Upon reviewing Table 3 and considering the mean ranks of university students' years of education, a significant difference is observed among the mean scores obtained from the social structure ($U=59912.50$, $p<.01$) and general judgments ($U=60761.50$, $p<.01$) subscales of the Attitude Towards Early Marriage Scale. The mean ranks of the Attitude Towards Early Marriage Scale of 4th-year students in the social structure subscale and those of 1st-year students in the general judgments subscale were found to be high.

A statistically significant difference is observed according to gender among university students' scores of the Attitude Towards Early Marriage Scale in the social structure ($U=18826.50$, $p<.01$), subjective judgments ($U=19928.50$, $p<.01$), general judgments ($U=19490.00$, $p<.01$), and effects on the person ($U=18492.00$, $p<.01$) subscales. Concerning mean ranks, female students' higher mean scores than those of male students in all subscales indicate female students' negative attitudes towards early marriages compared to male students.

The variable of the place of residence creates a significant difference in terms of the scores in the social structure ($U=53077.50$ $p<.05$) and effects on the person ($U=55683.00$ $p<.05$) subscales of the Attitude Towards Early Marriage Scale. Regarding mean ranks, the scores of students living in a metropolis in the Attitude Towards Early Marriage Scale were higher than those of students living in a district/village.

Table 4. Kruskal-Wallis H test results of university students who participated in the study regarding the subscales of the Attitude Towards Early Marriage Scale in terms of age

Subscales	Age	N	S.O.	Sd	X ²	P
Social Structure	18-20	366	347.32	2	8.061	.018* 1,3-2
	21-23	275	393.68			
	24 and over	118	341.88			
Subjective Judgments	18-20	366	387.70	2	3.158	.206
	21-23	275	402.09			
	24 and over	118	378.81			
General Judgments	18-20	366	363.50	2	9.834	.007** 1,2-3
	21-23	275	394.94			
	24 and over	118	400.87			
Effects on the Person	18-20	366	362.70	2	5.420	.067
	21-23	275	418.41			
	24 and over	118	394.61			

Upon examining Table 4 the difference between university students' mean ranks in the social structure ($X^2=8.061$; $p<.05$) and general judgments ($X^2=9.834$; $p<.01$) subscales of the *Attitude Towards Early Marriage Scale* in terms of age was found statistically significant. To determine which groups this difference resulted from, the "Mann-Whitney U test" was performed, and the mean ranks of students aged 21-23 years in the social structure subscale and those of students aged 24 years and over in the general judgment subscale were higher.

Table 5. Kruskal-Wallis H test results of university students who participated in the study regarding the subscales of the Attitude Towards Early Marriage Scale in terms of mother's education status.

Subscales	Mother's education status	N	S.O.	Sd	X ²	p
Social Structure	Literate	57	372.46	4	.465	.977
	Elementary school	344	379.51			
	Middle school	128	366.31			
	High school	171	374.14			
	University	59	365.94			

Subjective Judgments	Literate	57	362.83	4	5.135	.274
	Elementary school	344	374.62			
	Middle school	128	355.11			
	High school	171	407.67			
	University	59	375.28			
General Judgments	Literate	57	428.94	4	16.075	.003** 2,3,4-5
	Elementary school	344	359.11			
	Middle school	128	362.37			
	High school	171	380.19			
	University	59	465.64			
Effects on the Person	Literate	57	369.66	4	6.282	.179
	Elementary school	344	383.49			
	Middle school	128	349.69			
	High school	171	372.27			
	University	59	432.72			

As seen in Table 5, as a result of the “Kruskal-Wallis H” test conducted to determine whether there was a significant difference between the education status of university students’ mothers and students’ scores in the subscales of the *Attitude Towards Early Marriage Scale*, only the difference ($X^2=16.075$; $p<.05$) between the mean ranks of the general judgments subscale was found statistically significant. As a result of the “Mann-Whitney U” test performed to determine which groups this difference resulted from, the difference between the mean ranks of students whose mothers were elementary, middle, and high school graduates and students whose mothers were university graduates in the general judgments subscale was significant.

4.DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

This study was conducted on a total of 759 university students to investigate university students’ attitudes towards early marriages in terms of various variables.

In the study results, it was revealed that the year of education created a statistically significant difference in the social structure and general judgments subscales of negative attitudes towards early marriages, and 4th-year students’ negative attitudes towards early marriages were higher in the social structure subscale. Fourth-year students stated that most early marriages occurred due to pressure, girls who were exposed to physical violence considered early marriages as an escape, and early marriages were a violation of human rights. To interpret this result, the four-year education of students can be the reason for their development of negative attitudes towards early marriages. In the general judgments subscale, 1st-year students’ negative attitudes towards early marriages are higher.

In the study, a statistically significant difference is observed according to gender among university students' scores in the subscales of the Attitude Towards Early Marriage Scale. Female students exhibited negative attitudes towards early marriages more intensively than male students. In the study in which Evgin et al. (2018) investigated university students' opinions about early marriages and child brides, it was found that female students considered early marriages wrong and a type of abuse more than male students did. In the study of Aydın and Akay (2017), female students studying nursing referred to early marriages as a social problem more than male students did. This result can be thought as an indicator of a patriarchal structure.

It was concluded that there was a significant difference in the scores of the social structure and effects on the person subscales of the Attitude Towards Early Marriage Scale regarding students' places of residence, and students living in a metropolis exhibited negative attitudes towards early marriages more intensively than students living in a district/village. In the study conducted by Güler et al. (2010), living in a rural area was stated as a more encountered case in early marriages. Since the patriarchal and traditional social structure normalizes early marriages (Moroğlu, 2019), it is interpreted that people living in a district/village have different perspectives on early marriages due to a conservative understanding and economic reasons. While early marriages and marriages in childhood are more commonly observed in rural, underdeveloped, and poor settlement areas far from city centers (Erulkar, 2013), the number of girls married before the age of 18 is 15.5 million in urban areas. This number rises to 51.9 million in rural areas (UNFPA, 2012).

In the study, the age variable creates a significant difference only in the general judgments subscale of the Attitude Towards Early Marriage Scale, and negative attitudes of students aged 24 years and over towards early marriages are higher than those of other groups. Factors such as poverty, lack of education, cultural and religious values, concern about protecting the family honor and gender inequality, which lead to early marriages, also influence individuals' attitudes towards this type of marriage. It is reported that in societies where these marriages are common, girls who get married (are married) at early ages, have low education levels and low levels of knowledge about early marriages have more positive attitudes and support early marriages more (Zeren and Gürsoy, 2020). According to the TurkStat data (Turkish Statistical Institute) (2021), the age of first marriage has increased in both genders compared to the 2000s. The age of first marriage was 27.9 in men, whereas it was 25.1 in women in 2020. Pursuant to the standards defined with international treaties, each marriage that occurs before individuals under the age of 18 complete their mental and physical development is defined as an "early marriage," and it is possible to say

that as especially students' ages increased in our study, they developed more negative attitudes towards early marriages, also in connection with the courses they received during their undergraduate studies.

The difference in the general judgments subscale of the Attitude Towards Early Marriage Scale according to the education status of university students' mothers was observed to be significant, and the scores of students whose mothers were elementary, middle and high school graduates were lower than those of students whose mothers were university graduates. Most early marriages occur due to pressure, without the consent of people, and the parent's education level, the socio-economic environment where children are raised, and family's cultural value judgments can also promote early marriages, and early marriages are associated with the value judgments of rural areas (Kaptanoğlu and Ergöçmen, 2012; Özcebe and Biçer, 2013).

In line with the results obtained from the study, regarding raising the awareness of society and preventing traditional practices to bring early marriages to an end, it can be recommended to include relevant courses especially in the undergraduate curricula of university students and to study attitudes towards early marriages with different sample groups in different regions.

In intervention programs oriented at preventing early marriages, activities for raising the awareness of society, family, young people, and girls are of significance. In the management of the process, public and private organizations, non-governmental organizations, local administrations, community leaders, and media should work collaboratively. Within the scope of the struggle against this social problem, it is necessary to realize that early marriages are a violation of children's rights, women's rights, and human rights, and it should be aimed to empower girls.

Limitations of the study

The study is limited to university students in Turkey. It is recommended to conduct future studies on the extent of attitudes towards early marriage.

Conflict of Interest

The authors declare that there is no conflict of interest. All listed authors meet the authorship criteria, and they are in agreement with the content of the manuscript.

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Authors' Contributions

All authors designed the study, supervised all aspects of its production, and are responsible for the assessment and data extraction. All authors contributed ideas and reviewed drafts of the manuscript. All authors approved the final version.

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CHAPTER 4

PERSONALITY TRAITS AND ONLINE LEARNING READINESS OF STUDENTS RECEIVING EDUCATION IN TURKISH LANGUAGE TEACHING AND TURKISH LANGUAGE AND LITERATURE DEPARTMENTS

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Introduction

After Covid-19 was declared a globally effective lethal pandemic by the World Health Organization, higher education institutions rapidly switched to online education. In our country, after the mid-March, universities affiliated with YÖK transferred their education applications to online environments, and starting from 6 April 2020, all universities nationwide began to provide online education (YÖK, 2020). Online or distance education methods have become more usable after the pandemic which has plagued our world recently. This tendency, which is sort of an obligation, brought about the search for utilizing online education platforms as effectively as possible, rather than discussing their impact on the lives of learners/educators. With the start of this new process, educators and students have naturally made more efforts to adapt to electronic information flow. In addition, by considering the positive aspects of online education, they have benefited from the uninterrupted exchange of information and this communication environment, which makes place unimportant. There is no doubt that face-to-face education and online education have their respective pros and cons. Many studies on this subject have also been conducted. While the advantages of distance education programs stand out in terms of organizing the student's learning activities according to himself and being independent of place and time, creating equal opportunity can be considered as the most important advantage on a social scale at large (Yıldız, 2004).

In general, distance education has been found to be advantageous in terms of meeting lifelong learning needs, providing individuals with the opportunity to develop themselves in the areas they desire, including flexibility in terms of age, place, time and speed, being less costly compared to face-to-face training, and providing equal opportunity (Odabaş, 2003) .

Hamutoğlu, Gültekin, and Savaşçı (2019) evaluated student-student and teacher-student interaction in their studies. They drew attention to the insufficient level of student-student interaction in distance education, the difficulty of providing control and receiving feedback on this issue, and the limited or overly simple contents. Accordingly, they revealed that students could not share their ideas properly, and emphasized that factors such as the large class population and not being able to recognize (not knowing) students are the biggest disadvantages of distance education in teacher-student interaction. Although it is known that face-to-face education is prioritized in the classical sense, some studies have shown that online education provides benefits in several ways (Tuncer and Taşpınar, 2008: 137). Along with all these, another factor that plays an important role in the effectiveness of online learning is the readiness level of the students for online learning (Ibrahim, Silong & Samah, 2012; Oliver, 2001).

Various researchers defined online learning in different ways. The leading definitions are listed as follows (Keoduangsine & Goodwin, 2009): Warner, Christie and Choy (1998) define online learning readiness as the capacity to prefer face-to-face education to online education, to rely on the student's knowledge / skills in computer and network technologies to fulfill their course-related tasks, and to take responsibility for online learning. In a similar vein, Oliver (2001) and Watkins (2003) dimensioned as online learning readiness, ability to use technology, access to technology, technology literacy and self-control capacity. Smith Murphy and Mahoney (2003) developed a scale to measure the level of online learning readiness. As a result of their research, they revealed that the effects of past experiences on new ones, having intrinsic motivation, determining their personal learning goals and learning paths are the most effective variables for online learning readiness. Choucri et al. (2003) and Kaur and Zoraini Wati (2004) defined online learning readiness as e-readiness and explained it as the capacity to analyze, follow and e-learn from the information/resources found on the internet. Hung, Chou, Chen, and Own (2010) were the researchers who defined online learning readiness in all its dimensions. Hung et al. (2010) suggested that online learning readiness consists of five dimensions. The authors named these dimensions as Computer and Internet Use Self-Efficacy, Self-Learning, Learner Control, Learning Motivation and Online Communication Self-Efficacy, respectively. Another factor affecting learning is personality. McCrea and Costa further developed the differential feature theory of their predecessors Allport, Cattell and Eysenck. The Five Factor model used today was developed by McCrea and Costa. These factors are also known as the Big Five. In their studies, they suggested that personality can be evaluated in five dimensions and developed a measurement tool that is still used today. The dimensions defined in the Five Factor personality model are named as extroversion, neuroticism, openness to experience, adaptability, and self-discipline (Okaray, 2020). In short, the characteristics of these dimensions are represented by individuals with high extroversion, talkative, comfortable, lively and fun individuals in social environments. Introverts at the other end of the extroversion dimension are individuals who like to be alone, are considered quiet, shy and distant by other individuals. Individuals with high neuroticism are sensitive, anxious and self-confident. Emotional ups and downs are common to these individuals who are vulnerable to stress. On the other hand, people with low neuroticism are those who can cope with stress comfortably, are emotionally balanced, calm and socially adaptable. The concept of openness to experience, on the other hand, has been used to define individuals who are more open to an adventurous personality, creativity, new situations, events and people, and are not afraid of innovations. On the other hand, "adherence to habits"

defines refraining from going beyond the usual framework, having certain rituals and being closed to innovation. Individuals with high compatibility characteristics are docile, reliable and helpful people. At the other end of this dimension are critical individuals who can be called “ruthless”, exhibit hostile behaviors to people, and are angry and extremely offending. Finally, individuals defined in the dimension of self-discipline are well organized, punctual, planned and success-oriented. People who are at the other end of this dimension are negligent, purposeless, messy and careless individuals (Atak, 2013).

On the other hand, it is known that the degree of reaching goals for distance education varies according to departments and scientific units. This study, which examines the Online Education and Personality dimension, evaluated freshman and sophomore students at Turkish Language Teaching and Turkish Language and Literature departments where language/literature education is predominant. There are advantages and disadvantages for the students of this department in language and literature courses, which aim to increase written and verbal expressiveness and improve grammar knowledge. The online method is effective in grammar classes that focus on sound, structure, vocabulary and sentence knowledge. In this way, grammatical solutions can be given more place, and homework studies that direct the student to practice can be presented with different techniques. Although live conversation can be provided in oral expression practice studies, some deficiencies can be seen in the determination of the verbal expression levels of the students. It is difficult to measure the aspects such as diction, intonation, use of body language, and excitement control that the student will show in face to face communication before an audience. However, with the encouragement by the instructor to participate, this deficiency is somewhat eliminated, and opportunities to support the next implementation work are offered to the student. As can be seen in the data obtained from the study, students stated that they had the opportunity to follow the recorded classes later and formed a study plan accordingly.

The purpose of this research is to examine the personality traits and online learning readiness of students who started the university in the 2019-2020 academic year and continue university through online education due to the COVID-19 pandemic at a Foundation University in the Turkish Republic of Northern Cyprus. For this purpose, answers to the following questions were sought:

- 1- Is gender a factor affecting online learning readiness?
- 2- Is grade level a factor affecting online readiness learning?
- 3- Are internet speed / connectivity and technical hardware problems factors affecting online learning readiness?

4- Is the device (smart phone, laptop computer etc.) used in online education a factor affecting the online learning readiness?

5- Is there a relationship between personality traits and online learning readiness?

Method

Approval was obtained for the study with the 26.02.2021 dated and ÜEK / 58/01/02/2021/ 07 numbered decision of the European University of Lefke Ethics Committee. Due to the Covid-19 pandemic, a questionnaire was sent to the students continuing their online education via googleforms and data were collected from the students who volunteered to participate in the study. Approvals were obtained from the students who volunteered to participate in the study. The research is a cross-sectional study conducted in the spring term of 2020-2021.

Data Collection Tools

Personal Information Form: Through the form created by researchers, socio-demographic data were reached by asking participants their age, gender, whether they had online education experiences before the pandemic process, whether they had problems in terms of internet speed and connection as well as technical hardware, and which device they used to follow the online classes.

Ten-Item Personality Scale (OMKÖ): The scale developed by Gosling et al. (2003) consists of ten items. It includes sub-dimensions of openness to experience, extroversion, responsibility, emotional stability and temper-mindedness. The validity and reliability study of the Turkish translation was done by Atak (2013). Internal consistency coefficients of the scale were calculated as openness to experience (0.83), temper-mindedness (0.81), emotional stability (0.83), responsibility (0.84), and extroversion (0.86).

Online Learning Readiness Scale: The Turkish validity and reliability study of the scale, developed by Hung, Chou, Chen and Own (2010), was conducted by Demir-Kaymak and Horzum (2013). As a result of the study, the internal consistency coefficients of the sub-dimensions of the scale were calculated as 0.87 for Computer / Internet Self-efficacy, 0.77 for Self-oriented Learning, 0.79 for Student Control, 0.70 for Motivation for Learning, and 0.83 for the online communication self-efficacy subscale.

Participants

The sample of the study included 90 students at Turkish Language Teaching and Turkish Language and Literature Departments. Among them, 68.1% were females (n=62) and 31.9% were males (n=29) in 18-25 age intervals with 20,36±1,56 mean age. 69.2% (n = 63) of the participants

were freshman and 29.7% ($n = 27$) were sophomore students. Although 11% of the participants ($n = 10$) had online education experience before the pandemic, 89% ($n = 81$) did not have previous online learning experience. While 57.1% ($n = 52$) of the participants attended online classes with their smart phones, 36.3% ($n = 33$) had a laptop computer and 6.6% ($n = 6$) used tablets and desktop computers. A majority of the participants stated that they experienced problems related to internet speed and connection (85%, $n = 85$) and technical hardware (82.4%, $n = 75$) during online education. When the participants were asked which education system they preferred after the pandemic ended, 57.1% said face-to-face education ($n = 52$), 25.3% said online education ($n = 23$) and 17.6% ($n = 16$) said face to face education supported by online education. Finally, the participants were asked about the advantages of online education. In line with the answers received, 83.5% of the participants stated that they saw the opportunity to watch the class again ($n = 76$) as the most important advantage of the classes being recorded.

Findings

Total scores of the Participants' Online Learning Readiness Scale ranged from 36-90 and the group mean score was calculated as 70.07 ± 12.55 . As a result of the statistical analysis, it was determined that the gender variable did not make any difference in terms of online learning readiness ($t(89) = 0.837$, $p = 0.405$). Whether the students had previous online education experiences or not did not reveal a significant difference on online learning scale scores ($t(89) = 0.153$, $p = 0.879$). Although there was no statistically significant difference between the total scores of the Online Learning Readiness Scale of the students participating in the study, the mean scores of sophomore students ($\bar{x} = 74.11 \pm 11.46$) were calculated higher compared to freshman students ($\bar{x} = 68.60 \pm 12.65$). In the sub-dimensions of the Online Learning Readiness Scale, Computer / Internet Self-Efficacy was found to be significantly lower among freshman students ($\bar{x} = 9.25$) than sophomore students ($\bar{x} = 11.85$) ($t(88) = 2.644$, $p=0.00$).

Significant differences were found between the sub-dimensions of the Online Learning Readiness Scale between students who experienced Internet speed and connection problems and those who did not. Accordingly, the Computer / Internet Self-Efficacy ($\bar{x} = 9.80$) of the students who reported having problems with the internet speed and connection was found to be low, making a significant difference compared to the students who reported that they did not experience such problems ($\bar{x} = 13.16$) ($t(89) = 2.866$, $p = 0.05$). Similarly, in the Student Control subscale, which is one of the subscales of the Online Learning Readiness Scale, Student Control ($\bar{x} = 10.92$) of students who reported problems with internet speed and connection was significantly lower than students ($\bar{x} = 13.16$) who reported that they did not experience such problems ($t(89) = 2.019$, $p = 0.04$).

Data on the Student Control sub-dimension, one of the subscales of the Online Learning Readiness Scale, of students who had and did not have technical equipment problems were obtained. Accordingly, Student Control ($\bar{x} = 10.80$) of students who reported having technical hardware problems was found to be low, making a significant difference compared to students who reported that they did not experience this problem ($\bar{x} = 12.37$) ($t(89) = 2.189, p = 0.03$).

Data were obtained in the dimensions of Computer / Internet Self-Efficacy and Online Communication Self-Efficacy, which are sub-dimensions of the Online Learning Readiness Scale. Accordingly, statistically significant differences were found between the groups in terms of the devices used to attend the class. As a result of the statistical analysis, the Computer / Internet Self-Efficacy scores ($\bar{x} = 11.09$) of the students who used laptop computers to participate in the course were determined to be higher than those who attended the classes with their smart phones ($\bar{x} = 9.38$). Students using laptop computers rated themselves more positively in terms of Computer / Internet Self-Efficacy than students using smartphones ($F(3.87): 2.740, p = 0.04$). Similarly, students using laptop computers ($\bar{x} = 12.81$) rated themselves more positively in terms of online communication self-efficacy compared to students ($\bar{x} = 10.75$) using smartphones ($F(3.87) = 3.70, p = 0.015$).

Students were asked about their preferred learning method in post-pandemic period. As a result of the statistical analysis, the Online Readiness Scale Student Control sub-dimension of the students who preferred face-to-face education after the pandemic period ($\bar{x} = 10.42$) was found to be statistically significantly lower than those ($\bar{x} = 12.17$) who preferred online education ($F(2.88) = 4.110, p = 0.020$). Students with high student control prefer online education.

The relationship between students' personality traits and their online learning readiness was evaluated. Accordingly, a significant and positive correlation was detected between Temper-mindedness ($r = 0.244, p = 0.020, p < 0.01$) and Extroversion ($r = 0.389, p = 0.000, p < 0.01$) dimensions. Significant and positive correlations were found between temper-mindedness and extroversion personality traits in the dimensions of Self-oriented Learning, Student Control and Online Communication Self-Efficacy in the Sub-dimensions of the Online Learning Readiness Scale. Significant and positive correlations were found between emotional stability, responsibility and extroversion between the student motivation sub-dimension and personality traits. The correlation coefficients obtained are given in Table 1.

Table 1. Relationships between Personality Traits and Online Learning Readiness

		r	p
Self-Oriented Learning	Temper-mindedness	0,249	0,017**
	Extroversion	0,327	0,002*
Student Control	Temper-mindedness	0,297	0,004*
	Extroversion	0,348	0,001*
Motivation for Learning	Emotional Stability	0,349	0,010*
	Responsibility	0,248	0,018**
	Extroversion	0,442	0,000*
Online Communication Self-Efficacy	Temper-mindedness	0,266	0,011**
	Extroversion	0,315	0,020*
Online Learning Readiness	Temper-mindedness	0,244	0,020*
	Extroversion	0,389	0,000*

* $p < 0,01$, ** $p < 0,05$

When the relationship between age and online learning readiness of students was examined, it was found that as the age of students increased, so did their online learning readiness level ($r = 0.236$, $p = 0.024$, $p < 0.05$). In particular, it was found that computer / internet use self-efficacy ($r = 0.363$, $p = 0.000$, $p < 0.01$) also increased with age.

Discussion

In this study, the Online Learning Readiness of students at Turkish Language and Literature and Turkish Language Teaching departments were examined according to certain variables and the relations between personality traits of students and their online learning readiness were analyzed. In line with the obtained findings, no significant difference was found between gender and online learning readiness of students in this study. According to Sarıkaya and Yurdağül (2016), Demir Öztürk and Eren (2021), while male students have higher computer / internet self-management and online communication self-efficacy than female students, female students have higher self-oriented learning scores. Yılmaz, Sezer, and Yurdağül (2019) and Sakal (2017) found that online learning readiness of male students was higher than female students. On the other hand, Çakır and Horzum (2015) and Baygeldi, Öztürk and Dikkartın Övez (2021) found that gender did not reveal a significant difference. The fact that there are different findings on online learning readiness and gender in the literature implied that the participant students may differ depending on some other socio-demographic characteristics.

In this study, computer / internet self-efficacy of sophomore students was found to be higher than freshman students, making a significant

difference. This finding is compatible with the literature. In Sarıkaya and Yurdağül (2016) research, it was found that higher grade students' computer / internet self-efficacy was higher than lower grade students. This result is thought to be affiliated with being at an upper grade at the education level and having more skills and experience in using internet / computer.

Students who suffered from internet speed / connection and technical equipment deficiency received lower scores which implied a significant difference in computer / internet self-efficacy and student control. This finding is consistent with the results of Baygeldi, Öztürk and Dikkartın Övez (2021). Baygeldi, Öztürk and Dikkartın Övez (2021) and Demir Öztürk and Eren (2021) found that online learning readiness, computer / internet self-efficacy and learning controls were higher among students with internet connection and personal computers. This result was thought to be related to internet access and speed, having a personal computer, smooth attendance and follow-up to online classes, and ease in fulfilling the course tasks and responsibilities. Another finding obtained in this study is that the computer / internet self-efficacy and online communication self-efficacy of the students who have a personal laptop and follow the online classes on their laptop are higher than the students who follow the classes using smart phones. Similarly, this finding was thought to be related to following online classes and fulfilling the course responsibilities more easily using laptop computers.

In response to the question related to which education method they may choose after the pandemic, students with high learning control stated that they would prefer online education. This suggests that it may be related to their perspective that they command their own learning pace and have control on online classes.

The findings of the research regarding the question of determining the relationships between personality traits and online learning, another question of the study, are as follows: The readiness of online learning of students with high extroversion and temper-mindedness personality traits revealed significant relationships compared to other personality traits. As it is known, extroversion personality trait is related to adaptation to social environments, ability to exhibit purposeful behaviors, problem-oriented solution and rationality. On the other hand, temper-mindedness personality trait is characterized by collaborative attitude, approval of cooperation, and compatibility (Bitlisli, 2013, Horzum, Ayas, & Padır, 2017). The fact that extroversion and temper-mindedness personality traits are dominant personality traits among students affected their online learning readiness positively. Students perceived the necessity of transition to online learning as a more positive experience compared to students with other personality traits during the pandemic process.

Limitations

The most important limitation of this study is that it was conducted with a group of students who started their education life online due to the COVID-19 pandemic at a Foundation university. In addition, the inability to compare this group with the students who started their education life in a face-to-face environment made it difficult to see the possible differences between them. Another limitation of the study is the collection of data from freshman and sophomore students of the Turkish Language and Literature Department and Turkish Teaching Departments, where theoretical education is predominant. No comparison could be made since data were not collected from students of different departments at the same level which required practical training.

Conclusion

Total scores of online learning readiness of the students participating in the study show that their level of online learning readiness is high. Deficiencies in technical equipment, internet speed and connectivity negatively affect online learning readiness of students. It is believed that in extraordinary situations such as the COVID-19 pandemic, the importance of providing necessary support for technical equipment and internet connection by the relevant institutions not only to university students but to all students across the country, and being prepared for such extraordinary situations has been unfolded.

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CHAPTER 5

**IN THE CONTEXT OF ORGANIZATIONAL
SUSTAINABILITY; EVALUATION OF
ORGANIZATIONAL AGILITY, BUSINESS
CONTINUITY MANAGEMENT, HIGH RELIABILITY
ORGANIZATIONS AND ORGANIZATIONAL
RESILIENCE CONCEPTS WITH THE ECOSYSTEM
APPROACH**

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Introduction

Academic studies on organizational development continue to be carried out in many different fields. A number of similar approaches may be seen in the literature, especially as a result of the expansion of the application areas of concepts such as efficiency, sustainability and resilience. However, the new working styles that came along with the pandemic and some restructuring requirements in organizations have also increased the importance of such activities. Although the activities carried out at both managerial and operational levels to ensure sustainability may appear different from each other, they can actually be described as parts of a whole from a holistic perspective.

One of the main reasons for the different approaches to be developed as different concepts is the varying needs of each sector and the application areas in line with these needs. It is also known that similar studies are carried out within organizations, by different departments, for each department's own needs. Hence, similar outputs are named differently, as a result of the same content being defined with different names and concepts by different units. All these studies may be carried out in an integrated way with the help of a holistic view. For this purpose, it is important to interpret subjects with similar contents with a holistic approach and manage them with a vision that will reveal the full picture. Instead of interpreting similar subjects and contents with a hierarchical understanding, developing a perspective with the assumption that those subjects and contents are in interaction both with each other and with the concept of sustainability may make these easier to manage. Furthermore, this perspective may help reduce the cost caused by the time and labor spent by preventing repetitive studies. This may have a positive effect on motivation, task performance and job satisfaction, too. It may also help new needs and applications that had gone unnoticed before to be noticed and necessary actions to be planned, by virtue of examination of other relevant components within the ecosystem.

It would be correct to describe the integrated perspective, which is the subject of this study, with the ecosystem approach. As we all know, the ecosystem approach is characterized by the interaction of all components with each other and with the main system. The interpretation of ecosystem conception and the holistic perspective with this approach may introduce a harmonizing effect that increases efficiency in these subjects.

1. Organizational Sustainability

Ensuring sustainability, which is one of the most important goals of the strategic management philosophy, is an essential value, especially for organizations that have achieved a corporate structure. It is also one of the cornerstones of company culture. Sustainability is a concept

used in different fields. It was also introduced to the business world as organizational sustainability. In this context, it may be described as a tool to increase the growth and development of the organization, brand awareness and customer loyalty, and to create investor demand. The main reason behind organizations' turning to sustainability activities is the purpose of increasing the market value of the organization, becoming a more preferred choice in the market, and having a competitive advantage as a result of this (Turhan, Özen, & Albayrak, 2018).

However, organizational sustainability also explains why it is necessary for companies to fulfill social responsibilities such as environment-friendliness, social justice, equality, and economic development. Organizational sustainability is an approach that deals with sustainability at organizational level, and together with its environmental, social and economic dimensions (Şeker, 2018). Another study describes it as a concept that covers only a part of sustainable development and that focuses on the continuity of commercial enterprises (Kuşat, 2012). And another study that deals with the concept of sustainability at organizational level defines it as “development of an organization by meeting the needs of its shareholders, employees, customers, suppliers, society, and all its relevant stakeholders (Dyllick & Hockerts, 2002). The organizational sustainability is examined under three dimensions in the literature. Consisting of economic, environmental and social dimensions, this approach is expected to bring each component together with a holistic perspective and build up an integrated structure (Zink, 2007). This approach consisting of these three concepts became a part of the literature with John Elkington's approach called “triple-bottom-line” introduced in 1994 and the 3P (People, Planet, and Profits) approach he developed in 1995, following the former one (Elkington, 2004). Figge and Hahn put forward a sustainable value added approach, which is a different perspective on this very issue. Sustainable Value Added measures the capacity of an organization to create value, by evaluating the economic, social and environmental performances of that organization simultaneously and with an integrated perspective. Each dimension being a separate source of capital is the main reason for this. Furthermore, these resources are not interchangeable and this is another reason to follow this calculation method (Figge & Hahn, 2004). This approach explains that the loss in any of the said capital resources cannot be compensated by the surplus in the others. However, ensuring organizational sustainability depends on a number of organizational management elements.

These elements are:

Corporate knowledge management and transfer, corporate learning, corporate value, corporate citizenship, corporate reputation, corporate

social responsibility, corporate management, and corporate social capital. Corporate knowledge management and transfer have become more important, especially with the internal use of intellectual capital. A functional and sustainable management and transfer of knowledge can be carried out in two different ways. Either by producing knowledge internally or by transferring it from outside sources (Chen & Wang, 2011). Corporate learning is a part of the corporate culture and is a concept that shows how to access information and increase the value of the information obtained to make an organization more capable in terms of adaptation (Molina & Callahan, 2009). Corporate value, the concept of value and organizational values are common topics of the literature. Both physical assets such as facilities, raw materials, equipment and intangible elements such as culture, communication and information are the basic elements that make up the value of an organization (Canals, 2000). Corporate citizenship is a result of the approach that leads businesses to act as responsible citizens for the purpose of sustainable development. The resulting behavior is described as corporate citizenship. The definition describes the socio-economic responsibilities that businesses are obliged to fulfill as a part of society (Gardberg & Fombrun, 2006).

Corporate reputation indicates the values of organizations in the eyes of their stakeholders. It is the set of values consisting of all the elements of the organization that can be described as a resource (Özalp, Tonus, & Geylan, 2010). Corporate social responsibility is the voluntary effort of corporations to fulfill responsibilities towards their stakeholders (Orçan, 2007). A sense of social responsibility that is based on honesty and fairness and has a moral aspect is observed in corporate structures. Their structure is an example of a corporate citizen with a strong social responsibility aspect. Being separate from physical and human capital, corporate social capital is relatively a new concept. It can be described as the sum of social relations and the values those bring to the organization (Özdemir, 2009). It can also be defined as the value created by positive social relations. As it can be understood from the concepts mentioned above, organizational sustainability consists of many sub-components, and it is a wide field of study that should be examined with a multidimensional and holistic perspective.

2. Organizational Agility

The word “agility” can be defined as taking rapid and quick action, as well as the state or quality of taking action quickly and easily (Ganguly, Nilchiani, & Farr, 2009). The concept was first introduced to the literature in the 1990s following studies by Goldman, Preiss, Nagel, and Dove, who are researchers at Lehigh University in the United States. The concept of agility emerges in the business world as an approach that allows corporations to

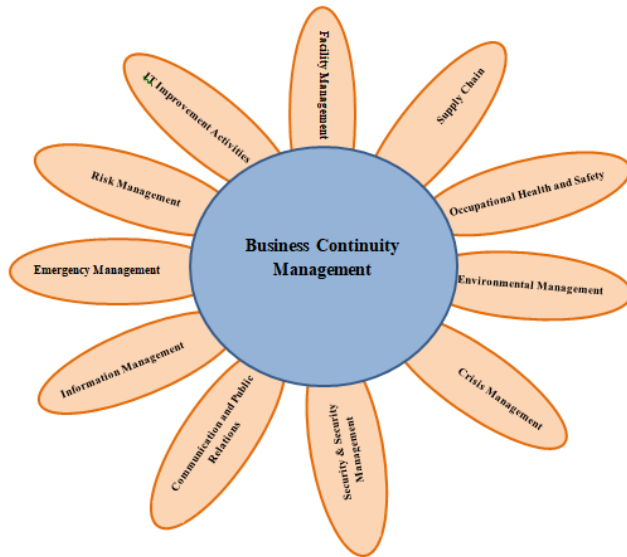
manage their business processes more effectively. It is used widely in the information technology sector and has become a widespread way of doing business that is used extensively to facilitate the monitoring of business processes, especially in the field of software development. It has evolved to “organizational agility” in a short period of time and has become a strategic management method that is also used in other sectors. As in other issues related to strategic management, the extent of determination of the leader is the most important factor in adopting the agility approach. There are many definitions of organizational agility in the literature. Olbert et al. define it as the ability and capacity of an organization to adapt quickly and effectively to continuous and new changes, which result from increased productivity, in the long term (Olbert, Prodoehl, & Worley, 2017). Another study describes it as the ability to meet rapidly-changing and sometimes unpredictable customer demands and requests with high quality, lower-cost products, and faster delivery times (Ustasüleyman, 2008). According to Narasimhan et al., it is the ability of a business to revise its systems effectively and efficiently to respond to uncertainty and changing market conditions (Narasimhan, Swink., & S. W. Kim, 2006). Another approach analyzes organizational agility in three dimensions. These are, sensing agility, decision-making agility and acting agility. Sensing agility is the organizational capacity that the organization creates by collecting data and information about the developments and changes in its external environment and analyzing those. Decision-making agility is the ability to collect, reorganize, analyze and interpret data and information with different methods and to identify opportunities and threats by developing action plans for situations that may be faced with. The third dimension, acting agility, is revising the business processes by reviewing the human, space, equipment/material and financial resources of the organization following the decision-making process, and rearranging them if necessary (Park, 2011, s. 28). Another approach examines the concept of agility in three different dimensions, namely, proactivity, adaptability and resilience. Proactivity is to carry out activities that will yield positive results in constantly-changing environmental conditions. It is described as the possession of the necessary ability and skill by employees of a corporation to foresee the problems and opportunities of change, to come up with alternative solutions, and to solve the problems that may arise. Adaptability, on the other hand, is the employees’ ability to change their perception, attitude, and behaviors to adapt to the constantly-changing and evolving conditions. The ability to adapt may be improved with the help of new tasks, skills, technologies and procedures. Taking on multiple roles and working in different teams also improve adaptability. Resilience may be described as the ability to carry out one’s duties effectively and efficiently when under stress. It is possible to define it as the ability to tolerate uncertainty, different opinions,

stress and unexpected negative situations that may cause an interruption in business (Sherehiy & Karwowski, 2014).

The most important factor in providing effective organizational agility is having a harmonious and effective corporate culture (Alvesson, 2011, s. 14). Under a suitable corporate culture, agility is an element that manifests itself in the form of rapid action, resilience, and effective response ability, and it stays unchanged while other changes are in progress within the organization, but enhances stability and sustainability of the company at the same time (Basri & Zorlu, 2020). The concept of agility has been described with many different approaches in the literature. Some common points seem to stand out in those descriptions. Subjects such as resilience, flexibility, proactivity, preparedness, responsiveness and management skills are examined from different perspectives. It would be correct to assume that all these elements are within the focus area not only of agility, but also of other subjects in this study.

3. Business Continuity Management

Disaster and Emergency Management emerges in the business world as “Business Continuity Management.” One of the quality standards, ISO 22301 puts forward a standard for companies to operate in a certain order. Owners of private companies, workplaces, and businesses, just like the whole society, are obliged to take the necessary precautions against disasters that may affect the region where their buildings/facilities are located. Literature has many studies that have been carried out on this subject. Dr. Smith’s approach is among the most notable ones of these studies. Dr. D. Smith defines business continuity management as a holistic management process that identifies potential impacts threatening an organization, provides a basic framework to improve resilience, provides an effective response-ability, and deals with the interests, reputation, brand, and value creation activities of key stakeholders (Smith, 2003). As Figure 1 shows, he also expressed many sub-titles related to the subject under this concept of business continuity.

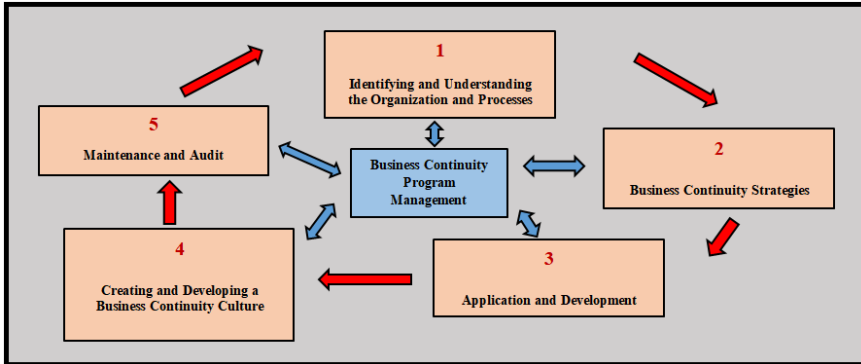


Source: (Smith, 2003)

Figure 1. Dr. Smith's Business Continuity Chart

Business Continuity management has become more important as a result of the diversification and intensification of the dangers faced with, especially in the last two decades. Seen first and most intensively in the information technology sector, these activities were mostly in the form of information security, data recovery, data storage, and improvement studies carried out against data corruption or destruction. The rising importance of quality researches, the increase in the activities with multinational companies and customers, or the acceleration of the merger or acquisition activities of the companies made business continuity management necessary. It continues to grow rapidly as a field of study led by multinational companies, especially in the banking and information technology sectors. A rapid rise in awareness and practice-oriented activities is also observed in manufacturing and industry (Cerullo & Cerullo, 2006) . The basic philosophy of this management approach is to create a second job description for disasters and emergencies in addition to the job descriptions of all employees. It brings about the necessity to ensure life and property safety, and to contribute to the return to normal business routine as soon as possible and with the least amount of damage by acquiring and constantly repeating the competencies necessary for this job description through training and exercises, and by carrying out one's secondary duties in possible disasters and emergencies. Businesses and organizations generally make facility management, security management and administrative affairs units responsible for those activities.

However, since “Business Continuity Management” is an element of strategic management, it is a critical activity that must be carried out under the leadership of the general manager, or a senior executive who is at the same level as an assistant general manager and appointed by the general manager, or human resources and/or strategic management departments (Smith, 2003). The Business Continuity management process, and the Business Continuity Life Cycle which consists of five steps, as shown in Figure 2, are the characteristic features of this approach.



Source: (Smith, 2003)

Figure 2. Business Continuity Life Cycle

Furthermore, an approach called 7P (Programme, People, Processes, Premises, Providers, Profile, Performance) put forward by the Business Continuity Institute to create and carry out business continuity processes effectively, clearly reveals the basic elements of the subject. These elements can be localized and listed as follows (Business Continuity Institute, 2002) ;

1. Program : Managing processes proactively
2. People : Roles and responsibilities, awareness and education
3. Processes : All organizational processes, including Information Technologies
4. Premises : Buildings, structures, plants and warehouses
5. Providers : Supply chain, including subcontractors and outsourcing
6. Corporate Profile: Brand, image and reputation
7. Performance : Comparison, evaluation and audit

Many different methods are used in business continuity planning process. One of those methods describes the basic planning process in eight steps. These steps are; Objectives, Organization, necessary requirements, strategies, activations, actions, communication and maintenance activities (Kurt & Douglas, 2012). Strategic management, business continuity

management and disaster and emergency management are concepts that are constantly updated and developed together. The best example of this is the relatively new approach of High Reliability Organizations (HRO). The biggest difference between this approach and business continuity management is its vision concerning the design of systems and processes in a way that allows an organization to never be compromised or interrupted, either partly or completely.

4. High Reliability Organizations-HRO

The high reliability organizations approach was applied primarily in the health, defense and energy industries at first. As a result of the acceleration in industrial development and the increase in the number of high-risk business lines and the extent of their operations, both the number and magnitude of industrial disasters have become greater. The disaster that took place at the Three Mile Island nuclear facility in the USA in 1979 can be considered as a milestone for both the intensification of academic studies and the development of industrial solutions on this issue (Schreurs, 2012). Thinking that there are certain defining characteristics that make accidents inevitable in high-risk organizations, Charles Perrow put forward his thesis of normal accidents in his book published in 1984. With the sociological approach he follows in his work, he concluded that the TMI accident was a direct result of the complexity of organizational and technical systems. Some modern high-risk systems, such as nuclear power plants, are so complex that they are inevitably vulnerable to potential major accident risks even when they are managed effectively. As Perrow puts it, they result in a “normal accident” eventually (Perrow, 1984). Scientists working in military researches in the United States in 1995 defined the global environment that developed at the end of the Cold War as VUCA, an abbreviation for volatility, uncertainty, complexity and ambiguity. This concept put forward an approach which suggests that, in the face of potential problems, one must act before fully understanding the situation with all its aspects or before knowing which treatment will definitely work to solve a problem (Inözü, Stralen, & Byrum, 2017, s. 36). “We may find ourselves in similar situations where we need to act before understanding the situation clearly or knowing which treatment will work for sure” (Pidgeon, 2012). Following this approach, the High Reliability Organizations approach has emerged because of the impossibility to detect a potential normal accident and to demonstrate that a system is safe for sure. Two important approaches were introduced into the literature as part of the efforts to explain accidents in high-risk organizations. Normal Accident Theory (NAT) and High-Reliability Organization Theory (HROT). Actually, NAT and HROT can be considered as parts of a whole. However, the fundamental difference is that NAT represents a reactive approach and HROT argues a proactive

one. The normal accident theory argues that when working with complex and high-hazard technologies, we cannot know everything about these, and therefore the accidents we may face are normal and inevitable. HRO, on the other hand, suggests that some organizations that are necessarily high-hazard must consider even the smallest possibilities, and make several managerial and operational efforts to suffer from the least possible damage from the accidents they may face (High Reliability Organizing, 2019). A group of researchers led by academics such as LaPorte, Consolini, Roberts, Rochlin and Weick introduced the HRO approach into the literature. The HRO approach claims that organizations can be highly reliable and avoid systemic accidents by creating appropriate behavior and attitudes. High Reliability might be considered as the collective response of individuals with common attitudes (Comfort, Boin, & Demchak, 2010). HRO is an effective way for organizations to respond to crises and chaos. It is a way to overcome potential disasters by mobilizing leadership, management and all levels of an organization as a single unit. HRO can help large operations adapt to potential risks, especially those with a time-sensitivity element (Inözü, 2018). High Reliability Organizations may be considered as enterprises that represent operational excellence. It is an approach adopted to provide high-value performance for businesses that aim to maximize their operational and managerial reliability and provide maximum value to their stakeholders. Basically, it is a methodology designed to enable organizations that operate in highly hazardous environments and are likely to face disasters and emergencies caused by processes, to maintain their activities with no error. Research on HROs typically focuses on large-scale events in industries such as aerospace and defense, where dramatic results are seen the most. Organizations can benefit from HRO business models to ensure operational excellence and, subsequently, to improve project planning performance, and to avoid facing dramatic events that may severely disrupt administrative and operational processes and negatively impact corporate awareness and reputation. Nonetheless, it is an approach that can be implemented by any organization and it provides performance improvements, regardless of the nature of their activities. HROs are organizations that carry out consistent, sustainable and low-error operations based on informed, high-quality decision-making and controls. Continuous revision of business practices and the development of an overall culture of safety and reliability provide the basis for HRO. The aim of an HRO is to create a culture for responding effectively to failures or losses (Inözü, Stralen, & Byrum, 2017). High reliability organizations are built on the following five core principles (Lekka, 2011) ;

- Monitoring even the smallest mistakes, knowing that any small mistake or neglect may cause a very big problem in the future,

- Avoiding simplification of problems, namely, performing root cause analyses,
- Identifying sensitive operations and finding out potential sources of error with the assistance of their subordinates,
- Being resilient, that is, to develop the ability to return to normal conditions as soon as possible when faced with problems and to develop the general ability to better respond to problems that will be faced with, with the help of the lessons learned from each experience.
- Relying on experts and using their expertise, benefiting from expert experience regardless of the hierarchy or superior-subordinate relationship.

The above principles reveal the importance of three main issues clearly. As stated in Figure 3, the three main components related to this are leadership, creating a safety culture, and robust process improvement.



Source: (Chassin & Loeb, 2013)

Figure 3. HRO Main Components Chart

Safety culture may be considered as a different dimension of the integrated disaster and emergency management approach. It is noteworthy that the reporting element especially stands out. Process improvement, on the other hand, means the design and execution of processes through a robust, reliable and systematic approach. The leadership dimension focuses on the leadership elements that are necessary to manage the other two main components efficiently. When it comes to situations dominated by environmental negativities; issues related to strategic decision-making processes such as reluctance to take risks and the need to take safer steps must be handled with the leadership dimension (Aslan, 2020). Some changes are necessary to implement these three issues effectively. These

changes take place faster and more effectively in environments where the concept of corporate culture is understood well. The harmonious operations of functions such as organization, people, secure processes, operations, systems, asset management and supply chain may be the most important proof of this (Northhighland Worldwide Consulting, 2019).

5. Organizational Resilience

The concept of resilience mainly refers to tolerance to deterioration and is used in different disciplines. Resilience is derived from the Latin word, “resil” which means to “jump back”. The English variant is “resilience.” It was translated to Turkish as “direnç” (resistance), “yılmazlık” (being indomitable), and “dirençli toplum” (resistant society). There is a misunderstanding about the concept, as is revealed by the use of the word “direnç” (resistance) instead of “dayanıklılık” (resilience). From an engineering perspective, “direnç” is a concept that deals with the “characteristics of a plastic substance”. The substance resists an external influence up to a certain level, but when this critical resistance threshold is crossed, it undergoes a change in shape and gets deformed. The definition puts forward a situation in which the subject resists for a while before breaking and gets deformed with the force it is exposed to. Resilience, on the other hand, deals with the “Characteristics of an Elastic Substance”. The substance absorbs the energy of incoming force or effect and gets deformed for some time when faced with any external force or effect. And then it returns to its original state after a while. This is just a temporary change in form. Describing the concept of resilience in this way can be helpful not only for disaster and emergency management, but also for the concept of organizational resilience (Yaman, 2020:50). Many studies have been conducted on this issue. Studies on the concept of resilience in the field of management show no clear consensus on the conceptual meaning of the subject. Organizational resilience includes the relationship between effective and adaptive behaviors before, during and after potential business interruptions (Amann and Jaussaud, 2011). Another study defines resilience as the ability and capacity to take robust and transformative actions, specific to an organization and the conditions it is in when faced with unexpected, effective, and negative incidents that may risk the long-term existence of the organization (Lengnick–Hall & Beck, 2009). In their study, Coutu defines resilient organizations as those which have the ability to use limited resources effectively and efficiently. Coutu relates this definition to the French term “bricolage”. (This concept is borrowed from the French anthropologist Claude Levi-Strauss and is closely related to the concept of resilience.) “Bricolage” means the ability to develop and come up with a solution to a problem without having the appropriate tools, equipment or materials (Coutu, 2002). In another noteworthy study

conducted in our country in the field of management, Koçel translated the word “resilience” into Turkish as “dayanıklılık (Koçel, 2015: 538). Another source defines the concept of resilience as the reduction of risk factors from different levels for the maintenance of existing capacity. (Draht, 2014: 333). Künü stated that the most important element in this regard is the qualified human resource with merit and competence, whereby this resource implements correctly-formed strategies at the right time (Künü, 2020:30). Organizational resilience also has a place in quality researches. ISO 2216 standard defines it as the ability of an organization to survive and grow by predicting the negativities and/or changes in a complex, irregular and dynamic environment (Baumer et al., 2018). As all these explanations show, Organizational resilience can be defined as all the activities that must be carried out to return to normal business order with the least possible damage after the incidents, with the help of the most accurate and quickest response given to those incidents by conducting necessary preparation and planning efforts against possible business interruptions that may adversely affect the administrative and operational processes of the organization. It is necessary to create collective awareness at organizational level to carry out organizational resilience smoothly in practice. Resilient organizations adapt quickly to changes and development with the help of their flexibility and agility in the face of unexpected negative incidents, while ensuring continuity with no disruption in their internal dynamics and functioning. In short, organizational resilience may be defined as the ability and capacity to fight with incidents that occur suddenly and are unpredictable with a potential of weakening the organization. Bruneau et al. examine organizational resilience under four dimensions. These are robustness, redundancy, resourcefulness and rapidity. Robustness is defined as the ability to withstand a certain level of resistance and stress without difficulty. Redundancy, on the other hand, which may be better expressed as being substitutable or replaceable, shows that the elements of a system are substitutable or repeatable. Resourcefulness is defined as the ability to mobilize resources and assets when faced with unexpected negative incidents and/or hazards. And finally, rapidity is described as achievement of goals on time in order to keep possible losses under control and prevent future negative effects or deterioration (Bruneau, et al., 2003: 6). A study by Välikangas, which is similar to this approach, is also noteworthy. Välikangas describes how organizational resilience can be improved through five dimensions (Välikangas, 2010: 92). They came up with an approach that has five dimensions, that is, diversity, creativity, robustness, anticipation and determination.

Diversity: Differences that arise from characteristics of people in the organization such as age, gender, race, ability, marital status and education level and affect the relations with other employees and their performances

in the workplace. It means directing these differences towards corporate goals. Organizations improve their resilience by having more different perspectives, opinions, solution suggestions and increasing the number of all these within the organization.

Creativity: Resilient organizations use their limited resources for innovations and improvements. They support the creativity of the employees and the internal creativity by carrying out some theoretical and practical actions and projects with that in mind.

Robustness: It can be defined as the state of structural stability and equilibrium. Businesses can be said to have a robust structure if they endure negative incidents or intense and critical changes without suffering from any damage. A high degree of resilience and diversity are prerequisites for robustness.

Anticipation: Resilient organizations watch out for the silent signals of change. They foresee the competitive advantages they plan to have in the future by predicting the future of the business with their visions. This dimension can be described as the strategic perspective.

Determination: The culture of resilient organizations is characterized by sustainability, determination and the ability to face challenges. This dimension can be described as fighting until the end with determination and not giving up.

Fischer et al., on the other hand, developed the above-mentioned approaches and examined resilience under seven headings (Fischer et al., 2018).

1. **Adaptability:** the ability to adapt to changes and innovations. It can be described as the ability of a system to respond to changes in the environment.
2. **Reliability:** defined as the probability of a system to perform its function satisfactorily in a certain time period and under certain operating conditions (Weick and Sutcliffe, 2008).
3. **Agility:** the capacity of a system to respond and react when faced with uncertainty and changing conditions (Helaakoski et al., 2007).
4. **Effectiveness:** the shortest definition may be the extent to which the intended results are achieved.
5. **Flexibility:** the extent and the quickness of adaptation to instant and dramatic changes in organizations.
6. **Recovery level:** the difference between the pre-incident and the final state of the system or organization in terms of the negative

incident experienced.

7. Recovery time: the time required by the system or organization to return to normal operating conditions when faced with a negative incident.

Resilience is the most effective weapon that can be used to minimize the damage that may be incurred in negative incidents. Studies show that 1 unit cost to be made to prevent a possible negative incident (business interruption, emergency, disaster) prevents 4-7 units of cost that will be needed to return to normal operation after the incident. To develop a resilient organizational structure, it is important to improve dynamic capabilities (strategic and operational resilience, creativity, determination, robustness) and organizational learning (culture, employee well-being, leadership and decision-making), and use the organization's core resources and assets (people, space, materials-equipment, finance) effectively and efficiently, and in a planned way. To develop a culture of resilience in organizations, high-level policies should be created and those policies must be supported in practice.

6. Conclusion and Recommendations

Ensuring sustainability is undoubtedly one of the most important long-term goals of corporate organizations. The concept of sustainability, which is considered to be a part of strategy in the literature, is regarded as a management paradigm. It can be seen that many approaches have been developed over time, in different disciplines and according to different sector needs, to ensure sustainability. This study attempted to come up with a different perspective by examining the concepts of agility, business continuity management, organizational resilience and high reliability organizations. All of the mentioned issues have a strategic approach. Furthermore, they have a work order which includes both organizational processes and activities for organizational development. However, the implementation of all these issues may only be possible with the determination of the top management and by its understanding of the importance of the issue. Therefore, it becomes necessary to assess the above-mentioned issues as a unified strategy-making, system and/or management practice, by considering them as part of the capability of an organization and examining the organization's versatile capabilities instead of viewing it through a narrow scope. The concepts and practices of agility, business continuity management, organizational resilience and high reliability organization have many points in common. It is also obvious that they complement each other. It appears that in researches these issues are examined as one-dimensional or as associated with each other in a hierarchical structure. However, it is obvious that each one of these is in interaction with others and with the concept of sustainability. It appears

that there is no integrated approach in the literature that completely reveals this interaction. It may be possible to describe the interaction between each subject only through an ecosystem approach.

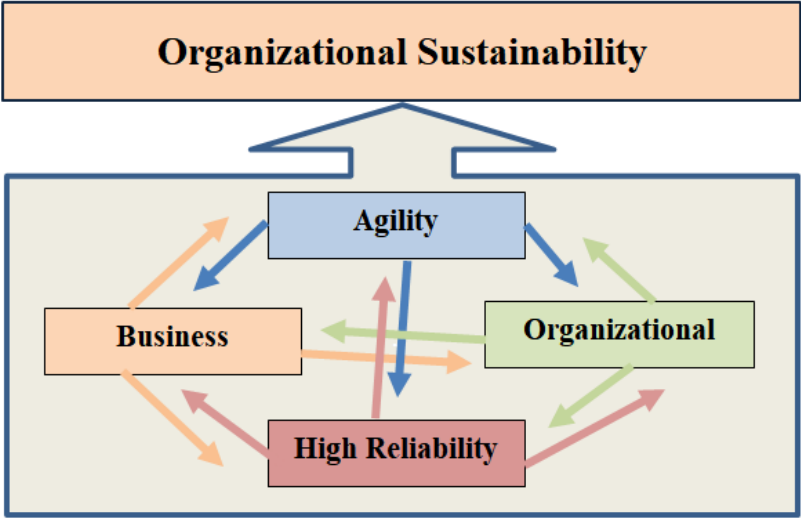


Figure 4. Ecosystem Approach for Organizational Sustainability

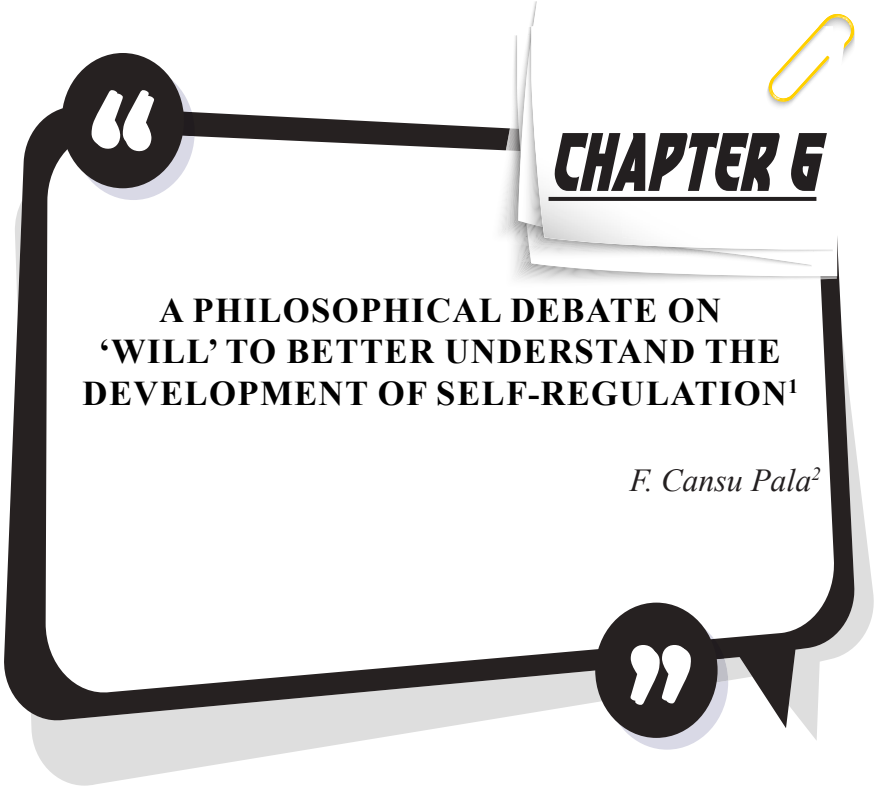
As explained in Figure 4, the ecosystem approach can be an alternative for examining the issue with a holistic view. With the ecosystem approach, it may be possible to prevent the repetition of sub-headings with similar content in each subject. In addition, it may help save labor, time and financial resources in the studies carried out. Most importantly, an ecosystem approach and a holistic perspective may describe these issues as parts of a whole and thus allow creation of an effective and efficient implementation process.

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1 This chapter derived from a PhD Thesis that I had submitted to Lancaster University in March 2015. This philosophical debate was not part of the main thesis but was added as an additional philosophical debate.

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Being human is being accountable for one's behaviour and thoughts (Tomasello, 2014). To claim that individuals are accountable for their actions and consequences, the first crucial question that comes to mind is that 'are those individuals in control of their actions?' This is an age-old problem that many philosophers and religious doctrines dealt with under the concept of the 'will'. Each draws different conclusions on the limitations of the controlling 'self'. There is a longstanding assumption that being aware of one's 'self' and being in control are not only necessary to socialize with others, through engaging in reciprocal interaction but also to achieve immediate and long-term goals to have a meaningful life.

Among all the other achievements in early development, young children are mostly characterized as being pleasure orientated; they are thought to like to do things whenever they want to, not considering others' needs or wishes. This kind of description of early childhood might not be fair to children who, even when very young, demonstrate altruistic or helpful behaviour (Warneken, Chen, & Tomasello, 2006). Despite their emerging cooperative skills, the ability to remain calm when mum does not allow them to go to the supermarket wearing their princess dress or resist the temptation of eating sweets before dinner is still difficult. If these characteristic assumptions of young children prevail, should we still study their ability to control themselves? Thus, the old question can be reformulated as 'when and how do young children start to control their actions?' Children develop skills to regulate their responses in the face of many different and demanding situations throughout the preschool years (Bronson, 2000). They do this in spite of the view profile that early childhood is characterized by pleasure-orientated and immediate, if not solipsistic, world views. Adapting those skills that make the control of actions possible is defined under an umbrella term of 'self-regulation' (Calkins & Fox, 2002; Sokol & Muller, 2007).

The philosophical background to the concept we call 'self-regulation' used today is due to which for a much longer period has been discussed under the name of 'will'. A brief analysis of the philosophical debates was derived from a close reading of James Russell's (1996) thesis on the integration of children's ability to control their experiences through developing early 'agency'. Russell's analysis was nested in Schopenhauer's perspective on the will, suggesting a unique relationship between cognition and intentionality. A comparison between the Kantian and Schopenhauerian explanations over the ability of regulating the behaviour through a mentalist or a holist (emotional-integrative) view will be discussed in this chapter. The philosophical analysis presented here explores the integration of an act of control and the mental faculties responsible for our actions.

Schopenhauer's critique of Kant's transcendental idealism is useful, because the tension between these two important philosophers' influences

on the source of knowledge for self in explaining self-regulation. The tendency in developmental psychology to explain child's behaviour based solely on mental faculties comes from Kantian logic that can be seen in Piaget's stage-like explanation of child's understanding of knowledge. Child's epistemology of the world could also be viewed from an added window. That window could be opened through an analysis of the beginning of child's volitional being. Schopenhauer's analysis focuses on the volitional act of the human being. His understanding of the representational self and his notion of 'will' concerns not simply a property of mind but, to the contrary, is the driver of the self. His analysis should reveal the points that are needed to be taken forward in the search for a grasp of self-regulation in this thesis. This analysis will also build up an account for my decision to start with Russell's (1996) claim that children's cognitive control is bounded by the development of agency over experience. Russell's claim is an integration of the views of Piaget and Schopenhauer, over and above the Kantian logic of Piaget. From Piaget, Russell draws inferences about the child's mental abilities. These are based on the assumption that knowledge is constructed through action, which derives from Kantian transcendental idealism. For Piaget and Kant, the contents of the mind are derived from rational inferences. Schopenhauer disagrees. He proposes a uniting feature, 'will', that combines the knowledge of the body and the 'mind', through the intimate relation of how 'mind' cannot be conceptualized without taking into account affective ability. After the discussion of the philosophical roots of the 'will' as a construct, whether or not it should be used to grasp the basic principles of empirical studies in psychology will be in the focus. A brief description of how self-regulation has been shaped and investigated in recent research will be presented.

Having briefly suggested that the definition and the meaning of a term like 'inhibition' have constantly been affected by historical changes in the economy and technology within the previous section, a similar question will be asked towards the 'self.' It is necessary because the hypothesized 'self' must employ inhibitory skills can be discussed. This is a harder question to answer given the accumulation of knowledge and viewpoints in philosophy and psychology. To touch on the limitations, argument on the operation of the 'will' in the context of the abilities that the 'self' possesses should be noted. To achieve regulation, the 'self' must operate within a complex framework, involving behaviour, emotion and mental expression. To discuss these regulatory abilities, the views of Kant and Schopenhauer should be mentioned. A quotation from Kant's "anthropology" lectures in the late eighteenth century, displayed in Smith's (1992) work, illuminates how German philosophy interpreted the enlightenment view on inhibition and its effect on expressing the meaning of 'self'. Moral concerns and practical psychological issues were central to these lectures of Kant. He

focused on issues like the trajectory of “drunkenness, sleep, fainting, and asphyxia.” He referred to these attributes as “the inhibition, weakening, and total loss of the sense powers” [the meaning of the term ‘sense’ here is to perceive and its clarity the perception] to exemplify “an inhibition of the regular and ordinary use of our power of reflection” (as cited in Smith, 1992; p. 50). This example that Kant used to illustrate the idea, which is lack of inhibition, causes an absence in the power of reflection. Smith (1992) raises the issue of the hierarchal relation between inhibition and the ‘will’ as follows:

“Even ‘inhibition’ itself, as a term referring to control, has multiple meanings. It may indicate a relationship between two forces, one power, at least for a time, arresting and thereby regulating another power. In such circumstances, the inhibitory relationship is frequently a hierarchical one, in which a higher power (such as will) controls a lower one (such as instincts)” (Smith, 1992; p.8)

As Janaway (1989) suggests, Kant’s doctrines of experience or empirical knowledge require having intuitions and concepts. In Kant’s view, the representations of space and time are intuitions and these are *a priori*. In other words, their justification does not depend on any evidence or experience. For Kant, therefore, how the self represents time and space are inexplicable. He rules out a role for intuitions (Janaway, 1989). Schopenhauer’s take on the matter relies on a different description of the self where the intuitions of time and space could be a source for the self in seeking or constructing knowledge.

The main reason I wanted to readdress the issues Schopenhauer raises was that, for him, the self’s perception of time and space directly relate to the actions we take, their underlying value and decisions we make concerning the self. The main function of the term ‘self’ in Schopenhauer’s theory (see e.g., Janaway, 1989) is to identify the core or essence of the human being, as opposed to accidental or contingent potential qualities of them (Zöller, 1999). Within the tradition that he was working in, the self was the identification of the human soul or mind instead of the human body. In simplistic terms, Schopenhauer disagrees with Kant’s general designation of the self. His disagreement was on the idea that the self does not rest on top of the core of the intellect or a cognitive faculty. In his account, understanding (or reasoning) is not the only main component of the self. In addition to this rational side, he adds another essential feature to the self that he defines as the ‘will.’ What is different is that in earlier accounts of the philosophy of the self, the will was represented as subordinate to reasoning and considered for its practical purposes, as a restraint on human action.

The claim of Schopenhauer was that the will is the essence of a human, and it is the thing that makes it possible for us to have knowledge of the

world through ourselves. This idea runs contrary to Kant's idealism where the assumption is that the self is disengaged, with limited ways to acquire knowledge of the world. Following from the doctrine above, the primary description of the self and its position in the world comes from the subject's experiences (Kant, 1929/1979; as cited in Janaway, 1989). Kant draws a distinction between the world that we understand through our perception on one hand and reasoning on the other. We cannot process or understand objects with bare reasoning since there is a gap between object perception and reasoning. Knowledge of objects is bound to the observer's experience. In contrast, a priori ideas cannot be perceived and are classified as things-in-themselves. Acquiring the knowledge of them is not possible as they are impregnable to conscious reflection or experience. 'Will' was one of those things that contained its knowledge, so the reflection of it was only possible in the trajectory of reasoning. Therefore, its essence is unknown to the human mind. Since the contents of the will are incomprehensible to the subject, Kant's definition of this metaphysical view concerns a form of knowledge that cannot be empirically studied.

To get to grips with Schopenhauer's analysis, let's consider the following statement:

"For nothing is more certain than that no one ever came out of himself in order to identify himself immediately with things different from him; but everything of which he has certain, sure, therefore immediate knowledge, lies within his consciousness. Beyond this consciousness, therefore, there can be no immediate certainty (...) There can never be an existence that is objective absolutely and in itself; such an existence, indeed, is positively inconceivable. For the objective, as such, always and essentially has its existence in the consciousness of a subject; it is therefore the subject's representation, and consequently is conditioned by the subject, and moreover by the subject's form of representation which belong to the subject and not to the object" (Schopenhauer, 1844/1966; p.5).

In his critique of Kant's transcendental idealism, Schopenhauer argues that the 'riddle' of the self should comprise affective qualities. He begins with the realization of the conscious self, onto which the essential qualities of the 'will,' which emerge, are qualities like urging, striving, wanting and desiring. According to his view, the will is the representation of all that we desire from the world and everything that we do is to serve what the 'will' wants. His ontological description would place the primacy of desire over the intellect as for him; thought is the follower of desire. Schopenhauer broke the will's attachment to reason and defined it as a blind striving (Janaway, 1989). The 'will' designated as the source of the self, including our intellectual facilities in Schopenhauer's redefinition, also include the volitional sides of the human self. His complementary conception of

selfhood included both how the will forms the core of the human being and how the achievement of selfhood occurs through the accumulation of intellectual effort.

Schopenhauer attains the inner essence quality to the will. Since it has inside qualities, everything 'will' possess is unobservable yet, only the actions of the 'will' is observable. Where we accumulate the knowledge of other objects is outside us, and this is the only way to acquire knowledge according to Kant. So from same logic, Kant claims that the true nature of the self is known due to it not being observable. Schopenhauer, on the other hand, points out the intimate nature of one's bodily actions and its relation with the 'will'. Our actions are the reflection of the will; therefore, the bodily expressions and the mental entity of self are united in the presence of 'will'. As a distributor and the container of all urges and desires that one may possess, the psychological presence of 'will' can be only observed on bodily awareness and action awareness comes with it. Early childhood contains the milestones for child's awareness of his or her influence on own actions. When this awareness turns into control behaviour, child's regulated behaviour and emotion are similar to the adult-like control.

In one way, Schopenhauer's insight on 'will', and his ranking of desire over intellect, would explain the developmental trajectory of the children's interactions with their environment. It starts with the physical needs to be fulfilled at an early age. Crying is one of the most common responses children give to upsetting events and provides a useful demonstration of pleasure- and self- oriented nature of childhood in terms of 'willing,' With crying, child does not give emotional cues but demonstrates his or her needs at present and uses crying as a communicative tool. Such a communicative tool in infancy continues to be an emotional signalling in toddlerhood and the rest of the life. Crying is not necessary to show how upset the person is, but general people are expected to have some control over their emotional outburst. In Schopenhauerian sense, if crying occurs, it can be interpreted as an act of crying is willed, and that is why it happens but this interpretation would not be complete. The 'will' also represents the things that are will be maybe cannot be achieved, therefore, crying may occur. His way of redefining the construct of 'will' to explain the true nature of human behaviour and his unification of the process of desire (and the ability to desire) is so inseparable as seen in the statement in his *On the Freedom of the Will*;

"You can do what you will, but in any given moment of your life you can only one definite thing and nothing other than that one thing" (Schopenhauer, 1841/2005, p.24).

The illuminating point of the quotation above is how it exemplifies urges and desires that one person need to deal with every day, and the

'will' is not yet only the 'desire' itself, but also the ability to satisfy such a desire. Schopenhauer reflects on how the 'will' should be manipulated, in-famous pessimistic claim sums the cycle of desire to unsatisfactory for people since whether desires are fulfilled or not, the happiness may not be leaded by the decision of following desires or abstaining from them. Although, his pessimistic view is irrelevant, the take-home message here is to seeking equilibrium. Despite this dark outlook, the idea of equilibrium, or mental and affective unification of representations presents a clear picture of self-regulation. Nevertheless, whether the urges of will are satisfied or not, the will is there to strive continuously. The 'will' is the core of the people's experiences to understand the world and more importantly themselves. Schopenhauer's unified 'will' is an approach that I would like to apply to self-regulation in relation to its aspects. The urge and the control of the urge are combined in the will, so it must be in self-regulation, as well. More importantly, emotional, cognitive and motor aspects of regulation should be contributing, through the mutual relationships to the concept of self-regulation equally.

The definition of the 'will' or the source of it might be pre-determined by cultural or religious customs. Religious doctrines have the tendency to promote delayed rewards for whom wait and stay absent from hedonistic acts. So every society promotes the saving for the rainy days. One way or other, children are exposed to such tendencies. However, our 'contemporary' dilemma in developmental psychology in terms of explaining the source of 'regulation' should be isolated from the overall impact of society or religion¹. The reason that Schopenhauer's 'will' was analyzed in this thesis, Schopenhauerian approach to self-regulation would also point out the importance of the lack of control in early childhood. As much as regulated behaviour is the need, a child's non-regulated nature makes him or her open to experiences. The lack of control is one way to explore all the possibilities surrounds the child. When a child develops the controlling mechanism, their purpose should be making a child's exploration deeper.

The Kantian distinction that Schopenhauer based knowledge acquisition either from the outside world via perception or through inner reasoning can be seen as a stepping stone towards an argument about self and self-knowledge. Since Kant claimed that knowledge of things could be acquired when only they are observed, this kind of observation can only mean that we can represent the objects around us in our mind and be able to think about them. Schopenhauer agreed on the differentiation of kinds of knowledge. In the Critique of Practical Reason, Kant says:

1 Although such isolation should not counted as overlooking the early bootstrapping effect of family and language in the present and future self-regulatory development of child (Landry et al., 2000.) The effect of language particularly in early development can be discussed in a different line of literature.

“It may be admitted that if it were possible for us to have deep an insight into man’s character as shown both in inner and outer action and all external occasions, that every, even the least, incentive to these actions an all external occasions which affect them were so known to us that his future conduct could be predicted with as great a certainty as the occurrence of a solar or lunar eclipse” (Kant cited in Schopenhauer, 1841/2005, p.82).

In this quotation from his predecessor, Schopenhauer claims the act of will and bodily movement cannot be causally connected since the will is expressed in bodily movement and this occurs before conscious reflection takes place (see Janaway, 1989). To understand his philosophy further, his assumption of one extreme unity should be acknowledged, as a single thought that might require further explanation (Janaway, 1999). In his claim, Schopenhauer defines the single thought as the ‘most perfect unity,’ the context that I address the single thought is how to approach the abilities of the self in terms of the ‘will’. He proposes that communicating one idea involve dividing it into its parts, but these parts need to be reconnected again. In this division and reuniting relationship creates a drive, as much as the divided parts support the whole, whole also supports its parts. This ‘organic’ relationship is a metaphor for the ‘will’ and its unification of desire and the ability to understand the desire itself. This is a unification that should be reflected on redefining self-regulation and how its trace in child development should be pursued. The ‘will’ that child develops is there from the beginning when the child first strives for something. Such a strive makes the world understandable for the child and to be able to continue understanding the world, child starts to control his or her striving.

In this chapter, the depth of the self-regulation construct has been related to the ‘will’ as a construct in Schopenhauer’s philosophy. The representation of the outside world as a whole can only be acquired through the will based on Schopenhauer’s logic. Therefore, the child’s representations are limited the presence of the development ‘will.’ The will combines both mental and affective representation to have an inner perspective where a person can reflect on the subjective experience. Schopenhauer’s account of the human being as an embodied, active spectator of the world of objects is the basis for an analysis of children’s varied abilities in early development. Being an active spectator of the world is the beginning of developing self-regulation, and it can be expressed through the development of the agency.

Children’s ability to understand other people as ‘agents’ arises upon the self-awareness of their agency, has been argued by Russell (1996). The ability to make explicit judgements about the physical and mental world is one of the main developmental trajectories that was particularly mentioned in Piaget’s work theory, and its relevance to the agency should be mentioned further. Agency can be demonstrated as the first leg of the will where one’s

own and others' needs, beliefs, and desires can be represented, leading to acting according to those. The actions start to be based on an understanding of agency occurs, and the self-regulation takes place where the cycle of Schopenhauer's 'will' closes its loop.

As one of the few who pay attention to the partially rhetorical question of 'what does it take to have a mind,' Russell (1996) broadens the scope of self-world dualism through psychological understanding. The knowledge within the self cannot be thought separate from the world is represented; therefore, consciousness ascends unity of knowledge of the self and the world. According to Kant, only observable matters in the world can be represented in one's mind, Russell addresses Schopenhauer's explanation of representation to explore the relationship of the conscious act and cognitive faculties. His starting point is "the ability to alter at 'will' one's perceptual inputs" (p.64) is the critical component of the developing conception of the external world and the mind. He uses Kantian arguments to describe the perceptual understanding of the world and the self. He does this by drawing upon the Piagetian process of 'agency' in which the child must gain gradual control over his or her actions and as the building block for the development of cognition. Russell (1996) employed Schopenhauer's approach to eliminating the nativist tendencies, which can be traced to the Kantian argument in developmental stories of mental processes. Russell argued that the notions of 'willing' and 'agency' cannot be separated due to their nature in mind. The agency is an individual's intuition towards what is required or desired, whereas the willing is the demonstration of a desire. A conception of objects as causally coherent within themselves and with other objects, as existing in space and through time, is only possible for a unitary consciousness to synthesize its experience. Russell argues that agency achieves such a unitary consciousness similar to Schopenhauer's proposal of the 'will.' Schopenhauer unifies the 'act of will' and the 'action of the body,' since the latter is the reflection of the former. With agency's help, Russell defines this unity as the 'synthetic mind.' He also considers that agency (like the 'will') is the only way to unify the reflective experience of self and the experience itself. The only way to be the owner of one's experiences is to keep the relationship loop between the ability/ wanting/ desire itself and its consequences. This loop, in the first place, is because of the ability to exist. So, why does Russell rely on this synthesizing effect of agency? Russell's interpretation of Schopenhauer's designation of 'will' was bound to the fact that the will's particular type of distance to the self and its effect on the unity of mental faculty. According to Schopenhauerian philosophy, 'will' is a key to unify mental representations of the world; therefore, a developing child requires this fundamentally important skill to own a conscious experience of the world. Russell relates consciousness

with the bodily awareness in which volition arises upon the act of body where the expression of will occurs, but the bodily activity may not match the will. To achieve the volitional action, 'trying' occurs in the early years.

Secondly, he draws a link between Schopenhauer's explanations of the 'immediate' experience of the self as in the representation of the will. This is the only way to understand that we are the subjects of objective experiences. Thus, differentiation between 'willing' self and 'knowing' self is part of the conception of belief, where perceiving 'I' is the accumulation of these mental constructs as similar to the 'will' in Schopenhauer's claim as a unifier of mental representations of experiences. From a linguistic perspective, though, 'I' can be discussed as a reflection of unified ability like agency. Based on these three points, he defines the existence of agency as the interrelation between bodily awareness, will and reality, which comes out of the thought process from self. Schopenhauer's account of will is also represents all bodily striving since his conception of 'will' was very materialistic, and its content and purpose cannot be thought apart from the physical body (Janaway, 1999). Russell does not treat the notions of will and agency synonymously in the sense of their functional purposes or ontological definitions. However, he points out the similarity between their main characteristics of intentionality and how this relates to both to some extent. Schopenhauer argued that the will was not a representation of knowledge or the experience but a construct for itself.

Similarly, Russell has also argued that agency is not a product of the mind's representation; instead, it is a contributor mechanism for representation. The self within the world would also have its knowledge since it represents itself too. In a progressive explanation of the self is the subject as who has knowledge of the 'inner essence' of the self. That inner quality was defined as the 'will' by Schopenhauer (Janaway, 1999). When the conscious knowledge of the world was acquired, the will has an identical knowledge as the self. Conscious knowledge of the world is similar to having a 'will.' According to Schopenhauer, with 'willing,' the knowledge is formed without representing it since the will has representational qualities embedded. 'Will' is represented in the act of body since it is an expression of the will. Immediate knowledge of the event comes from the 'will', as the subject's actions and the object that is the subject's body in an empirical sense (Janaway, 1989). Action situates the subject in the world by providing access to the underlying thing-in-itself, which is the 'will'.

Based on Schopenhauer's unitary logic, the underlying drives of self-regulation should be equally contributed by emotional, cognitive and motor features, but to see this contribution, asking the first question of 'Is emotional development or cognitive advancement the driver to the overall self-regulation?' is helpful. Firstly, a one-directional relationship between

them can be examined, and then the bi-directionality of their relationship can be pursued.

The recent literature on self-regulation of young children has the tendency to define according to its relative components, instead of a single construct. I aim to present a view where core of the ability lies in the network of socio-emotional and socio-cognitive abilities and presents itself with the behaviour is based on needs or demands of the situation. Self-regulation can be situated in the three main mechanisms of the early child development of emotion, behaviour (psycho-motor skills) and cognition. The organic relationship between these aspects (emotion, behaviour, cognition) and the wholeness of the ability to regulate is the key to explaining the connections between these separate aspects (Sokol et al., 2010). All of these aspects have been received attention from many researchers in the psychology literature. However, whilst explaining the whole construct, the literature lacks studies that combine these three aspects and value them equally.

Additional Review On The History Of Inhibition: Are Concepts Of Self-Regulation ‘New’?

It is commonly found that psychologists derive descriptions of their subject matter – constructs like ‘attention,’ ‘memory,’ or ‘self-control’ and believe that they are the product of the work within their discipline. Terms like ‘self-regulation’ and its parts, are a case in point. Not only psychologists do differ in their definitions of this construct and its necessity in the development. They also often equate it to the development of similar constructs that are ‘behaviours’ and their nature is assumed to be based on ‘inhibition.’ Apart from the emotional or cognitive coverage on self-regulation ability, its core has always been related to inhibition. The use of term ‘inhibition’ has been historically tracked down and discussed as how it has been used in scientific knowledge by Roger Smith (1992). In his precise evaluation of the term that has been utilized by both physiology and psychology over the last two centuries, he points out that the meaning of the term has been shaped through the changes in society. The following quotation summarises the relation between constructs has been in the focus:

“The history of inhibition is also part of a wider history of regulation and control, concerns that are so fundamental they almost define the scope of the sciences of body, mind and behaviour. They are also central to thought about the social nature of the individual and to the very continuance of social life.” (Smith, 1992, p.7)

In physiology or psychology, concepts concerning the control of automatic reflexes or organized behaviours can be studied under the term of inhibition. Given the diversity of origins of the use of the term in the nineteenth century, it is not possible to derive a particular source or the

range of the diverse definitions of the term. Smith (1992) states that since the first usage of the term ‘inhibition’ in the English speaking world at the beginning of the nineteenth century, the same term was used in divergent ways in religious, political, economic and even scientific institutions. To exemplify how technological development and industrialization of society led to a shift where the physiological process were directly used to explaining mental qualities, Smith (1992) shows how the metaphor of ‘self-regulatory capacities’ as a steam engine governor was used along with notions of the regulation of production described in terms of factory machinery. He also links these types of regulatory concepts to the regulation of the market, finances and the trade cycles. The political economy and changing industry required a new definition of regulation that would be put down as “regulation of flesh by spirit and the value of individual grace, autonomy, and responsibility” (Smith, 1992, p.238). Where industry and working settings were changing, the value of the regulation of an individual became an issue to consider as we see in the case of child workers. In a faster working setting, the compliance of a child worker can be seen as central to the maintenance of industrial production. In addition to that, where the parents were working longer hours and away from home, there were the subject of children who need adult supervision or instant control of authority. These two examples links to how definition of childhood could have been revisited in the last two centuries – suddenly in the history of Western culture the problem of controlling children’s natural inclinations to seek pleasure came under scrutiny.

Based on Smith’s (1992) evaluations, we can infer that in the course of sustaining ‘inhibition’ as a term that emerged in a number of political and scientific literatures, a longstanding tradition of synthesizing the concepts of physiology, medicine and psychology to address the mind and body as synthetic concept was set in motion. In case of creating this synthetic science, terms like inhibition are interesting because they cut across different disciplines. In fact, there were scientists like Sherrington and Pavlov as Smith (1992) addresses whose theoretical syntheses were aimed at capturing the organized control and the regulation of automatic bodily functions, which was a trending topic of the late 1800s; however, the control of social interactions was also part of their synthetic theoretical understanding. The questioning of a central inhibition mechanism associated with the workings of the nervous system gave rise to the experimental physiological studies where each aspect of inhibition was rather isolated to understand the central mechanism question.

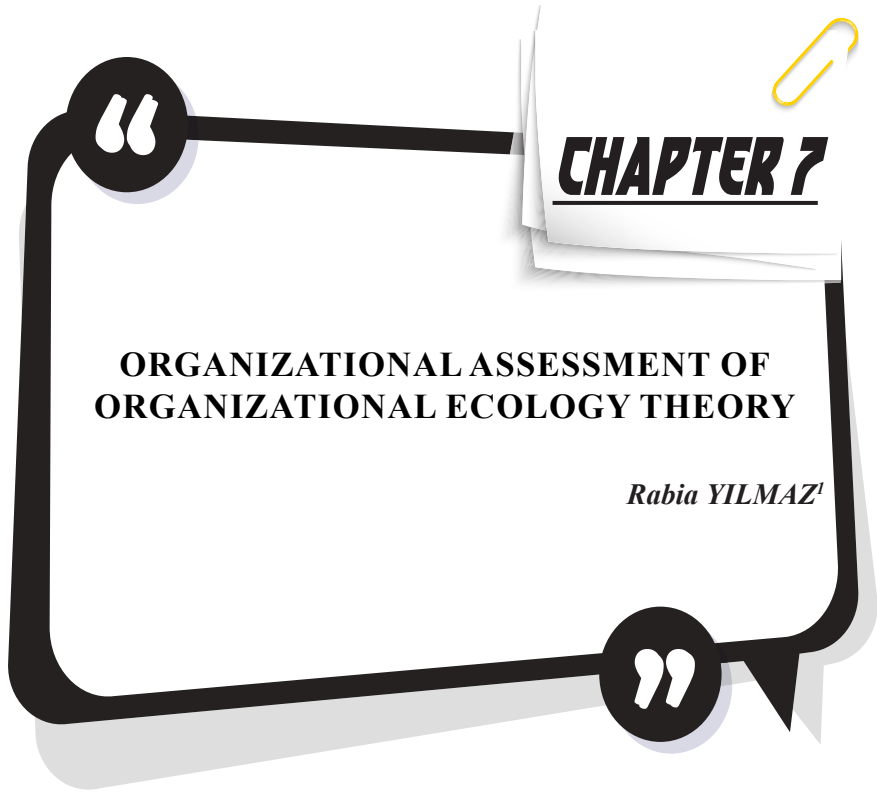
In summary, there are important questions that need to be discussed, even acknowledging the chance of not being able to produce a clear answer to the questions. (1) ‘What is the source of self-regulation in

human beings?', (2) 'What can be defined as the ability to self-regulate in children?' and (3) 'How does psychology deal with such a complex construct and provide meaningful insights to the mechanism underlying self-regulation?'. Controlling one's urges and desires is not only a question concerning childhood; this is a challenge that each of us needs to face daily. In this chapter, I am not talking about an ability that is achieved in early childhood that continues exactly the same into adulthood. It is a changing ability, and it is never stable. Because understanding self-regulation involves getting close to understanding the core of development and developmental psychology, if self-regulation is subject to constant change, it will be difficult to capture in empirical work and even harder to define. In order to build a concrete understanding of what self-regulation could be, a trip to the philosophical roots needs to be taken. Philosophy asked questions of how a person becomes the owner of her/his life and the master of her/his desires and urges prior to psychology. It also defined the world we know through an empirical perspective. As a form of scepticism, the empirical approach to constructs is a concept that became central in the enlightenment era. The observed knowledge of the construct has been claimed as the only source for knowledge. The things that cannot be observed were deemed to be unknowable. To know the things that are only represented in mind was not possible from a Kantian perspective.

Although Kant's transcendental idealism introduced the separation of the beyond-reality matters (metaphysics), which are unobservable to human beings, and the knowledge comes from observable matters, Schopenhauer comes with the solution of affective (emotion-based) understanding of the world. His new invention of a tool to understand the world is what we do understand, both shows the capability of desiring and trying to be in control of those desires. Wanting something is the first step of controlling the limits of your ability to acquire the desired object. So, children may not be the best to control their feelings or thoughts, and they are good at wanting. Everything in our lives starts with a desire. A child tries to grasp that 'trying' is the reflection of a desire that the child possesses. The limitation of our ability to acquire our desire objects expands with understanding firstly our own needs and then the others' needs and desires.

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1. INTRODUCTION

The idea of adaptation to the environment, which was related to adaptation to changing conditions, remained at the forefront in the organizational literature before the 1970s. Accordingly, some researchers agreed that organizations can make changes in and around the organization by making various strategic selections to be in harmony with their environment, so they continue their organizational life cycle (Öztaş, 2017: 58). However, different views began to dominate the management and organization literature, especially in the second half of the 1970s. In this direction, just like in traditional organizational theories, organizational ecology theory, in which environmental selection is more important than the organization's adaptation to the environment, came to the forefront (Kelly, 2021: 9; Hannan & Freeman, 1977: 929). Hannan and Freeman (1977), the founders of this theory, stated that it is an incomplete view to consider the concepts of variation, change, and evolution used for organizations, that is, establishing harmony as an adaptation to the change of the environment, as defended by classical views (Carroll, 1997: 119; as cited in Koçel, 2014: 423). In this direction, Hannan and Freeman (1977) emphasized that the relationship between organization and environment should be examined with environmental separation perspective rather than harmony (Hannan & Freeman, 1977: 937). Indeed, organizational ecology theory is among the adaptation approaches explaining organizational change, but it differs from these approaches (Pala & Vennix, 2000: 1). While other adaptation approaches only explore the relationships between an organization and its environment, organizational ecology theory considers organizations more as a group and focuses on selection and relations between the group and the environment. Thus, the sociological features of organizational ecology theory come to the forefront as an important difference (Koçel, 2014: 423; Hannan & Freeman, 1977: 937).

Organizational ecology theory focuses more on evolutionary processes and environmental selection to comprehend organizational change (Hannan & Freeman, 1988: 8; as cited in Salimath & Jones, 2011: 875). In this sense, organizational ecology, similar to biology studying living things, focuses on the birth (foundation), development, and death (extinction) rates that form the life cycle of organizational populations, the factors affecting these rates, how organizations differ from each other and how this differentiation affects the life cycle of organizations and populations (Aldrich; 1999: 21; as cited in Öztaş, 2017: 60; Campbell, 1969: 410; Hannan & Freeman 1977: 937; as cited in Ren et al., 2017: 3). In other words, organizational ecology theory focuses on the fact that the survival of organizations as a result of their selection depends on the various effects of the elements created by the environment (Hannan & Freeman, 1977: 937; Baum & Mezias, 1992; as

cited in Zhou & Li, 2008: 1116). In this direction, organizations are selected according to their environment or encounter extinction (Sarta et al., 2021: 55). This theory essentially reveals that organizations and organizational populations, and communities have an interrelated structure within open systems (Baum & Singh, 1994: 379; Ren et al., 2017: 3). Organizational ecology theory focuses on the rates of change in organizations and organizational populations and the rates of birth, development, death, and concentration. It also explores the relationships between these rates and rates of change (Campbell, 1969: 410; Hannan & Freeman 1977: 937; as cited in Ren et al., 2017: 3; Morin, 2020: 77).

Organizational ecology theory is essentially based on the concepts of organizations, populations, niches, organizational density, and organizational communities (Abbott et al., 2016: 256; as cited in Telle & Svensson, 2019: 53). In addition, the most important issue emphasized within the scope of this theory is that organizations and organizational populations entering into a process of ecological change will eliminate or strengthen them. In this case, organizations may transform themselves by entering an ecological change process (Carroll, 1997: 119). These processes of change consist of variation, selection, and retention. The variation process is concerned with the formation of new and different forms in organizational populations. The selection process is about establishing the most suitable organizations for the community and the environment continuously changing these organizations (Carroll, 1997: 119-120; as cited in Tran & Santarelli, 2020: 655). Retention is the legitimization and institutionalization process of organizations (Carroll, 1997: 119-120; as cited in Tran & Santarelli, 2020: 655; Daft, 2015: 162).

In this study, the theoretical aspect of organizational ecology theory is mentioned, and the emergence, outlines, formation, and processes of this theory are explained. It aimed to understand its differences with other organizational theories. Also, in this study, besides examining the concept of organizational ecology theory, various aspects of the demography of organizations are discussed within the framework of a different view. This study is one of the few studies that discusses and examines all the processes of the demography of organizational ecology theory. In this case, it is assumed that this study will make a humble contribution to the literature, and thus this study has importance. This study conceptually aims to provide information for researchers and practitioners to better understand the necessity of organizational ecology theory, the processes that organizations undergo within the framework of this theory, and the aspects that create advantages or disadvantages for organizations that occur with this theory.

Accordingly, the other parts of the study are organized as follows; in the second part of the study, the conceptual and theoretical framework of organizational ecology theory is discussed. In the third chapter,

demography of organizations are mentioned in detail. In the last part of the study, conclusion and discussion are discussed.

2. ORGANIZATIONAL ECOLOGY THEORY

In the past years, several evolutionary theories have been mentioned by some researchers in social sciences (Öztaş, 2017: 59-62). However, these theories have not been fully used in an organizational sense, such as organizational ecology theory. Organizational ecology theory was used systematically for the first time in organizational studies and organizational analysis in the article titled “The Population Ecology of Organizations” written by Hannan and Freeman in 1977. These researchers pioneered the development of organizational ecology theory by stating their opinions on this theory in their future studies (Yousaf, 2019: 70; Morin, 2020: 78). In the following years, Carroll (1984) became another researcher who contributed to the development of this theory (Koçel, 2014: 412).

Organizational ecology theory essentially arises from the adaptation of this situation to organizations as a result of the elimination of some of the living things in natural life through natural selection and their extinction, or the fact that some of them are completely or partially changed and continue their lives in this way, as mentioned in a biological system (Hannan & Freeman, 1977: 929; Yousaf, 2019: 70). In this sense, the theoretical roots of organizational ecology theory rely on evolutionary biology. Organizational ecology theory was created by taking advantage of Lamarck’s (1809) and Darwin’s (1859) theory of evolution (Kılıç, 2020: 156). Lamarck’s (1809) theory of evolution argued that it is essential for species to adapt to environmental conditions to survive and that species change in this direction. In Darwin’s (1859) theory of evolution, the view that species first diversify to survive and then selected species adapt to the environment came into prominence, and it differed from Lamarck’s (1809) theory of evolution (Yeloğlu, 2020: 205-206; Aldrich; 1999: 21). In this direction, many researchers attempted to explain the organizational ecology theory based on Darwin’s (1859) theory of evolution, and these researchers, inspired by Darwin’s (1859) theory of evolution, associated the behavioral stages of organizations within the organizational population with the concepts of evolution and environmental selection (Aldrich; 1999: 21; Carroll & Hannan, 2000: 384). In this sense, organizational ecology is a theory based on environmental separation and selection (Sarta et al., 2021: 55; Hannan & Freeman, 1977: 937-938). Accordingly, environmental selection can be stated as the birth of organizations that can adapt to the changing conditions of the environment and the death of organizations that cannot adapt to the environment (Hannan & Freeman, 1977: 937). In other words, environmental separation emerges as the environment is variable for organizations and organizational populations in organizational terms and organizations cannot

respond quickly to this environmental change (Aldrich; 1999: 21; Carroll & Hannan, 2000: 384).

The question that led to the emergence of the organizational ecology theory of organizational ecology and formed the basis of this theory is “Why are there so many types of organizations?” (Hannan & Freeman, 1977: 936; Carroll, 1997: 119-120; as cited in Tran & Santarelli, 2020: 655). The organizational variation herein is related to the number of organizations and organizational communities in addition to the organizational density. Organizational variation is determined by the birth and death of organizations. The birth and death of organizations, on the other hand, are determined by the organizational populations and the processes between these populations mostly by ecological, social, economic, and political effects (Önder & Üsdiken, 2020: 137; Boeker, 1989; as cited in Zhou & Li, 2008: 1116).

Organizational ecology also attempts to express the distribution of organizations and organizational forms and the changes emerging in these forms (Chen et al., 2010; as cited in Yousaf, 2019: 70; Lipson, 2017: 78). In this case, the concept of organizational form is crucial for describing organizational populations. Organizational form is the characteristics or social stages of an organizational structure in which organizational populations differ or are related to the common characteristics of organizations in the same populations (Hannan & Freeman 1989, 45-46; as cited in Lipson, 2017: 78). If the organizational forms of various organizations are similar, it means that they are in the same organizational population. In this case, a change in the organizational environment creates the same type of effects in organizations with similar forms (Hannan & Freeman 1989, 45-53; Abbott et al., 2016: 257; as cited in Lipson, 2017: 78). While it is more difficult to change the main (primary) features of organizations such as the goals of organizations, authority relationships between employees, technologies, market strategies within the scope of organizational form, the secondary characteristics of organizations such as organization schemes and organizational growth can be changed more easily, and the death risk of organizations is less during this change (Hannan & Freeman, 1989: 4; as cited in Önder & Üsdiken, 2020: 139).

The concepts of organizations, populations, niches, and organizational communities are crucial in organizational ecology theory (Abbott et al., 2016: 256; as cited in Telle & Svensson, 2019: 53). Here, organizations are institutions that have representation capability. Population, on the other hand, refers to the sum of organizations that have similar characteristics, perform the same activities, benefit from the same resources, and are typically similar (Baum & Rowley 2002: 13; as cited in Abbott et al., 2016: 257; Downie, 2021: 4). A niche is a resource collection that an organization or population needs to maintain its life cycle (Michael & Kim, 2005:

114; Hannan & Freeman, 1989: 45; Morin, 2020: 78). Organizations to be established newly should be at the right time and in the right place, and a suitable niche should be found for the organization. This situation is effective in the success of the organization (Daft, 2015: 161-162). Finally, organizational communities are the structure formed by various organizational populations in interaction (Baum & Korn, 1994: 278; Warren, 1967; as cited in Hannan & Freeman, 1989: 14).

Organizational ecology theory considers and researches all organizations in a particular area or region as a focal point (Koçel, 2014: 424). In other words, according to some researchers, organizational ecology theory can be expressed as the investigation of the relationship between organizational birth and death rates in an organizational population and the changes brought about by the characteristics of the organization and social conditions in inter-population processes (Ren et al., 2017: 3; Baum and Singh, 1994: 327). Essentially, this theory argues that a set of organizational populations of varying density within organizational ecology can transform together (Morin, 2020: 77).

3. DEMOGRAPHY OF ORGANIZATIONS

Organizational ecology is a structural theory that evaluates the life cycle of organizational populations rather than dealing with the internal form of an organization in the organizational sense (Singh & Lumsden, 1990: 162; Baum & Amburgey, 2002: 308; cited in Telle & Svensson, 2019: 51; Zhou & Li, 2008: 1116). In this case, birth and death rates of organizations and organizational populations and which types of organizations can continue their life cycle gain importance (Hannan & Freeman 1977: 937; Baum, 1999: 83). Organizational ecology theory mainly focuses on three main issues focusing on organizational birth and death. These are demographic processes, ecological processes, and environmental processes (Baum, 1999: 73; Öztaş, 2017: 75; Çubukçu, 2018: 86).

3.1. Demographic Processes

Demography of organizations examines the life cycle of organizations and focuses on the birth, differentiation, merger, dissolution, and death of organizations (Baum, 1999: 73; Wholey & Brittain, 1986: 524). In other words, organizational demography examines the birth and death densities of organizations and the rate of change in these densities, and the relations of these rates with different factors (Baum, 1999: 73). The birth of organizations herein is the foundation of a new organization or the change in the organization's field of activity. The death of organizations is the extinction of an organization or the separation of an organization from its field of activity (Campbell, 1969: 410; Hannan & Freeman 1977: 937; as cited in Ren et al., 2017: 3). In this direction, the ages and

sizes of organizations are important to understand their demographic processes and life cycles (Kılıç, 2020: 157). In this case, demographic analysis becomes crucial. This analysis investigates the birth and death numbers of organizations in a population (Öztaş, 2017: 75). In this sense, organizations can be assessed in terms of demographic characteristics on two basic dimensions: organizational age and organizational size (Wholey & Brittain, 1986: 520).

3.1.1. Organizational Age

Organizations always get on in years from their foundation to their closure. It determines their organizational age. Organizations experience the liability of newness as a result of being affected by factors such as inability to calculate their exact costs when newly founded (Wholey & Brittain, 1986; as cited in Baum, 1999: 73), employees' uncertain perception of the environment, lack of knowledge about their competitors, inability to fully determine the capacity and characteristics of the population they live in, inability to fully establish their legitimacy, having problems accessing resources, etc. (Wholey & Brittain, 1986: 520; Stinchcombe, 1965: 148-149; Freeman et al., 1983; as cited in Baum, 1999: 73). In this case, organizations that are negatively influenced by these factors due to the liability of newness may have a short life cycle if they are newly founded. In addition, some researchers have argued that according to several research findings, the death rate of young organizations is higher than that of old organizations (Wholey & Brittain, 1986: 520; Freeman & Hannan, 1983; as cited in Yeloğlu, 2020: 211). However, since this could not be fully supported in future studies in the literature, new concepts called liability of adolescence and liability of obsolescence have emerged (Baum, 1999: 74; Önder & Üsdiken, 2020: 181). For some researchers, the liability of adolescence is due to the argument that death rates increase because organizations consume a large number of their resources compared to their first founding years. Organizations can reach the adolescence period only if they find new resources (Önder & Üsdiken, 2020: 181; Baum, 1999: 74; Wholey & Brittain, 1986: 520). The liability of obsolescence is related to the increase in the probability of death as a result of reasons such as the loss of harmony with the environment and the inability to compete with other organizations, the increase in their general expenses to maintain their conventional organizational order, and their failure over time (Baum, 1999: 74; Önder & Üsdiken, 2020: 181). However, the studies in the literature have not been able to fully prove the relationship between the said liabilities and the death rates of organizations (Baum, 1999: 95).

According to some researchers, instantaneous states arising from the environment and deficiencies in the processes within the organizations may also result in deaths. According to these researchers, in this sense,

young organizations are at risk of death more than old organizations (Michael & Kim, 2005; cited in Çoşar, 2020: 96). However, according to some researchers, it is stated that the adaptation and resilience of young organizations are better than old organizations and they can take more risks. However, age does not bring an advantage for organizations to continue their lives in any event (Lin & Chen, 2007; cited in Çoşar, 2020: 96). According to some researchers, organizational deaths can occur at any time or age (Freeman & Hannan, 1983: 1117). As a result, young and old organizations have their advantages and disadvantages for their life cycle (Öztaş, 2017: 78).

3.1.2. Organizational Size

Organizational size is a considerable factor to examine the organizational survival processes and success (Kılıç, 2020: 158). Some researchers explain the view that small organizations will be less durable than large organizations with the concept of liability of smallness, which is a close concept to the liability of newness because small organizations have fewer resources, less product range, less specialized personnel, lack of institutionalization, and similar disadvantages (Hannan & Freeman, 1984; as cited in Baum 1999: 73). In that case, as a result of the research on the liability of smallness, in the literature, it has been concluded that the death of the organization decreases as the organizational size increases. Here, it is stated that the size variable is more determinant than the age variable in these studies (Mata & Portugal, 1994: 229; Erdil et al., 2010: 21; as cited in Kılıç, 2020: 158). While some researchers stated that large organizations survive because they have more advantages than small organizations in terms of brand name (Mata & Portugal, 1994: 229; as cited in Kılıç, 2020: 158), knowledge, experience, etc, they stated that small organizations have a disadvantage due to factors such as lack of funding and inability to be properly institutionalized, and this affects their death rates (Mata & Portugal, 1994: 229; Erdil et al., 2010: 21; as cited in Kılıç, 2020: 158). However, in some studies, it has been found that the death rate of small organizations may be low due to several conditions such as decreased competition (Önder & Üsdiken, 2020: 183). Accordingly organizational size does not always provide an advantage for organizations to maintain their life cycle (Özdemirci, 2011: 47; as cited in Çubukçu, 2018: 89). In the studies conducted in recent years, it has also been argued that organizational size cannot be measured only with the concept of absolute size, that the concepts of absolute and relative size that make up the size should be separated from each other, and that both concepts can affect death rates differently (Dobrev & Carroll, 2003: 543; cited in Önder & Üsdiken, 2020: 182).

3.2. Ecological Processes

Ecological processes consider the association of processes inside and outside the population, demographic characteristics, competitiveness, and changes of populations with organizational birth and death rates as a basic framework. In this sense, ecological processes are based on various theories that create them (Coşar, 2013: 43-44; Zhou & Li, 2008: 1116). According to some researchers, these theories generally focus on the basic processes that organizational ecology cares about, the competition between organizations, and the legitimacy of organizations (Coşar, 2013: 43-44; Zhou & Li, 2008: 1116; Hannan & Freeman, 1989: 24). These theories are population dynamics and density dependency theory, niche width theory, and community interdependence theory. Accordingly, these theories can be explained as follows (Baum, 1999: 77).

3.2.1. Population Dynamics and Density Dependence Theory

Organizational ecology deals with populations and considers different possibilities regarding the interactions occurring in a population and the availability of resources (Hannan & Freeman 1989; cited in Abbott et al. 2016: 257; Lomi et al., 2005: 888). In this direction, organizational ecology attempts to investigate and reveal several situations in population dynamics (Lomi et al. 2005; cited in Arthur et al., 2017: 2). Population dynamics focuses on the movements within the population and deals with the numerical status of resources and the change of organizations on the basis of birth and death values (Hannan & Freeman, 1989: 93; cited in Arthur et al. 2017: 2; Baum, 1999: 78). In this direction, population dynamics theory expresses the birth and death mobility in a population, the changes within the population, and the significance of these changes to affect the future changes (Zhou & Li, 2008: 1116; Hannan & Freeman 1977: 937).

Density dependency theory associates organizational density with the birth and death rates of organizations, and the contribution of these relations to the advancement of organizational populations is discussed through the concepts of legitimation and competition (Hannan, 1986; as cited in Freeman & Hannan, 1989: 434; Hannan & Freeman, 1989: 138). Legitimation can be conceptually expressed as a flow of funds from the environment and reflects organizational currency. In addition, legitimized organizations can be more accepted by their environment, can develop socially, and compete more with other organizations with these gains (Zimmerman & Zeitz, 2002: 415; as cited in Tran & Santarelli, 2020: 655; Suchman, 1995: 574; Patel et al. 2005: 2; Lipson, 2017: 79). According to legitimacy, the main goal of organizations is to continue their existence (Patel et al. 2005: 2; as cited in Erdil, et al. 2010: 23; Daft, 2015: 164). Legitimacy in organizations can be expressed in two different ways:

isomorphism and differentiation (Hannan & Freeman, 1977: 938). The first of these, isoforms, emphasizes the efforts of organizations to adapt to the environment by trying to be like other successful organizations (Hawley 1968: 334; as cited in Bloodgood, 2011: 145; Freeman & Hannan, 1989: 429). Differentiation emphasizes the efforts of organizations within the population to be different from their competitors to adapt to the environment and resist environmental uncertainty and the essentialness of this differentiation. In fact, as differentiation increases, the competitiveness of organizations will also increase (Deephouse, 1999: 148; as cited by Tan et al., 2013: 85; Lepori et al., 2014: 200). According to this theory, while the increase in density in the organizational community increases the legitimacy of the organizational form with a decreasing momentum, it also increases the community competition with an increasing momentum (Baum, 1995; as cited in Baum, 1999: 83; Hannan & Freeman, 1987; as cited in Acar, 2010: 19; Hannan & Carroll, 1992: 37). Finally, since the effects of population dynamics are related to the density dynamics and the increase or decrease in the density state, it can be argued that density and population dynamics are the concepts that complement each other (Tucker et al., 1988: 151).

3.2.2. Niche width theory

Niche width is related to a population's resilience to varying levels of resources, its ability to stand out to competitors, and its resilience to factors that prevent its organizational development. If a population can reproduce different states repeatedly, it has a wide niche (source) (Freeman & Hannan, 1983: 1118; as cited in Kaya, 2013: 61). The niche width theory is related to the variation that may occur within the community because of the differences in the resources had or needed by organizations, and its effects on the possibilities of life (Hannan & Freeman, 1977: 947). Niche width is also a theory that examines the effects of the chance of survival of specialist and generalist organizations of environmental variables (İzdaş, 2018: 315). In addition, if populations use similar resources under the niche width theory, and if the gaps in the populations of the organizations overlap with each other, organizations will be in a competitive situation. Actually populations' competitiveness increases as the similarity and importance of the resources used increases (Yeloğlu, 2020: 219-220).

According to some researchers, especially within the framework of the niche width theory, organizations in the organizational population are divided into two based on the abundance and content of the niche they acquire (Hannan & Carroll, 1995; Hannan & Freeman, 1977: 947, 1989; as cited in Turhan, 2021: 263). These are specialist and generalist organizations (Ataman 2002, 204; as cited in Coşar, 2013: 54). According to some researchers, specialist organizations have a specialized structure operating in a specific field of activity and dealing with a narrower market

that offers fewer products or services (Daft, 2015: 163; as cited in Miles, 2012: 179). Generalist organizations, on the other hand, are organizations that operate in many areas, offer many products or services, serve a broad market, and have an unspecialized structure (Daft, 2015: 163; Zammuto, 1988: 107; Sorenson et al., 2006; as cited in Miles, 2012: 179).

3.2.3. Community interdependence theory

Individuals are in connection and relationship with other individuals or communities in a social environment. In this case, individuals are dependent on each other in terms of various factors (Ashman & Zastrow 1990: 8; Ashman & Hull 1999: 15-16, as cited in Daniş, 2006: 50). Just like individuals, organizational populations are interconnected and interact with other organizational populations. A change in one organizational population absolutely will influence another organizational population. The community interdependence theory emphasizes the relationships between organizational populations rather than the relationships within the organizational population (Astley, 1985; Fombrun, 1986; Hawley, 1950; as cited in Baum, 1999: 85). According to this theory, organizational populations cannot survive without other populations. This theory argues that the birth (foundation), survival, and extinction of organizational populations depend on their interactions with organizations in other populations (Baum & Oliver, 1996; Wholey & Brittain, 1986; Singh & Lumsden, 1990; as cited in Öztaş, 2017: 92-93).

3.3. Environmental Processes

Many researchers argue that an organization cannot fully adapt to changing environmental conditions because it has a desire to regularly do business, has an inert structure, and can respond more difficult to changes (Hannan & Freeman 1989: 6). Likewise, when the populations created by organizations cannot adapt to the environment, they are constantly subject to organizational selection (Hannan & Freeman 1989: 6; Morin, 2020: 78). It is actually difficult for organizations to respond quickly to environmental conditions since countless organizational and environmental factors affect organizations (Önder & Üsdiken, 2020: 179). Moreover, some researchers argue that organizations cannot predict how environmental change will occur and what exactly the outcome of this change will be. Therefore, the decisions that organizations will take to adapt to the environment might be random (Önder & Üsdiken, 2020: 179; Baum, 1999: 88). In this case, since most organizations cannot adapt to the environment, environmental conditions will create an environmental selection over time, and organizations will be eliminated (Baum, 1999: 88; (Hannan & Freeman, 1989: 45). Accordingly, for some researchers, organizations remain in a structure created by separatism created by environmental conditions, as opposed to adapting to environmental change (Baum, 1999: 88). In this case, separatism constitutes

one of the basic points of organizational ecology theory. In addition it is necessary to consider since all organizations in a population share the same basic niche, all changes in their environment will similarly influence all organizations (Hannan & Freeman, 1989: 45; Morin, 2020: 78).

4. CONCLUSION AND DISCUSSION

Organizational ecology theory focuses on the birth (foundation), survival, and death (extinction) of organizational populations and the environmental selection processes constituting these stages (Hannan & Freeman 1977: 937; Freeman & Hannan, 1983: 1117). This theory emphasizes a system in which environmental impacts determine the life cycle rather than the adaptation of populations to the environment. In this case, the existence or nonexistence of the organizations and populations in organizational ecology theory is revealed according to their environment (Morin, 2020: 77; Abbott et al., 2016: 251; Ren et al., 2017: 3). This theory was formed especially as a theory focusing on organizational populations rather than individual organizations (Koçel, 2014: 411; Hannan & Freeman, 1977: 933; Hannan & Carroll, 1992: 5; as cited in Downie, 2021: 4). Accordingly, organizational ecology theory focuses on density and adaptation in organizational populations or communities (Hannan et al., 1995; as cited in Ren et al., 2017: 3). In short, organizational ecology theory is about the life cycle of organizational populations, their interactions with each other, and the dynamics within the population (Hannan, 2005: 51; as cited in Coşar, 2013: 43; Hannan & Freeman, 1977, 1989; as cited in Miles, 2012: 177).

Organizational ecology theory is not only about how an organization continues to exist but also how all organizations benefiting from the same resource achieve success (Güney, 2020: 425). Legitimacy and competition are important in organizational success (Telle & Svensson, 2019: 53). In addition, organizations can only change by entering into an ecological change process. This change process is variation, selection, and retention (Carroll, 1997: 119-120; as cited in Tran & Santarelli, 2020: 655). Qualifications of the organizations, demography of the populations in their field of activity, and effects of ecology are important within the context of organizational ecology (Hannan, 2005: 54). In this sense, three basic processes, namely demographic, ecological, and environmental processes, which focus on the birth and death of organizational populations, are effective in this theory (Baum, 1999: 73).

There are several advantages and contributions of organizational ecology theory in terms of organizations. The use of concepts and methods from the sciences by this theory contributed to the organization and management fields becoming more positivist (Öztaş, 2017: 95). Moreover, this theory has a sociological character. Furthermore, since organizational populations are the unit of analysis according to organizational ecology

theory, this has increased the level of analysis of organizational studies (Öztaş, 2017: 95-96; Koçel, 2014: 423). In addition to this, organizations within the population necessarily monitor resources and attempt to acquire them (Astley & Fombrun, 1983; cited in Hu, 2017: 459), but many organizations do not have all the necessary resources. Therefore, some organizations can establish strategic partnerships with other organizations (as cited in Hu, 2017: 459). In this case, this theory may have an important role in the development of inter-organizational relations. In addition, organizations that have a good management strategy can compete with other organizations and also be in harmony and cooperation (Abbott et al., 2016, 263; as cited in Lipson, 2017: 79; Daft, 2015: 168-169). As a result, this may contribute to the success of organizational strategies (Daft, 2015: 169). Finally, having a strategy that will direct the organization to a new unrevealed field of activity can be effective for organizational success (Daft, 2015: 164; Lipson, 2017: 79). Besides that, organizations can perform better business practices to gain a competitive advantage over other organizations through this theory (Daft, 2015: 164).

In addition to the advantages and contributions of organizational ecology theory, there are also various criticisms about this theory. First of all, this theory has been criticized as it is based on Darwin's (1859) theory of evolution (Miles, 2012: 180). It is among the criticisms that separatism, inspired by this theory and suggested by Darwin (1859), causes several problems in the socio-cultural evolution stages of organizations. Accordingly, it is argued that organizations may change their forms and that the results of this situation create disagreement as to whether it is adaptation and separation (Miles, 2012: 180; Çoşar, 2013: 45). Another criticism is that organizational ecology theory does not attach much importance to organizational change and adaptation (Young, 1988: 17). Within the framework of this theory, the role and occupations of the employees in the organization are not taken into account is among the criticisms (Ataman, 2002: 205-206; as cited in Çoşar, 2013: 45; Aldrich, 1999: 27). Breslin and Jones (2012), on the other hand, argued that biological species undergo the evolutionary process in an ecological system, but organizations cannot be considered as species. Ecology goes back to the element of competition in Darwin's (1859) evolutionary model in order to express several practices. However, in this context, when explaining the concept of organizational ecology, neglectation of organizational strategy is among the other criticisms (Astley & Fombrun, 1983; Carroll, 1984; as cited in Hu, 2017: 456-457). Some researchers suggested that opinion in determining these relationships is insufficient because the relationships between populations are complex (Yeloğlu, 2020: 227). In addition, deterministic concepts that contradict this theory have come in for criticism as they prevent the implementation of ecology in the context of an organizational strategy (Breslin & Jones,

2012; as cited in Hu, 2017: 456). According to Abbott et al. (2016) some researchers argue that organizational ecology theory can not provide a comprehensive perspective compared to existing theories, but would be a complement to the ongoing traditional explanations, within the framework of the view that traditional theories are incomplete because they do not pay systematic attention to the organizational environment (Abbott et al., 2016: 250; Morin, 2020: 77). Some researchers have stated that research on this subject emphasizes a broad level between different organizational areas. It generalizes the theory (Baum, 1999: 101). In addition with this theory, it has also been argued that apart from a small number of studies investigating organizational growth rates, other researchers only focus on organizational birth and death rates (Frick & Wallbrecht, 2012; Freeman et al., 2012; as cited in Ren et al., 2017: 2).

In this study, organizational ecology theory is referred to conceptually and significant points such as the emergence, formation, and organizational process of this theory are discussed. Besides that, this study reveals how the demographic, ecological, and environmental processes that organizational ecology theory creates on the organizations and organizational populations that make up its demographics affect organizations and organizational populations, and it is thought that humbly useful information is presented for the literature. Accordingly, it is desired with this study to present a new source to the literature within the framework of organizational ecology theory and to be a tool for researchers to produce new studies in the future. This study also aims to enable organizational management and researchers to understand the criticisms brought to this theory, apart from the strong and contributing aspects of organizational ecology theory, and to contribute to developing new perspectives about organizations, organizational populations, and the environment in the direction of these criticisms. Accordingly, with this study, it is desired to encourage organizational management and researchers to lead to generating more ideas on organizations, organization populations, and the environment, to contribute to the development of a different perspective in order to recognize the populations they are involved in and other populations and communities, to offer a different perspective for the development of organizations and to do more research. Thus, with this study, it has been tried to present different ideas for organizations and organization populations to overcome the extinction situation and to continue their lives. In future studies, different solution-oriented researches can be suggested in the light of the processes, contributions, and criticisms of organizational ecology theory in order to reach a better level in organizations, populations, and environmental relations, and a more comprehensive advantage can be provided to the literature with these studies.

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CHAPTER 8

PUBLIC RELATIONS PRACTICES IN LOCAL GOVERNMENTS

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INTRODUCTION

Local governments can offer the public service most effectively and can be expressed in the closest way to the public. Reputable local governments due to the service from the first application of the people, those who serve between the general government and the public. Important in this regard and their role in service delivery (Karakılçık and Küçük, 2019: 140). The expected diversification of the society further increases the local governments in the cities. Globalization, competition, competition, information, and technologies are found in local governments in parallel with the aims. son room managements; In addition to equipment such as transportation, water, and roads, it has started to be found in social and social activities. While providing these services, local governments adopt a democratic and transparent management approach.

The concentration of all political authority in the center is not suitable for a pluralistic democracy, and the most practical way to ensure the pluralism of the political system is local governments (Yılmaz and Telsaç, 2021: 238). Services to citizens are determined by the division of tasks between the central government and the local government. This division of labor is adjusted according to economic and traditional criteria. In economics; A service should be carried out by the administration that can be performed and offered to the public more cost-effectively by that administration. The important thing here is that the task or service is given to the public in the most useful, cheapest, and fastest way. Since local governments have smaller units compared to the central government, they are more capable of determining and meeting the demands and needs for services. New practices and expectations, especially established traditions, have an impact on the division of duties in the execution of services (Demir Uslu, 2021: 924).

Public relations is the whole of the work done by private or public institutions and organizations to communicate with the target audience, see the support of these audiences, and gain reputation. It is used to protect the image and reputation of institutions. Public relations acts as a bridge in ensuring the satisfaction of the institutions and society it represents and increases the prestige of the institution. Public relations is a communication activity, and it aims to develop good relations with society and enlighten society about useful activities. Public relations is a planned and programmed communication effort designed to influence the determined target audiences. It would be correct to say that “the public” is a very important element in public relations and that p . Public relations studies emerged and developed to improve the expectations, demands, ints of the public (Menek, 2019: 9).

Undoubtedly, local governments can't achieve all of their goals. However, considering the characteristics of the business, service should be given in a way that gives priority to the wishes and demands of the people. The "people" to whom services are provided are made up of different ethnic and social groups. The fact that each social group has different psychological, demographic, and socio-cultural characteristics leads the institution to determine the characteristics of the audience it wants to reach. Developing, organizing, and implementing public-oriented activity planning depends on the success of public relations.

One of the most influential factors that make local governments valuable and in their emergence is the participation of the people. In this context, local governments should consider the consent of the people while determining their strategies and implementing their plans. The dizzying innovations in communication technologies, easy access to the internet, and the widespread use of smart mobile phones cause the public to unite on a single issue and form a strong public opinion. To prevent such problems in local governments, public relations practices should be developed. The services offered in our age have become diversified and complex. Determining the needs, expectations, and complaints of the people well and determining service policies accordingly increases success (Can, 2021: 102). Local governments that implement a democratic and transparent management approach are more successful.

Public relations; includes collecting information, informing, creating, and protecting the corporate image, communicating with target audiences, performance and performance evaluation of target audiences (Akdağ, 2005: 1). Public relations is used in many fields such as communication, marketing, psychological, economic, and literature. The purpose of public relations in institutions is to establish a correct relationship between the institution and other institutions in the internal and external environment. In other words, the aim is to transform negative situations such as hostility, prejudice, indifference, and ignorance in the environment related to this institution into positive situations such as sympathy, interest, and knowledge. Increasing the business efficiency of the organization through public relations depends on the positive development of relations with society and other institutions.

Public relations is like the window of local governments to the outside. The success of local governments depends on the quality of their public relations. In order Coefficient and quality service, a lot of work falls on the people working in the public relations unit. These people need to create a positive picture in terms of quality and quantity. When the employees in these units are sympathetic, understanding, respectful, cultured, educated, clean, and well-groomed, their interaction and communication with the

public will be positive, and the service quality provided by the institution will increase. Local governments will gain the trust and support of the local people by facilitating the life of the local people, and they will maintain a successful administration with the public relations systems they have built on solid foundations, away from political concerns, humane, scientific, and technological structures.

LOCAL GOVERNMENTS

In parallel with globalization, economic, technological, and social change and development in the world, there are changes and developments in public administration. The provision of public services all over the world is covered by the central government and local public services. As a result of the sharing of public services between the central government and local services, some public services are traditionally provided by the central government, while others are provided by the local government (Bülbül, 2013: 50). In countries with a federal structure, there are federated states between these two. federated states in various countries; Also known as member state, canton, state, republic, statelet. The qualifications of today's local governments are as follows.

- They have a separate legal personality from the central government.
- They have separate assets.
- They have the authority to make their budgets.
- There are decision-making bodies made up of elected officials.
- They have income.
- They have a certain, albeit limited, autonomy. (<https://www.kolaysinavlar.com/system/storage/download>)

It is known that local governments are not different from public and private sector administrations and have similar characteristics. One of the basic principles of the new public management approach is that the state not only focuses on the production and delivery of public services but also acts as a collaborator between the public sector, private sector, and voluntary organizations in solving social problems (Zengin, 2018: 90). Local governments are public legal entities established in a certain geographical region such as a province, village, municipality, with administrative and financial autonomy, whose decision-making bodies are elected by the people, to receive the public service that the local people need due to their collective lives (Sobacı and Köseoğlu 2016:139). These administrations are the institutions that serve the people and are closest to the people in solving the problems of the people and have very important functions. Societies have begun to give more importance to local governments, as

the central government strengthens the bureaucratic oligarchy, increases the paperwork, and can cause injustice in the distribution and distribution of public services. It is observed that local people participate in decision-making processes in making local services more effective and faster, improving the level of democracy and political culture of the people, and strengthening local democracy (Erdoğan, 2019: 296). Participation in political and administrative management at the local level is more active and effective (Eryılmaz, 2016: 173).

It is public participation that makes local governments valuable and effective. Today, the establishment of city councils, civic initiatives, and the establishment of relations between various platforms and local governments show the participation of local governments. The democratic indicator of local governments is the power of the local society to influence the decisions taken and the desire to control. In the classical management approach, the participation of the people in the administration can be extremely official and limited in the form of elections, referendums, and meetings, while this can be done directly and in many more ways locally (Özer and Önen, 2017: 315). In today's local administration approach, governance; is the dominant paradigm that brings the phenomenon of participation to the fore as its focal point. The concept of governance; is expressed with concepts such as accountability, participation, decentralization, and transparency. It emphasizes the participation of not only central institutions and local governments, but also non-governmental organizations, private entrepreneurs, and non-profit organizations in management. Governance in terms of directing and managing society; indicates that the responsibility is taken from the state and transferred to civil society (Telsaç, 2020: 60). Local government is the government where centralization is reduced as much as possible and delegation of authority comes to the fore (İzci, et al. 2020: 72).

Local governments are constitutional units that produce local public services to meet the common needs of the local people and to provide them in various ways, have public legal personality, decide on the election of decision-making bodies by the people, and have the personnel and a budget. Local governments are not only administrative organizations established to provide public services to local people, but also institutions that act as the first step in the realization of democratic values such as participation and representation (Altın and Şahin, 2019: 89). The management of the state from a single center may not be sufficient in terms of reflecting the effectiveness of public policies and services. local services provided by local units; will naturally increase efficiency in the principle of fit for purpose and will enable the targeted management unit to produce a more accurate, fast, and participatory solution. Strengthening local governments by the central government will also reduce the workload of the central government and thus enable it to focus on more important national

policies (Yılmaz and Telsaç, 2021: 235). Compared to non-governmental organizations, local governments have a wider financial resource and legal authority. Today, with the increasing importance given to local governments in the world, local governments have also changed and assumed new roles and duties besides being organizations that meet the common needs of the people (Akman, 2018: 453).

It is known that for the first time in history, local governments emerged in the first agricultural societies of Mesopotamia. However, city-states called “site” or “polis” in Ancient Greece and “municipality” in Roman times are the first examples of local governments (Çiçek, 2014: 55). Local governments have historically emerged with the states and provided local services as a part of the state (Ökmen and Parlak, 2015: 405). Local governments in the modern sense, on the other hand, were built with the economic strengthening of cities together with the nation-states that started to be established with the collapse of feudalism in Europe (Sobacı and Köseoğlu, 2016: 13). The formation of local governments in Turkey is not very old. It is known that local governments in the modern sense emerged in the 19th century and were inspired by France and modeled on western countries and enacted. In this context, local governments remained as auxiliary institutions besides the central government, which strengthened the sovereignty of the central government and made it widespread within the country, and ensured the collection of taxes at the local level (Çiçek, 2014: 61).

The General Directorate of Local Administrations is affiliated to the Ministry of Environment and Urbanization with the Presidential Decree No. 1 on the Presidential Organization published in the Official Gazette dated 10.07.2018 and numbered 30474. Duties and powers of the General Directorate of Local Administrations in Turkey Article 100 of this Presidential Decree are as follows (<https://yeronetimler.csb.gov.tr/kurulus-ve-gorevler-i-91361>).

To carry out, follow up, finalize, and develop the duties and services given by the legislation regarding the work and business of local administrations,

- To ensure that local government investments and services are carried out by the achievements and annual programs,
- To conduct research for the development of local governments, to collect, evaluate and publish statistical information,
- To plan in-service training of local administration personnel and to follow up their implementation,
- To determine the organization, vehicle, and staff standards of local administrations,

- To perform other duties assigned by the Minister.

Personnel working in local governments must understand the expectations and feelings of the people they serve and establish continuous and quality communication with them. Establishing and sharing emotional memory at the organizational level, that is, sharing experiences, collective feelings, and experiences, keeping learning channels open, supporting employees in this regard, raising awareness, and creating a collaborative culture are all perceived by the sector employees. It increases the expectations and needs of the people with whom they communicate, the competitive power of the organization, and increases its performance. In this context, the development of corporate emotional memories of corporate employees and information sharing are essential for effective and efficient management (İmamoğlu, et al., 2018: 96). Local governments have produced various new strategies to provide citizen-oriented improvement in service delivery. With the use of developing technological technology technologies, e-municipality applications have come to the fore to provide local public services to citizens faster. The success, efficiency, and success of local governments; e-bel applications for special local services, e-complaint white desk, etc. are evaluated with applications (Henden and Henden, 2005: 56).

PUBLIC RELATIONS

Public relations, in the modern sense, has been discussed both theoretically and practically since the beginning of the 20th century (Aydın and Poyraz, 2021: 15). These are the structure of two-way communication, knowledge, understanding, and image development that affect the development and task of management. In the globalizing world, public relations should be taught and applied consciously and systematically, not randomly (Güneş, 2009: 71). What is the concept of the people as a people and as a segment of interacting people? The public is not educable people (Yıldız, 2010: 27), it is the target audience to be killed or affected (Yıldız, 2010: 27). It takes advantage of all the content of the relationship and is the education of public aid with a contact-oriented goal among its target audience ((Kalender, 2013: 4). Public History is a government (Harlow, 1976: 36)

Public relations; by constantly informing the management on mutual understanding, acceptance, cooperation, and communication between the enterprise and its target groups, the management of problems and issues; It is a piece that helps to be sensitive. In addition, it acts as an early warning system in predetermining trends and taking precautions, which comprehends the responsibility of the administration to serve the public interest and helps the administration to warn the administration and act in this direction. It is a unique management function that uses research

methods and communication techniques as a primary tool in line with ethical principles (Sjöberg, 1998: 53).

In an intensely competitive and globalizing world, public relations plays an active role in the emergence, maintenance, and development of the image and reputation of the institutions and organizations it represents and is among the most preferred professions. Public relations tools are used to recognize and support scientific activities and to generate public support. Publications are an important tool in promoting and promoting science diplomacy activities at the national and international level (Yıldırım and Akbulut, 2021: 78).

There are various definitions of public relations. Peltekoğlu (2001: 6) defined it as the strategic communication management carried out with various stakeholder groups in line with the objectives of the organization. Göksel (1994: 6) and Kazancı (2013: 82-83) define public relations as a set of administrative activities based on communication and mutual interaction and aiming at the approval of the public. (Budak, 1995:8), on the other hand, is “all the activities carried out by a person or organization to establish relations with other people or organizations, to gain benefits or to improve existing relations”. It is the whole of activities carried out by a person or organization to clarify or improve its relations with the environment” (Somer, 1988: 5).

The development process of public relations started with the existence of humanity. Although not in the modern sense, there are similar applications today. For example, in ancient civilizations such as Babylon, Greece, and Rome, people tried to accept the authority of the administration with various techniques still used today (Kalender, 2012, 13). With the development of the industry, press agents began their promotional activities in the United States in the late 1800s and early 1900s. At the end of the 19th century, public relations practitioners who took on the duty of press members began to be seen in many organizations. These people, who are in both advertising and press agencies, acted as mediators between newspapers and organizations as the pioneer of public relations (Okay and Okay, 2015: 133). Modern public relations emerged in the United States in the early 20th century with the practices of Ivy Lee and Edward Bernays and was first practiced by the private sector in the USA.

Public relations consists of three different dimensions in terms of education, research, and practice (Act. Türkal and Taşcığlu, 2020: 39-40). Previously, public relations were only promotional activities, but today, promotional activities constitute only a small part of public relations (Akbulut and Üstünbaş, 2021: 162).

Today, public relations education is given in universities in almost every country in the world where the service sector is developed, especially

in the USA and Western European countries (Solmaz et al., 2017: 274-275). Public relations, which started to develop in the world in the first half of the 20th century, began to be seen in Turkey only in the 1960s. Public relations In Turkey, public relations first started in public institutions and entered the private sector in the 1970s. In addition, public relations education began to be given at universities in the 1960s (Act. Türkal and Taşcıoğlu, 2020: 40). In the second half of the 1980s and especially in the 1990s, public relations gained momentum and the number of agencies in western standards gradually increased (Akbulut and Üstünbaş, 2021: 164).

Public relations practices are one of the strategies that provide a competitive advantage. The modern state and public relations cannot be separated from each other. The change and transformation of the modern state will also change and transform public relations, which is a management function. In addition, every change and transformation changes the public relations assumptions in the state and shapes the field of public relations with new practices and tools (Eroğlu and Yağmurlu, 2020: 140).

PUBLIC RELATIONS APPLICATION AREAS

In the historical process, the duties and responsibilities of public relations studies, which have moved from simple and technical applications to professional public relations applications based on strategic management, have also changed. Profit-oriented approaches, which lasted until the 1950s, left their place to the understanding of social responsibility in the 1970s, and in the 1990s they were included in all target groups of the institution. Today, it is accepted as the most important stakeholder of a social organization for organizational legitimacy and being an exemplary corporate citizen (Küçüksaraç, 2018:118). Globalization, technological developments, and the information age have changed the application areas of public relations. An expansion has been achieved in the application areas of public relations and different application areas have emerged (Akbulut and Üstünbaş, 2020: 195).

Public relations is a management function that acts in line with mutual interests between institutions/organizations and the public. While public relations provides communication, relationship, and interaction between the parties in question, it benefits from many applications (Aydın and Poyraz, 2021: 15). In addition to its basic duties, there are also important application areas carried out at a professional level.

These;

- Media relations
- Financial Relations

- public affairs
 - Problem/Problem Management,
 - Lobbying Application Areas.
 - Crisis management,
 - Reputation management,
 - Marketing communication
 - Sponsorship
 - Corporate Social Responsibility
 - Incident management,
 - Corporate Identity and Image,
 - Employee/Member Relations
- Public relations is also among the application areas of public relations (Kalender, 2012: 11-13).

Public relations previously carried out activities such as promotion, relations with the media, informing the public, and persuading the public. However, today, it is seen that there is a significant increase in its functions. This increase is not based on replacing each other in public relations practices, but on ensuring the integrity of the old activity with the new field of activity (Akbulut and Üstünbaş, 2021:165). Public relations practice areas have been shaped and shaped according to the wishes and needs of the period in parallel with the historical, cultural, social, political, and economic developments (Poyraz, 2012: 1). Social media channels, which are used as communication channels in public relations applications, are very effective in reaching large masses. At the same time, social media channels are ideal public relations tools that offer a two-way symmetrical communication environment for non-governmental organizations. Some of the global and national environmental organizations, which have an important place among non-governmental organizations with their actions, use social networking sites such as Facebook and Twitter in harmony and connection with their websites (Onat, 2010:103).

Public relations practice management; includes the stages of research, planning, implementation, and evaluation (Akbulut and Üstünbaş, 2021: 168). If any of these stages is missing or insufficient, successful public relations management cannot be mentioned.

LOCAL GOVERNMENTS AND PUBLIC RELATIONS.

In the globalizing world, countries that have fewer problems in state-citizen and state-private sector relations can grow faster. This rapid growth has brought about the development and application of

restructuring, sustainable development, and citizen-oriented service in public administration. Local governments have had their share of this. Local government units were established to provide services to individuals living in certain areas outside the responsibility of the central government (Pekküçükşen and Yıldırım, 2021: 6712). Today, local governments have undergone radical changes and differentiated from their local economic structures. Local governments benefit from public relations practices while providing citizen-oriented services (Henden & Henden, 2005:47-48).

Municipalities, which are the most important institutions of local governments, have come to a very important position in the 21st century and have begun to be seen as a brake and balance element against the central government. They play an active role in the development and implementation of participatory democracy. The purpose and reason of the existence of public administration in democratic societies is service to society. In this context, municipalities have to have a sensitive, responsible, and respectful management philosophy towards the society they serve, and their success depends on the public relations management in their institutions (Sezgin, 2011: 93). Public relations in municipalities are based on “two-way communication and interactions. It is a planned, programmed and continuous management function that aims to create and maintain mutual trust, adoption, and cooperation between the municipality and the people it serves (Yalçındağ, 1996: 10).

Public relations is an interactive communication process that regulates relations between institutions or organizations and their target audiences. As a result of this interaction, positive perceptions, satisfaction, trust, loyalty, and supportive behaviors are seen by the target audience. Thanks to public relations, the services provided are supported and maintained by the public (Çelebi, 2019: 1). In this context, businesses that care about customer satisfaction and customer loyalty should bring public relations to the fore. The public relations unit in institutions and organizations and the various studies that this unit puts into practice within the institution show the importance and indispensability of human capital (Göksel and Baytekin, 2008, 86). Employees in local governments guide the public relations manager with the positive or negative outputs they receive from the local people while serving the public.

Public relations provide mutual communication between internal and external environments in organizations. Their duties are the existence of two-way communication, the ability to influence the public with the dimension of informing, understanding and image development, and management. In institutions and organizations, public relations should be taught and implemented consciously and systematically, not haphazardly (Güneş, 2009: 71). One of the main responsibilities of public relations specialists is

to choose the right information from the increasing information pollution and to show their professionalism in the use of changing and developing communication tools.

Today, the transformations in public administration in the fields of openness, transparency, and participation are the principles that will increase the welfare and quality of life of the people, and openness and accountability are very important in terms of the quality of democracy. Uslu and Yılmaz,,2018: 114). It is necessary to research what their expectations, wishes, and needs are, and to determine and implement service policies in line with these data. The continuation of the existence of the municipalities and their effectiveness and efficiency is ensured by the support of the target audience. Public relations in municipalities play an active role in the creation of the municipality of the people and the people of the town integrated with the municipality (Kurt 2015: 336).

In municipalities where public relations are well managed, an advantage is gained in local elections. Today, municipalities are desired to be strong. Municipalities are expected to be accountable, transparent, transparent, open, and participatory in their relations with the public (Tunç, 2016: 78). Local governments need to establish public relations activities on healthy and solid foundations. Local governments, which come to power with the vote and election of the people and get their financial resources from themselves, should provide the best service for the people. For this to be implemented, there must be communication based on mutual love and trust between the people and the local government (Bayhan, 2020:39). These principles are important determinants of public relations policies and practices of local governments (Yayinoglu, 2005: 48). These are the principle of openness (transparency-transparency), the principle of efficient and effective service, the principle of impartiality (impartiality), the principle of participation, and the principle of two-way interaction (Aliyev, 2022: 14-17).

Principle of Openness (Transparency-Transparency): The most important element in public relations services in municipalities is the principle of openness. Local people and related persons or organizations want to know what decisions affect them and should be able to get the information they need from local governments whenever they want. Records, documents, and other important papers must be available for public inspection. In a transparent administration, local decisions must be made according to the views of the people and subject to review, discussion, and even corrective action through the ballot box. In this context, the principle of openness ensures the formation of trust between the local government and the local people (Don-Terry et al, 2015: 12).

Efficient and Effective Service Principle: It is impossible for municipal administrations that cannot provide effective and efficient service to create a positive impact in the long run and to impose it on their target audience. In this respect, it is obligatory for local governments, which are the most important, of municipal governments to provide on-site and qualified service by using their resources and opportunities at the highest level in line with the wishes and needs of the people and to plan the organization and strategies that will provide this. Understanding that the success of public relations works is the realization of effective, efficient, and adequate service on a large scale, they should work towards this. In an effective and efficient public relations organization, it is the examination of the demands, requests and suggestions conveyed to the management from the citizens and the effect of the management on the service strategy with its organizational structure. For this, local governments should aim to ensure the effectiveness of the services they produce and to provide more efficiency to the local people. Local administrations are trying to perform the services in the best way with their current budgets. For Factorization to maintain its continuity, time and money resources must be managed correctly to realize the factors of efficiency and effectiveness (Bayhan.2020: 42-43).

Principle of impartiality: all local government bodies should carry out all their work impartially. It should serve all local people equally and should not treat any individual of equal status in the service process in a different way than others. The elected administration should impartially serve and treat all the people of the region equally, without giving priority to the political understanding that supports it (Rothstein and Teorell, 2008: 179).

Principle of Participation: Local democracy with local governments should be a process that provides the opportunity for local communities to participate in the administration, not the elections held for certain periods and the management of these elected ones. Public participation is not limited to being a candidate for the presidency and parliamentary elections held at certain times or voting. Public participation should also be accepted as a public relations approach that can be valid in all actions and transactions of the administration (Mankara, 2019: 50-51).

The Bidirectional Principle of Interaction: There is a flow of information between local governments and the public. In other words, the flow of information between the administration and the society should be two-way. For effective communication to take place, managers and public relations must listen to the public very well. But many public relations and administrators lose this view and try only to prepare a statement and take control of the society. This is a very wrong approach. Interaction and communication systems must be reliable, communication must be two-way and accessible.

At the same time, local governments use the internet and related Information and Communication Technologies (ICT) to better serve the public. Therefore, information and communication technologies are effective in providing a participatory management approach in local governments. Today, in many countries of the world, in addition to the above-mentioned strategies, local governments have started social media strategies (Yeşildağ, 2019: 883).

CONCLUSION

Considering that the purpose of local government is to solve local problems and provide services in general, a method that will implement planned communication is needed in this process. Public relations are used to ensure this planned communication. Local governments primarily need to gather information to find solutions to problems and to inform them of the success of services. In local government, the administration and the assembly take office through elections, as a result of the votes of the people. In other words, the people themselves choose the important person working in these institutions to do their duty. For this, the local government should consider the interests of the society in the activation process, the problems of the local people should be tried to be solved and their trust should be gained. If this is not done, the chances of the current administration being re-elected in the next elections will be very low.

Public relations started to be structured in all public institutions in parallel with the development of democracy. In societies with established democracy, whose governments are elected by the people, ensuring the trust and support of the people is the most important factor that brings them success and continuation of the institutions. The management adventure of the institution that cannot provide this support ends. All the institutions that try to manage by ignoring the demands and expectations of the right, and the administrations that provide services that are not accepted by society, will disappear in a short time.

Local governments are local institutions that are constantly under the supervision of the people and all their services are evaluated in a very short time. The services they carry out are those that have an important place in the daily life of individuals and are constantly in sight. It begins with the birth of individuals and covers the processes up to the time they die. These services may receive intense criticism or appreciation as a result of being followed by the public. Citizens can directly convey their wishes and complaints about the services they directly observe to the municipalities. Combining this relationship with a genuinely demanding service is both the most important task of the municipality, which always needs the support of the people and its necessity for the continuation of its vitality. The

success of the local government and the long-term survival of the current administration depends on public relations management.

In some local governments, public relations is not seen as a necessary unit and there is neither a public relations unit nor public relations personnel. This harms the communication between the community and the local government, and the trust and confidence of the people in the local government decreases.

The following are needed to carry out public relations activities continuously and systematically in local governments.

- They can apply public relations in local administrations in two ways like an internal or external consultancy. Intra-organizational public relations are formed within the organization's organizational structure. External consultancy, on the other hand, is provided through an agreement with a specialist firm that provides public relations consultancy from outside the enterprise. Whichever is appropriate for the institution should be preferred.
- In local governments, the public relations unit should work in coordination with all units in the organization. Because public relations has been created to make the public think positively about the services provided by the institution, and therefore it has to work with all units operating in the local government organization.
- The public relations unit has a very important position in local governments and should be positioned closest to the top management. While planning in local governments, a budget should be allocated for public relations and plans should be prepared by this budget.
- Since social responsibility is very important in local governments, issues or decisions should not be made by making propaganda. While public relations advocates goodwill, propaganda seeks to achieve the desired result, and although public relations is two-way, propaganda can also work one-way. At the same time, while propaganda does not aim for honesty in its messages, the messages of public relations must be accurate.
- Public relations ensures the establishment of a correct relationship between the institution and other institutions in the internal and external environment. It transforms negative situations such as hostility, prejudice, indifference, and ignorance in the environment related to the institution into positive situations such as sympathy, interest, and knowledge.
- Increasing work efficiency in local governments through public relations shows the success of the institution.

- Public opinion is very important for local governments. This situation has also led to the development of public relations. These and similar developments have revealed the fact that organizations that do not open with the public and do not integrate with it will be unsuccessful and discontinuous.
- Local governments around the world are using the Internet and related Information and Communication Technologies (ICT) to meet citizens' aspirations for greater access to information, corporate transparency, participatory decision-making, and access to public services. Therefore, information and communication technologies play an important role in providing a participatory management approach in local governments. Today, local governments in many countries use social media tools effectively.

It is known that when public relations of all public institutions and organizations are used correctly, social media can improve cultural, political, economic, and social commitment positively. In addition, managers will be successful when they use the appropriate communication tools when they ensure civic participation by applying the principles of openness and transparency.

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CHAPTER 9

RANKING THE EUROPEAN UNION COUNTRIES IN TERMS OF HUMAN DEVELOPMENT BY USING TOPSIS AND EDAS AND COMBINING THESE RANKINGS WITH THE BORDA COUNT METHOD

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1 INTRODUCTION

There are conventional measures such as income per capita and the rate of economic growth to determine the economic development of a country. Nonetheless, income per capita turned out to be a poor indicator for human development successes over time. It is often true that in countries with high income per capita people live longer and get better education. However, when only income per capita is taken as indicator, inter-country comparisons can sometimes be problematic because some countries with high income per capita have low levels of human development or vice versa (UNDP, 2015). In 1990, the Human Development Report Office (HDRO) of the United Nations Development Programme (UNDP) published the first annual Human Development Report (HDR) in which the Human Development Index (HDI) was launched as an alternative to the aforementioned conventional measures (Stanton, 2007; UNDP 2015). In these reports, the necessity of putting human in the center of national and global development policies is emphasized. It is aimed to attract the attention of the international community in order to increase the quality of life of human beings. Moreover, it is emphasized that it is important to prepare development plans by governments, non-governmental organizations, academic circles and media organizations, especially in recent years. Comparing the development levels of countries, attention is drawn to the concept of human development (Erdem and Çelik, 2019).

First, it should be noted that the following has remained the same although various changes (some major changes in 2010 and some minor changes in 2014) have been made in the calculation of the HDI since the publication of the first HDR in 1990: The HDI is a composite index measuring achievements at country level in three dimensions of human development which are a long and healthy life, access to education and a decent standard of living (UNDP, 2015; UNDP, 2010). As shown in Table 1, the indicator for health dimension is life expectancy at birth in years. Mean years of schooling and expected years of schooling are the two indicators of education dimension, and gross national income (GNI) per capita adjusted by purchasing power parity (PPP) is the indicator for the dimension of standard of living (Safari and Ebrahimi, 2014).

Table 1: Dimensions and indicators of the HDI (UNDP, 2020)

Dimension	Health (long and healthy life)	Education		Standard of living
Indicator	Life expectancy at birth (years)	Expected years of schooling (for children of school entering age) (years)	Mean years of schooling (for adults aged 25 years and older) (years)	GNI per capita (PPP US \$)
Dimension index	Life expectancy index (Health index)	Education index		GNI index (Income index)
HDI				

Given Table 1, two steps below are followed to calculate the HDI (Roser, 2014; UNDP, 2015):

1) A separate index is calculated for each dimension. The health index is calculated for each country, as follows:

$$I_{Health} = \frac{actual\ value - minimum\ value}{maximum\ value - minimum\ value} \quad (1)$$

where the minimum value is 20 years because this minimum level of years is required for a society to subsist (Maddison, 2010; Riley, 2005; UNDP, 2015) and the maximum value is 85 years as this can be set as a target for societies (UNDP, 2015).

The education index is the arithmetic mean of the two sub-indices (one sub-index for expected years of schooling and one sub-index for mean years of schooling) of education. Just as the health dimension index is calculated according to Eq. (1), these two sub-indexes are calculated by using the respective maximum and minimum values. The maximum values for mean and expected years of schooling are 15 and 18 years, respectively, whereas the minimum value is set at 0 for both mean and expected years of schooling as societies can exist without formal education (If the actual value of mean (expected) years of schooling is greater than 15 (18), the corresponding sub-index is equal to 1.) (UNDP, 2015).

The index for the dimension of standard of living is calculated for each country, as follows:

$$I_{Income} = \frac{\ln(actual\ value) - \ln(minimum\ value)}{\ln(maximum\ value) - \ln(minimum\ value)} \quad (2)$$

where the minimum value is PPP \$100 (UNDP, 2015) and the maximum value is PPP \$75000 as there is virtually no benefit from an annual income above this amount in human development according to Kahneman and Deaton (2010).

2) The HDI is found by taking the cube root of the product of the dimension indices.

$$HDI = \sqrt[3]{I_{Health}I_{Education}I_{Income}} \quad (3)$$

As an example, the HDI for Ireland, the country with the highest HDI in the European Union (EU) in 2019, is calculated in Table 2.

Table 2: Calculation of the HDI for Ireland (UNDP, 2020)

Dimension	Indicator	Value	Dimension index
Health	Life expectancy at birth (years)	82.31	$I_{Health} = \frac{82.31 - 20}{85 - 20} = 0.959$
Education	Expected years of schooling (years)	18.71	$I_{Education} = \frac{1}{2} \left(1 + \frac{12.67}{15} \right) = 0.922$
	Mean years of schooling (years)	12.67	
Standard of living	GNI per capita (2017 PPP US \$)	68371.59	$I_{Income} = \frac{\ln(68371.59) - \ln(100)}{\ln(75000) - \ln(100)} = 0.986$
			$HDI = \sqrt[3]{I_{Health}I_{Education}I_{Income}} = \sqrt[3]{0.959 \cdot 0.922 \cdot 0.986} = 0.955$

As in Table 2, the HDI is calculated for each country and countries are ranked according to their HDI values in the HDR published annually.

In this study, a multi-criteria decision making (MCDM) approach was used to rank the EU countries in terms of human development. (The United Kingdom is not included as it was in the Brexit process in 2019.) The three dimension indices calculated using the 2019 data in the 2020 HDR were chosen as criteria and the weights of criteria were computed by employing the entropy method. Then, the country rankings obtained by two different methods, TOPSIS (Technique for Order Preference by Similarity Ideal Solution) and EDAS (Evaluation based on Distance from Average Solution), were compared with each other. These rankings were then combined using the Borda count method. Finally, the ranking obtained by the Borda count method was compared with the ranking by HDI value.

The remainder of the study is organized in the following way: There is a literature review in the second section. In the third section, the methods used in the study are explained. The application is in the fourth section, and the fifth section is devoted to the conclusion.

2 LITERATURE REVIEW

Various studies are mentioned below that rank countries according to human development with MCDM methods.

Deng (2007) introduced a Similarity Technique that eliminates the weaknesses of TOPSIS. Safari and Ebrahimi (2014) modified this Similarity Technique introduced by Deng (2007) and employed it to rank countries with regard to human development. They chose four indices (life expectancy index, mean years of schooling index, expected years of schooling index and GNI index) as criteria in their study.

Luque et al. (2015) developed a multi-criteria approach to calculate HDI. They proposed a double reference point methodology for the normalization of data. Their approach also includes an aggregation function to handle the problem of substitutability between components. They applied the method they developed for 187 countries, using the same indicators and the data from the 2011 HDR.

Pereira and Mota (2016) used the ELECTRE (Elimination Et Choix Traduisant La Realite) TRI-C in their study, which aimed to enable comparison between years, to prevent calculation errors and to reduce the compensatory effect, and reported the benefits of the method they developed for this purpose by applying the method on a city. The result of the study was that 31 Human Development Units (HDU) classifications, which constitute 50% of the total data, have been changed. In addition, it has been argued that the new classification is more adequate at the human development level. Life expectancy at birth, mean years of schooling, expected years of schooling and GDP per capita were chosen as criteria in their study.

Taşabat and Başer (2017) employed two different MCDM methods (TOPSIS and WSA (Weighted Sum Approach)) with three different weighting methods (equal weight method, point method and AHP (Analytic Hierarchy Process) method). They chose GNI per capita, education index and life expectancy index as criteria in their study.

do Carvalhal Monteiro et al. (2018) aimed to develop a model that avoids misclassifications and compensatory effects compared to classical calculations by using the ELECTRE TRI method in conjunction with the Kernel Density Estimation to decide the number of classes and the Jenks Natural Breaks algorithm to calculate the class profiles. For the two models proposed in the study, they obtained an accuracy of 76.60% for the first one and 78.72% for the second one. The same dimensions and weights adopted by UNDP were used in the study.

Taşabat (2019) used a novel MCDM method called DSC TOPSIS which is based on distance, similarity and correlation. GNI index, life expectancy index and education index are the three criteria in the study.

Altıntaş (2020) determined the weights of criteria with the entropy method and then ranked the EU member states in the Eastern Europe region by using ARAS (Additive Ratio Assessment) and EDAS. The same ranking

was obtained by both methods, and this ranking was then compared with the ranking by HDI value in the HDR. GNI per capita, expected years of schooling, mean years of schooling and life expectancy at birth were taken as criteria in the study.

3 METHODOLOGY

In this study, the three dimension indices calculated using the 2019 data in the 2020 HDR were chosen as criteria and the weights of criteria were computed by employing the entropy method. Then, the country rankings obtained by two different methods, TOPSIS and EDAS, were compared with each other. These rankings were then combined by using the Borda count method.

TOPSIS and EDAS generate rankings according to different principles as TOPSIS calculates the intuitionistic positive and negative ideal solution whereas EDAS calculates the mean solution for proprietary parameters (Narayanamoorthy et al., 2021).

All the methods used in the application are explained in detail below, assuming that there are alternatives and criteria.

3.1 Entropy method

One of the steps to follow when using any decision making method that involves a numerical analysis of alternatives is to determine the weights of the criteria (Triantaphyllou et al., 1998). There is a wide variety of methods to calculate the weights, and these methods can be broadly classified in three categories. These are subjective methods, objective methods and hybrid methods. In subjective methods, weights are determined according to the preferences of the decision makers. In objective methods, weights are determined at the end of a certain computational process using initial data or decision matrix. As the name suggests hybrid methods use a mix of different subjective and objective weighting methods (Keshavarz-Ghorabae et al., 2021).

The entropy method is an objective weighting method. In this study, the weights of criteria were computed by employing the entropy method. The steps below are followed in the entropy method to find the weights (Alinezhad and Khalili, 2019):

- 1) The decision matrix is created.

$$\mathbf{X} = \begin{bmatrix} r_{11} & \cdots & r_{1j} & \cdots & r_{1n} \\ \vdots & \ddots & \vdots & \ddots & \vdots \\ r_{i1} & \cdots & r_{ij} & \cdots & r_{in} \\ \vdots & \ddots & \vdots & \ddots & \vdots \\ r_{m1} & \cdots & r_{mj} & \cdots & r_{mn} \end{bmatrix}; \quad i = 1, 2, \dots, m \quad j = 1, 2, \dots, n \quad (4)$$

2) The decision matrix is normalized.

$$r_{ij}^* = \frac{r_{ij}}{\sum_{i=1}^m r_{ij}}; \quad j = 1, 2, \dots, n \quad (5)$$

3) The degree of entropy is calculated for each criterion.

$$e_j = -\frac{1}{\ln(m)} \sum_{i=1}^m r_{ij}^* \cdot \ln(r_{ij}^*); \quad j = 1, 2, \dots, n; \quad 0 \leq e_j \leq 1 \quad (6)$$

4) The variation rate of the degree of the entropy is calculated for each criterion.

$$d_j = 1 - e_j, \quad j = 1, 2, \dots, n \quad (7)$$

5) Finally, the entropy weights are calculated.

$$w_j = \frac{d_j}{\sum_{j=1}^n d_j} \quad (8)$$

3.2 TOPSIS

TOPSIS was developed by Hwang and Yoon (1981). In this method, the ideal solution and the negative ideal solution are calculated, and then the alternative closest to the ideal solution and the farthest from the negative ideal solution is chosen. The steps below are followed to obtain the ranking according to TOPSIS (Hwang and Yoon, 1981):

1) The decision matrix is created.

$$\mathbf{X} = \begin{bmatrix} r_{11} & \cdots & r_{1j} & \cdots & r_{1n} \\ \vdots & \ddots & \vdots & \ddots & \vdots \\ r_{i1} & \cdots & r_{ij} & \cdots & r_{in} \\ \vdots & \ddots & \vdots & \ddots & \vdots \\ r_{m1} & \cdots & r_{mj} & \cdots & r_{mn} \end{bmatrix}; \quad i = 1, 2, \dots, m \quad j = 1, 2, \dots, n \quad (9)$$

2) The decision matrix is normalized.

$$r_{ij}^* = \frac{r_{ij}}{\sqrt{\sum_{i=1}^m r_{ij}^2}}; \quad j = 1, 2, \dots, n \quad (10)$$

3) The normalized decision matrix is weighted.

$$\hat{r}_{ij} = r_{ij}^* \cdot w_j; \quad i = 1, \dots, m \quad j = 1, 2, \dots, n \quad (11)$$

4) For each criterion, the most preferable alternative (ideal solution) and the least preferable alternative (negative ideal solution) are determined respectively.

$$A^+ = \{(\max_i \hat{r}_{ij} \mid j \in J), (\min_i \hat{r}_{ij} \mid j \in J') \mid i = 1, 2, \dots, m\} = \{\hat{r}_1^+, \hat{r}_2^+, \dots, \hat{r}_j^+, \dots, \hat{r}_n^+\} \quad (12)$$

$$A^- = \{(\min_i \hat{r}_{ij} \mid j \in J), (\max_i \hat{r}_{ij} \mid j \in J') \mid i = 1, 2, \dots, m\} = \{\hat{r}_1^-, \hat{r}_2^-, \dots, \hat{r}_j^-, \dots, \hat{r}_n^-\} \quad (13)$$

where J denotes the set of criteria with positive effect and J' denotes the set of criteria with negative effect.

5) For each alternative, the Euclidean distances from the positive ideal solution and negative ideal solution are calculated respectively.

$$D_i^+ = \sqrt{\sum_{j=1}^n (\hat{r}_{ij} - \hat{r}_j^+)^2}; \quad i = 1, 2, \dots, m \quad (14)$$

$$D_i^- = \sqrt{\sum_{j=1}^n (\hat{r}_{ij} - \hat{r}_j^-)^2}; \quad i = 1, 2, \dots, m \quad (15)$$

6) The relative closeness value is determined.

$$C_i^+ = \frac{D_i^-}{D_i^+ + D_i^-}; \quad 0 \leq C_i^+ \leq 1; \quad i = 1, 2, \dots, m \quad (16)$$

7) The alternatives are ranked according to their relative closeness values in descending order.

3.3 EDAS

EDAS was introduced by Keshavarz Ghorabee et al. (2015). Unlike TOPSIS explained in detail above, EDAS relates the best alternative to the distance from the average solution. After calculating the positive distance from average (PDA) and the negative distance from average (NDA), the alternatives are evaluated according to higher PDA values and lower NDA values (Keshavarz Ghorabee et al., 2015). The steps below are followed to obtain the ranking according to EDAS (Alinezhad and Khalili, 2019):

1) The decision matrix is created.

$$X = \begin{bmatrix} r_{11} & \cdots & r_{1j} & \cdots & r_{1n} \\ \vdots & \ddots & \vdots & \ddots & \vdots \\ r_{i1} & \cdots & r_{ij} & \cdots & r_{in} \\ \vdots & \ddots & \vdots & \ddots & \vdots \\ r_{m1} & \cdots & r_{mj} & \cdots & r_{mn} \end{bmatrix}; \quad i = 1, 2, \dots, m \quad j = 1, 2, \dots, n \quad (17)$$

2) The average solution for each criterion is calculated.

$$AV_j = \frac{\sum_{i=1}^m r_{ij}}{m}; \quad j = 1, 2, \dots, n \quad (18)$$

3) The PDA and NDA values are determined. For the criteria with positive effect, the PDA and NDA values are determined by Eqs. (19) and (20), respectively.

$$PDA_{ij} = \frac{\max(0, (r_{ij} - AV_j))}{AV_j}; i = 1, 2, \dots, m \quad j = 1, 2, \dots, n \quad (19)$$

$$NDA_{ij} = \frac{\max(0, (AV_j - r_{ij}))}{AV_j}; i = 1, 2, \dots, m \quad j = 1, 2, \dots, n \quad (20)$$

For the criteria with negative effect, the PDA and NDA values are found by Eqs. (21) and (22), respectively.

$$PDA_{ij} = \frac{\max(0, (AV_j - r_{ij}))}{AV_j}; i = 1, 2, \dots, m \quad j = 1, 2, \dots, n \quad (21)$$

$$NDA_{ij} = \frac{\max(0, (r_{ij} - AV_j))}{AV_j}; i = 1, 2, \dots, m \quad j = 1, 2, \dots, n \quad (22)$$

4) For each alternative, the PDA and NDA values are weighted by considering the weight of the relevant criterion.

$$SP_i = \sum_{j=1}^n PDA_{ij} w_j; i = 1, 2, \dots, m \quad (23)$$

$$SN_i = \sum_{j=1}^n NDA_{ij} w_j; i = 1, 2, \dots, m \quad (24)$$

5) The values obtained by Eqs. (23) and (24) are then normalized.

$$NSP_i = \frac{SP_i}{\max_i(SP_i)}; i = 1, 2, \dots, m \quad (25)$$

$$NSN_i = 1 - \frac{SN_i}{\max_i(SN_i)}; i = 1, 2, \dots, m \quad (26)$$

6) For each alternative, the appraisal score (AS) is determined.

$$AS_i = \frac{1}{2}(NSP_i + NSN_i); 0 \leq AS_i \leq 1; i = 1, 2, \dots, m \quad (27)$$

7) The alternatives are ranked according to their appraisal scores in descending order.

3.4 Borda count method

In general, in the Borda count method, the least preferred option of a voter is given zero points, the next one is given 1 point, and in this way the options are scored. Finally, the most preferred option is given points. The Borda points are then summed across the voters, yielding the Borda

counts. Borda ranking is obtained after ordering Borda counts (Bassett and Persky, 1999; Lansdowne and Woodward, 1996).

4 APPLICATION

In this study, the three dimension indices were chosen as criteria and the weights of criteria were computed by employing the entropy method. The index values given in Table 3 were calculated using the 2019 data in the 2020 HDR.

Table 3: 2019 data (UNDP, 2020)

Country	Life expectancy index	Education index	GNI index
Ireland	0.959	0.922	0.986
Germany	0.944	0.943	0.954
Sweden	0.966	0.918	0.952
Netherlands	0.958	0.914	0.960
Denmark	0.937	0.920	0.963
Finland	0.952	0.927	0.934
Belgium	0.948	0.902	0.945
Austria	0.947	0.865	0.956
Slovenia	0.943	0.910	0.898
Luxembourg	0.958	0.806	0.995
Spain	0.978	0.831	0.909
France	0.964	0.817	0.930
Czechia	0.914	0.890	0.898
Malta	0.962	0.825	0.903
Estonia	0.904	0.882	0.889
Italy	0.977	0.793	0.915
Greece	0.958	0.849	0.862
Cyprus	0.938	0.827	0.898
Lithuania	0.860	0.898	0.888
Poland	0.904	0.869	0.870
Latvia	0.851	0.883	0.863
Portugal	0.955	0.768	0.880
Slovakia	0.885	0.826	0.872
Hungary	0.875	0.821	0.868
Croatia	0.900	0.805	0.852
Romania	0.862	0.765	0.859
Bulgaria	0.847	0.779	0.824

The entropy method yielded the weights given in Table 4. Education index has the highest weight. This is followed by GNI index and life expectancy index, respectively.

Table 4: Weights obtained by using the entropy method

	Weight
Life expectancy index	0.2363
Education index	0.4754
GNI index	0.2883

By using these weights, the rankings given in Table 5 were obtained with TOPSIS and EDAS respectively.

Table 5: TOPSIS ranking and EDAS ranking

Country	TOPSIS ranking	Assigned points according to TOPSIS ranking	EDAS ranking	Assigned points according to EDAS ranking	Borda count
Ireland	1	26	1	26	52
Germany	2	25	2	25	50
Sweden	4	23	3	24	47
Netherlands	5	22	4	23	45
Denmark	3	24	5	22	46
Finland	6	21	6	21	42
Belgium	7	20	7	20	40
Austria	10	17	9	18	35
Slovenia	8	19	8	19	38
Luxembourg	15	12	10	17	29
Spain	16	11	14	13	24
France	18	9	15	12	21
Czechia	9	18	11	16	34
Malta	19	8	16	11	19
Estonia	12	15	13	14	29
Italy	21	6	20	7	13
Greece	17	10	17	10	20
Cyprus	20	7	21	6	13
Lithuania	11	16	12	15	31
Poland	14	13	18	9	22
Latvia	13	14	19	8	22
Portugal	24	3	24	3	6
Slovakia	22	5	22	5	10
Hungary	23	4	23	4	8
Croatia	25	2	25	2	4
Romania	26	1	26	1	2
Bulgaria	27	0	27	0	0

As can be seen in Table 5, in both methods, Ireland ranks 1st and Bulgaria 27th. However, it can be seen there are some differences between

the TOPSIS ranking and the EDAS ranking. Table 5 also shows the scores assigned to the countries by the Borda count method according to these rankings.

Table 6 shows the ranking by HDI value and the ranking by Borda count respectively.

Table 6: Ranking in the EU by HDI value and ranking in the EU by Borda count

Country	HDI in 2019	Ranking in the EU by HDI value	Borda count	Ranking in the EU by Borda count
Ireland	0.955	1	52	1
Germany	0.947	2	50	2
Sweden	0.945	3	47	3
Netherlands	0.944	4	45	5
Denmark	0.940	5	46	4
Finland	0.938	6	42	6
Belgium	0.931	7	40	7
Austria	0.922	8	35	9
Slovenia	0.917	9	38	8
Luxembourg	0.916	10	29	12.5
Spain	0.904	11	24	14
France	0.901	12	21	17
Czechia	0.900	13	34	10
Malta	0.895	14	19	19
Estonia	0.892	15.5	29	12.5
Italy	0.892	15.5	13	20.5
Greece	0.888	17	20	18
Cyprus	0.887	18	13	20.5
Lithuania	0.882	19	31	11
Poland	0.880	20	22	15.5
Latvia	0.866	21	22	15.5
Portugal	0.864	22	6	24
Slovakia	0.860	23	10	22
Hungary	0.854	24	8	23
Croatia	0.851	25	4	25
Romania	0.828	26	2	26
Bulgaria	0.816	27	0	27

It should be noted that the ranks for both Estonia and Italy are taken as 15.5 in Table 6, as their HDI values are equal (if only the first three decimal places are taken into account as in the HDR). A similar situation can be observed for some countries in the ranking by Borda count. Luxembourg

and Estonia have the same Borda count and they were both assigned the mean rank of 12.5. Poland and Latvia were both assigned the mean rank of 15.5, and Italy and Cyprus were both assigned the mean rank of 20.5.

A comparison between the two rankings shows that the differences are more concentrated in the middle ranks. Finally, Spearman's rank correlation between the ranking in the EU by HDI value and the ranking in the EU by Borda count was calculated. Table 7 shows that the correlation is significant at the 0.01 level.

Table 7: Spearman's rank correlation

Correlations			Ranking_in_the_EU by HDI value	Ranking_in_the_EU_ by Borda count
Spearman's rho	Ranking_in_the_EU_by_ HDI_value	Correlation Coefficient	1.000	.927**
		Sig. (2-tailed)	.	.000
		N	27	27
	Ranking_in_the_EU_by_Borda _count	Correlation Coefficient	.927**	1.000
		Sig. (2-tailed)	.000	.
		N	27	27

** . Correlation is significant at the 0.01 level (2-tailed).

5 CONCLUSION

The HDI is a composite index measuring achievements at country level in three dimensions of human development. These dimensions are a long and healthy life, access to education and a decent standard of living. A separate index is calculated for each of the three dimensions. These indices are life expectancy index, education index and GNI index. The HDI is obtained by calculating the equally weighted geometric mean of these three indices, and countries are then ranked by their HDI values.

In this study, an MCDM approach was used to rank the EU countries in terms of human development. The three dimension indices calculated using the 2019 data in the 2020 HDR were chosen as criteria and the weights of criteria were computed by employing the entropy method. Then, the country rankings obtained by two different methods, TOPSIS and EDAS, were combined using the Borda count method. TOPSIS and EDAS were chosen because TOPSIS chooses the alternative closest to the ideal solution and the farthest from the negative ideal solution whereas EDAS relates the best alternative to the distance from the average solution.

The rankings obtained by the two methods exhibit some differences. However, the correlation between the single ranking obtained after combining these two rankings with the Borda count method and the ranking by HDI value was found to be significant at the 0.01 level.

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CHAPTER 10

MEASURING THE ASPHALT EFFICIENCY FOR A GROUP OF SIMILAR COUNTRIES USING DATA ENVELOPMENT ANALYSIS¹

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1 This chapter is derived from PhD thesis title of “cost efficiency analysis of asphalt pavement applications in road constructions according to different countries” written by Dr. Aisha Bashir and supervised by Prof. Dr. Nuray Girginer. This research thesis was prepared at Eskişehir Osmangazi University- Institute of Social Sciences in 2020.

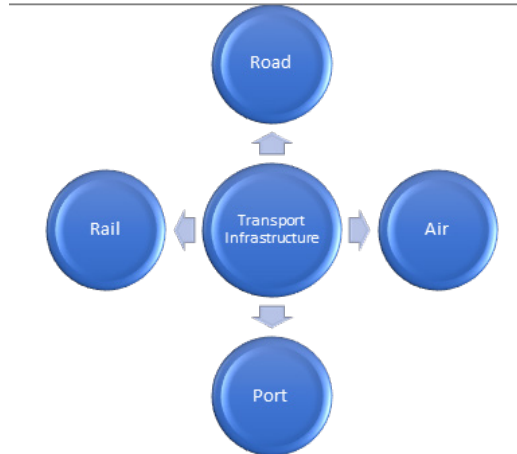
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Introduction

There are four essential types of transport infrastructure, which are; road, rail, air and waterway or port as shown in Graphic 1.

Graphic 1: The Types of Transport Infrastructure



The oldest type of transport infrastructure is road. The history of road transport infrastructure goes back to Babylonian empire in 625 B.C where the first used of asphalt. From that time until now, the use of asphalt has evolved to consider different types of asphalt and asphalt materials.

When we hear the word asphalt, the first thing that comes to the mind is bitumen. In asphalt pavement, bitumen is designed, mixed and adjusted to serve different kinds of roadways such as; highways, parking areas, bicycle areas and so on (Asphalt Institute, 2014). To construct each type of those roadways a different percentage of asphalt materials is involved. Each material is subject to resource availability, price fluctuations, ... etc.

For example, if we look at crude oil price, recently it reached its highest level since 2014 by approximately \$94. Point the fact that, the crude oil is one of the most important asphalt ingredients. If we are about to consider the price of each asphalt ingredient by its own, we will end up with a huge budget not any country can afford. Nevertheless, each country has to set an annual budget plan not just to develop or enhance its infrastructure but also to take into consideration other aspects such as; health, education, ... etc. In addition, each country is surrounded by many obstacles (i.e., internal and external environment) prevent it from operating efficiently.

On the other hand, scarcity of resources made lots of research scholars to find out the best possible ways to use the available ones efficiently. Recently, the efficiency has gained a lot of interest. As the population

increases the need for efficiency measures increases as well. The efficiency measures deal with the distribution of limited resources among the increased population (Archer, 2010). As we mentioned earlier, in the asphalt industry lots of materials are involved. Nevertheless, some countries might operate efficiently, others might not. While, the efficiency is doing things correctly or right (Chase and Aquilano, 1992), in asphalt industry the efficiency is doing things related to asphalt and asphalt applications right.

For all the reasons stated above, the objective of this chapter is not just to measure the asphalt efficiency from non-technical perspective by using Data Envelopment Analysis but also to have insight into asphalt efficiency in different countries and give recommendations to inefficient ones. At first, we defined the inputs and outputs variables necessary to measure the asphalt efficiency. Then, we chose a group of similar countries -Derived from (Bashir, 2020) countries grouping using Multidimensional Scaling Analysis (MDS)- to be as the Decision-Making Units (DMUs) of our research. Then, we calculated the efficiency scores by using the output-oriented model of Data Envelopment analysis. In addition, we calculated the potential improvement values for inefficient countries.

Literature review

By doing a literature scanning regarding the asphalt efficiency, it can be noticed that measuring and evaluating the asphalt efficiency have been addressed from different perspectives. A few researches investigated the efficiency of different asphalt types and mixtures by using DEA technique such as (Li et al, 2013). They utilized data envelopment analysis (DEA) to assess the performance of three Warm Mix Asphalt (WMA) materials as contrasted with hot mix asphalt. They compared and analysed the dynamic modulus of these mixtures by performing an assessment of the overall effects of these mixtures on environmental emissions. In order to do so, they utilized the Pavement Life-cycle Assessment Tool for Environmental and Economic Effects (PaLATE). Thereby, they chose Economic output in terms of unit cost and environmental outputs including energy consumption and gaseous emissions as inputs and outputs variables for DEA. As a result of using DEA, they become able to identify the efficiency scores for each mixture which in turn helped in selecting the best satisfactory mix. They proposed that the suggested framework might aid the highway agencies in assessing and benchmarking WMA.

Most of the researches done in this area have considered efficiency assessments of highways maintenance operations (kazakov et al, 1989; Rouse and Chiu, 2009; Ozbek et al, 2010; Fallah-Fini et al, 2015).

Moreover, measuring highway efficiency in general has been considered in some studies. Sarmento et al (2017) assessed the efficiency

of seven roadways projects in Portugal over the previous decade by using Data Envelopment Analysis and the Malmquist productivity and efficiency indices. They utilized and compared two types of efficiency which are technical and technological efficiency and they noticed that most roadways face a decrease after some time in the two types of efficiency. Also, they pointed that this decrease was for the most part because of an expansion in operating and maintenance costs, follow up investments and a decrease in traffic. A few roadways just encountered a decrease in technological efficiency after a reduction in traffic. Also, by controlling for scale efficiencies, they found an absence of unadulterated technical efficiency in roadways because it is not subject to competitive environment, which in turn led to an absence of motivators for better management. In addition, they pointed that the economic crisis in Portugal have diminished traffic that farther adds to inefficiency.

Fu et al (2013) utilized (CCR and BCC) models of Data Envelopment Analysis to make an experimental investigation of the efficiency of China's roadways systems separately regarding freight and passenger transport. The consequence of this investigation uncovered that 64.5% of provincial roadways systems show diminishing returns to scale. The non-parametric test demonstrated that there was no noteworthy contrast in regional management levels and that 45% of provincial roadways systems were inefficient in their management levels. Furthermore, they directed a super efficiency examination to rank the efficiency of roadway systems.

As result of this literature scanning, it can be noticed that there has been a lack of attention for measuring asphalt efficiency as a whole from non-technical perspective. Also, most of the researches done in this area concentrated on measuring the efficiency of highways and highways maintenance not taking into consideration the efficiency analysis of asphalt and asphalt materials.

Research Methodology

Data Envelopment Analysis (DEA) is considered a new approach for assessing the performance of a set of structures generally refers to as Decision Making Units (DMUs) which convert different contributions to various yields. The meaning of a DMU is nonexclusive and adaptable. The late years have witnessed an incredible assortment of utilizing DEA for assessing the exhibitions of numerous sorts of elements occupied with a wide range of tasks in various settings in a wide range of nations. For example, the DEA applications have utilized DMUs of different structures to assess the performance, those structures can be countries, firms, banks and etc (Cooper et al, 2011).

The initial presentation of data envelopment analysis as nonparametric technique to measure the productive efficiency for DMUs was by Charnes,

cooper and Rhodes in (1978). This model depended on the supposition of constant return to scale until it was changed by Banker et al (1984). The new supposition developed by Banker et al (1984) dependent on variable return to scale. Both DEA models have led to the existence of input and output oriented models (Kočišová, 2016). The input-oriented model concerns with reducing or minimizing inputs for an ideal degree of output to be accomplished, and output-oriented model concerns with increasing or maximizing the outputs while input is kept at a fixed level. Both the input and output-oriented models simply look for increasing the outputs, decreasing the inputs and thereby achieving the efficiency (Rajasekar and Deo, 2014).

In DEA models, we assess productive units or Decision-Making Units (DMUs), where each one of DMUs takes different inputs to produce different outputs. DEA models is used to measure the efficiency of productive unit DMU_q which depends on maximizing its efficiency rate. Point the fact that, this case is subject to the condition that the efficiency rate of any other units in the population must not be greater than 1. The models must include all characteristics considered, i.e. the weights of all inputs and outputs must be greater than zero. This model can be characterized as a linear divisive programming model (Vincova, 2005):

$$\begin{aligned}
 & \text{maximize} && \frac{\sum_i u_i y_{iq}}{\sum_j v_j x_{jq}} \\
 & \text{subject to} && \frac{\sum_i u_i y_{iq}}{\sum_j v_j x_{jq}} \leq 1 \quad k = 1, 2, \dots, n \\
 & && u_i \geq \epsilon \quad i = 1, 2, \dots, s \\
 & && v_j \geq \epsilon \quad j = 1, 2, \dots, m
 \end{aligned}$$

The suggested model can be transformed into a linear programming model 2 and expressed in a matrix form:

$$\begin{aligned}
 & \text{maximize} && z = u^T Y_q \\
 & \text{subject to} && v^T X_q = 1 \\
 & && u^T Y_q - v^T X_q \leq 0 \\
 & && u \geq \epsilon \\
 & && v \leq \epsilon
 \end{aligned} \tag{2}$$

Model (2) is usually called the primary CCR model (Charnes, Cooper, Rhodes). The dual model to this can be presented as follows:

$$\begin{array}{ll}
\text{minimize} & f = \theta - \epsilon (e^T s^+ + e^T s^-) \\
\text{subject to} & Y\lambda - s^+ = Y_q \\
& X\lambda + s^- = \theta X_q \\
& \lambda, s^+, s^- \geq 0
\end{array}
\tag{3}$$

where $\lambda = (\lambda_1, \lambda_2, \dots, \lambda_n), \lambda \geq 0$ refers to a vector assigned to individual productive units or DMUs, s^+ and s^- are vectors of addition input and output variables, $e^T = (1, 1, \dots, 1)$ and ϵ is a constant¹ greater than zero, which is normally pitched at 10^{-6} or 10^{-8} . In evaluating the efficiency of unit DMU_q , model (3) seeks a virtual unit characterised by inputs $X\lambda$ and outputs $Y\lambda$, which are a linear combination of inputs and outputs of other units of the population and which are better than the inputs and outputs of unit DMU_q which is being evaluated. For inputs of the virtual unit $X\lambda \leq X_q$ and for outputs $Y\lambda \geq Y_q$. Unit DMU_q is rated efficient if no virtual unit with requested traits exists or if the virtual unit is identical with the unit evaluated, i.e. $X\lambda = X_q$ and $Y\lambda = Y_q$.

If unit DMU is CCR efficient, then:

- the value of variable θ is zero,
- the values of all additional variables s^+ and s^- equal zero.

Consequently, unit DMU_q is CCR efficient if the optimum value of the model (3) objective function equals one. Otherwise, the unit is inefficient. The optimum value of the objective function f^* marks the efficiency rate of the unit concerned. The lower the rate, the less efficient the unit is compared to the rest of the population. In inefficient units θ is less than one. This value shows the need for a proportional reduction of inputs for unit DMU_q to become efficient. The advantage of the DEA model is that it advises how the unit evaluated should mend its behaviour to reach efficiency.

Models (2) and (3) are input-oriented – they try to find out how to improve the input characteristics of the unit concerned for it to become efficient. There are output oriented models as well. Such a model could be written as follows:

$$\begin{array}{ll}
\text{maximize} & g = \theta - \epsilon (e^T s^+ + e^T s^-) \\
\text{subject to} & Y\lambda - s^+ = \theta Y_q \\
& X\lambda + s^- = X_q \\
& \lambda, s^+, s^- \geq 0
\end{array}
\tag{4}$$

¹ Economic reasoning: for any amount of output, at least a minimum quantity of every input should be utilized. If any of the inputs equals zero, the total output is zero as well.

This model can be interpreted as follows: unit DMU_q is CCR efficient if the optimal value of the objective function in model (4) equals one, $g^* = 1$. If the value of the function is greater than one, the unit is inefficient. The variable ϕ indicates the need for increased output to achieve efficiency. For the optimal solution to the CCR model, the values of objective functions should be inverted, i.e. $f^* = 1/g^*$.

Models (2), (3) and (4) assume constant returns to scale². Nevertheless, in efficiency analysis, variable returns to scale can be considered as well. In that case, models (3) and (4) need to be rewritten to include a condition of convexity $e^T \lambda = 1$. Then, they are adjusted to be BCC (Banker, Charnes, Cooper) models.

The purpose of DEA analysis is not just to define the efficiency rate of DMUs, but also to identify the target or the potential improvement values for inputs x'_q and outputs y'_q for an inefficient unit. These values might help the inefficient units to become efficient. Target or potential improvement values can be calculated as follows:

1. by means of productive unit or DMU vectors:

$$x'_q = x\lambda^*$$

$$y'_q = y\lambda^*$$

where λ^* is referred to the vector of optimal variable values.

2. by means of the efficiency rate and values of additional variables s^- and s^+ :

input-oriented CCR model:

$$x'_q = \theta x_q - s^- \qquad y'_q = y_q + s^+$$

output-oriented CCR model:

$$x'_q = x_q - s^- \qquad y'_q = \phi y_q + s^+$$

where θ is the efficiency rate in the input-oriented model and ϕ is the efficiency rate in the output-oriented model.

Data and Finding

(Bashir, 2020) used different variables combinations to group Turkey and 15 European countries by using Multidimensional scaling analysis (MDS). The results showed that the maximum number of group's units were 8 units and the same result was found in two different variables combinations. Moreover, one of her research objectives was to define and evaluate the asphalt efficiency in Turkey along with other European

² A double increase in inputs leads to a double increase in outputs is usually refers to constant return to scale.

countries. Therefore, she chose the group that it has the maximum number of units and contains Turkey as one of those units.

In our research, we chose the same group to do further analysis through defining Turkey’s position by measuring the asphalt efficiency for Turkey and other similar countries. In order to do so, we used Data Envelopment Analysis (DEA) by concentrating on output-oriented models (CCR and BCC) and compare the results of the two models. Hence, the decision-making units of our model contain: *France, Great Britain, Netherlands, Norway, Slovakia, Slovenia, Spain, Turkey*.

On the other hand, to conduct (DEA) we preferred to use variables are mainly related to asphalt application as it has been used in countries’ grouping (Bashir, 2020). Point the fact that the combination of asphalt variables was one of the suggested variables combinations. Other variables combinations contained some of economic indicators. Number of companies work in asphalt industry and the total consumption of bitumen are examples of asphalt variables (Table 1). The reasons for choosing those variables are: first, to achieve our objective of measuring the asphalt efficiency from non-technical point of view. Second, to define the inputs and outputs related to asphalt process which is vital to measure the efficiency. Third, to define which input and/or output variables should be improved for the inefficient (DMUs) to reach the efficiency level.

Table 1 shows all variables used in calculating efficiency scores, symbols and source of data. The data of all inputs and outputs variables have been derived from 2016 dataset. The inputs and outputs variables are necessary to evaluate the asphalt pavement process using data envelopment analysis (DEA). Hence, we will be able to calculate efficiency scores for each country by taking into consideration the data of the proposed inputs and outputs variables. Table 1 shows the variables, symbols and source of data used in asphalt efficiency analysis.

Table 1: Variables Used in Asphalt Efficiency Analysis

Variables	Symbols	Source Of Data
Inputs variables:		
• Number of companies in asphalt industry (production and laying)	x1	EAPA
• Total of bitumen consumption (in million tonnes)	x2	EAPA
Outputs variables:	y1	EAPA
• Total production of asphalt (in million tonnes)		
• Total length of motorways and main roads (km)	y2	Eurostat and Statista database

As shown in Table 1 we chose and used (x1 and x2) as inputs variables and (y1 and y2) as outputs variables to calculate the efficiency score for each country. We calculated the efficiency scores by using two models of output oriented (DEA) which are: (CCR) and (BCC). Charnes, Cooper and Rhodes (CCR) model suggested a constant return to scale (i.e., a double increase in inputs leads to double increase in outputs). In contrast, Banker, Charnes and Cooper (BCC) model assumed a random returns to scale. Table 2 shows the efficiency scores and reference frequencies for the eight countries.

Table 2: The Efficiency Scores and Reference Frequencies for DMUs (CCR)

DMUs	Efficiency scores	Efficiency status	Reference frequencies
Slovakia	100	Efficient	1
Slovenia	100	Efficient	3
Great Britain	100	Efficient	1
Netherlands	100	Efficient	3
France	96.73	Not Efficient	0
Spain	93.66	Not Efficient	0
Norway	84.68	Not Efficient	0
Turkey	49.88	Not Efficient	0

As shown in Table 2, when we used (CCR) model, Slovakia, Slovenia, Great Britain and Netherlands were efficient by 100%. The efficiency score for France was 96.73%, for Spain was 93.66% and for Norway was 84.68%. Turkey on the other hand, had the least efficiency score of 49.88%. Each inefficient country must have an idea on how to improve its processes to be efficient. DEA models provide us with not just the efficiency score for each country but also can calculate the potential improvement values for each inefficient country.

Hence, for the inefficient DMUs -with efficiency score below 100%-potential improvement values were calculated. Table 3. shows the potential improvement values of inefficient countries by using (CCR) mode.

Table 3: The Potential Improvement Values for Inefficient Countries (CCR)

DMUs	Variables		Actual values	Target values	Potential improvement values (%)	Peer references
France	input	X1	30.00	30.00	00.00	Great Britain
		X2	2.50	2.04	-18.21	
	output	Y1	33.60	34.74	03.38	
		Y2	11612.00	83485.78	618.96	
Spain	input	X1	125.00	72.57	-41.94	Netherlands Slovenia
		X2	0.60	0.60	00.00	
	output	Y1	13.10	13.99	06.76	
		Y2	30390.00	32445.68	06.76	

Norway	input	X1	13.00	13.00	00.00	Netherlands Slovakia Slovenia
		X2	0.38	0.38	00.00	
	output	Y1	7.20	8.50	18.09	
		Y2	11087.00	13092.49	18.09	
Turkey	input	X1	312.00	195.12	-37.46	Netherlands Slovenia
		X2	2.93	2.93	00.00	
	output	Y1	40.40	80.99	100.46	
		Y2	33648.00	67451.76	100.46	

According to Table 3, in order to reach efficiency level, France has to increase its outputs by 3.38% for y1 and 618.96% for y2 and to decrease its input by 18.21% for x2; Spain has to increase its outputs by 6.76% for y1 and y2 and to decrease its input by 41.94%; Norway has to increase its outputs by 18.09% for y1 and y2; whereas Turkey has to increase its outputs by %100.46 for y1 and y2 and to decrease its input by %37.46 for x1.

Additionally, we used output-oriented model by using (BCC) mode to calculate the efficiency scores for each country. Table 4 shows the efficiency scores of DMUs and Table 5 shows the potential improvement values of inefficient DMUs.

Table 4: The Efficiency Scores and Reference Frequencies for DMUs (BCC)

DMUs	Efficiency scores	Efficiency status	Reference frequencies
Slovakia	100	Efficient	1
Slovenia	100	Efficient	1
Netherlands	100	Efficient	1
Spain	100	Efficient	0
Great Britain	100	Efficient	1
Turkey	100	Efficient	0
France	100	Efficient	0
Norway	49.88	Not Efficient	0

As shown in Table 4, all countries were efficient excepts Norway with efficiency score of only %49.88

Table 5: The Potential Improvement Values Of Inefficient Countries (BCC)

DMUs	variables		Actual values	Target values	Potential improvement values (%)	Peer references
Norway	input	X1	13.00	13.00	00.00	Great Britain Netherlands Slovakia Slovenia
		X2	0.38	0.38	00.00	
	output	Y1	7.20	8.16	13.40	
		Y2	11087.00	12572.21	13.40	

According to Table 5, Norway has to increase its outputs by 13.40% of y1 and y2 in order to reach efficiency level by taking Great Britain, Netherland, Slovakia and Slovenia as references.

We can discuss the results of using (DEA) models as follows:

- The results of using (BCC) model are considered more accurate than the results of using (CCR) model. By using (BCC) model doubling input might produce less than doubling outputs which is considered more realistic than (CCR) model. Therefore, we can notice that some countries were efficient when we used (BCC) model but inefficient when we used (CCR) model like Turkey, Spain and France.
- Slovakia, Slovenia, Netherlands and Great Britain were efficient regardless of the used model. In contrast, Norway was inefficient when we used (CCR and BCC) models.
- According to potential improvement values suggested by each model, for example (CCR) model results recommended Turkey to minimize the number of companies in asphalt industry by %37.46 and to increase the total production of asphalt and the total length of motorways and main roads by the same percentage which is 100.46. on the other hand, (BCC) model results suggested that Norway has to increase the total production of asphalt and total length of motorways and main roads by the same percentage which is 13.40.

Conclusion

The efficiency measures especially DEA were used to evaluate the efficiency of asphalt from technical point of view such as suggested by (Li et al, 2013). Other research studies used DEA models to evaluate not the asphalt efficiency but the efficiency of highways in general (Sarmiento et al, 2017; Fu et al, 2013) without taking into consideration the importance of measuring the asphalt efficiency from non-technical perspective. In this paper, we aimed to provide a non-technical model to evaluate the efficiency of asphalt applications in a group of similar countries by calculating the efficiency scores for each country and suggesting the potential improvement values for inefficient countries. Hence, the DEA model was considered the most appropriate model to accomplish our objectives. We preferred to use (CCR) and (BCC) models of DEA same as it has been suggested in (Fu et al, 2013) study. Although this study has suggested a new point of view to evaluate the asphalt efficiency, there is a limitation in not giving a rank for the efficient DMUs and variables.

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CHAPTER 11

THE RESEARCH OF FINANCIAL FAILURE IN BORSA İSTANBUL WATCHLIST MARKET WITH SPRINGATE AND ZMIJEWSKI MODELS

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1. INTRODUCTION

In today's business world, international borders, which are losing their importance as a result of technological and economic developments, force businesses to work in an environment where both the level of competition and commercial opportunities are increasing. With the removal of commercial borders, businesses have to interact with competitors, investors, and customers from different parts of the world. Businesses that cannot keep up with the rapid changes and competition brought about by globalization face the risk of financial failure. Periodically recurring financial crises and/or economic contractions increase uncertainties for businesses, increasing uncertainties make risks more evident, and it is inevitable for companies that fail to manage these risks (and opportunities) to financial distress. Financial difficulties may cause the business to regress in the market in which it is located, as well as result in the complete closure of the business. The increase in the number of businesses experiencing financial difficulties shows that the resources of the economy are misused. Especially when we look at developing countries, it is seen that large enterprises as well as small enterprises experience financial difficulties and even go bankrupt. This situation brings with it many socio-economic problems. For this reason, business failure is an important issue that concerns all segments of the economy, and it is very important to identify the signals that increase the risks of financial failure. Financial failure is a broad concept that covers situations such as the inability of companies to perform their activities, failure to fulfill their financial obligations, financial distress costs, insufficiency costs, and bankruptcy due to various operational, financial, or economic factors (Mellahi & Wilkinson, 2004, 22).

Especially in cases where economic uncertainties increase, predicting financial failure becomes more difficult and gain importance. Early identification of risks associated with financial failure can minimize potential negative impacts by enabling company stakeholders to respond as early as possible. Not only business owners but also investors, lenders, and insurance companies can reduce the risk of investment depreciation or non-collection and high compensation. Studies that succeed in predicting financial failure provide significant benefits for a wide range of individuals and institutions such as business owners, employees, and institutions providing funds to the business, investors, and insurance companies to make sound economic decisions. It is necessary to consider failure with different concepts such as economic failure, technical failure, business failure, and financial failure. Economic failure is the situation where the current profitability of the enterprise is below the cost of equity capital or the costs are higher than the sector in which it operates. This is a result of the company's activities and is related to the effectiveness of the management. In this type of failure, companies are in a position to pay their

debts. Technical failure, on the other hand, is the inability of the business to fulfill its current liabilities when due, although the total assets of the business are more than its total debts. In other words, the main problem is the inability to manage time effectively in the use of liquid resources; the inability of companies to collect their receivables on time or the periodic tightening in credit conditions exposes companies to technical failure. The concept of firm failure is the inability to pay its financial debts. Although the company is not in the bankruptcy process, the company can be defined as unsuccessful due to its inability to pay its debts on time. While the company continues its activities, choosing not to pay its debts voluntarily and entering the liquidation process is not the failure of the company, but a management decision. Therefore, this situation, which is the decision of the company management, should not be confused with the situation that the company enters the liquidation process due to its inability to pay its debts. Factors affecting the financial failures of businesses can be internal and external. Financial factors such as insufficient capital, extremely short-term debt obligations, and inadequacies in budgetary control can be counted among the internal causes. Among the most important non-financial internal causes are mismanagement caused by the lack of knowledge and experience of company managers, internal conflicts, problems related to product development, and opening up to new markets. The external factors that lead to the failure of the enterprises are the developments outside the control of the enterprise and related to the economy, social, legal and political environment, technological developments, and natural resources.

The purpose of this study is to research the financial failure of companies that are listed in Borsa İstanbul Watchlist Market with Springate and Zmijewski models between 2016 and 2020. In the first part of the study, the importance and purpose of the subject are shared. In the second part, the literature on international and Turkish studies on financial failure is given. In the third part, the scope and method of the research are explained and in the fourth part, the findings are presented. In the conclusion part of the study, the findings are associated with the literature, and recommendations are presented.

2. LITERATURE REVIEW

Winakor and Smith (1935), one of the first financial failure modeling studies, examined 183 companies that went bankrupt in the period 1923-1931. Merwin (1942), on the other hand, examined the financial ratios of firms before bankruptcy to their financial failures over the data of a total of 900 firms that went bankrupt and continued their activities in the period 1926-1936. In both studies, the net working capital ratio (net working capital/total assets) and current ratio were found to be important variables in estimating financial failure.

Beaver (1966), one of the widely known studies among univariate financial failure models, has 79 successful and 79 unsuccessful companies listed in the USA for the period of the 1954-1964, and Wibel (1973) has 36 successful and 79 unsuccessful companies listed in Switzerland for the period of the 1960-1971. They tried to identify the most successful variables in estimating financial failure by using the financial data of 36 unsuccessful small-scale firms. Beaver (1966) found that the working capital ratio (working capital/total assets) and current ratio, while Weibel (1973) found that the current ratio is among the most effective variables in predicting financial failure.

The first of the multivariate financial failure model experiments were carried out by Tamari (1966) using the financial data of the 1956-1960 period of 16 firms that filed for bankruptcy and 12 Israeli firms that went bankrupt. As a result of the study, it has been determined that the current ratio of the companies is one of the 6 variables that affect their financial failures. Among the financial failure models, the most widely known studies are Altman's (1968, 1983, 1993) studies. Among these, Altman's (1968) study has the feature of being the first financial failure study that does not contain personal judgments and is based entirely on statistical methods. In his study, Altman (1968) wanted to develop an estimation model based on the main variables affecting financial failure by using the data of 33 successful and 33 unsuccessful traded companies listed in the manufacturing industry in the USA with multiple discriminant analyses. At the result of the analyses, 5 financial ratios including the net working capital ratio were selected among 22 financial ratios for the model called Z score. Altman developed the Z score model, which is a model that can also be used in non-public companies, in his study in 1983, and the Z score model, which can be used in both publicly traded companies and companies operating in sectors other than the manufacturing sector, in his study in 1993. While 5 financial ratios are included in the Z score model and 4 financial ratios are included in the Z score model, the net working capital ratio is included in both models as one of the main elements of financial failure.

Springate (1978) belongs to 40 manufacturing companies operating in Canada, Ohlson (1980), 105 unsuccessful and 2058 successful companies operating in the USA, Taffler (1982) belongs to 25 unsuccessful and 45 successful companies whose shares are traded on the London Stock Exchange. They aimed to find out the financial ratios that affect financial failure by using the data and to build a model to be used in the forecast of financial failure. In all three models, it has been determined that the working capital ratio has effects on financial failure and the ratio is included in the estimation models. In another study carried out to develop a financial failure model, Zmijewski (1984) developed 12 models using data from 1972-1978 of 40 successful and 40 unsuccessful manufacturing companies

whose shares were traded on the New York Stock Exchange (NYSE). It has been determined that the current ratio is one of the determinants of financial failure in all models. Frydman et al. (1985) carried out financial failure modeling by using the data of 58 unsuccessful and 142 successful manufacturing companies listed in the USA during the 1971-1981 period, and 20 studies including working capital ratio, current ratio, and liquid assets ratio (cash stocks/total assets) were used. They determined that the financial ratio affects financial failure.

Odom and Sharda (1990) had 64 bankrupt and 65 non-bankrupt companies listed in the USA during the 1975-1982 period, Tirapat and Nittayagasetwat (1999), 55 unsuccessful and 341 successful firms operating in Thailand in 1997, Jones and Hensher (2004), 24 unsuccessful and 62 successful IT and service companies listed in Australia in the period 1999-2003, and Salehi and Abedini (2009) using data from 30 successful and 30 unsuccessful companies listed in Iran between 1995-2007. They tried to determine the financial ratios as financial failure indicators. As a result of all four studies, it has been determined that the working capital ratio is one of the determinants of financial failure. Ganesalingam and Kumar (2001) used the data of 42 successful and 29 unsuccessful companies listed in Australia in the 1986-1998 periods to make financial failure predictions. As a result of the study, it has been determined that 10 financial ratios, including the current ratio, acid-test ratio, and cash ratio, can be used in estimating financial failure. Gruszczynski (2004), in his study on 200 companies listed in Poland between 1995 and 1997, and Keener (2013) found in his study on 1203 retail companies listed in the USA between 2005 and 2013, the cash ratio has statistically significant on the financial failures of companies.

Chen et al. (2006) have 89 unsuccessful and 940 successful companies listed in China between December 1999-June 2003, and Ijaz, et al. (2013) listed in Pakistan between 2009 and 2010. They tried to determine the financial ratios affecting financial failure by using the financial data of 35 sugar companies. As a result of both studies, it has been determined that the current ratio has statistically significant effects on financial failure and can be used in financial failure predictions. Almansour (2015), on the other hand, examined the internal determinants of financial failure by using data from 11 successful and 11 unsuccessful companies operating in Jordan between 2000 and 2003 and found that the working capital ratio and current ratio had statistically significant on financial failure.

Tian and Yu (2017), using 29 financial ratios belonging to 108 Japanese and 112 European companies operating in Japan and European countries between 1998 and 2012, separate financial failure models were developed for Japanese and European companies and the results of the

developed models Altman (1968) Z The score model was compared with the results. As a result of the study, it was stated that retained earnings/total assets, leverage ratio, and short-term liabilities/sales ratios were chosen for all models created for Japan, and equity/total debt ratio for European countries. It was determined that the model created in the study performed better than the Altman (1968) Z score model.

FejérKirály et al. (2019) tried to identify the determinants of financial failure by using data from 65 unsuccessful and 95 successful companies traded in the Bucharest Stock Exchange. As a result of the study, it was determined that the variable of net working capital was selected for the model developed to predict 1 and 2 years before financial failure and it had significant effects on financial failure. Li and Faff (2019) tried to develop a model by using the data of 421 unsuccessful and 441 successful companies listed in between 1988 and 2011, and as a result of the study, it was determined that the working capital ratio is one of the 11 variables that affect financial failure. Natasya and Sienatra (2020) found that the current ratio, asset turnover rate, and return on equity ratios have significant effects on the financial failures of start-up enterprises.

One of the first financial failure modeling studies in Turkey was carried out by Göktan in 1981. Göktan (1981) tried to predict the financial failures of the companies 1, 2, 3, and 4 years before the failure, based on the data of 25 successful and 14 unsuccessful companies operating in the 1976-1980 period. As a result of the study, 9 financial ratios, including the current ratio, were included in the model developed. One of the first studies to make financial failure predictions with multidimensional statistical models in Turkey was carried out by Aktaş in 1993. Aktaş (1993) tried to develop a financial failure prediction model based on the data of 25 successful and 35 unsuccessful companies listed in between 1980 and 1989. As a result of the study, it has been determined that the current ratio, acid-test ratio, and liquid assets ratio, which are among the variables of working capital management, are among the determinants of financial failure. Ünsal (2001) examined the financial ratios that can be used to predict financial failure using data from 16 unsuccessful and 55 successful companies and stated that cash ratio, acid-test ratio, and current ratio are among the variables that are determinants of financial failure.

Aktaş, Doğanay, and Yıldız (2003) tried to develop a financial failure prediction model using the data of 53 successful and 53 unsuccessful industrial, commercial and service companies listed in between 1983 and 1997, and as a result of the study, five financial ratios, including the acid-test ratio, were determined. It has been determined that there are effective variables that can be used in the prediction of financial failure. In the study of İçerli and Akkayya (2006), the financial failures of 40 unsuccessful and 40 successful companies

listed in between 1990 and 2003 were examined with financial ratios and the Z test. Cash ratio, acid-test ratio, and current ratio were among the most important determinants of financial failure. Terzi (2011), on the other hand, aimed to develop a model to predict the financial failure risks of companies based on the data of 10 unsuccessful and 12 successful companies listed in between 2009 and 2010, and as a result of the study, 6 financial ratios, including the net working capital ratio, among 19 financial ratios, were determined as effective in predicting failure. As a result of the studies of 115 companies listed in between 2009 and 2011, aiming to develop a year-specific financial failure model for the years 2009, 2010, and 2011, Zeytinoğlu and Akarım (2013) found that the current ratio is only in the 2009 model and the net working capital ratio is the main factor of financial failure in all three models. Ural et al. (2015), on the other hand, analyzed the financial failure risks of companies for 1 year, 2 years, and 3 years before the failure, using the data of 24 foods, beverage, and tobacco companies listed in between 2005 and 2012. 5 financial ratios without any working capital variables for 1 year before failure, 7 financial ratios including current ratio and acid-test ratio for 2 years before financial failure, and 8 financial ratios including cash ratio and stock ratio for 3 years before financial failure. They determined the financial ratio as the significant variable of the financial failure prediction models. Toraman and Karaca (2016), who examined the effects of various financial ratios on the Altman (1968) Z score values, which is a measure of the financial failure of the companies, used the data of 17 chemical companies listed in between 2010 and 2013 and as a result of the study, 6 financial ratios, including the working capital ratio, were used. They found that the ratio has significant effects on the Z-score values of the companies.

Akyüz et al. (2017) examined 16 paper and paper products industry companies operating in 2015. Ertan and Ersan (2018) investigated financial failure using ratios of 175 successful and 33 unsuccessful manufacturing companies listed in between 2000 and 2004. Karadeniz and Öcek (2019) examined the financial ratios affecting financial failure by using the financial data of 12 tourism companies listed in between 2012 and 2017. As a result of all three studies, it has been determined that cash ratio, acid-test ratio, and current ratio have statistically significant effects on financial failure and can be used in financial failure predictions. Arslantürk Çöllü et al. (2020) tried to determine the financial ratios affecting financial failure by via 2016-2018 data of textile, clothing, and leather companies whose shares are traded on the BIST. As a result of their study, it has been determined that the current ratio, trade receivables ratio, and inventory turnover are among the financial ratios that affect financial failure. In the study of Temelli and Tekin (2020), 241 companies in Borsa İstanbul between 2011 and 2019 were analyzed with the Springate model. It was found that 77.6% of the companies were financially successful in the analyzed period.

3. SCOPE AND METHODOLOGY

3.1. Scope

“Watchlist” refers to the market where shares of corporations in which cases and developments leading to exclusion from BIST Stars, BIST Main, and BIST SubMarket have occurred, as specified in Article 35 of Borsa İstanbul Listing Directive, are traded (Borsa İstanbul Listing Directive, 2021, 4). Article 35 of Borsa İstanbul Listing Directive is as follows (Borsa İstanbul Listing Directive, 2021, 25):

“Upon the occurrence of the following cases, the shares traded in BIST Stars, BIST Main and BIST SubMarket may be transferred into Watchlist by a decision of the Board of Directors. Before taking a decision of transfer into Watchlist, the Board of Directors may warn the relevant corporation to remedy its situation, and may grant a time to the corporation, or may take other actions and measures deemed fit.

- a. *If the corporation’s independent audit reports of the last two periods published in PDP contain a negative opinion, or the independent auditor refrains from expressing any opinion in the said reports;*
- b. *If the corporation has filed an application for suspension of bankruptcy or concordat;*
- c. *If the corporation’s activities are suspended for a period of longer than 3 months due to unreasonable causes;*
- d. *If the corporation had net loss in consecutive 5 annual financial statements, except for the cases reasonable and inevitable by its activities; (In the application of this article, Communiqué No II-28.1 of the CMB is taken into consideration.)*
- e. *If the corporation has overdue and outstanding financial, commercial, public or personnel debts to such extent as showing that it is in financial distress, or is subject to execution proceedings or attachments to such extent as affecting its activities;*
- f. *If the corporation becomes inactive and inoperative due to cancellation or otherwise invalidation of its licenses, authorizations or permissions required for continuity of its business activities;*
- g. *For businesses whose total shareholders’ equity /capital ratio on its latest annual balance-sheet published on PDP falls below 1/3, without prejudice to the process relating to capital increase/decrease, if any; in addition to the calculations to be made on the basis of total shareholders’ equity /capital ratio, if the total shareholders’ equity/capital ratio continues to remain below the above mentioned threshold fol-*

lowing the revaluation of the assets at current values made upon the demand of issuers,

- h. If it is found out in each of balance sheets of the last two years published in PDP that the ratio of its non-commercial receivables from related parties to its total assets has exceeded 50%;*
- i. If at least 2/3rds of fixed assets of the corporation is lost or transferred to any corporation other than the corporations the financial statements of which are fully consolidated, except for reasons deemed valid by the Exchange.*

For businesses whose total shareholders' equity /capital ratio on its latest annual balance-sheet published on PDP falls below 1/3, before entering into the scope of sub-paragraph (f) of first paragraph of this Article, without prejudice to the process relating to capital increase/decrease, if any; in addition to the calculations to be made on the basis of total shareholders' equity /capital ratio, if the total shareholders' equity/capital ratio continues to remain below the above mentioned threshold following the revaluation of the assets at current values made upon the demand of issuers.

Until the end of the business day following the decision of the Board of Directors relating to change of market, the trading of the shares are suspended, and in the second business day, the shares are started to be traded in the Watchlist. ”

As of August 2021, 20 companies are listed in the BIST Watchlist Market. Among these companies, investment holdings were not included in the scope of this research and 15 companies were examined. This research covers the period between 2015 and 2020. The 15 companies in the scope of the research in the BIST Watchlist Market are given in Table 1.

Table 1. BIST Watchlist Market Companies Analyzed Within the Scope of the Research

Number	Code	Company
1	“ALMAD	Altınyag Madencilik ve Enerji Yatırımları Sanayi ve Ticaret A.Ş.”
2	BAGFS	Bagfas Bandırma Gübre Fabrikaları A.Ş.
3	“BRKO”	“Birko Birleşik Koyunlular Mensucat Ticaret ve Sanayi A.Ş.”
4	BRMEN	Birlik Mensucat Ticaret ve Sanayi İşletmesi A.Ş.
5	“CASA”	“Casa Emtia Petrol Kimyevi ve Türevleri Sanayi Ticaret A.Ş.”
6	DIRIT	Diriteks Diriliş Tekstil Sanayi ve Ticaret A.Ş.
7	“EKIZ”	“Ekiz Kimya Sanayi ve Ticaret A.Ş.”
8	EMNIS	Eminiş Ambalaj Sanayi ve Ticaret A.Ş.
9	“ETILR”	“Etiler Gıda ve Ticari Yatırımlar Sanayi ve Ticaret A.Ş.”
10	MMCAS	Mmc Sanayi ve Ticari Yatırımlar A.Ş.
11	“ROYAL”	“Royal Halı İplik Tekstil Mobilya Sanayi ve Ticaret A.Ş.”

12	SNKRN	Senkron Güvenlik ve İletişim Sistemleri A.Ş.
13	SERVE ¹³	Serve Film Prodüksiyon Eglence A.Ş. ¹³
14	TACTR	Taç Tarım Ürünleri Hayvancılık Gıda Sanayi ve Ticaret A.Ş.
15	UTPYA ¹⁵	Utopya Turizm İnşaat İşletmecilik Ticaret A.Ş. ¹⁵

3.2. Methodology

The financial failure status of 15 companies listed in the BIST Watchlist Market between 2015 and 2020 was investigated with the Springate model and Zmijewski model. Springate (1978) used the multivariate discrimination analysis method in this study. He developed a model to identify successful and unsuccessful businesses based on 4 basic ratios and calculated a Z-value. A Z value less than 0.862 is considered unsuccessful or financially failed. The model was tested on 40 businesses selected by random sampling. As a result of the research, the accuracy of the model was found to be 92.5%. Botheras (1979) tested the Springate model on businesses with a total asset value of over \$2.5 million. As a result of the study, the accuracy of the model was found to be 88%. Sands (1980) tested the Springate model on 24 businesses with an average asset size of over \$63.4 million. The accuracy of the model was found to be 83.3% (Rajasekar et al., 2014). The Springate model is given in Equation 1.

$$Z = 1.03A + 3.07B + 0.66C + 0.4D \quad (1)$$

Where,

A = Working Capital/Total Assets

B = Net Profit Before Interest and Taxes (NPBIT)/Total Assets

C = Net Profit Before Taxes (NPAT)/Current Liabilities

D = Sales/Total Assets

$Z < 0.862$; then the company is classified as “failed”

$Z > 0.862$; then the company is classified as “not failed”

The method developed by Mark E. Zmijewski in 1984 is similar to other methods used in financial failure prediction. In the Zmijewski J score model, the data of 129 firms that were traded in the New York stock exchange and suffered financial failure for the period 1972-1978 were analyzed (Zmijewski, 1984). Zmijewski model's variables and estimated coefficients are given in Equation 2.

$$J = -4.336 - 4.513 \cdot X1 + 5.769 \cdot X2 + 0.004 \cdot X3 \quad (2)$$

Where,

$X1 = \text{Net Income} / \text{Total Assets} = \text{ROA}$

$X2 = \text{Total Liabilities} / \text{Total Assets} = \text{Leverage}$

$$X3 = \text{Current Assets} / \text{Current Liabilities} = \text{Current Ratio} = \text{Liquidity}$$

If the probability is greater than 0.5, in other words, the Z value is 0 then the company is considered bankrupt or in financial failure. A company whose Z value is greater than or equal to 0 or positive, it is classified as financially failed. A company that has a Z value less than 0 is classified as not financially failed.

4. FINDINGS

Under this heading, the empirical findings of the research are given. According to the Springate model, the calculated S scores of the companies by Equation 1 in the BIST Watchlist Market between 2015 and 2020 are given in Table 2.

Table 2. S Scores of Companies in BIST Watchlist Market

No	Code	2015	2016	2017	2018	2019	2020
1	ALMAD	-0.216	0.054	0.748	0.249	0.338	1.024
2	BAGFS	0.403	0.140	0.217	-0.565	0.597	0.632
3	BRKO	0.244	-0.098	-0.287	-0.201	-0.360	0.060
4	BRMEN	-0.327	-0.671	0.014	-0.336	-0.684	-3.479
5	CASA	-0.275	0.026	-0.045	0.077	0.491	1.171
6	DIRIT	-0.358	-0.854	-0.168	-1.258	-2.507	-0.750
7	EKIZ	-0.263	0.143	-0.011	-0.053	0.423	0.482
8	EMNIS	-0.417	-0.911	-0.025	-1.129	-1.220	2.730
9	ETILR	0.853	1.396	-0.820	-1.463	-0.385	3.959
10	MMCAS	4.572	0.892	-0.781	-7.058	0.477	0.623
11	ROYAL	0.766	-0.148	-0.347	-0.025	-0.183	0.806
12	SERVE	-0.036	0.346	-1.220	2.087	-7.341	0.761
13	SNKRN	0.495	-0.256	-0.503	0.954	-0.360	1.577
14	TACTR	0.020	-0.543	0.013	-0.570	-1.260	-0.748
15	UTPYA	-0.300	-0.470	-0.258	-0.261	0.297	-0.054

When the S scores calculated in the Springate model and given in Table 2 are examined, it is seen that the highest value between 2015 and 2020 was Mmc Sanayi ve Ticari Yatırımlar (MMCAS) in 2015 and the lowest value was Serve Film Prodüksiyon Eğlence A.Ş. (SERVE) in 2019. Diriteks Diriliş Tekstil Sanayi ve Ticaret A.Ş. (DIRIT) was found to have a negative S score in all years. Birko Birleşik Koyunlular Mensucat Ticaret ve Sanayi A.Ş. (BRKO), Eminiş Ambalaj Sanayi ve Ticaret A.Ş. (EMNIS), Royal Halı İplik Tekstil Mobilya Sanayi ve Ticaret A.Ş. (ROYAL), Serve Film Prodüksiyon Eğlence A.Ş. (SERVE) and Senkron Güvenlik ve İletişim Sistemleri A.Ş. (SNKRN) S scores were positive in 2020 compared to 2019. Between 2015 and 2020, the vast majority of 15 companies are below the threshold of 0.862 and negative. Therefore, it can be said that these companies were financially unsuccessful or in financial failure.

The S score of 8 companies in 2015, 8 in 2016, 11 in 2017, 11 in 2018, 9 in 2019 and 4 in 2020 were negative.

The evaluation of the financial status of the Watchlist Market's companies according to the S scores calculated in the Springate model is given in Table 3. Financial status is expressed as financially successful or unsuccessful. Those below the threshold value of 0.862 are unsuccessful (failed) or those above are successful (not failed).

Table 3. Financial Status of Companies Based on Springate Scores

No	Code	2015	2016	2017	2018	2019	2020
1	ALMAD	F	F	F	F	F	NF
2	BAGFS	F	F	F	F	F	F
3	BRKO	F	F	F	F	F	F
4	BRMEN	F	F	F	F	F	F
5	CASA	F	F	F	F	F	NF
6	DIRIT	F	F	F	F	F	F
7	EKIZ	F	F	F	F	F	F
8	EMNIS	F	F	F	F	F	NF
9	ETILR	F	NF	F	F	F	NF
10	MMCAS	NF	NF	F	F	F	F
11	ROYAL	F	F	F	F	F	F
12	SERVE	F	F	F	NF	F	F
13	SNKRN	F	F	F	NF	F	NF
14	TACTR	F	F	F	F	F	F
15	UTPYA	F	F	F	F	F	F

Mmc Sanayi ve Ticari Yatırımlar A.Ş. (MMCAS) was financially successful in 2015 and 2016, but financially unsuccessful in 2017 and 2020. In 2018, Güvenlik ve İletişim Sistemleri A.Ş. (SNKRN) and Serve Film Prodüksiyon Eğlence A.Ş. (SERVE) is financially successful. In 2020, Altınyaz Madencilik ve Enerji Yatırımları Sanayi ve Ticaret A.Ş. (ALMAD), Casa Emtia Petrol Kimyevi ve Türevleri Sanayi Ticaret A.Ş. (CASA), Eminiş Ambalaj Sanayi ve Ticaret A.Ş. (EMNIS), Etiler Gıda ve Ticaret Yatırımlar Sanayi ve Ticaret A.Ş. (ETILR) and Senkron Güvenlik ve İletişim Sistemleri A.Ş. (SNKRN) are companies that are found to be financially successful. Bağfaş Bandırma Gübre Fabrikaları A.Ş. (BAGFS), Birko Birleşik Koyunlular Mensucat Ticaret ve Sanayi A.Ş. (BRKO), Birlik Mensucat Ticaret ve Sanayi İşletmesi A.Ş. (BRMEN), Diriteks Diriliş Tekstil Sanayi ve Ticaret A.Ş. (DIRIT), Ekiz Kimya Sanayi ve Ticaret A.Ş. (EKIZ), Royal Halı İplik Tekstil Mobilya Sanayi ve Ticaret A.Ş. (ROYAL), Taç Tarım Ürünleri Hayvancılık Gıda Sanayi ve Ticaret A.Ş. (TACTR), Utopya Turizm İnşaat İşletmecilik Ticaret A.Ş. (UTPYA) was found to be financially unsuccessful in all of 2015 and 2020.

According to the Zmijewski model, the calculated J scores of the

companies by Equation 2 in the BIST Watchlist Market between 2015 and 2020 are given in Table 4.

Table 4. J Scores of Companies in BIST Watchlist Market

No	Code	2015	2016	2017	2018	2019	2020
1	ALMAD	-0.836	-0.040	1.321	1.723	-1.491	-2.554
2	BAGFS	-2.034	-0.845	-0.734	0.178	1.215	2.898
3	BRKO	-0.496	-0.691	-0.260	-0.867	-1.666	-2.319
4	BRMEN	-1.332	-0.797	-1.702	-0.071	0.406	22.144
5	CASA	-0.511	-0.835	-1.043	-1.025	-2.416	-1.022
6	DIRIT	-1.098	0.238	-1.319	0.819	4.399	1.850
7	EKIZ	1.685	0.221	0.371	1.007	-0.016	0.162
8	EMNIS	1.999	1.913	1.281	4.137	5.104	-0.113
9	ETILR	-2.728	-2.417	-0.931	2.093	0.798	-4.712
10	MMCAS	-4.953	-3.083	-1.000	5.878	-1.309	-1.142
11	ROYAL	-0.771	-0.107	1.064	1.139	2.353	1.208
12	SERVE	-3.777	-0.928	2.223	-2.938	10.159	-1.401
13	SNKRN	-0.678	0.528	1.006	-0.151	1.694	-1.080
14	TACTR	-1.166	-0.453	-1.487	-0.792	0.374	0.064
15	UTPYA	-0.852	-0.127	-0.268	0.271	0.203	1.206

Birko Birleşik Koyunlular Mensucat Ticaret ve Sanayi A.Ş. (BRKO) and Casa Emtia Petrol Kimyevi ve Türevleri Sanayi Ticaret A.Ş. (CASA) had negative J scores between 2015 and 2020. It was found that the J scores of 10 companies in 2015, 11 in 2016, 9 in 2017, 6 in 2018, 5 in 2019, and 8 companies in 2020 were negative. When the calculated J scores are examined, it is seen that financial failure is more especially in 2018 and 2019. It can be stated that financial failure has spread to almost all companies since 2015.

The evaluation of the financial status of the Watchlist Market's companies according to the J scores calculated in the Zmijewski model is given in Table 5. Financial status is expressed as financially successful or unsuccessful. Those below the threshold value of 0 are financially successful (not failed) or those above are financially unsuccessful (failed).

Table 5. Financial Status of Companies Based on Zmijewski Scores

No	Code	2015	2016	2017	2018	2019	2020
1	ALMAD	NF	NF	F	F	NF	NF
2	BAGFS	NF	NF	NF	F	F	F
3	BRKO	NF	NF	NF	NF	NF	NF
4	BRMEN	NF	NF	NF	NF	F	F
5	CASA	NF	NF	NF	NF	NF	NF
6	DIRIT	NF	F	NF	F	F	F
7	EKIZ	F	F	F	F	NF	F

8	EMNIS	F	F	F	F	F	NF
9	ETILR	NF	NF	NF	F	F	NF
10	MMCAS	NF	NF	NF	F	NF	NF
11	ROYAL	NF	NF	F	F	F	F
12	SERVE	NF	NF	F	NF	F	NF
13	SNKRN	NF	F	F	NF	F	NF
14	TACTR	NF	NF	NF	NF	F	F
15	UTPYA	NF	NF	NF	F	F	F

Ekiz Kimya Sanayi ve Ticaret A.Ş. (EKIZ) was financially unsuccessful in all years except 2019. Bagfaş Bandırma Gübre Fabrikaları A.Ş. (BAGFS), Birlik Mensucat Ticaret ve Sanayi İşletmesi A.Ş. (BRMEN), Diriteks Diriliş Tekstil Sanayi ve Ticaret A.Ş. (DIRIT), Ekiz Kimya Sanayi ve Ticaret A.Ş. (EKIZ), Royal Halı İplik Tekstil Mobilya Sanayi ve Ticaret A.Ş. (ROYAL), Taç Tarım Ürünleri Hayvancılık Gıda Sanayi ve Ticaret A.Ş. (TACTR), Utopya Turizm İnşaat İşletmecilik Ticaret A.Ş. (UTPYA), these companies were found to be financially unsuccessful especially after 2017.

CONCLUDES

Financial failure is a normal situation that companies operating in any sector, regardless of size, may face. Events such as political and economic instability in the country, unsuccessful decisions of company managers, and fluctuations in the market increase the risk of the financial failure of companies.

The examining financial status of 15 companies listed in Borsa İstanbul Watchlist Market, which is the purpose of this research, was analyzed with two different models used to measure financial success/failure between 2015 and 2020. According to the analysis result of the Springate model, when the financial situation between 2015 and 2020 is evaluated, 89% of them are found to be financially unsuccessful or in financial failure, while 11% were successful. According to the analysis result of the Zmijewski model, when the financial situation between 2015 and 2020 is evaluated, 58% of them are found to be financially successful, while 42% were unsuccessful. Although the rate of financially unsuccessful or failed periods in the Zmijewski model is lower than in the Springate model, the increase in recent years is remarkable. This can be interpreted as an increase in financial failure in other companies recently. In addition, another effect in the formation of this different result may be the variables used by the models. The Springate model focuses on sales, net profit after tax, and working capital, while the Zmijewski model is calculated based on leverage, liquidity, and ROA. Profits before interest and taxes are also low or negative due to the high short-term debts and low sales of the businesses. Therefore, businesses are at risk of bankruptcy. According to

the Springate model, business managers should increase their profits and reduce their short-term debts and move them away from the bankruptcy risk area. In the Zmijewski model, on the other hand, the company should try to increase net income, reduce total liability and keep the liquidity ratio at an optimum level. Considering the findings of this study, it is thought that a more robust result can be achieved in measuring financial failure with the Zmijewski model.

Statistical studies can be done to determine the effect of variables in models. Since the financial failure models in the literature are generally based on the data of the companies of the countries in which they are applied, studies should be carried out to find the Z values or scores of the researchers specific to markets.

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CHAPTER 12

NUMERICAL EVIDENCE ON THE EFFECTS OF COMPETITIVE PRESSURE ON ORGANIZATIONAL CHOICE OF FIRMS¹

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Sorumlu Yazar

1. Introduction

When choosing the organizational form of a firm, owners make an important decision. It affects how the firm owners' income and the residual claimants' income are taxed, a firm's lifespan and how it grows. It also affects how a firm determines its financial structure. Hired managers respond differently to competitive pressure than the owner managers (Durceylan (2021)). In this chapter, by endogenizing the organizational choice of owners in a structural dynamic industrial evolution model, we study the importance of organizational structure of the industry in aggregate productivity change when the industry responds to competitive pressure.

The analysis is based on the model which has several key features. First, in order to incorporate the agency problems into the model, two types of agents are introduced, a pool of entrepreneurs and a pool of managers. Entrepreneurs' managerial ability is lower than that of managers. However, they have the capital to start up a firm. In addition, their relationship within a corporation is characterized by a long term dynamic contract. Second, the choice of organizational form is endogenized. Entrepreneurs choose to incorporate if the value of the new firm as a corporation is higher than a proprietorship. On one hand, costly effort exerted by entrepreneurs decreases the likelihood of proprietorships, on the other hand agency cost increases it. While deciding on the organizational form, potential entrants face this trade-off as well.

The model is solved using numerical methods. The set of parameters is determined such that the parameters create both corporations and proprietorships in a steady state. With the generated parameters, I perform counterfactual analysis. By decreasing the fixed entry cost, more firms enter the market and as a result competitive pressure increases. The value of firms is affected. However, the rate at which firms are affected depends on whether they are proprietorships or corporations. The change in the expected value of being a corporation or a proprietorship affects the decisions of potential entrants as well. My simulations show that potential entrepreneurs's decision of organizational form is affected by how competitive the market is.

This chapter is related to a line of empirical finance literature concerning the determinants of organizational form. These studies model the organizational choices as determined by taxation considerations, limited liability, and agency problems. The empirical studies suggest that dual-taxation on both corporate and personal income is the most important. These studies are reduced form analysis of these determinants. I am also interested in the same problem, but I'll use a structural model. This chapter uses the agency problems as well as differences in managerial

abilities among entrepreneurs and managers as determinants of different organizational choice.

Firms face different taxation depending on the organizational form. Proprietors pay tax on residual claims at their personal tax rate, whereas corporate owners pay taxes on their income at the corporate rate and any income distributed to owners in the form of dividends is taxed at their personal tax rate. An increase in corporate tax rates relative to income tax rates discourages the formation of corporations. (Goolsbee (1998), Gordon and MacKie-Mason (1990, 1994), and MacKie-Mason and Gordon (1997).) Business risk is also a factor that works in favor of corporations. The proprietors are legally and financially responsible for all business activities. On the other hand, corporate owners have limited liability. They are only responsible for the capital they have invested in the firm. Hulse and Pope (1996) claim that limited liability is the most important determinant of incorporation, whereas MacKie-Mason and Gordon (1997) argues that its role is unclear. On the other hand, the empirical work lacks to support the agency problems as compared to the other factors (Cavalluzzo and Geczy (2003)).

The theoretical literature considers the agency problems as one of the main determinants of the choice of organizational form. The deviation from the proprietorship is seen as a trade-off between agency costs, and the bearing of residual risk (Jensen and Meckling (1976), Fama and Jensen (1985)). Hart (1983), Scharfstein (1988) Schmidt (1997) and recently Raith (2003) focus on how competitive pressure affects firms performance when there is moral hazard problem. These studies try to construct optimal contracts to induce managers to exert the recommended actions. This chapter characterizes a long term dynamic contract between the firm owner and the manager based on Phelan and Townsend (1992). In addition, the model endogenizes organizational form of firms.

This chapter is also related to a theoretical literature concerning the relationship between competition and industrial evolution and productivity. Hopenhayn (1992) and Melitz (2003) treat the firm level productivity as exogenous and selection effects are the only source of productivity gain. Other studies add the endogenous innovation or effort and find that Schumpeterian effects are also an important element of industry productivity increases (Boone (2000), Aghion, Harris and Vickers (1997), Erickson and Pakes (1995), Pakes and McGuire (1994), Atkeson and Burstein (2006), and Constantini and Melitz (2007) Durceylan (2021)). This chapter adds to previous literature by extending the model by endogenizing the organizational choice, and introduce another channel that influence the productivity distribution of firms and, as a result, aggregate productivity.

The rest of the chapter is organized as follows. Section 2 details the differences of the model used in this chapter to the model described in Durceylan (2021). Section 3 describes the numerical exercise results. Section 4 concludes.

2. The Model and the Equilibrium

The model proposed in this chapter is based on Durceylan (2021). To make it easier for the reader, I will highlight the differences arise in this model compared to the model used in Durceylan (2021). The difference arises as the potential owners make the organizational choice endogenously at the entry. Below I discuss the problems of the proprietors and corporate owners.

A proprietor's state of his firm is the previous periods productivity δ_{t-1} . Given g , the distribution of firm productivities conditional on their previous periods productivity, the effort exerted by the owner, and state of his firm, a proprietor chooses his optimal effort level to maximize the expected value of his firm:

$$U_t^{prop}(\delta_{t-1}) = \max_{a_t} \sum_{\delta}^{\infty} (\pi_t(\delta_t) - e^{\eta_{prop} a_t}) + \beta \max\{m, U_{t+1}^{prop}(\delta_t)\} g(\delta_t | a_t, \delta_{t-1}) \quad (1)$$

Similarly, a corporate owner's state of his firm is his firm's last period's productivity, δ_{t-1} and the expected future utility promised to his manager, v_{t+1} . The corporate owner chooses an optimal contract, $\{a_t, c_t(\cdot), v_{t+1}(\cdot)\}_{t=1}^{\infty}$ that maximizes his expected return given the observables of his firm and g . Here $c(\cdot)$ refers the compensation schedule and $v(\cdot)$ refers the future expected promises schedule. We can redefine his problem as:

$$U_t^{corp}(\delta_{t-1}, v_t) = \max_{a_t, c_t(\cdot), v_{t+1}(\cdot)} \sum_{\delta}^{\infty} (\pi_t(\delta_t) - c_t) + \beta \max\{m, U_{t+1}^{corp}(\delta_t, v_{t+1})\} g(\delta_t | a_t, \delta_{t-1})$$

subject to

$$v_t = \sum_{\delta > \delta^*}^{\infty} \{u_t(c_t, a_t) - \beta v_{t+1}\} g(\delta_t | a_t, \delta_{t-1}) \\ \sum_{\delta < \delta^*}^{\infty} \{u_t(c_t, a_t) - K\} g(\delta_t | a_t, \delta_{t-1})$$

and

$$u_t(c_t, a_t) = \begin{cases} c_t - e^{\eta_{manager} a_t} & \text{if } \delta > \delta^* \\ c_t - K & \text{if } \delta < \delta^* \end{cases}$$

The potential entrants solve the same problem described in Durceylan (2021) given U_{\square}^{corp} , and U_{\square}^{prop} . When an entrepreneur pays the fixed cost and draws his firm's initial productivity, he compares the value of his firms as a corporation or a proprietorship and chooses the one that maximizes the value of his firm. The difference in the value of firms arises for two reasons.

First, effort is costlier for entrepreneurs. Therefore, the entrepreneur prefers to hire a manager who can exert the same effort at a less cost. Second, on the other hand, agency problems cause the compensation paid to the manager to be higher than his cost of effort. Therefore, the entrepreneur chooses to become a corporate unless the cost of exerting effort himself for the rest of his life is less than the current and future compensations to his manager in return to his effort.

The equilibrium is a set of value functions U_{\square}^{corp} , U_{\square}^{prop} , $U_{\square}^{entrans}$ for incumbents and potential entrants respectively and a corresponding contract for the corporations and policy functions for owners of the proprietorships when they exert effort $h(a)$, and an exit rule for firms both under corporations and proprietorships regime.

1. Given the distribution of firms over their productivities, the owner of a proprietorship solves his problem and the value function gives the policy function for the optimal effort level, $h(a)$

2. Given the distribution of firms over their productivities and future promised utilities, the owner of a corporation solves his problem and the value function gives the contract, i.e. corresponding recommended action a_t , the compensation function $c_t(\cdot)$ and the promised utility function $v_{t+1}(\cdot)$.

3. Given U_{\square}^{corp} , U_{\square}^{prop} , $U_{\square}^{entrans}$ characterizes the problem of potential entrants.

4. Firms' optimal decisions are consistent with steady distribution of firms over their productivities and the firms' structures.

2.1. Solution of the equilibrium

The agents in the market solve their problems knowing that the market is in a steady state equilibrium. Therefore, the price index, P , of the goods sold in the market is constant. As a result, the agents in the market only require to know the price index, P , wage rate for the workers w , to solve their optimization problems.

The algorithm to solve the equilibrium is described as follows.

1. Start with an initial guess on the price index, P .
2. Given P , w , and the distribution of firms over their productivities (and promised future utilities), solve for the value functions of incumbents and entrants.
3. Simulate the environment over a long period of time, solving for the spot market equilibrium each period.
4. Update P by calculating the price index of the products when it reaches a steady state.

5. If updated P is sufficiently close to the previous P , stop. Otherwise, use the updated P and go back to step 2.

3. Numerical Exercise Results

The model is capable of explaining how the organizational structure of a firm is determined for a given level of competition. To simulate the environment and see how an increased competitive pressure affects the potential entrants' organizational choice, I determine a set of parameters. The set of parameters are chosen so that there is turnover among both types of firms. The basic parameters are based on the Colombian Dairy Industry where there are both corporations and family owned firms operating at the same time. Firms take the wage rate common and constant over time. I take the average of labor payments as the wage rate for the dairy industry. Second, I take the average of yearly industry revenues as a measure of total expenditure of the industry, R which amounts to 7047\$ (2005 US Dollars). Finally, following the standard parametrization in the literature, I set $\beta=0.99$. The remaining parameters to be determined are listed as follows. Θ is the production function parameter, b_1, b_2, b_3 and σ_ε characterize the AR(1) process of plant level productivity evolution, ρ is the demand parameter, and $\mu, \eta^{\text{manager}}$ K parametrizes the utility of manager. Entrepreneurs cost of effort is characterized with η^{prop} which is greater than that of managers. F_H, f and m are cost parameters to be governed. f is the fixed cost of production, m is the scrap value of a firm, and $F_H/2$ governs the average fixed entry drawn from a uniform distribution¹. The parameters used in the numerical exercise is listed in Table (1).

A number of issues arise when constructing the simulations. First, all variables must be discretized in order to use standard techniques to calculate the value functions. For this, I use Tauchen's (1991) method. Second, I cannot observe the potential entrants in the market. Therefore, I arbitrarily fix, the number of potential entrants to $N_{pe}=18$. This number exceeds the maximum number of entrants in one year in the Colombian Dairy Industry. Finally, given the potential for discontinuities in the model and the discretization of the state space, a simulated annealing algorithm is used to perform the minimization.

The simulated model with the chosen set of parameters generates value functions as in figure (1). The value function for corporations

¹ I used the Colombian dairy industry (SIC code 3112) for the period 1977 through 1990. The industry is composed of both corporations and proprietorships. The mean number of firms in the market is around 87 where 26 percent of which are corporations. There is a large number of firms in the market. The firms in the market do not export, this is also consistent with my non-tradable good economy assumption. The corporations and proprietorships differ in their turnover rates. The mean entry rate is 15 percent among family owned firms, where as it is 6 percent among corporations. Similarly exit rate is 11 percent among proprietorships, and 7 percent among corporations.

is steeper than the value function for proprietorships. The difference in the relative slope of different firm types can be explained as follows. The cost of effort for a proprietor is just a function of the level of effort exerted. This evaluation of cost is independent of the productivity level of the firm, the competitiveness of the market etc. However, the cost of effort for the owner of a corporation is the amount of compensation that is defined by the contract. The compensation is such that the manager exerts the recommended action. The compensation is not only a function of the level of effort and the cost of effort parameter and the risk aversion of the manager, it is also a function of the productivity level of the firm, the probability of failure it faces, the competitiveness of the environment. Therefore, the value function for corporations responds to changes in the environment more dramatically than that of proprietorships. For this specific set of parameters, the value of being a corporation is lower than the value of being a proprietorship at low levels of productivity. When the productivity is low, the owner is restricted with the profit potential of the firm. The compensations should not exceed the profits the firm can generate. As a result, lower compensations at low levels of productivity results in lower efforts exerted by the managers which in turn lowers the value of the firm. As productivity increases the value of being a corporation increases faster than that of a proprietorship. Increased profit potential of a firm increases the marginal benefit of exerting extra effort by the manager. Therefore, it becomes cheaper for the owner to compensate the manager. In addition, higher profits decrease the restriction on compensation levels.

Given the set of parameters, I want to quantify the effects of heightened competitive pressure on organizational mix of the industry. To do so I decrease the fixed entry cost by 40 percent, holding all other parameters constant.

The simulations of value function, given the set of parameters, provide the policy functions for the entrepreneurs and managers. The model is then simulated for 400 years and 10 times.

The reduction in mean entry costs increases the total number of firms in the market. With more firms, incumbent firms face more competition. The new value functions and their relative position with respect to less competitive market values are in figure (2). With heightened competitive pressure, the value of being both a corporation and a proprietorship declines. The decline in the value of being a corporation is lower relative to a proprietorship. The reason can be explained with the findings of Durceylan (2021). Competition lowers the potential profits firms can make. But for a corporate manager to avoid the increased risk of failure,

he exerts more effort and require less compensation.² On the other hand, proprietors not only loose from the increased compensation they also loose production to more productive firms. As productivity increases, risk of failure effect declines and the decline in the value of being a corporation might exceed that of proprietors. The managers of corporations decrease their efforts because the decline in potential profits decrease the marginal benefit of exerting effort and the risk of failure is no longer in effect. Proprietors decrease their optimal efforts because of the same reason as corporate managers. The relative decline in the values depends on how risk averse the managers are and how much more expensive to exert effort for a proprietor relative to a manager.

The above numerical exercise shows that the model is capable of generating both types of firms in steady state equilibrium. When the industry faces more competitive pressure, the potential entrants' optimal decisions at a given initial productivity changes as the values of firms change. A tougher new market for potential entrants requires higher initial productivities to enter the market. As a result, it becomes even a rarer event to draw a high enough productivity such that value of being a corporation exceed the value of being a proprietorship.^{3 4} The numerical exercise supports this argument. When the competitive pressure is increased, the potential entrants choose to become proprietorships. Therefore, the steady state distribution of firms become all proprietorships.

4. Conclusion

The reason why a given industry has a mix of organizational structure is a question that gets a significant attention from the finance literature. The explanations in a broad classification are limited liability, dual taxation and the agency problems. The model generated here doesn't consider limited liability or dual taxation. The agency problems as well as the different managerial abilities among agents are used to generate mix types of firms in equilibrium.

2 The incentive compatibility constraint becomes less if a constraint as the risk of failure increases. Therefore, the required compensation for the same amount of effort becomes lower in a more competitive environment.

3 The potential entrants draw from a distribution which is different than the distribution of incumbents and is not a function of F_H (the upper bound of the support of the fixed entry cost distribution). That also means that the initial productivity is not affected by the increased competition in the market. In addition, higher competition increases the cutoff productivities of entering the market as a corporation or a proprietorship. That makes it even harder to draw a high enough productivity that favors being a corporation over proprietorships.

4 The changes in the value function of being a corporation or a proprietorship depends on the parameters values mainly the cost of efforts, the risk aversion of the manager, the disutility he exerts when the firm is liquidated. Therefore, we might also observe an increase in the percentage of corporations for a different parameter sets.

The numerical exercise shows that when an industry faces heightened competitive pressure, the existence of agency problems among corporations and different managerial abilities cause different types of firms respond differently. Heightened competitive pressure changes the optimal contracts offered to managers. Therefore, the change in the value of being a corporation at a given productivity level differs than the change in the value of being a proprietorship at the same productivity. However, the relative change is a function of how risk averse the managers are, how different the managerial abilities of proprietors and managers are and how competitive the environment is. The model, therefore, supports the previous literature claiming that agency is one of the reasons of different organizational structures. This study adds the level of competition to the list. The numerical exercise shows that higher competitive pressure affects the potential entrants' decision on organizational structure.

The question, whether the competitive pressure increases the number of proprietorships or corporations does not have a clear answer. As I mentioned before, changes in the value functions depends on the managerial abilities and risk aversion of managers. In other words, it depends on how severe the agency problems are.

Table 1
Model Parameters

<i>Parameter</i>	<i>Value</i>
Manager's utility function parameter , μ	0,92
Cost of effort parameters for the managers, η^{manager}	1,89
Cost of effort parameter for the entrepreneurs, η^{prop}	2,83
Manager's disutility parameter, K	10,03
Incumbent's productivity process, intercept b_3	0,39
Incumbent's productivity process, root b_2	0,39
Incumbent's productivity process, effort b_1	0,37
Incumbent's productivity process, variance σ_e	1,22
Production function parameter , θ	0,56
Elasticity of substitution between goods , σ	1,58
Mean entry costs, F_H (2005 US dollars)	2599547,53
Fixed cost , f	10529,85
Scrap value, m	15584,88
Entrants initial productivity draw distribution , mean z	-0,07

Figure 1

Value functions relative position when the firm is a corporation or a propriotership

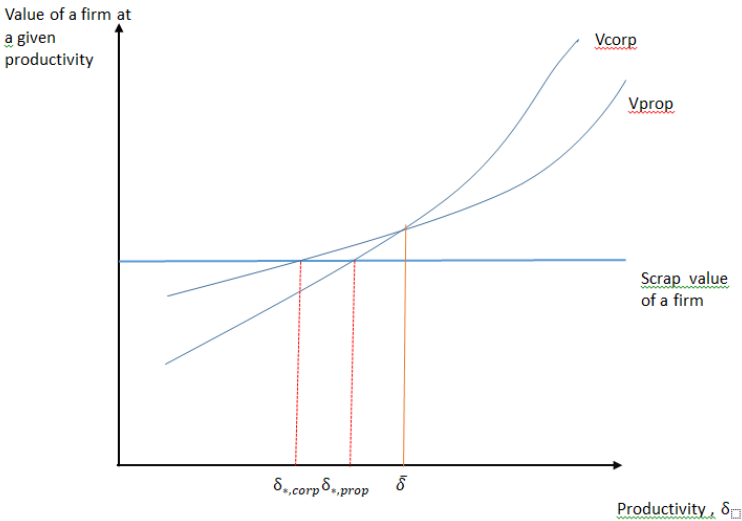
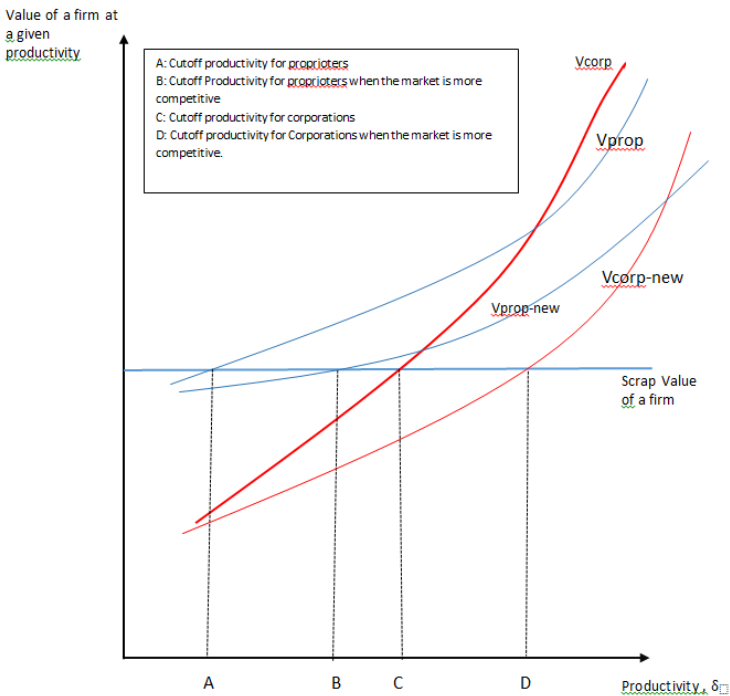


Figure 2

Value functions when the firms are corporations and proprioterships and when the market is more competitive



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CHAPTER 13

THE PLACE OF PUBLIC RELATIONS ACTIVITIES IN TOURISM ENTERPRISES IN PROMOTION; AN EXAMPLE OF DOMESTIC TOURISM OF MERSIN TRAVEL AGENCIES

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1. INTRODUCTION

The tourism industry which takes place within the service sector is developing very rapidly in parallel with the rapid changes taking place in technological, economic and socio-cultural terms and its contribution to the country's economies is increasing every day after these developments. Globalization and the application of new management techniques in tourism enterprises have also started to change the understanding of promotion and marketing. Promotion has gained new dimensions with the use of the Internet in virtual environments. Today's competitive conditions require that products be liked, trusted and preferred in order to be sold. The situation makes the situation of intense competition between tourism enterprises that expect more profit from tourism a current issue. Public relations activities for promotional purposes are one of the effective methods of promoting tourist attractions and are effectively used to put tourism enterprises in a different position from competitors.

The tourism sector has its own characteristics. Therefore, it is marketed differently from other products. The fact that the service cannot be stocked and it is intangible, the supply is not flexible, the variability of demand is high requires special skills from the point of view of business managers. In tourism, public relations are a planned communication process and a management function which is used to create sympathy, a positive attitude and a positive image towards the tourism regions, tourism enterprises or tourism products located in the country. Public relations activities for promotional purposes in Turkey are classified as public relations activities for domestic promotion and international promotion. One of the biggest problems experienced in Turkish tourism in the current century is that domestic tourism is not given the necessary importance. Therefore, it is aimed to ensure that domestic tourism is tried to be developed by taking into account the activities implemented in regional promotion and the elements that the regions have.

One of the most important organizations for the implementation of regional is travel agencies, which create a link between the public and tourism enterprises. In this direction, a study was conducted on the subject for the authorities of travel agencies. The research is important because it is conducted to determine the current situation of travel agencies in internal promotion and the level of their use in public relations activities. In the conducted research, it is aimed to reveal the current situation of travel agencies in Mersin in domestic promotion, whether public relations activities are considered an effective promotion tool, the public relations activities they benefit from, the public relations methods they use, and their perspectives on tourism promotion.

The research is a descriptive research and the concept of public relations is explained primarily by scanning the literature. After that, conceptual information about promotional and public relations activities in tourism enterprises was presented. Then, a questionnaire consisting of 22 questions was created to provide data. The questions in the questionnaire form consist of closed-ended, five-point Likert scale and multiple-choice questions. The questionnaire forms were made by face-to-face or leave-to-collect method. In the research; It has been concluded that there is no separate public relations unit in the vast majority of travel agencies. Also it was concluded that travel agencies use the most advertising techniques in their promotional activities, transmit their messages by e-mail and brochures, attach importance to the website for promotional purposes, include hotels, nature and marine issues most in their promotional activities, conduct face-to-face interviews in domestic promotion, pay attention to social events, use websites and the internet. It has also been concluded that “tourism enterprises ignore the promotion of tourists and consider them only with the eye of profit” and “the incompetence of local governments” as a major problem in the promotion of domestic tourism in Turkey.

2. PROMOTION AND PUBLIC RELATIONS

Promotion is the provision of information about services, goods, issues, thoughts, benefits, organizations or behaviour to the masses through oral, written, audio-visual and technological mass media or communication channels using appropriate techniques, methods and tools by a group, person, organization or institution in order to obtain an interest. Promotion is also promotional information and public relations activities that are usually carried out at no cost in order to enlighten, impress, get their support, direct, create a positive image and make it easier for them to acquire the desired attitudes and behaviours (Akat, 2000: 195; Rızaoğlu, 2004: 5; Ünüsan & Sezgin, 2005: 32; Mısırlı, 2012). If it is necessary to list the main features of the promotion in the form of items, they are: (Hacıoğlu, 2000: 71- 72);

- High accuracy and credibility,
- Being able to reach the people in a way,
- Arousing interest and curiosity,
- Public disclosure and objective disclosure.

Public relations, on the other hand, are activities carried out to influence the public or the general public on any issue and to gain their support and trust. Public relations are extremely effective in adapting, getting used to, and convincing the public of an innovation or social change. Enterprises have to reach consumers and influence them in favour of their brands in

today's intense competitive environment. The main task of public relations is to ensure that enterprises acquire a good image. The departments that carry out public relations work and the specialists working here are at the beginning of the activities they have to do and the goals they want to achieve, undoubtedly, the promotion and adoption of institutions and organizations to the relevant public masses. (Budak & Budak, 1995: 121; Asna, 1998, 26; Bozkurt, 2000). The benefits of public relations activities to organizations are generally as follows; (Ertürk, 2010).

- To assist in the promotion of goods or services
- To determine the direction of environmental and organizational change
- To ensure the participation of high-quality personnel in the enterprise
- To give a perspective to society in the desired direction in line with the objectives
- To ensure that the business acquires a positive image and respectability
- To get the support of founders, partners, shareholders, members and employees
- To learn the attitudes of various groups towards business
- To ensure that enterprises establish positive relations with political power and maintain these relations
- To contribute to the creation of policies from a managerial point of view
- To assist in the development of policies and strategies to overcome potential crises in advance

The most important tools used to collect information about public relations for promotional purposes are face-to-face interviews, observations, using research institutions, conducting surveys (Kazancı, 2006) and consulting with representatives guides working in travel agencies and written travel guides working in their departments are also involved in promotional activities in travel agencies (Yamada, 2011; Poyakova et al., 2015; Herman et al, 2019). The methods and tools used in the promotion are generally classified as follows ((Tavmergen & Meriç, 2002, 109; Peltekoğlu, 2004; Yavuz, 2006:25-55; Kazancı, 2006:281-297);

1-) Face to face relations

a- Art of conversation

b- Persuasiveness

- c- Talking on the phone
- 2-) Printed media
 - a- Newspaper
 - b- Magazines
 - c- Brochures and handbooks
 - d- Posters and banners
 - e- Badges, stamps and letters
 - f- Annuals and books
- 3-) Audial and visual tools
 - a- Radios and televisions
 - b- Films
 - c- İnternet and intranet, web sites and promotion CDs
 - d- Other visual tools
- 4-) Other tools
 - a- Competitions
 - b- Exhibitions and fairs
 - c- Festivals, merriments
 - d- Conferences, seminars, symposiums ve panels
 - e- Business trips
 - f- Opening, anniversary, hospitality ceremonies
 - g- Photographs
 - h- Sponsorship
 - i- Lobbying

2.1. The Place of Promotion and Public Relations in Tourism

The concept of promotion can be defined as the whole of the activities of enlightenment, information, image creation and public opinion creation after effective use of methods, techniques and information such as communication, telecommunication, information, public relations, advertising and lobbying activities in target markets in tourism (Karasu 1990: 32). Tourism promotion is to provide information on the products of a tourist region in order to attract people's attention, to create an image by making suggestions, to create a sense of closeness and acceptance among the masses and to direct them to purchase goods and services.

Public relations play an extremely important role in creating images and communicating in touristic destinations in order to attract tourists to tourism businesses. At the same time, it is all the tools and techniques used for psychological, social, economic and cultural interests that are made to facilitate the purchase of tourist services and goods. The aim here is to attract larger audiences by creating positive ideas about the tourist product in people's minds. Therefore, it is necessary to provide information to people (Rızaoğlu, 2004: 73; Şahbaz & Keskin, 2012; Santoso & Negoro, 2019). The promotion of Turkish culture abroad is important not only for the development of social and political dignity, but also for the development of tourism. Because now tourists are not only attracted by the message of sand, sea, sun. Therefore, all of the activities used to inform potential customers about the existence, places, quality and some features of the elements such as cultural, natural, historical and archaeological values that make up the tourist potential of a country, as well as tourism enterprises using different promotional techniques and creating a good impression and image on them can be called "tourist promotion (Asna, 1998, 211).

One of the most effective methods of promoting tourist products and creating a positive image is public relations. Public relations is very important and dominant activity in the communication and promotion activities of tourism businesses (Huertas, 2008: 406). Public relations activities are a set of activities that are effective in the development of tourism. Public relations is called the work that a tourist enterprise does to regulate and improve its relations with its surroundings. Tourism destinations do these studies in order to influence the target audiences, to ensure the adoption of certain attitudes and behaviours, and to create a positive image (L'Etang et al., 2006: 69; Hacıoğlu, 2014; Tanyeri, 2015: 152; Aymankuy et al., 2019;). There are many methods of public relations work. One of the most effective techniques that has been tried so far in the promotion of tourism products is public relations. The tools used in public relations are press relations, special events, word of mouth, sales development, advertising, propaganda and lobbying. In order to ensure the effective use of public relations in the promotion of tourism, it is necessary to pay attention to the following points (Rızaoğlu, 2004; Aknar, 2009; Tan & Sürme, 2020):

- The tendencies, desires, and tastes of different groups of tourist products should be determined in advance.
- Due to the fact that tourist products appeal to different consumer groups in international markets, public relations activities should be carried out in a way that is accessible to different consumer groups

- It should not be ignored that tour planners and tour practitioners fully use the rules of public relations in their relations with consumers.

The organizational structure of the public relations departments that will be created in tourism enterprises; the ways of management of enterprises, their size, the dimensions of the relations they establish with the environment differ depending on the need of the management department for public relations. It is difficult to create a similar model of a public relations department in all enterprises. There may be differences in the organizational structure of the public relations department, as well as differences in the number of employees in the department. Due to the size of the enterprise, this department should be subordinate to the top management in the event that public relations activities are carried out by a different department. The place of public relations in the organization is at the upper level (Gökçe et al., 2001:78; Peltekoğlu, 2004:60). While the public relations department has never been established in some tourism enterprises in Turkey, it is established as so-called department in some enterprises and is not given sufficient authority and responsibility. In some enterprises, on the other hand, while they are in the organizational chart, there are not enough personnel or people who are not experts in their field are employed in this position. Regardless of the size, all tourism enterprises should pay attention to public relations in order not to be adversely affected by the rapidly changing business environment ((Tengilimoğlu & Öztürk, 2004:83; Tarhan, 2007; Geçikli, 2013: 68; Örüçü, 2013: 452; Uyar et al., 2020).

Tourism promotion is dimensionally divided into domestic promotion and international promotion. Regardless of its size and scale, promotion is all kinds of arrangements that is used by public relations and information services to create a good image nationally and socially. Promotional activities for regional and national purposes are included in the “domestic promotion”, while international promotional activities are included in the scope of “international promotion”. In order not to shake the trust of tourists in both domestic promotion and international promotion activities, the most important thing to pay attention to is the promotion of tourist goods and services that will be offered to tourists in a way that is not true. Domestic and international promotion is generally defined as follows (Eralp, 1978: 55; Sarı, 2010, Bülbül, 2000: 9; Şahbaz & Keskin, 2012):

Domestic promotion: While their participation in tourism activities at the borders of the country for citizens of the country is called “domestic tourism (Kozak & Akoğlu, 2006) promotional activities carried out within the country on a regional, regional and business basis are called “domestic promotion. It means efforts involving methods and tools used to inform domestic tourists of goods and services available in an area, to emphasize the quality of goods and services, and to create an image. At the beginning

of these studies, the analysis of the domestic promotion environment is being carried out. Opportunities, advantages and weaknesses created by the domestic environment should be revealed. Promotional events for the development of domestic tourism are usually held aimed at product marketing. In this process, care should be taken to reflect the products of tourist areas as well as the social and cultural motifs of the region. In this context, in addition to months of intensive product advertising and advertisements in print media, the distinctive features of the regions where these products are located, tourism facilities and the way of life should also be included. Therefore, in order to develop domestic tourism activities that have significant benefits, it is necessary to pay attention to domestic promotion activities.

International Promotion: International promotion is a promotion closely related to the development of international tourism in countries. The target audience for international promotion are people who live outside the territory of the country and tend to come to the country. The international promotional activities to be carried out are effective in increasing the awareness of the countries in the eyes of foreigners. The growth in international tourism every year leads developing countries to foreign tourism and therefore to international promotion. Countries produce some national promotional policies in order to gain a share of international tourism markets and to develop the tourism sector. Domestic tourists are considered an indispensable element of the tourism sector in many countries of Europe. In Spain, a significant part of the hotel rooms are reserved for its own citizens. In France, 65% of tourist trips and 47% of domestic trips in Germany belongs to the domestic market. The vast majority (75%) of trips in Italy are made domestically. Two-thirds of the income from tourism in France consists of domestic tourism. Both the economic benefits and the cultural and social effects of tourism are also very important. Domestic tourism is a form of tourism that helps people participating in tourism to learn the natural and cultural values of their country and has a high social benefit (Kuşluvan, 2002: 3). The opportunity to spend holidays, which is the most natural right of people to live humanely, when it manifests itself as domestic tourism, helps people to spend their time other than working hours with rest, as well as to get to know their environment and country better, to realize deeper national unity and to achieve national solidarity. With domestic tourism, tourists get acquainted with the differences in customs, traditions and dialect of citizens living in different geographical areas within the borders of the country, and in time they find the opportunity to understand and get closer with different groups (Özdemir, 1999: 160; Güzel, 2011:130-131).

Looking at the development process of tourism related to this issue in

Turkey, it can be seen that the efforts made by both the public and private sectors are mostly aimed at international tourism. In the same way, tourism investments have generally been made for foreign demand in the past years. To date, domestic tourism in Turkey has been seen as a lifeline when there are problems with foreign tourism and a saviour in times of crisis. However, the underdevelopment of domestic tourism continues to negatively affect Turkey. When the related literature is examined, it is concluded that there are not many studies on promotion and public relations activities related to domestic tourism in tourism enterprises in Turkey. Some of the studies conducted for domestic tourism or domestic tourism enterprises in Turkey are as follows; Gökdeniz et al. (2009) they conducted a study to determine the current situation regarding the supply and demand of the Ayvalik region, which is an important attraction for domestic tourism. With the help of a survey study, they concluded that there are service quality problems in enterprises. Güzel (2011) "*Internal tourism market analysis in Turkey and alternative tourism opportunities aimed at revitalizing the internal market*" has been conducted. İlhan & Yılmaz (2002) a research has been conducted on the place and importance of student tours in increasing the demand for domestic tourism in Cappadocia. Kervankiran et al. (2018) conducted a study on the study of domestic tourism movements in Turkey using social network analysis, and Arat & Uygün (2018) conducted "*a study on the role and importance of public relations in hotel enterprises (a study in Konya)*". There are not many studies on the place of public relations activities in domestic tourism promotion in travel agencies.

3. MATERIAL AND METHOD

The place of public relations activities aimed at domestic tourism in tourism enterprises in the promotion was investigated on the example of travel agencies located in Mersin. The obtained data will be analyzed and evaluated in line with the determined purposes.

3.1. Purpose and Importance of the Research

The development of different tourism regions located in countries depends on the increase in the number of foreign tourists arriving, as well as on the development of domestic tourism. However, Turkey is not developing at the desired level in terms of domestic tourism and although it has very different tourism attractions in very different regions, the added value created by tourism cannot be spread throughout the country. When people visit a tourist area, they should first be aware of the existence and possibilities of that area. In order to increase the demand for tourism to the country or region, attention should be paid primarily to promotion, public relations and image creation. The development of tourism in a region also depends on the presence of tourism enterprises. Travel

agencies are “commercial organizations that are authorized to provide tourism-related information to tourists for profit, create package tours and tours, view accommodation, transportation, sightseeing, sports and entertainment services for tourism purposes, and market the product they create through their own or other travel agencies” (www.mevzuat.gov.tr, 1972). The duties of travel agencies also include information, promotion and public relations activities.

Mersin is located in the east of the Mediterranean Sea in the south of Turkey and is one of the main attractions of domestic tourism, mainly in terms of sand, sun, sea tourism, although it has many historical, natural, cultural attractions. Occupancy rates of accommodation facilities have reached 100% with the removal of bans even during the pandemic period. However, the tourist season is limited to only three or four months, in other months the majority of the facilities are closed or are operating at low capacity (<https://www.haberturk.com>, 2021; <https://www.yatirimadestek.gov.tr/>, 2021; <https://mersin.ktb.gov.tr/2020>). Based on this, in the study conducted on travel agencies, it will be aimed to determine whether there are public relations departments in travel agencies located in the city center of Mersin, their level of use of public relations activities, the methods of public relations they use and their perspectives on the promotion of tourism.

In the relevant literature, the study is important due to the fact that there has never been a study in Turkey specifically for domestic promotion in the context of travel agencies. For this reason, it is thought that the study will be a guiding feature for the studies to be carried out in the coming periods and for the authorities of tourism enterprises.

In the research, a literature study was conducted as a priority; a 22-question questionnaire form prepared by Sarı (2010) according to a closed-ended, multiple-choice and 5-point likert scale was used to provide data. September June 2021, it was tried to contact the authorities of travel agencies operating as travel agencies located in the centre of Mersin in June-September 2021(some agencies are mainly engaged in transportation). Travel agencies have been visited one by one and surveys have been made face to face. The questionnaires were conducted face-to-face or using the leave-to-collect method. Some of the officials of travel agencies could not be reached (It was learned that there were only lower-level employees in the agencies because their jobs were low during the pandemic period) Some of them did not want to be interviewed, and some of them did not do the surveys for different reasons. In total, thirty-seven travel agency officials have been reached.

3.2. Findings and Evaluation

Table 1: Findings regarding the demographic characteristics of the participants

Age	f	%	Cinsiyet	f	%
20 years old and under	-	-	Male	27	72.9
Between 21-30 years old	27	72.9	Female	10	27.1
Between 31-40 years old	5	13.5	Total	37	100
Between 41-50 years old	5	13.5	Duty	f	%
51 years old and over	-	-	General Manager	9	24.3
Total	37	100	Tour operations Executive	9	24.3
Educational Status	f	%	Enterprise Owner	9	24.3
High School	8	21.6	Operation Staff	6	16.2
Vocational School	17	45.9	Operation manager	2	5.4
College /Faculty	12	32.4	Sales Assistant	2	5.4
Total	37	100	Total	37	100

According to Table 1, the majority of the participants are between the ages of 21 and 30, (72.9%), male (72.9%), and graduates of vocational schools and colleges/faculties (78.3%). In addition, the vast majority of the participants consist of the general manager (24.3%), tour operations manager (24.3%) and business owners (24.3%). there are no participants aged under 20 years old and under and 51 years and over.

Table 2: Findings for travel agencies

Duration of Agency activity	f	%	Does your agency have branches?	f	%
0-4 years	8	22	No	20	54
5-9 years	13	35	Yes	17	46
10-14 years	7	19	Total	37	100
15-19 years	6	16			
20 years and over	3	8			
Total	37	100			

According to Table two, the vast majority of travel agencies (57%) have been operating for less than 9 years. 35% of travel agencies have been operating for 10 to 19 years. Only 8% of travel agencies have been operating for 20 years and over.

Table 3: Findings for the department of public relations

Does your agency have a Public Relations department/unit?	f	%	Graduation Status of public relations personnel	f	%
No	31	84	University	6	6
Yes	6	16	Total	6	100
Total	37	100	The experience of public relations personnel	f	%

Number of people working in the public relations department	f	%	5 years and over	6	6
1 person	4	66	Total	6	100
3 people	1	17	The unit to which the public relations department is connected in the organizational chart	f	%
5 people	1	17	General Manager	2	33.3
Total	6	100	Operation Manager	2	33.3
			Enterprise Manager	2	33.3
			Total	6	100

According to Table 3, 84% of travel agencies do not have a public relations department. Of the 6 travel agencies that have a public relations unit/department, 4 (four) have 1 (one) employee (66%), while one has 3 (17%) and one has 5 people (17%). All employees (100%) are university graduates and have more than 5 (five) years of experience. In 6 (six) travel agencies with a public relations department, the public relations department is subordinate to the general manager (2 people - 33.3%), the operations manager (2 people -33.3%) and the business owner (2 people -33.3%).

Table 4: *Findings related to domestic promotion*

* What techniques do you most often use when Conducting Promotional Activities in your Agency? (More than one option is marked)	f	%
Advertisement	32	39.5
Communication	23	28.3
Sponsorship	16	19.7
Public relations (P.R.)	5	6.1
Propaganda	3	3.7
Lobbying	1	1.2
Information	1	1.2
Total	81	100
* What written communication tools do you use to convey your messages to the public in the public relations activities that you promote in the country?	f	%
Poster	26	30.6
E - mail	25	29.4
Brochures	22	25.8
Magazines	5	5.8
Handbook	5	5.8
National Newspapers	2	2.3
Bulletins	-	-
Letters	-	-
Total	85	100
* What oral communication tools do you use to convey your messages to the public in the public relations activities that you promote in the country?	f	%

Face to face conversation	26	36.6
Telephone conversation	25	35.2
Conferences and seminars	10	14
Meetings	7	9.8
Press Meetings	3	4.2
Total	71	100
* What are the audio-visual communication tools that you use to convey your messages to the public in the public relations activities that you promote in the country?	f	%
Social Events	33	60
Video	11	20
Television	9	16
Radio	2	4
Cinema	-	-
Total	55	100
* What are the technological communication tools that you use to convey your messages to the public in the public relations activities that you promote in the country?	f	%
Internet and Web	36	83.7
Promotion CDs	4	9.3
Fax	2	4.6
Satellite Communication	1	2.3
Teletext and videotext	-	-
Total	43	100
* Indicate the method of public relations that you use to collect information and keep the pulse of the public	f	%
Face to face conversation	27	40.9
Questionnaire	16	24.2
To make examples using observations	10	15.1
Using survey and interview methods together	9	13.6
Using research institutions	3	4.5
Sending question and answer letters	1	1.5
Total	66	100
* more than one option is marked		

According to Table 4, the majority of the participants mostly use advertising (39.5%), communication (28.3%) and sponsorship (19.7%) techniques while doing promotional activities.

According to Table 4, in order to convey the messages to the public in the public relations activities of the participants; posters (30.6%), e-mails (29.4%) and brochures (25.8%) are mostly used among written communication tools, mostly use face-to-face interviews (36.6%) and telephone conversations (35.2%) among verbal communication tools, mostly social events (60%), video (20%), television (16%) are used among audio-visual communication tools, mostly internet and web (83.7%) are used among technological communication tools.

In addition, participants mostly use “face-to-face interview” (54.9%), “conducting a survey” (24.2%) and “conducting samples using observations” (15.1%) methods to get information from the public.

Table 5: Findings regarding the availability and promotion of the website

Does your agency have a website?	f	%
Yes	34	92
No	3	8
Total	37	100
What is your opinion on the impact of websites and the Internet on promotion?	f	%
Very good	21	57
Good	12	32
No idea	4	11
Total	37	100

According to Table 5, it is concluded that the vast majority of travel agencies (92%) have a web page, and the vast majority of respondents (89%) perceive the effects of the Internet on promotion as very good and good.

Table 6: Findings regarding fair participation

Do you participate in tourism fairs?	f	%
Yes	34	92
No	3	8
Total	37	100
How often do you participate?	f	%
Once a year	26	70.2
Twice a year	6	16.2
Three times a year	2	5.4
Five times a year and over	2	5.4
Four times a year	1	2.7
Total	37	100

According to Table 6, the vast majority of participants (92%) participate in fairs for the purpose of promotion. Majority of the participants attend fairs “once a year” (70.2%).

Table 7: Findings on Published brochures and catalogue topics

* Which topic is most often included in the brochures and catalogues published by your agency?	f	%
Hotels	22	30.1
Environment, sea	19	26
Historical artifacts	16	21.9
Turkish culture	12	16.4
Ticket (hotel, plane)	2	2.7
Health	1	1.4
Transportation	1	1.4
Total	73	100
* More than one option is marked		

According to Table 7, the participants mostly include the subjects of hotels” (30.1%), “nature-sea” (26%), “historical monuments” (21.9%) and “Turkish Culture” (16.4%) in their brochures and catalogues.

Table 8: Findings on the use of guides in promotion

Do you think that agency officials can effectively use the guides in terms of collecting and providing information?	f	%
Yes	30	81
No	7	19
Total	37	100

According to Table 8, the vast majority of travel agencies (81%) use guides effectively in terms of collecting and providing information.

Table 9: Findings on the image of Turkey and the working perceptions of travel agencies for domestic promotion

Very Good → Very Bad	Very Good		Good		No Idea		Bad		Very Bad		TOTAL	
	f	%	f	%	f	%	f	%	f	%	f	%
What are your thoughts on the image of Turkey in the eyes of its own citizens as tourism professional?	2	5.4	16	43.2	6	16.2	13	35.1	-	-	37	100
As a tourism Professional, what are your thoughts on the work done by agencies on domestic promotion for tourist purposes?	3	8.1	21	56.7	5	13.5	6	16.2	2	5.4	37	100

According to Table 9, it was found that the vast majority of respondents (48.6%) have the perception that the image of Turkey in the eyes of its own citizens is very good and good. In addition, according to Table 9, it was found that the vast majority of respondents (64.8%) have a very good and good perception of travel agencies in their promotional activities for domestic tourism.

Table 10: Findings on problems in the promotion of domestic tourism

* What do you see as a problem in the promotion of domestic tourism in Turkey?	f	%
Insufficiency of local authorities	29	29.3
Tourism enterprises' ignoring the promotion to tourists and considering only as a profit tool.	27	27.2
The fact that tourism enterprises do not give sufficient importance to promotional activities	16	16.1
Misrepresentation policies	15	15.1
Insufficient staff working in the field of promotion	12	12.1
Total	99	100
* More than one option is marked		

According to Table 10, participants mostly point to “incompetence of local governments (29.3%)”, “tourism businesses ignore the promotion of tourists and see them only as a profit tool” (27.2%) as a problem in promoting domestic tourism.

4. CONCLUSION

According to Table 1, the majority of the participants are young male college graduates, the majority of the agencies have been operating for less than ten years (57%) and the majority (84%) do not have a public relations department/department, while those who have experienced their employees and are university graduates have been concluded that they are young male graduates of colleges / faculties. In addition, it is concluded that among the techniques used in promotional activities, the most advertising (39.5%), communication (28.3%) and sponsorship (19.7%) options are marked, and the marking rate of public relations options is only 6% among the answers given. The vast majority of participants participate in fairs and use guides for promotional purposes, and in their brochures and catalogues they mostly promote hotels, nature-sea and historical artifacts.

Based on the findings obtained, it is concluded that the most importance is given to advertising for promotional purposes in travel agencies located in Mersin. At the same time, in the research conducted it was concluded that posters, e-mail and brochures are most often used as written communication tools in the transmission of public relations messages made for promotional purposes by travel agencies located in Mersin to the public, bulletins and letters are not preferred at all, the most common means of verbal communication are face-to-face conversations and telephone conversations, the most common means of audio-visual communication are social events, video and television (movie option has never been chosen), and of the technological communication tools, the Internet and the web are the most used . In addition, when the methods of public relations used to obtain information from the public were examined, according to table 4, it was found that the participants marked the most; “face-to-face interview” (40.9%), “conducting a survey” (24.2%) and “conducting samples using observations” (15.1%) options. In addition, in the study, it was concluded that the vast majority of travel agencies (92%) have a web page and 89% of managers have a perception that the Internet has a positive impact on promotion. It is thought that the travel agencies located in Mersin centre used communication techniques and technology efficiently during the period we were in, and also used scientific techniques such as the survey method to get information, but they paid more attention to advertising and did not have enough information about the importance of the public relations department or its activities, and they did not give sufficient importance to the public relations department and

its activities. According to Table 9, it was concluded that the vast majority of respondents (48.6%) have the perception that the image of Turkey in the eyes of its citizens is very good and good, the vast majority of respondents (64.8%) have a very good and good perception of travel agencies in their promotional activities for domestic tourism but they have also reached the conclusions that “domestic tourism is not sufficiently developed due to the inadequacy of local governments in the promotion of ”domestic tourism (29.3%)“, ”tourism enterprises ignore the promotion of tourists and consider them as a profit tool” (27.2%).

The target audience of public relations in public enterprises, the work is non-stop, the results are received in the long term, direct messages are given, businesses are introduced more than the product, the message is usually published for free in press outlets, increasing the prestige of the institution in the public eye, maintaining this situation with the trust and support of the public is the main goal. Advertising, on the other hand, is aimed at spreading an idea or increasing the sale of a product. Advertising activities are carried out periodically and intermittently, whether the target is customers or potential customers. The results are short-term. Time is purchased from the media for a fee, and the promotion of the services or goods produced is carried out, rather than the promotion of the enterprise. Public relations are an obligation for the profitability and continuity of enterprises in the long term (Erdem, 2018).

It is thought that agency officials should be made aware of the issue of public relations by providing trainings to travel business officials through the competent authorities or universities, and even that the opening of this unit should be mandatory by the authorized departments. The officials of the travel agencies are also recommended to determine the potential demands and expectations of tourists who is travelling and will travel the within the country, to conduct activities of exhibitions, fairs, artistic activities, sports activities, festivals for the elderly, the disabled, etc. in places where the historical monuments, cultural values and tourist attractions of the region are located, to inform the public, target audience and potential customers about the enterprise and the region through promotional trips and press releases and to bring the enterprise and tourist products and the region to the forefront by inviting local and national television channels and filmmakers located in nearby regions to participate in these activities in order to facilitate the easy access of potential domestic tourism customers and to ensure the continuity of these activities.

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CHAPTER 14

A MULTI-CRITERIA DECISION MAKING APPROACH FOR EVALUATING ENVIRONMENTAL PERFORMANCES OF OECD COUNTRIES

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1. Introduction

The most important issues for providing a sustainable development and growth are economic, social and environmental factors. In recent years, especially with the issue of climate change, the need for countries to take action has increased, and many studies and conferences (e.g. United Nations Climate Change Conference) have been carried out to increase environmental awareness. In this context, various projects and solution proposals are developed and agreements are assigned between countries and also the concepts such as environmental performance, waste management, green supply chain management and sustainability come to the fore. The main purpose of all these practices arises from the requirement to leave a livable habitat for future generations while providing a sustainable economic growth. In particular, the Covid-19 epidemic that the world faced recently, has shown how important the decisions to be taken for both the environment and health are.

Due to the increase in mass production, natural resources and raw materials have been spent on industrial production in an unplanned manner, and the wastes arising from this production have caused environmental pollution and damage to nature. Especially, strong economic growth in emerging market economies (EMEs) provided people to progress, but also caused environmental damage and resource depletion. This situation creates risk for future prosperity as EMEs are more dependent on natural resources and defenseless for climate change. EMEs, including Turkey are also a critical for reaching global environmental objectives, such as reducing gas emissions and slowing biodiversity loss (Capozza and Samson, 2019: 8)

The demand for the protection of the environment and natural resources, which has become undeniable, has pushed countries and governments to develop various policies for efficient use of resources, protecting ecological balance, reducing environmental pollution and greenhouse gas emissions. While implementing these policies, making improvements by conducting performance measurements plays an important role in achieving success. In addition, since these problems occur not only at the level of a country, but also on a global scale, it is important to make measurements at a global level. In this way, the precautions to be taken will be at a global level and cooperation between countries will be provided.

Some indices have been developed by some institutions and countries to evaluate and improve environmental performance. Some of these are the Environmental Sustainability Index (ESI) developed by the Yale Center for Environmental Law and Policy, Environmental Indicators and Green Growth Indicators by the OECD (Organization for Economic Co-operation and Development), EEA Indicators developed by European Environment

Agency (EEA) and Environmental Performance Index (EPI) introduced in partnership with Yale and Columbia Universities. These indices are published at certain time intervals and they make evaluations in countries by taking into account many environmental factors. In this framework, it is clear that countries should make regular assessments in order to reduce environmental damage and achieve a sustainable planned development. Studies on this subject will also be effective in drawing a path for the future.

In this study, it is aimed to evaluate the environmental performances of OECD countries by MCDM (Multi-criteria decision making) methods. MCDM perspective, has gained attention as being a useful tool for solving complex decision problems and real cases while evaluating various alternatives and criteria. For this purpose, Entropy based WASPAS (“Weighted Aggregated Sum Product Assessment”) methodology is used and EPI tool is taken into account while measuring the environmental performances. With this perspective it is objected to produce more scientific and accurate method and offer a different evaluation strategy in spotting current issues. Next parts of the study are organized as follows. In the second part the literature research about environmental performance studies is presented, then Entropy-WASPAS methodology is given in the third part. Application steps of the evaluation in OECD countries are defined in the fourth part and lastly the conclusion of the study and future suggestions are introduced.

2. Literature Research

In the current literature on measuring environmental performance, some studies have been carried out in which various performance factors are evaluated in various sectors and different assessment methods such as MCDM, statistical and mathematical models are used. Some of these papers consisting a quantitative evaluation model on environmental performance are summarized as follows.

Hermann et al. (2007), developed an analytical model combining life cycle assessment and AHP (“Analytic Hierarchy Process”) one of the MCDM method for assessing the environmental performance. An illustrative application on pulp production in Thailand is conducted by using EPI tool.

Djoundourian (2012), examined the environmental performances of developing countries comparatively and searched the differences between regions consist of 138 countries with the ANOVA test. As a result of the analysis, it is concluded that environmental performance varies according to the regions.

Ismail et al. (2013), evaluated the environmental performance and economic efficiency in the petroleum industry. They used DEA to measure

technical efficiency and correlation analyses and the results indicated a weak positive relation between economic and technical efficiency.

Ab-Rahim (2014), measured environmental performances of the ASEAN (Association of Southeast Asian Nations) countries by using DEA (“Data Envelopment Analysis”). According to the obtained results smaller economies are found more efficient in environmental issues.

Hourneaux Jr. et al. (2014), aimed to examine using EPI in industrial companies and to evaluate the differences in use of the environmental indicators regarding to the size and characteristics of the companies. A survey is conducted in 149 companies in Brazil and the results showed EPI use is linked to direct costs and there are differences between small and large companies.

Garcia-Sanchez et al. (2015), proposed a CIEP (Composite Index of Environmental Performance) model including 19 indicators based on 5 dimensions. In the application covering 152 countries, CRITIC method is used for criteria weighting and additive weighting method is employed to obtain the ranking of the countries. In addition correlation analysis are conducted between dimensions. Iceland, Norway and Sweden are found as the best performing countries within this index.

Zadeh and Kazemi (2016), evaluated environmental performance of a pipe production company with an environmental management system. Fuzzy AHP method is used to weight the criteria and IPA (Importance Performance Analytical) model is used to measure the performance. Implementation and operation criteria is found as the most important.

Guo et al. (2017), assessed the environmental performances of 109 cities in China by using DEA approach. With respect to the results, in most cities environmental performance is high but managerial performance is low, and the scale efficiency is better in big cities.

Wu et al. (2019), introduced an evaluation model for evaluating environmental performance of TFT-LCD manufacturers in Taiwan by utilizing MCDM methods. They used DEMATEL method to generate a cause and effect relationship among criteria and integrated it with ANP (“Analytic Network Process”) approach. Then the Grey Relational Analysis is performed to rank the companies’ performances.

Liu et al. (2021), combines the Best Worst method with D numbers to evaluate the environmental performances of 30 provincial regions in China. In addition they developed a linear model to attain criteria weights. According to the results western region has better environment quality.

Wang et al. (2021), aimed to evaluate the effect of globalization on environmental performances of 148 countries by using EPI indicators.

They performed panel data and used KOF index to find multi dimensions of globalization. Results of the study indicated that increase of globalization is beneficial for increasing the environmental performance.

The existing literature shows that quantitative models are applied from different perspectives and considering different dimensions on the evaluation of environmental performances. The few of them included MCDM methods combining with the EPI framework. In this study, a combination of MCDM method and EPI tool is presented to evaluate environmental performance by using Entropy based WASPAS approach. This study makes a contribution to the literature in terms of evaluating the environmental performances of OECD countries with a methodology not used in this field.

3. Methodology

In the methodology section, Entropy method used for obtaining the importance weights of the criteria and WASPAS method used for ranking the performances of the countries are defined.

3.1. Entropy Method

The Entropy notion, introduced by Shannon and Weaver (1947), was developed for measuring the vagueness in knowledge by using probability theory (Shemshadi, 2011: 12161). The entropy weight identifies beneficial information of the evaluation criteria (Li et al., 2011: 2087). The method of Entropy used to solve MCDM problems, provides an objective weighting while obtaining the importances of evaluation criteria in the decision matrix (Wu and Lin, 2012: 1335). The steps of Entropy method are explained as follows (Shemshadi et al., 2011; Ghorbani et al., 2012):

Step 1: Generating the decision matrix with x_{ij} values for m alternatives and n criteria.

$$X = \begin{bmatrix} x_{11} & x_{12} & \dots & x_{1n} \\ x_{21} & x_{22} & \dots & x_{2n} \\ \vdots & \vdots & \dots & \vdots \\ x_{m1} & x_{m2} & \dots & x_{mn} \end{bmatrix} \quad i=1, 2, \dots, m; j=1, 2, \dots, n \quad (1)$$

Step 2: Normalizing the x_{ij} values by using the following formula.

$$p_{ij} = x_{ij} / \sum_{i=1}^m x_{ij} \quad (2)$$

Step 3: Calculating the entropy values (e_j)

$$e_j = -k \sum_{i=1}^m p_{ij} \cdot \ln(p_{ij}) \quad (3)$$

where k is a constant coefficient meets $0 \leq e_j \leq 1$ and obtained as $k=1/\ln(m)$.

Step 4: Attaining the degree of difference for criteria

$$d_j = 1 - e_j \quad (4)$$

Here, the higher the d_j values refers to the higher importance of the criterion.

Step 5: Obtaining the final entropy weights

$$w_j = d_j / \sum_{j=1}^n d_j \quad (5)$$

In Entropy method, after the decision matrix is created, zero and negative values need to be transformed in order to continue the calculations. For this reason, the improved Entropy model proposed by Zhang et al. (2014) is used in this paper. In this method, the values in the decision matrix are first converted to z-scores (standard scores) by using the Equation (6) below.

$$Z_{ij} = \frac{x_{ij} - \bar{x}_j}{\sigma_j} \quad (6)$$

Then, in order to provide the values to be positive the transformation shown in Equation (7) is used.

$$x'_{ij} = z_{ij} + A, \quad A > |\min(z_{ij})| \quad (7)$$

3.2. WASPAS Method

The WASPAS method is a newly-introduced technique in decision making problems and uses a combination of two common MCDM context which are weighted sum model (WSM) and weighted product model (WPM) (Chakraborty et al., 2015: 6). The method provides the evaluation of alternatives by integrating the results of both models and the implementation steps are expressed as follows (Zavadskas et al., 2012; Chakraborty et al., 2015; Stanujkic and Karabesevic, 2018).

Step 1: Forming the decision matrix where x_{ij} denotes the performance rating of i . alternative regarding to j . criterion

$$X = [x_{ij}]_{m \times n} \quad i=1, 2, \dots, m; \quad j=1, 2, \dots, n \quad (8)$$

Step 2: Normalization of the decision matrix values depending on the benefit or cost feature of the criteria by using following formulas.

$$\bar{x}_{ij} = \frac{x_{ij}}{\max_i x_{ij}} \quad (\text{beneficial criteria}) \quad (9)$$

$$\bar{x}_{ij} = \frac{\min_i x_{ij}}{x_{ij}} \quad (\text{cost criteria}) \quad (10)$$

Step 3: Calculating the relative importance weight of the alternatives with respect to WSM

$$Q_i^1 = \sum_{j=1}^n \bar{x}_{ij} w_j \quad (11)$$

where w_j represents the criteria weights.

Step 4: Calculating the relative importance weight of the alternatives with respect to WPM

$$Q_i^2 = \prod_{j=1}^n (\bar{x}_{ij})^{w_j} \quad (12)$$

Step 5: Obtaining the total aggregated importance weights by combining WSM and WPM methods equally as follows.

$$Q_i = 0.5 Q_i^1 + 0.5 Q_i^2 \quad (13)$$

In this step, a more general solution can be obtained by changing the contributions of the WSM and WPM methods to reach a more precise and effective ranking. When the value of λ is 0, in the formula below, WASPAS method becomes WPM, and when λ is 1, it transforms to WSM method (Zavadskas et al., 2015).

$$Q_i = \lambda Q_i^1 + (1 - \lambda) Q_i^2 \quad (14)$$

Finally, the alternative with the highest value of Q_i selected as the best option.

4. Application: Evaluating Environmental Performances of OECD Countries

It is known that OECD countries, including Turkey, are the most influential countries in the world in terms of economics and environmental issues. In this context, research and evaluations made on these countries also have a very important place. This study evaluates the environmental performances of OECD countries by using MCDM perspective according to the EPI concept. The application framework is presented by identifying the following paces.

4.1. Data Collection and Criteria Definition

EPI, which is an effective method to measure the environmental performance of the countries, conducts comprehensive evaluations at regular intervals (generally one in two years) to improve and update the recent developments about spotting environmental problems. EPI supplies a data-driven global metrics of the sustainability all around the world. The EPI ranks 180 countries using 32 performance indicators across

11 issue categories according to the objectives on environmental health and ecosystem vitality. Also it supports meeting the targets of United Nations Sustainable Development Goals (Wendling et al. EPI, 2020). In this application, the recent data of the EPI (2020) is used to measure the environmental performances of the countries and 11 issue categories are defined as the decision criteria of the problem. The total scores of these 11 criteria (coded as C1, C2,..., C11) with respect to their indicators are collected to be calculated in the solution process. The detailed framework of the EPI is presented in Table 1.

Table 1: Environmental Performance Index (EPI)

Objectives	Criteria (Categories)	Indicators
Environmental Health	Air Quality (C1)	Household solid fuels PM _{2.5} exposure Ozone exposure
	Sanitation & Drinking Water (C2)	Unsafe sanitation Unsafe drinking water
	Heavy Metals (C3)	Lead exposure
	Waste Management (C4)	Controlled solid waste
Ecosystem Vitality	Biodiversity & Habitat (C5)	Terrestrial biomes protection (national) Terrestrial biomes protection (global) Marine protected areas Protected areas representativeness index Species habitat index Species protection index Biodiversity habitat index
		Tree cover loss Grassland loss Wetland loss
	Fisheries (C7)	Fish stock status Marine trophic index Fish caught by trawling
		CO ₂ growth rate CH ₄ growth rate F-gas growth rate N ₂ O growth rate Black carbon growth rate CO ₂ from land cover Greenhouse gas intensity growth rate Greenhouse gas emissions per capita
	Pollution Emissions (C9)	SO ₂ growth rate NO _x growth rate
	Water Resources (C10)	Wastewater treatment
	Agriculture (C11)	Sustainable nitrogen management index

4.2. Weighting the Criteria with Entropy Method

Firstly, in order to calculate the criteria weights the scores of these criteria are embedded in the decision matrix shown in Table 2. Alternatives cover 36 OECD countries and decision criteria include 11 categories as mentioned before.

Table 2: The Decision Matrix

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11
Australia	98.2	87	77.2	77.3	83.7	27.9	3.4	70.4	90.3	49.2	92.7
Austria	81.3	94.7	91.7	97.2	85.5	35.6	0	71.3	100	68	94
Belgium	80.7	93.6	67.4	97.6	87.4	32.5	9	70.2	100	47.3	67.9
Canada	94.8	88	96.6	84.7	60.5	30.1	11	65.7	100	67.3	67.4
Chile	56.1	68.1	97.8	65.7	65.3	27.5	16.6	54.3	34.6	40.2	71.9
Czechia	58.8	76.4	76.4	89.5	85.7	26.7	0	76.3	100	58.7	60.8
Denmark	85.5	97.4	100	99.8	81.7	30.2	13.2	95	100	73	100
Estonia	80.3	61.9	87.4	74.4	87	22.4	16.4	59	96.6	51.8	69.6
Finland	98.8	100	100	97.7	75.5	20.8	12.8	77	93.1	52.4	100
France	88.1	96.2	84	94.8	88.3	36.1	12.1	81.9	100	65.2	88
Germany	81.1	99	90.7	97.9	88.8	39.7	14	71.5	96	61.9	97
Greece	67.5	98.2	69.4	83	72.6	43.9	15.7	66.5	78.9	52.6	81.7
Hungary	42.8	62.2	68.2	89.2	82	28.2	0	71.3	96.9	73.1	53.8
Iceland	98.1	100	96.1	84.8	63.2	100	10.1	60.8	44.4	18.5	15.6
Ireland	94	97.4	82.7	81.7	65.8	27.4	9.1	66.6	100	47.3	89.7
Israel	76.5	92.8	92.1	72.2	47.6	40.6	45.5	56.9	97.8	34.9	81.7
Italy	75.9	98.2	81.5	83.7	75.6	37.9	14.9	68.1	81.4	56.8	58.8
Japan	85.9	95	100	86.5	76.6	41.7	35.2	69.5	77.7	55.9	75.3
Latvia	54.8	59	78.4	61.4	86.7	21.4	7.3	67.7	94.8	62.8	90.7
Lithuania	62.7	58.3	83.9	87.8	87.5	24.6	14.5	65.9	96.6	64.1	51.4
Luxemburg	87.2	98.6	96.1	96.2	85.5	34.3	0	77.5	100	42.2	98.5
Mexico	40.8	52.8	45.7	74.3	32.5	12.8	0	65.2	71.4	38.8	31.6
Netherlands	82.4	100	95.1	100	83.7	42.8	13.1	65.8	100	40	100
New Zealand	97.4	80.4	75.5	68	84	28.2	5.4	61.5	87.4	57.5	79.9
Norway	97.9	100	94	97.6	71.5	32.1	9.8	78.9	99.2	39.3	64.3
Poland	44.7	71.7	65.3	91.1	89	27.1	8	65.4	89.6	57.4	60.9
Portugal	84.4	83.4	65.3	90.2	73	7.4	33.1	63.3	93.5	22.3	55
Slovakia	56.2	71.8	69.2	80.6	85	32.1	0	71.9	100	68.8	43.7
Slovenia	60.9	74.4	88.1	83.8	86.4	37.1	0	75.2	90	47	89.1
South Korea	71.7	90.7	89.4	96.7	62.6	32.2	12.6	62.6	100	51.7	76.8
Spain	80.2	96.8	71.3	89	87.6	24.4	17.9	71.2	100	36.2	91.5
Sweden	98.2	98.5	98	99.8	72.5	22.4	11.6	77.2	100	63.6	100
Switzerland	90.6	100	95	99	63	46.4	0	81.6	100	47.6	96.7
Turkey	49.5	52.6	61.5	48.5	15.1	37.1	10.8	49.3	84	57.4	30.4
United Kingdom	84.7	100	94.6	92.9	88	28.3	8.8	90	100	54.3	88.5
USA	84.2	86.1	75.9	48.3	67.5	26.8	6.6	71.4	100	71.9	58.9

By following the steps of the improved entropy method, the decision matrix is normalized and criteria weights are calculated through equations (2-7). The entropy values and the weights of the criteria are given in Table 3.

Table 3: The Entropy Values and the Criteria Weights

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11
e_j	0.9901	0.9898	0.9898	0.9893	0.9875	0.9921	0.9916	0.9908	0.9858	0.9899	0.9898
w_j	0.0963	0.0984	0.0985	0.1038	0.1210	0.0763	0.0813	0.0891	0.1377	0.0975	0.0993

According to the w_j values, the most important criteria is found as C9 (Pollution Emissions) followed by C5 (Biodiversity & Habitat) and C4 (Waste Management) respectively. The least important one is acquired as C6 (Ecosystem services).

4.3. Ranking the Environmental Performances of OECD Countries with WASPAS Method

The calculation steps of the WASPAS method is carried out in order to rank the alternative countries according to their environmental performance scores. In this pace, the criteria weights obtained previously are used while carrying out the steps of the method. Using the decision matrix formed in the Entropy method. The WASPAS method calculations are realized via equations (9-13). After the normalization step. Q_i^1 , Q_i^2 and Q_i scores are obtained and the performance ranking is created. These results are shown in Table 4.

Table 4: Final Ranking Results of the OECD Countries

	Q_i^1	Q_i^2	Q_i	Rank
Australia	0.8269	0.6256	0.7262	18
Austria	0.8957	0.3570	0.6264	26
Belgium	0.8323	0.6737	0.7530	13
Canada	0.8430	0.6900	0.7665	11
Chile	0.6493	0.5257	0.5875	30
Czechia	0.7855	0.3066	0.5461	32
Denmark	0.9625	0.8032	0.8829	1
Estonia	0.7938	0.6520	0.7229	19
Finland	0.9057	0.7362	0.8210	8
France	0.9198	0.7703	0.8451	3
Germany	0.9217	0.7799	0.8508	2
Greece	0.7996	0.6809	0.7402	17
Hungary	0.7470	0.2874	0.5172	34
Iceland	0.7154	0.5192	0.6173	27

Ireland	0.8327	0.6716	0.7522	14
Israel	0.8243	0.6982	0.7612	12
Italy	0.8063	0.6800	0.7431	16
Japan	0.8859	0.7740	0.8300	5
Latvia	0.7676	0.5976	0.6826	23
Lithuania	0.7873	0.6402	0.7138	20
Luxemburg	0.8835	0.3489	0.6162	28
Mexico	0.5105	0.1896	0.3500	36
Netherlands	0.8982	0.7503	0.8242	6
New Zealand	0.7985	0.6248	0.7116	21
Norway	0.8539	0.6911	0.7725	10
Poland	0.7508	0.5928	0.6718	24
Portugal	0.7589	0.5742	0.6666	25
Slovakia	0.7577	0.2944	0.5260	33
Slovenia	0.7978	0.3174	0.5576	31
South Korea	0.8215	0.6801	0.7508	15
Spain	0.8494	0.6997	0.7746	9
Sweden	0.9235	0.7510	0.8372	4
Switzerland	0.8779	0.3515	0.6147	29
Turkey	0.5477	0.4130	0.4804	35
United Kingdom	0.9100	0.7371	0.8235	7
USA	0.7748	0.6045	0.6897	22

According to the environmental performance ranking attained by applying WASPAS method, Denmark, Germany, France, Sweden and Japan are the countries showed the best performances respectively. In addition, Hungary, Turkey and Mexico are the countries showed the worst performances within this framework.

4.4. Validation with other MCDM methods

In order to validate the ranking results obtained via proposed method in this study, other MCDM methods currently used in the literature are carried out for ranking the environmental performances of OECD countries. To this end, well-known MCDM ranking methods TOPSIS (“Technique for Order of Preference by Similarity to Ideal Solution”) and ARAS (“Additive Ratio Assessment”) are used and the conclusions are compared to see the possible differences. The results of the TOPSIS and ARAS applications are presented in Table 5.

Table 5: TOPSIS and ARAS Method Results

	TOPSIS	Rank _T	ARAS	Rank _A
Australia	0.4213	25	0.6204	23
Austria	0.4499	18	0.6651	11
Belgium	0.4473	21	0.6403	19
Canada	0.4545	16	0.6554	14
Chile	0.3816	34	0.5357	34
Czechia	0.3889	31	0.5771	30
Denmark	0.5249	4	0.7499	3
Estonia	0.4595	15	0.6285	22
Finland	0.4807	12	0.6983	8
France	0.5126	6	0.7188	5
Germany	0.5304	3	0.7281	4
Greece	0.4855	11	0.6503	16
Hungary	0.3826	33	0.5525	33
Iceland	0.4866	10	0.6151	25
Ireland	0.4384	24	0.6392	20
Israel	0.6381	2	0.7500	2
Italy	0.4677	14	0.6465	17
Japan	0.6438	1	0.7679	1
Latvia	0.4158	27	0.5855	29
Lithuania	0.4491	19	0.6200	24
Luxemburg	0.4385	23	0.6530	15
Mexico	0.1869	36	0.3715	36
Netherlands	0.5147	5	0.7080	7
New Zealand	0.4177	26	0.6068	26
Norway	0.4485	20	0.6575	13
Poland	0.4045	30	0.5765	31
Portugal	0.4954	7	0.6368	21
Slovakia	0.3870	32	0.5620	32
Slovenia	0.4089	28	0.5959	27
South Korea	0.4536	17	0.6439	18
Spain	0.4914	8	0.6727	10
Sweden	0.4868	9	0.7093	6
Switzerland	0.4451	22	0.6604	12
Turkey	0.3093	35	0.4510	35
United Kingdom	0.4761	13	0.6947	9
USA	0.4074	29	0.5927	28

When the results are examined, it is seen that the best performing countries are Japan, Israel, Germany, Denmark and Netherlands accor-

ding to the TOPSIS method. Besides, according to the ARAS ranking results Japan, Israel, Denmark, Germany and France again showed the best performances. Also, the worst performance rankings are realized by mostly the same countries. It can be interpreted that these results support each other with little differences and the validation of the methods appear to cover a large content.

5. Conclusion and Suggestions

The necessity of evaluating the environmental performance of institutions and countries has become an extremely important requirement considering the negative developments and the Covid-19 pandemic process continuing recently, as well as providing a sustainable habitat and prosperity for the next generations. Although there are many indices on sustainability and environmental performance in general, it is not possible to apply these indicators as a whole for every supply chain, every business and all countries. But it is a necessity to establish comprehensive systems for measuring environmental performance in a global scale and taking planned precautions for ensuring sustainability. There are comprehensive studies developed on this subject and one of them is EPI published regularly. The EPI scores indicate which countries are best performing in environmental challenges that every country encounter.

In this context, the main purpose of this study is to evaluate environmental performances of the OECD countries by using the perspective of MCDM. MCDM methods are effective solution tools in the presence of conflicting criteria and various alternatives and present feasible applications in decision problems. This paper, contributes the concept of EPI by using the integrated MCDM methodology including Entropy based WASPAS method. Also, the results are validated with other MCDM methods such as TOPSIS and ARAS approaches. If the overall rankings are analyzed they are appeared to support each other to a large extent. According to the result of the proposed Entropy-WASPAS method; Denmark, Germany, France, Sweden and Japan are seen as the best performing countries in terms of environmental health and vitality. When the EPI scores are analyzed only, without using any weighting and ranking method, it is noticed that Denmark, Switzerland, United Kingdom, France and Austria are placed in the front. On the other hand, Pollution Emissions, Biodiversity & Habitat and Waste Management criteria are found as the most significant factors in sustaining environmental performance. These criteria and their indicators are mostly effective in achieving environmental goals within the policies of the countries. Considering Turkey it is placed in the last ranks in all applied methods. At this point, it can be stated that our country, which has an important place among OECD countries, should review its environmental indicators and take precautions to achieve environmental goals.

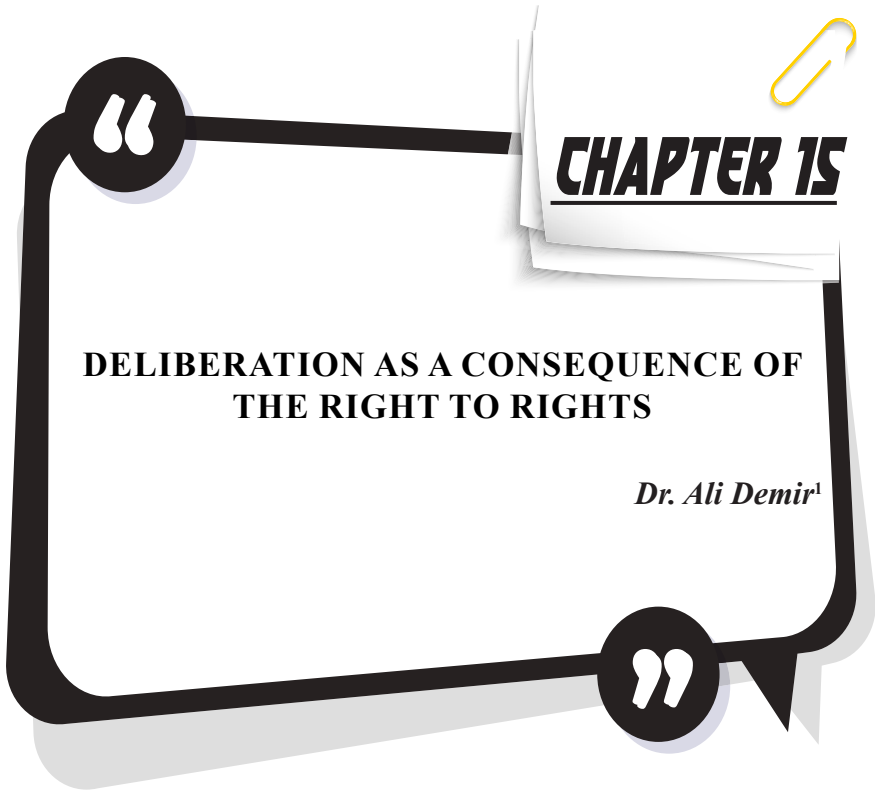
It is obvious that when we used a MCDM approach considering the objective criteria weights and conducting a ranking process, the result can be more accurate and concrete. With this perspective, governments of countries and policymakers can follow a scientific way to compare their places and set targets to improve their situation in current issues. In particular, studies and evaluations on environmental issues, which are becoming increasingly important all over the world will contribute to the literature. This study also contributes in terms of making an objective evaluation and ranking among the countries by combining MCDM methods and EPI that are not used in previous studies on this area.

The most important constraint of the study is that the recent EPI data doesn't reflect the effects arising from the challenges experienced in the health system during the Covid-19 pandemic process. In future researches, these effects can be taken into account if the data are available after this process is completed in the world. Additively, fuzzy logic and other decision making methods can be used for further evaluation of environmental performances. Policymakers and researchers can utilize the methodology proposed in this study and enhance it in other global issues to ensure sustainability and make systematic improvements.

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Inhaltsverzeichnis

1. Problem Definition, Assumptions and Approach

Turkey is geographically located in a crisis-prone region and is currently experiencing social, economic and political volatility. In its immediate neighbors, such as Armenia, Iraq, Syria and Ukraine, civil war has broken out in the last 10 years or these countries have been involved in international war. Iran is not officially at war, but sanctions against Iran as well as Iran's expansionist foreign policy are reasons why a war-like state is maintained around Iran. Turkey is also involved in warfare in Afghanistan, Tunisia, Libya and in the war between Armenia and Azerbaijan. The purchase of the Russian S-400 defense system, the sale of war material to Ukraine and the inversion of Russia into Ukraine have added new factors of uncertainty to the complex and always fragile relationship between Turkey, Russia, the USA, the EU and NATO.

This vulnerable situation at the international level is accompanied by the acute existence of domestic risks; the military struggle against Kurdish separatists and radical left-wing terrorist groups, the cost of the 2016 military coup attempt nipped in the bud, and the fight against the so-called "deep state," an illegal organization with organic ties to the bureaucracy, politics, the arms industry, and the mafia, are the main threats currently challenging Turkey. These challenges coupled with ongoing monetary and economic crises seem to be only the tip of the iceberg in the face of long-standing problems such as the deficits in democratic will formation, high degree of centralization on the cost of participation rights in municipality, limited rule of law as a result of states of exception, weak civil society, and largely absent welfare state structures (Özbay, 2022; Turgut, 2022; Al and Müderrisoğlu, 2020; Erdem, 2019)

Especially as these lines of division have been exacerbated as a result of media reprocessing on the discourse about and introduction of the new presidential system, any additional insecurity is felt as a perceived existential form of threat in light of these crises. The fragility currently takes the form of an explosive fear as a result of the war between Russia and Ukraine, fear not only of economic and political consequences of this war on Turkey, but also of a new wave of refugees to Turkey. The first question is whether this war will exacerbate the conflict line between state security and democratic rule of law, which has already been sharpened in the media? This question will be traced below using the inter-national challenge surrounding forced migration from neighboring countries to Turkey. In doing so, forced migration will be treated as a specific case study of an inter-national situation that has a dimension to state security and democratic rule of law (Apan, 2021; Ilgıt and Çetiner, 2020).

“Refugees,” “migrants,” and “terror” are not only often used as synonyms in public discourses, but are generally considered as “cheap labor” on the one hand and beneficiaries of the crisis on the other. They are cheap labor in the sense that they are mostly employed with minimal wages (İhlamur and Gülfer, 2019; Serttaş and Uluöz, 2021; Özbay, 2022). On the other hand, since the state provides them with minimal infrastructure according to international standards and the agreement with the European Union, without the same right being applied to Turkish citizens, they are seen as beneficiaries of the crisis with the “West” (Aydın, 2021; Şengül, 2022; Serttaş and Uluöz, 2021; Erdoğan, 2019: 12 f). Specifically, secular circles view Syrian refugees and migrants from the Arab region as the “pool” for recruiting unpromising boys with a stable inclination toward political Islam or politicization and instrumentalization of religious affiliation with Islam. For example, they see the facilitated naturalizations as a kind of social engineering for a formation of a majority pro-government faith community. Accordingly, refugees and/or migrants would be instrumentalized for political purposes. It is not the humanitarian, social or legal reasons that are invoked here, but benefit maximization and instrumentalization that dominate the logic of action (TUIC, 2021). Consequently, the second question is asked about whether the naturalizations are the reasons of destabilization of Turkish statehood?

To answer these two questions, first, it is assumed that migration and flight have always existed, but that the fear of changed living conditions as a result of migration and flight from neighboring regions has only begun to exist since the founding of the nation state (Lee, 1967; Thränhardt and Hunger, 2003; Levitt, 2007; Joppke, 2010; Kostner, 2016; Cassee, 2016; Benhabib, 2018). Based on these assumptions, the question of the cause of destabilization is asked, rather than whether or not a particular phenomenon within a predetermined social space is taken to be the cause of destabilization. Conceptually, this approach is supported by the fact that in the first case the gaze is narrowed. This narrowed view forces us to look for the answer where there is light but nothing has been lost. In contrast, the second question allows us to address the reason for the destabilization itself. Specifically, instead of looking for a general answer in one’s own cultural community (in Turkey), a specific answer should be sought in the inherent logic of the structure (nation-state) itself. Thus, the genesis of de-stabilization is not traced to a culture-specific cause in society, but to a structural consequence in the constitution of the international state community. The inter-national levels are seen as the two sides of a single vulnerable communication (Luhmann, 1997: 190 ff; Keohane and Nye, 1997; Putnam, 1998).

This is supported by the fact that historically and structurally the national and international legal position of refugees was also determined in

the phase of nation-state foundations. This trajectory continues today under new conditions. Nation as a socio-cultural entity and statehood as its legal constitution within certain borders are insofar the reasons of the emergence of legal uncertainty around the refugees. The presence of the refugees therefore acts as a destabilization of the socio-cultural and legal conditions within the respective nation-state, because these socio-cultural and legal conditions are themselves a product, a consequence of the nation and the nation-state. Therefore, the question of the reason for destabilization will be answered on a theoretical level by looking not at Turkey as a special case, but at the nation-state as a prototype of stateliness, to which Turkey also belongs. Migration and flight has always been a transnational phenomenon and Turkey in particular is not only a crossing point of many refugees from Asian and African countries on their way to Europe, but also a sending country of many refugees in the same direction. Also, with the refugee agreement with the European Union, Turkey has legally committed to a transnational solution and legal standards accordingly (Apan, 2021; Toğral, 2012). Had we placed Turkey alone at the center of the analysis, we would be overestimating its solution-generating capacity. From it we would expect solutions that no nation-state can offer; no nation-state alone can solve the problem around refugees. The historical development of nation-states, the existing international states system, and the expectations from human beings in inter-national legal constitutions are the main structural reasons for the existence of refugees and the suffering around them.

With these assumptions in mind, the paper will first discuss the genesis of state- and nation-building. For this purpose, the contributions of Charles Tilly, Benedict Anderson, Jürgen Habermas and Hanna Arendt will be discussed in that order. While with the former a sociological approach is presented, Habermas and Arendt also develop a proposed solution normatively compatible with the existing institutions of democracy and the rule of law. With them, the inter-national level is thus expanded to include the tension between law and democracy (Habermas, 1992: 105, 111, 153 f; Arendt, 2009). In the concluding section, the question is posed whether flight can be defined as the consequence of the right to rights, regardless of historical-structural causes of origin? To answer this question, Arendt's concept of the right to rights and Habermas' proposal of a mediation of law and democracy within a democratically constituted state community of law will be discussed.

2. State-, Nation-Building and the Development of Law and Democracy

We begin with C. Tilly's concept that states were shaped by individual events until the 16th century. Then war begins to determine the development of states. Around 1848, depending on the enumeration, between 20 and 100 states existed in Europe; this number shrank to 25 at the end of World

War I. With the defeat of Napoleon and the unifications of Germany and Italy in the 19th century, states began to become exclusive. Now they legitimize themselves no longer on the basis of sacred law but with a positive understanding of law and also have a professional army and the corresponding bureaucracy in education, governance as well as economy. We will then continue this line with B. Anderson, according to whom at the beginning of the emergence of nation-states there haven't been any unified culture, language, religion or identity. Rather, we must think of them first of all as imaginary societies in terms of intellectual achievement.

2.1 Tilly's Concept of War Preparation, Statehood and Democracy

Charles Tilly is among the most prominent researchers who set a logical relationship between states, nation-states, democracy and wars (Huntington, 1962; Manicas, 1989; Huntington, 1991; Mann, 1993; Hardt, 2004). Tilly starts from the thesis that the contemporary nation-state is a byproduct of the structures for pooling the means of war for the purpose of territorial expansion. War as a means of politics is at the center of this model (Tilly, 1994: 14 f, 46 f, 206). For explanation, Tilly assumes two forces fundamentally different in their logic; periphery and center on the one hand capital and coercion on the other. Periphery is characterized in Tilly's model by a multiplicity of cities and their approximate balance in resources, which prevented the assertion of a supra-regional center of power. The characteristic of the periphery is fragmentation. Center, on the other hand, means a high concentration of resources. If a ruler prevailed over his competitors by centralizing primarily military resources, he could now turn to territorial expansion, thus legitimizing his access to the resources of the periphery. France, England and Scotland belong to the first wave of centralization and the Habsburgs to the second wave. They are followed by Sweden, Prussia and Russia. Central Europe, on the other hand, remains the scene of many wars without a superpower.

Second, Tilly differentiates between capital and coercion on the basis of resource availability. Where the nascent state had access to significant trade opportunities, a stratum of capital owners emerged. This path leads to capital concentration and accumulation in trading cities with their merchants, entrepreneurs, and financiers but also workers. Where capital concentration and accumulation occurred within the same region, urbanization also tended to stay in the same region and only later elsewhere. On the other hand, where accumulation occurred but concentration remained at a low level, multiple centers emerged. High concentration and accumulation of capital leads to fragmented city formation. This is the path of capital.

Where, on the other hand, trade routes were blocked, elites turned to their own populations, forcing them to finance the wars. In this process, two overlapping social groups specialized in coercion emerged in Europe:

Warriors and Landlords. From the fusion of warriors and landlords emerges the aristocratic class. Where forced accumulation and forced concentration converged, states with a high degree of centralization emerged. From this emerges the path of coercion (Tilly, 1994: 16-23, 27, 38-51).

Three ideal-type paths emerge from these two variables. 1. the coercive path emerges when rulers were able to rely on their own populations for warfare by developing massive administrative and coercive institutions. If rulers engaged in a power struggle with landlords, at the end of which none was able to extend its power over the others, a deadlock arose that perpetuated coercion with the logic of “whatever the cost.” Russia, Prussia, Austria, and the Ottoman Empire belong to this path. On the other hand, if the rulers were closely linked to the capitalists whose interests they defended, the capital-intensive path emerged. In this case, rulers had to make sure that the wars were profitable, which is why they had to do without massive structures. The institutions that emerged served mainly to optimize capital accumulation and management. Genoa, Dubrovnik, Florence, Venice as well as the Netherlands are examples of this path. Finally, the path of capitalized coercion derives from the fact that the rulers of these modes were mainly concerned with their successes, without claiming to rule alone. Rather, they were interested in tying capitalists and their resources to the state. The elites struck a balance between building the coercive institutions and accommodating the interests of capital owners. The aristocrat and the capitalist worked together in this case. England, France and Spain can be counted among this path (Tilly, 1994: 30 f).

The consequences from the process of preparing for and waging war can be summarized in regard to democracy under three headings.

1. statehood as the result of an unintended action: the effort to pool and maintain resources for warfare led elites to procure robust structures. On the one hand, this process moved civil society closer to the elite; on the other hand, it strengthened the power of the military in society. For example, new infrastructure (roads, buildings, and resources for employees, etc.) had to be created for tax collection, for which civil society was integrated into warfare.

2. cooperation as a result of unintended action: state agents were interested in effective warfare. The more resources needed for this purpose, the more taxes had to be collected, which in turn led to the increased use of repression. Where coercion was not enough, the rulers agreed to negotiate with the actors concerned. The concession of negotiation made clear to these groups their ability to assert themselves: more rights for more taxes (no taxation without representation). A reciprocal relationship emerged. Henceforth, the participation rights of a broader mass led not to more restrictions on warfare, but also to the rulers tying the military to the law.

3. participation rights as a result of the continuation of a path once taken: the structures and rights introduced in wartime, which justified the state's interventions from the logic of necessity, were continued in peacetime in those states that did not suffer greatly. The agents of the state were able to take advantage of this for themselves. The continuation of the existing structures or the development of the new state activities sometimes required transformation and adaptation to peacetime, which in turn contributed to the stabilization of state activities (Kriesi, 2007: 64). The fulfillment of the state agents' promises during the wars had an integration effect among all war participants in peacetime. Both the military and the civilians now demanded that the promises be kept. Reprisals, as well as economic interventions, were justified by the war. Thus, the state became indebted during wartime. The structures necessary to pay off the debt also facilitated the state-building process, with the state intervening more in the national economy. The reversal of consent meant the reduction of state activities and disarmament. The end result is that those involved in war become those involved in politics (Tilly, 1985: 183).

In retrospect, according to Tilly, the central structures of inter- and intra-state relations of today's state formation go back to the attempt of the rulers of the 16th century to gain power by means of war, by pursuing a policy of extraction of available resources domestically and a policy of expansion internationally. In the process, both the resistance and the cooperation of kings, financiers and communal warriors created the structures of today's state system (Tilly, 1994: 27). Those who have concentrated means of coercion (police, army, fleet) try to extend their power with the same means not only over the elites who had these resources, but also over the entire population. Rulers created and continue to create stable control over the population by granting them access to significant resources and services. At the same time, each form of rulership faces certain significant limits of efficiency in a given environment. Any attempt to cross this boundary resulted in either defeats or fragmentation of control with the result that many rulers opted for a combination of subjugation, protection against their powerful rivals, and/or coexistence with cooperating neighbors.

The bottom line is that the relative success of different extraction strategies varies between coercive and capital-dominant paths. And the form of organization of the state follows as a consequence of these different paths. The states with a standing army that could draw on a combination of large agricultural populations, capitalists, and on a commercialized market survived. It was precisely these states that determined the conditions of war, and their form of government predestined the type of nation-states in Europe. European states converged on this basis; from a ruler state to a nation state, and from warriors to citizens. In each case, there is a

direct relationship from capital to city, city formation, and an indirect one from coercion to the state. Conversely, there is a direct relationship from coercion to the state and an indirect one from coercion to the city. With regard to the question, it can be deduced from what has been written that it was not the affiliation to a particular nation, religion, gender or social class, but rather the war and the preparations for war that determined the belonging to the state.

2.2 Anderson's Concept of the Invention of the Nation

Unlike Tilly, Anderson is dealing with a cultural-intellectual approach to the concept of nation. Anderson defines the nation as a fated community of equals against real diversities and inequalities (Anderson, 1996: 15 f). He attributes the emergence of the nation to the erosion of three basic categories (Anderson, 1996: 43): the first was the concrete representation of a written language deemed divine. Written languages monopolized divine truth through an intellectual achievement by mapping the language with a sign also deemed divine, sacred. Thus, access to truth, to God, became exclusive. Latin as the sacred language of Christianity and Arabic as that of Islam are examples of this. They depict an ontological truth with the corresponding script. Language is in it the medium of a divine reality and the writing is the sign of its non-arbitrariness. "The ideograms of Chinese, Latin, or Arabic were not arbitrarily generated correspondences of reality, but their emanations" (Anderson, 1996: 23). The second category was the belief in the naturalness of society and its vertical hierarchy. Belonging to the community was taken for granted. And the rulers legitimized their power in this society with the aura, charisma, that is, with the belief in their extra-ordinary ancestry and/or ability to rule. The community was centripetal and hierarchical, vertically structured without fixed social and geographical boundaries (24). The third category concerns the conception of time of an equal originality of the universe and human beings. This conception of the unity of a voluntary development of cosmology with the history of man is reflected in the fateful predestination of human existence, which, however, was also given meaning with an intellectual achievement, promising man various ways to salvation, to freedom from these predetermined conditions (Anderson, 1996: 43).

Anderson thus addresses the nation as a substitute for the loss of naïve man's old notion of given space and filled time. The intellectual achievement of the notion of the nation is thereby to transpose necessity, hitherto thought to be inevitable, into contingency, and chance into collective destiny (Anderson, 1996: 20). The more the sanctity of languages and rulers was questioned, and the more pluralized communities were forced into the fixed boundaries, the more the process of a transformation of the old religious community and dynastic kingdoms into the new entity,

the nation, accelerated (27). “After 1789, the principle of legitimacy had to be publicly defended—a process in which ‘monarchy’ became virtually the standard. Tenno and son of heaven became ‘emperor’ “ (Anderson, 1996: 29) And within each nation, a new medium was also found, thus also offering a juxtaposition of cosmic universality and worldly particularity; novel and newspaper were the means for representing national consciousness (Anderson, 1996: 32).

On a single page of a novel and/or newspaper, a series of events are depicted in writing, sign, image, and sense. With this juxtaposition of events, the randomness of appearances is transformed into the conscious mapping of apprehended, processed, layered reality. Novels and newspapers offer the possibility to transform this transformed reality again into a ritual of intellectual engagement with the world and man. What emerges is a regress of appearances and the attempt to give them social meaning despite this endlessness (Anderson, 1996: 42). If nation is the new unity of domination, time and meaning, reading the newspaper at one’s dining table is a substitute for prayers in church. Functionally, they serve man’s practical, ritualized participation in a transcendent entity, be it truth or society.

2.3 Habermas’ concept of nation- and law-formation

We have considered with Tilly the development of states and democracy and with Anderson the process of nation-building, without putting them in communication with the development of rights. This will be done in the following. To do this, we first note that from a legal sociological point of view, the present European system of states goes back to a legal act in the Treaty of Westphalia of 1648. The system of the Treaty of Westphalia symbolizes the unity of state-, nation- and law-formation, which exist today in their differentiated form. On this basis, the state nations of Northern and Western Europe emerged from the existing royal houses (Mann, 1993: 373-500). The scope of the kingdoms was not drawn along a region, nation or language, but according to social top-bottom differentiation. Consequently, Muslim sultans of the Ottoman Empire, for example, could cooperate with Christian Russian tsars against English kings. Cooperation, solidarity among royal houses was based on a mixture of clientelism and personal loyalty rather than blood kinship, nation and religion (Anderson, 1996: 81). If the king changed his cooperative partner, this sometimes resulted not only in the change of religious affiliation of the monarch himself, but also of his subjects. In this respect, a uniform social, cultural, religious identity between the rulers and the ruled was not a prerequisite for state construction. Rather, multi-identity is the hallmark of empires. The second wave emerges from this constellation. This includes the late nations, such as Italy and Germany (Kriesi, 2007: 91-128). This wave of nation-building is characterized by a distinct national consciousness (Habermas, 1996: 128).

Whereas in the first wave identity was not linked to any normatively prescribed conditions, the actors of the second wave consciously based themselves on a value system. Not kings, but intellectuals took a leading role in the formation of identity, which in turn was based on utopias designed for a specific purpose, rationally justified and already realizable in this mundane world. Thus, the German identity as a nation of cultural was shaped by intellectuals, such as Johann Gottfried von Herder (1744-1803). “Race derives from a difference of descent (...). For every people is people; it has a national formation like its language” (Herder, 1965: 250). In the writings of this romantic type of intellectual, the nation symbolizes paradise on earth - a homeland of equals and freemen. The third wave was initiated as a result of decolonization from the African and Asian regions. As a rule, these states acquired their political sovereignty before the organizational formation of their statehood. In this respect, the attribute “artificial” fits their development here (Habermas, 1996: 128). Finally, the fourth wave was initiated after the collapse of the Soviet Union with the declarations of independence of the Eastern and Southeastern European states.

If we take the Treaty of Westphalia as a starting point, the question arises as to which understanding of law was used to make the transition from state- to nation-building. In order to answer this question, Habermas’ concept of juridification will be discussed below, which has a relation to state- and nation- and law-building as well as to democracy. It is assumed here that in the concept of juridification the complementarity of state- and nation- and law-building as well as democracy can be considered; While the transition from multicultural empires to nation-states with a unified understanding of culture and identity was accompanied by a transition from natural law to the law of reason in the sense of a positivist understanding of law, the transition from nation-states to a transnational community of states, such as the European Union, is based on an understanding of law according to which the socio-economic prerequisite for a democratic constitutional state is the differentiation of law and democracy, the complementarity of which must emerge from a discourse of legitimation of an agile public sphere (Habermas, 1991; Habermas, 1992).

This discourse is insofar about the type of a development of law and its legitimation. In this context, the term “juridification” was brought into the discussion by sociologist and jurist Otto Kirchheimer (1905-1965). He used the term for the development of the Weimar Republic into a welfare state. Habermas, for his part, wants to see in it only the beginning of a development that is the beginning of an increase in the application of positive law. This involves both an expansion of the law, by which the law is also applied in areas that were only informally subject to legal rules, and a concentration of the law, by which the internal differentiation of the law is meant (Habermas, 1981: 524).

The first push was initiated during the first wave of state and nation building under the concept of absolutism. In this context, private law is characterized by positivity, generality and formality. Positivity means the type of legitimacy, by which the law was not derived from a legal tradition, but directly from the will of a king who considered himself sovereign. Accordingly, legalism means a search for laws that must precede punishment. In it, the starting point was no longer the morality of the person, but the question of the accountability and culpability of the person in question. Formality granted the addressees a formal freedom of action within the framework of formal equality before the law, whereas the state of legal security was obliged to secure the freedom and property of the private individual. Thomas Hobbes *Leviathan* symbolizes this phase. Rule finds its source of legitimacy in the voluntary social contract, which, however, always refers to a higher power where legitimacy was also materially, positively demanded (Habermas, 1981: 525 f).

In the second push, Habermas observes the development of the 19th century constitutional state. For in it, actors with power and money were constitutionally upgraded to citizens by being endowed with enforceable subjective-public rights vis-à-vis the state. Normatively, it was only with this push that the ruler became bound to the law. The rule of the charismatic sovereign, legitimized by natural law, was replaced by a secular rule of substantive law, and a differentiation was made between the legislative, executive and judicial branches. This phase is also characterized by the demand for a welfare state. Welfare state achievements were politically fought for in tandem with participation rights (Habermas, 1981: 528-530).

First in the third push, a juridification of the legitimation process to a democratic constitutional state was initiated. The writings of Jean-Jacques Rousseau and Immanuel Kant as well as the French and American Revolutions symbolize the phase. Although the second process of legalization was already based on the idea of freedom, it was not until this third push that it was legally redeemed. For here not only the citizens with a high economic capital, but all people within the limits determined by state law were granted the social participation rights. According to the same legal logic, laws are no longer legitimate according to the moral principles of a natural law doctrine, but only “if they have for themselves the democratically secured presumption that they express a general interest and that all those affected would have to be able to agree to them.” (Habermas, 1981: 529)

In the fourth and last push, the demands for constitutionalization were widely supported, recognized by the social democratic constitutional state of the 20th century. In Western European societies, freedom of association and collective bargaining, protection against dismissal, and social insurance were established as instruments of constitutionalization of the social

democratic constitutional state. These rights oblige the state to pay for the damage caused by the external effects of a production process based on wage labor. At the same time, these effects arise “from the structure of juridification itself,” endangering the freedom of “the beneficiary” himself (531). This push is to be called a “freedom-guaranteeing juridification” insofar as this social policy had the tension of freedom-guaranteeing and freedom-depriving attached to it (Habermas, 1981: 530 f).

2.4 Arendt's Concept of the Homeland as the Right to Rights

One insight from what has been written for the question is that, thanks to these juridification pushes, citizens were divided into the category of “employed” and “unemployed” and the latter were placed in a direct relationship with the employer with rights and obligations, which in turn were in reciprocal communication with the state through the collective bargaining agreements. Workers were treated and judged on the basis of their activity and no longer on the basis of their significant identities. In this respect, the push toward legalization epitomizes the incremental development of a society from a segmentary societal society to a functionally differentiated society. At the same time, the state undergoes a development from absolutism to a democratic constitutional state. In it, positive law is a medium to which both the bureaucracy and the citizens are guided. The relationship between them is no longer governed by morality, nationality or religion, but by the logic of subjective rights and as legal persons.

The question now is whether the paradox in the development of the social and legal state, according to which its structures have created a client in the working class at the expense of its own freedom, is also found in the development of law? The question is based on the fact that Habermas uses not only the juridification thrusts but also the term “democratic state” in the analytical sense; this step was not taken everywhere. Rather, Habermas is interested in the possibility of an ideal-type development and not in the analysis of a social-historical fact itself. Consequently, the question is whether this ideal-typically meant utopianism was not developed out of a likewise ideal-typically proceeding dystopia in the sense of negation from utopianism, as its corruption? This dichotomy was common in the old tradition of philosophizing, as it is given in the dichotomy of nature and artifact. This question can be approached with Hanna Arendt's concept of homelessness.

To this end, we begin by noting that ever since people have been organized into nation-states, home has been understood to mean belonging to a state-organized community with corresponding civil rights. In this context, Arendt emphasizes that historically it is not the loss of a homeland is new, but that finding a new homeland has become impossible

with modernity. What is meant by modernity is nothing less than the transformation of the homeland into the organization based on state law; no longer a belonging through blood relationship and/or religion without fixed borders and their legitimation in the community of states according to natural law, but a citizenship established according to positive law and through the state's monopoly on the use of force with the corresponding rights and duties within a geographically clearly defined borders is the hallmark of modernity. Within this modernity, considered universalistic, man is confronted with the fact, if he is excluded from political communities of nations, has no citizenship or is deprived of it, he is at the same time "excluded from humanity itself" (Arendt, 2009: 608). For with the loss of the protection of political communities, the person in question loses not only the protection of his ancestral community and his new, modern protectors, i.e. the government of his country, but also the protection of all governments with which the former has concluded internationally binding treaties.

Since the modern age, people are no longer dis-qualified on the basis of morality, but according to state-law treaties to the stranger, the migrant and the refugee. These treaties do not recognize a homeland, but do recognize the security precautions of states, on the basis of which refugees are then arrested at the place of flight and extradited back to the old homeland, which has now become a state. In this respect, there is a discrepancy between homeland and state, not only in semantics, but also in the legal constitution of man in the respective places. The man of the homeland has become the citizen of the state. He loses his locality and receives universality for it. At the same time he loses his relation to the whole mankind without legal consequences, but gets for it the status of citizenship with state-legal consequences. Before modernity, escape from the homeland meant increased insecurity in the new place. In contrast, since modernity, escape from the state has resulted in the loss of all liabilities. The refugee loses not only his homeland, the protection of his government, but also of all governments. Consequently, "to lose one's homeland is to lose the environment into which one is born and within which one has created a place in the world that gives one both standing and space." (Arendt, 2009: 607) Home was also the space that gave one the geographic-physical makeup of the world, as well as the social boundaries of one's constitution. Home was the state, because here the human being both compares, resembles, and differs from all other members, and thus becomes what he is or wants to be. He individuates, autonomizes himself by differentiating himself in an equalizing way. The loss of this home, the loss of the status and space of unquestioned belonging, becomes equal to the loss of the possibility of individuation in society. Now, since modernity, the loss of home also ends in lawlessness, so Arendt defines home in terms of belonging to a community as the right to have rights (Arendt, 2009: 613).

Arendt sees a phase of paradoxes mapped in the transition from natural law to state law, from being human to becoming a citizen, from the homeland to the nation-state, wherein she observes, contrary to widespread belief, a degradation of human political rights. The paradox is that the state has been legitimized only since modernity, which now becomes a doom of man; the contract theorists justified the state with a thought experiment, from which a life without state ends in legal uncertainty, which is why the state is to be accepted as the least evil among possible human arts. State is in these thought experiments, especially in the writings of J.-J. Rousseau, not the framework of freedom, but the framework of action of a human being deprived of his freedom and first thereby civilized, that is, domesticated. Arendt recognizes the logic of anticipation of the contract theorists in their thought experiments, but understands freedom not as an achievement of civilized man, much more as a quality of man preceding civilization. Therefore, she defines freedom as the meaning of politics (Arendt, 2003: 28). If the meaning of politics is freedom, then the state has no other reason for its existence than to protect this very freedom. On the other hand, the situation of refugees shows the fact that this logic is reversed; politics is alienated from man. Politics has never been the reason of freedom, but also not the exclusive pursuer of freedom. This has changed since modernity, when the state-legal treaties between states consider the freedom of man as a product of statehood, which is why its representatives, in the name of state security, question, cut and abolish the freedom of every man on the other side of the political camp. Since then, the state is a nonsense of freedom of interstate contracts. It is a depoliticization of man's right to be human insofar as it is precisely at that stage that people have been endowed with rights, but these rights can only be claimed if these people submit to the constraints of state law. Only those who can show an identity card given by a state enjoy the benefits of civil rights. For Arendt, the concept of universal human rights symbolizes precisely this paradoxical development of man's legal condition within modernity.

Arendt's starting point is the analysis of the relationship between human rights and civil rights. Historically, civil rights symbolize the emerging power of the middle class and were developed and enforced against the absolute domination of monarchs, aristocrats as well as oligarchs. From this historical logic of rights development the question arises, whose rights are now brought to bear in human rights? And the answer to this question has at least an economic and legal-philosophical component. Economically, it is the attempt of the social-democratic movements to turn the nation-states into a community of the efficient. In economic terms, this is an attempt to convert meritocracy to an economic logic of Adam Smith, according to which the well-being of a nation does not depend on the extra-ordinary plans of the rulers, but on the actions of the actors to specialize on the basis

of a technical-technological progress in the markets rationally established for the purpose of maximizing utility (Smith, 2007: 8 f). From the logic of the philosophy of law component, the question is what is the equivalence of the natural law of monarchs in the state community of citizenship?

Arendt addresses here only the second question by looking at the situation of the homeless. From this perspective, Arendt considers the concept of human rights without state-law guarantees of belonging to a state-organized community not only insufficient when it comes to protecting the rightless and homeless, but also a step backward in the logic of the development of rights (Arendt, 2009: 623 f). Logically, something that is attributed to all people, but for whose claim no person, no authority is provided, can not be called a right. Because law without corresponding addressees and obligations degenerates into a phantom. And therein lies the fate of man who does not belong to a community organized under constitutional law. He is granted the universal human rights that actually throw him back into the state of natural law (Arendt, 2009: 621). In fact, the human rights understood and practiced in this way, for example during the Second World War, did not guarantee people in need of protection even the right to a valid passport, with which they could have flown the unjust regime, although were citizens of these state. Based on this logical-historical approach, Arendt's critique focuses on no less than the conception of human rights itself, which she historically and in terms of content traces back to the contract theory (Arendt, 2009: 601-625).

3. Conclusions

Functionally, a state obtains its statehood through its assertiveness, its own sovereignty (state territory) in cooperation with or vis-à-vis the international community of states, and establishment of cultural boundaries (state people, or nation) within its own clearly delimited territory. In the course of modernity, the modern state first separates itself from the private household of the king and at the same time initiates a centralization of the administration and the control of administrative power. Hand in hand with centralization comes a differentiation between the economy, which is independent of the private household, and its connection to the political system. Paradoxically, the state meets this challenge with an unambiguous decision, detaching itself from teleological legitimacy and submitting to positive law.

The concept of nation was initially about an imagined community. State people in the sense of a nation usually equals political community formed according to a common language, culture and history. At the same time, there are also states with many peoples, without a single common language. And factually there are many more peoples than states. Historically, "natio" and "gens" contrasted with "civitas." The conflation of

the state with the nation and an equation of “*natio*” with “*lingua*” was made only in modern times. “*Nationes*” was not a political-moral quality until then (Habermas, 1996: 132 f). The transformation of the noble nation into the people’s nation owed itself to an intellectual change of consciousness, which soon penetrated the *völkisch*, racial national consciousness in parts of Europe. Now the members of the nation were placed in opposition to strangers and used for the moral devaluation of the others, mostly to the geographically as well as culturally closest nations (Bauman, 1992: 74 f; Baumann, 2007: 181-195).

The nation contains not only the idea of a particularistic community of destiny based on common language, myth and ethos, but also of law (Habermas, 1996: 139). In this respect, “the nation” means, in addition to the unity in language, history and culture, on the one hand, the integration of law (as the institution of socially participatory citizenship rights) with democracy (as an institution of legitimized decision-making process). From this integration emerges the universalistically conceived type of society of freemen and equals in the sense of the polis.

The emergence of the stranger in contrast in this imagined unity creates dissonance, to which the nation-state reacted with a shift from diversity to equality; no longer natural law but also positive law, no longer states alone but also cities, no longer oligarchies alone but also democracies, no longer armed force alone but also capital and education as forms of soft power. Nation-state is in this respect the concretized organizational unit for the attempt to establish this imagined, theoretically possible unity. Although the nation-state was a response to the static of kingdoms and empires, the presence of minorities and refugees shows its failure. They fit neither to the category of enemy, nor to the of friend. Not uniqueness, but indecision is their characteristic. In this respect, the cause of the emergence of the problem around the refugees lies in the concept of nation-states. Instead of a solution, the nation-state instrumentalizes the indeterminacy of the national and international legal situation of refugees and minorities and even legitimizes itself with persistence and the hopelessness of the crisis.

This crisis is that all over the world, most refugees live in precarious conditions. Not only are they persecuted by their sending country, but in most cases are they also subjected to living and working conditions in the receiving country that are *at least* questionable from a human rights perspective. Palestinian, Syrian, Afghan refugees in Lebanese, Egyptian, Turkish cities, but also Iraqi, Kurdish, Eritrean and other West African refugees in the West European cities usually lead a life thrown out of the society: they do not participate in the economy, education, culture, law and politics in the receiving country, especially at the beginning of their escape from prosecution, nor can they maintain their usual family and

intimate relationships in the country of origin. They not only lose self-given contacts based on ancestral culture and customs, but are settled in the receiving country in places where the socially disadvantaged natives usually live mixed with members of other ethnic groups who themselves either have low levels of education and income, or belong to migrants.

However, in contrast to socially disadvantaged natives, refugees in the host country not only suffer socio-political disadvantages and can in fact not claim any participation rights, but they also have no instance for asserting their innate rights in the event of a violation of their human rights. This is especially true for refugees who have been persecuted for belonging to a minority in their country of origin. This is because the injustice done to them in the country of origin is the subject of a national law, state law, which can be shaped by nation-states on the basis of their sovereignty in a discrepancy from the internationally applicable legal norms. The state law of Saudi Arabia differs greatly from, for example, Germany, England, Lichtenstein, but also Vatican and Azerbaijan or Sudan in terms of participation rights and legal development. If refugees come from countries with a legal tradition that still has a strong sacral reference and is guided by centralized policy-making without stable democratic institutions, they need 5 to 10 years, regardless of their level of education in the host country, to even know and understand the legal institutions for the first time, let alone to assert the minimal human rights requirements. More crucially, by fleeing their own country of origin, most refugees lose not only the rights in the catalog of civil rights, but also the internationally legitimized guardian of their human rights, namely the state.

To make sure, there are indeed some transnational courts with the power to punish human rights violations without regard to the nationality of the perpetrators. These include the United Nations International Criminal Court (ICC) in The Hague, the Council of Europe's European Court of Human Rights (ECHR) in Strasbourg, and the Court of Justice of the European Union (ECJ) in Luxembourg. But these courts require the proactive cooperation of the respective nation-states. However, since the human and civil rights of refugees are violated precisely by nation-states, and since there is no court with jurisdiction over human rights violations against refugees, refugees are effectively deprived of human rights protection. In other words, while all human beings, and therefore refugees, are the addressees of human and civil rights, in cases where refugees are denied civil rights, their human rights are not monitored by no body.

Thus, according to Article 3 of the Universal Declaration of Human Rights, everyone has the right to "life, liberty and security". In fact, this right has no consequences in the lives of all refugees. This circumstance comes to the fore again and again when in the United Nations representatives of a

minority, like Yassir Arafat from Palestine, or of the refugees themselves, like Malala Yousafzai from Afghanistan, give a highly emotional speech with an applause mostly from all representatives of the nations, but without any consequence in the lives of those who represent the respective addressees. On the contrary, these appearances on the stage of the United Nations serve to legitimize the United Nations itself, which consists exclusively of the representatives of established nation-states. They are the political communication that the problems of refugees and or minorities without a nation state of their own are symbolized, emotionalized and thus depoliticized but not addressed. In this respect, they resemble political recognition that human rights violations against refugees and or members of minorities go unpunished. They appease the actors to the *modus vivendi*, to the accustomed normality in which a legal authority politically legitimized to act against human rights violations does not exist. Rather, human rights are repeatedly used as a political tool by nation-states with the corresponding political, economic, and military enforcement power against other nations and/or minorities.

The practical question is, what protects a stateless, homeless person from reprisals by a state? To answer this question, Arendt sought a right that is not covered by either citizenship or human rights, but is more fundamental than either. To find this right, she turned to the situation of those who have been brought into an absolute lack of rights; the stateless, the survivors of the extermination camps, the inmates of the concentration and internment camps, refugees. In her intention has she given the answer to her question, what is not covered by citizenship and human rights, but what contains citizenship and human rights and also goes further. For this purpose, she distinguishes the legality of law from the logic of legitimation of law. What is decisive for Arendt is not the legality, but the legitimacy of the right. A right that can only be claimed by people with a civil right to a state recognized by international law does not deserve the name of universal human rights.

The question now is, how can we put these particularistic and universalistic tendencies of nation state into a communication as the two sides of a unity of law and democracy, so that special civil rights and general human rights are complementary to each other? Basically, there are a few suggestions; first, we wait for the state nations to complete their evolution by actually creating the promised cultural unity. The bottom line here is to federalize the political map of the world. The United States and many European states are models for this. Will Kymlicka, Charles Taylor, Michael Sander, Michael Walzer, Amitai Etzioni, and John Rawls belong there. The second proposal was developed by Jürgen Habermas, according to whom law is to be legitimized as the theory and practice

of a permanently reconstituting discourse community, by not taking the members, the citizens, but the view of the all possibly affected. In this, migration can be constituted as part of a society, in which *the right to rights* in Arendt sense is given as the constitutional condition of society. According to this, the citizenship rights of migrants would be given in the form of participation rights in the new society (e.g. through electoral and voting participation), as is already practiced in Switzerland in some cantons. Thus, the legitimation of citizenship rights would be connected to general principles of human rights in the sense of Habermas' discourse community, without tying these rights to a place in the sense of Arendt's concept of homeland. In a nutshell; the right to participate, do deliberate in the (new) society basically belongs to characteristics of refugees, to their significant identity. Refugees are defined as people with a special will to deliberate in society. It is this will, which is haven been taken as a reason to force them out of the society. Conversely, renunciation of these rights is tantamount not only to the denial of their basic rights, such as the right of life, liberty and security, but also to the deprivation of the right to significant identities. By asserting that, what Arendt calls home with that, what Habermas calls right, complementary to each other, we can define the denial, the deprivation of participatory rights as a violation of the right to rights. And by defining the right to deliberate as the consequence of the right to rights, anyone who may be affected is emphasized as an addressee of rights, regardless of their affiliation with a state. The right to deliberate would be protected by the state of residence.

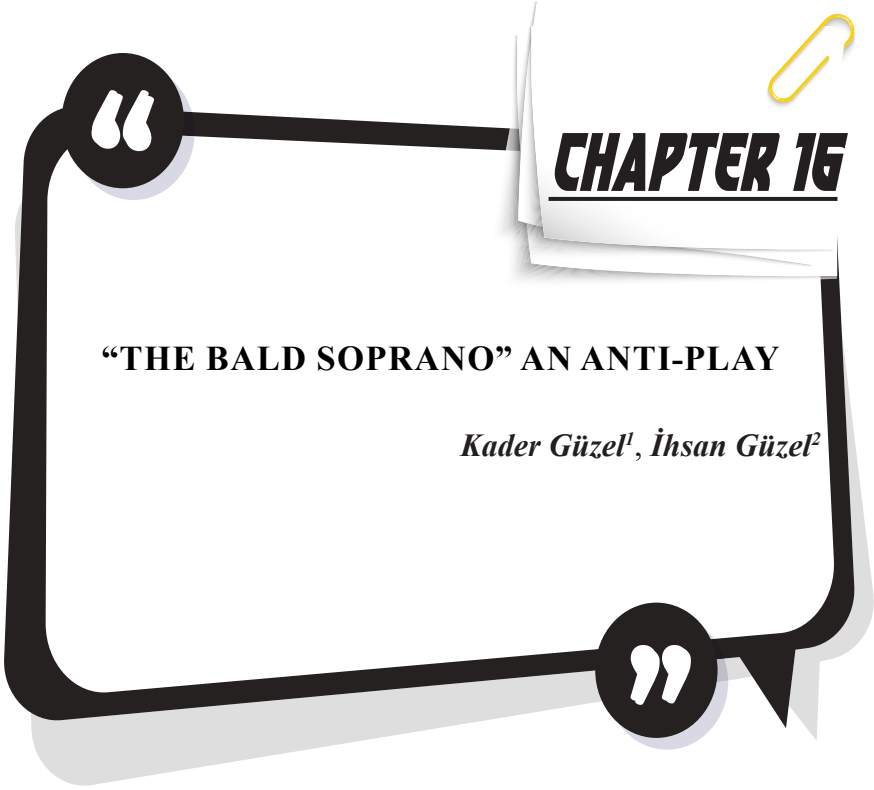
For Turkey, we can deduce the following from what has been written; The times of insecurities are also moments of rationalization of the existing structures. The state of emergency imposed after the military coup attempt have been lifted. The establishment of the rule-based institutions with the appropriate public, culture and personality is on the priority list of the Turkish agenda for years to come. And the legal situation of refugees is a component of this agenda.

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Ionesco and *The Bald Soprano*

The Bald Soprano or *The Bald Prima Donna* (1950) is a play by Eugene Ionesco (1909-1994), a playwright who, with the themes and narrative aspects of his plays premiered in the 1950s, pioneered a new approach to the area of theatre. *The Bald Soprano*, a one-act play that depicts the reality of human existence, deconstructs the traditional drama framework and decomposes the stage as well as the language. In its author's view, it is a description of situations or nothing or everything that anyone or no one can experience anywhere or everywhere. This absurd play depicts the loneliness and helpless situation of human who was thrown into a despair. It is based on a vicious circle of human images, habits, and coincidences. Conditioned to be sceptical and critical of even absolute truths, the play reflects the extraordinary tragic-comic situation of ordinary people without passion.

Ionesco's theatre is primarily powered by his theatre criticism, and the originality of his plays originates from the fact that they are written in a style that is based on observation and opinions. The author also sets out to analyse his own plays in order to understand why they are weird, ridiculed, and objected to. His understanding of theatre is evident in his explanations and interviews about his plays, as well as his introductory essays and literary discussions. It is for the benefit of right understanding of Ionesco's plays that he is so attentive in discussing the internal structure of his plays. He wrote a one-act play titled *Alma Improvisation or Shepherd's Chameleon* in 1956 to explain his views on his works from the stage in his own words and to respond to criticism (Genç, 2010, p. 185).

Ionesco pursues the title of *The Bald Soprano* by describing or, more accurately, categorizing it as a "anti-play." This is due to the fact that the play has various qualities, including elements of traditional plays as well as elements of the Theatre of the Absurd. The audience is unable to discern the content's frame of acceptable values, a problem to be solved, a reasonable vision of life, questions to be answered and objectives to be achieved. The dramatic world confronted in these plays is set up according to a new logic that is different from the logic of everyday life, yet is embedded in everyday life. Aside from story structuring, the linear aspect of it is also challenging. The play inspires curiosity and astonishment in order to criticize language clichés, the absurdity of existence, and automatic human behaviours through an ordinary daily discussion between a married but estranged couple, their guests, and maid. In this alienated play, the author's goal is to warn and raise consciousness by presenting the reader with a foreign world through the empty spaces that are left unsaid in the text yet exist as a constitutive feature (Kargı, 2016, p. 6).

Analysis of the Absurd Features of *The Bald Soprano*

There is not an action moving towards a certain timeline as beginning, middle and end. "The action does not proceed in the manner of a logical syllogism. It does not go from A to B" as in a conventional play; however, "travels from an unknown premise X towards an unknowable conclusion Y" (Esslin, 1960, p. 14). In addition to the unconventional style of language, plot and content, Ionesco's plays are frequently set in a non-historical, non-social setting. The author's attitude is deliberate because his goal is to connect with and communicate the universal self.

The absurd plays are rebellions against traditional theatre patterns that are emphasized under the headlines as counter play, comic drama, naturalist comedy, tragic farce composed of words that appear to be disconnected; issues that cannot be summarized; people whose three-dimensionality resembles puppets; even the most serious issues handled with an exaggerated sense of humour; word and language games based on logic acrobats. Their goal is to bring the author's views directly to the stage, emphasizing the contradictions of life and expressing them in a dramatic fashion (Ionesco, 1997, p. 2). In his article "Theatre of Absurd" Martin Esslin describes the conditions prepared the rise of the absurdism:

The decline of religious faith, the destruction of the belief in automatic social and biological progress, the discovery of vast areas of irrational and unconscious forces within the human psyche, the loss of a sense of control over rational human development in an age of totalitarianism and weapons of mass destruction, have all contributed to the erosion of the basis for a dramatic convention in which the action proceeds within an fixed and self-evident framework of generally accepted and unified set of beliefs, most serious playwrights have felt the need to fit their work into the frame of values and objectives expressed in one of the contemporary ideologies.
(1997, p. 6)

As the condition of human is helpless and insecure at that period, he/she cannot comprehend this world that is full of hopelessness, pains, death and senselessness. The irrationality and futility of human effort and life, the difficulties in understanding one another, and the inexplicable communication between humans can all be symbolized and expressed in plays that reflect this new theatrical style. Unreality is embodied in the play via language and acts that are based on everyday life.

The Bald Soprano begins with Mr. and Mrs. Smith sitting in their living room. Having finished their dinner, Mrs. Smith talks about events happened in that day. They discuss the death of Bobby Watson, a friend of

theirs, about whom they have differing perspectives at the time of his death. He died four years ago as it was later discovered. The dialogue continues with his family, all of whom bear the name Bobby Watson, whether they are men or women. Their maid Mary comes in the middle of their chat and announces that the Martins are at the door. They had to wait a long time because the maid was not there to greet them and it would be impolite to enter without being invited.

The Smiths go to prepare themselves for their guests and the Martins strike up a conversation via which they discover that they know each other. They are both from Manchester, arrived with the same train, live at the same address, have a sleep in the same bed. Finally, they both have a daughter named Alice. Upon realizing that they are husband and wife, they embrace each other and fall asleep. After that Mary comes and reveals that in reality they cannot be husband and wife as Mr. Martin's daughter has a red left eye and white right eye Mrs. Martin's daughter has vice versa.

The doorbell rings as two couples begin their conversation and discuss various topics; however, no one is at the door. The doorbell rings a second time after a short while, but no one is at the door, much to their surprise. Finally, the doorbell rings, and The Fire Chief appears, whose job it is to scour the city for fires that need to be put out. Upon realizing that there is no fire at their house, they make him sit and tell stories for them. The stories do not make any sense and Marry comes and wants to tell a story which surprises the householders as it is not convenient for a maid to be so shameless and courageous. Her story ascertains that she and the Fire chief once were lovers. Thereupon, they want her to leave the room. After leaving of the Fire Chief, the two couples continue their meaningless conversation. The lights fade away; however, that does not make them finish their ongoing speech. Following the lighting of the stage, the Smiths and Martins find themselves in the same room. The play continues with the beginning lines of the play; however, that time the interlocutors are the Martins.

When defining the setting, Ionesco reveals a detailed picture of the scene concurrently uncovering the playwright's writing process:

A middle-class English interior, with English armchairs. An English evening. Mr. Smith, an Englishman, seated in his English armchair and wearing English slippers, is smoking his English pipe and reading an English newspaper, near an English fire. He is wearing English spectacles and a small gray English mustache. Beside him, in another English armchair, Mrs. Smith, an Englishwoman, is darning some English socks. A long moment of English silence. The English

clock strikes 17 English strokes. (Ionesco, 1960, p. 194).

Ionesco, who believed that an inaccurate or simply a different approach may spoil or completely destroy the meaning of the whole, did not consider himself solely as a playwright. He added detailed stage descriptions on all of his plays, ostensibly as a stage director or to aid the performers. From the time of stillness in the plays to the lighting, from the movements of the players to the clothes, he was in charge of practically every element. In other words, he didn't want to hand over his plays to the stage management unreservedly. The first of his requirements was that he observes and supervises the rehearsals of his plays in Paris (Ionesco, 1960, p. 195). He viewed the director as a practitioner at the disposal of the writer, who will perform the author's work in the manner that the author intends. In other words, after Artaud's revolutionary staging concept pushed the text to the second plan, Ionesco and other conflicting playwrights began the phenomena of returning to the text (Milutinović, 2006, pp. 339).

After failing to learn English from an English-French primer, he wrote his first play, *The Bald Soprano*. The simplicity and honesty of the sentences and utterances in this book astounded him. As a result, he discovered that these were things he already knew about, such as the ceiling being higher than the floor. By extending and surpassing logical levels while replicating these words, these genuine assertions twisted and lost their original meaning. "The clichés and the truisms of that book turned into disjoint fragments and senseless words in a conversation" (Ionesco, 1960, p. 10). He decided to make a play out of it. The term "English" in the stage directions caught the audience's attention, and it was assumed that he was attacking the English middle class or society. Ionesco clarifies himself with these statements:

My only ambition was to learn English. Learning English does not necessarily lead to writing plays. In fact it was because I failed to learn English that I became a dramatist. Nor did I write these plays as a kind of revenge for my failure, although The Bald Soprano has been called a satire on the English middle-classes. If I had tried and failed to learn Italian, Russian, or Turkish, it would have been quite as easy to say that the play resulting from these vain efforts was a satire on Italian, Russian, or Turkish society. (Ionesco, 1960, p. 10)

Restriction of the play with a specific nation and society would be unjust and unnecessary. He advocated for a holistic approach to society and the globe. He is critiquing and evaluating human existence's current settings and situations. In other words, all humans desired their shared faith and troubles to be expressed in their entirety. With his understanding

of language education, Ionesco developed this play that acknowledges and seeks to overcome the barrier of language exchange through active learning (Elsky, 2018, p. 351).

The play begins with the conversation of Mr. and Mrs. Smith. However, a sensation of isolation between the couples is acquired with single-sided speech of Mrs. Smith:

Mrs. Smith: *There, it's nine o'clock. We've drunk the soup, and eaten the fish and chips, ...*

Mr. Smith: *[continues to read, clicks his tongue.]*

Mrs. Smith: *Potatoes are very good fried in fat; the salad oil was not rancid. ...*

Mr. Smith: *[continues to read, clicks his tongue.]*

Mrs. Smith: *However, the oil from the grocer at the corner is still the best.*

Mr. Smith: *[continues to read, clicks his tongue.]*

Mrs. Smith: *Our little boy wanted to drink some beer...*

Mrs. Smith: *Mrs. Parker knows a Rumanian grocer... (Ionesco, 1958, p. 9)*

Mrs. Smith speaks in a way that is indicated in the lines above for nearly two pages; however, her interlocutor, Mr. Smith neither makes a comment nor uses simple utterances to show that he is listening to her. She changes subjects, shifts from the soup to potatoes, from their little boy to their neighbour. None of the subjects takes attention of Mr. Smith. In a conventional or natural dialogue, the utterances of one interlocutor necessitate a response. There is a lack of communication between the couple. This total failure of communication between them results in an absence of mutual understanding. "... the world of these characters, though apparently, calm and logical on the surface, is actually deeply erratic within; though they think themselves sane, they are actually insane..." (Gray, 1963, pp. 343-347). Criticizing the incapability of understanding each other and inability to make a logically regulated conversation, Ionesco depicts the incomprehensible unknown universe of the human beings and their being alone as part of existence. As observed here, "it is in its attitude to language that the Theatre of the Absurd is most revolutionary. It deliberately attempts to renew the language of drama to expose the barrenness of conventional stage dialogue" (Esslin, 1960, p. 10). According to Ionesco, "the absurdity of its dialogue and its fantastic quality springs directly from its basic ordinariness. It exposes the emptiness of stereotyped language" (p. 39). The human being is in such nonchalance and indifferent to the events going around him/her that even uttering words and being a part of a conversation become meaningless. The language is the primary sign of indicating the

immobility of humans and representing their failure in communicating in a proper manner.

As the play progress, Mr. and Mrs. Smith begin to discuss the death of Bobby Watson. They try to comprehend the exact date of his death; however, they are unsuccessful in listening to each other and reaching a meaningful result:

Mr. Smith: ... *It has been three years since his death was announced.*

...

Mr. Smith: *He was the handsomest corpse in Great Britain. He didn't look his age. Poor Bobby, he'd been dead for four years and he was still warm.*

Mrs. Smith: *Poor Bobby.*

Mr. Smith: *Which Poor Bobby do you mean?*

Mrs. Smith: *It is his wife that I mean.* (Ionesco, 1958, p.11-12)

The conversation uncovers the significant detail that all the members of this Watson family have the names of Bobby Watson. It makes difficult for the couple to comprehend and associate the happenings with the proper Bobby Watson. Here, the names lose their validity because of the fact that they are merely arbitrary sounds used for people. While humans question their own existence and are unaware of their precise position and activities, the essence of the most basic entities and events is suspected. The couple is undecided as to whether he is living or dead. They try to recall the information from their recollections. Unfortunately, the history is littered with incomprehensible details that are devoid of relevant facts. Because they share the same memories, they are unable to attain reality, which leads to the conclusion that reality is subjective. Even when it comes to shared experiences, they each have their own truths. They are observed to be uninterested in each other and unconcerned about the environment around them: "...even if they were to observe the world, they would still rationalize the irrational and mystical (pull it down to their own level)-view it from their own meaningless existence" (Gray, 1963, p. 344). Devoid of the sense of real, the characters become a part of an ambiguous environment and nonsensical condition of assessment. As Ionesco himself emphasizes in one of the interviews on *The Bald Soprano*, "there are no characters, they do not exist as characters. There, language was the theme of the play" (1973, p. 46). The play interrogates how we communicate with each other. More precisely, it puts into question whether we are having a real communication or not. The futility of communication is expressed by the playwright. Language is one-way and the words of one's have no effect

on the other. That is to say, it does not make any sense for the person who is one of the parts of the conversation. The vagueness of the language result is the death of the mean of verbal communication.

Constituting one of the most perplexing and at the same time fascinating part of the play, the dialogue between Mr. and Mrs. Martin challenges the limits of reason:

Mr. Martin: *Excuse me, madam, but it seems to me, unless I'm mistaken, that I've met you somewhere before.*

Mrs. Martin: *I, too, sir. It seems to me that I've met you somewhere before.*

Mr. Martin: *Was it, by any chance, at Manchester that I caught a glimpse of you, madam?*

Mrs. Martin: *That is very possible. I am originally from the city of Manchester. ...*

Mr. Martin: *Good God, that's curious! I, too, am originally from the city of Manchester, madam!*

...

Mrs. Martin: *That is curious! What a bizarre coincidence!* (Ionesco, 1958, p. 15)

The conversation between Mr. and Mrs. Martin begins as if two strangers were trying to become acquainted with each other. Their astonishment on the details of the city they reside, the time of their arrival, the same room they live in and the same bed they slept all expressed in the same utterances. As they finally discovered they were husband and wife, they were overjoyed to find each other. When they fall asleep, Mary appears and informs the audience that they are unable to get married. The maid's explanations invalidate all of their coincidental deductions. However, one cannot be sure about the person possessing the reality. The absurdity arises from the fact that even the most explicit circumstances of coincidence cannot go beyond being just that. With the characters speaking the same interchangeable language, communication breaks down. As if they lack self-awareness, the identities emerge from the on-going discourse. They are shaped by the language. However, as the verbal communication is deficient itself, language is unable to further the circumstances and situations.

By the end of the play, the language has completely lost its function; it is no longer a part of the characters' dialogue. They utilized language and utterances that demonstrated a complete lack of communication. They don't even pay attention to one another. Consisting of clichés, unrelated truisms and generalizations, their speech loses its validity and reason. The

incomprehensive and irrational aphorisms such as “He, who sells an ox today, will have an egg tomorrow” or “A schoolmaster teaches his pupils to read, but the cat suckles her young when they are small” (Ionesco, 1958, p. 38) indicates the indifference of the partners in each other.

The final scene of *The Bald Soprano* contains stage directions to initiate the play from very beginning; however, this time Mr. and Mrs. Martin are the ones who are uttering the first words of the play. Ionesco comments on the ending of its play with these words revealing his purpose:

I wanted to give a meaning to the play by having it begin all over again with two characters. In this way the end becomes a new beginning but, since there are two couples in the play, it begins the first time with the Smiths and the second time with the Martins, to suggest the interchangeable nature of the characters: the Smiths are the Martins and the Martins are the Smiths. (1960, p. 13)

The inability to communicate in this meaningless world makes the appearances of the people as abstract shadows. The illogical language and the futility of conversation result in the interchangeability of the people: “the characters absent from themselves become as interchangeable as the lines they speak” (Dobrovsky, 1959, pp. 5). The solitude and insignificance of human existence trivialize the protagonists and antagonists as all of the human beings become indistinguishable.

Conclusion

In consequence, as the existence of human being is purposeless and futile according to the existentialists, the theatre of the absurd which examines the existence of human being upon this philosophy, describes it as illogical and meaningless. Ionesco’s work based on daily conversation demonstrates his true strength and talent, highlighting the insufficiency of words in communicating and how difficult, if not impossible, it is to understand each other. His dialogues encapsulate both the meaninglessness of words and the lack of communication. The *Bald Soprano* is full with imagery of alienation and loneliness, especially miscommunication, and is one of the best instances of Ionesco’s plays that are disconnected from or apart from the historical and social setting.

In *The Bald Soprano*, the world is presented as an incomprehensible atmosphere. No matter how meticulously the spectator follows the happenings on the stage, the fully understanding of the dialogues and thoughts are nearly impossible. The language of that world is the one not evoking comprehensible and meaningful contents. The difficulty of mastering the language and the happenings on the stage increases the level

of difficulty in identifying oneself with the characters. The meaningless words do not allow the heroes to communicate logically since they are unable to speak to each other, listen to what is said, or appear to listen. As a result, words do not serve the function of generating reasoning. The endeavouring for understanding the feelings results in confusion and this confusion bring with itself the critical evaluation of the stage's relation to the real world. The simple-sidedness and illogical representations of the happenings would at the end reveal the irrationality of the life itself. The human's absurd conditions surpassing the verges of the sense are experienced. Ionesco demonstrates the nature of human existence and the futility of human effort in generating a meaningful communication.

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CHAPTER 17

TIME SERIES ANALYSIS OF FINANCIAL DATA IN THE COVID-19 PANDEMIC

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1. Introduction

The series formed by the observation values of a variable, which is measured at equal time intervals and whose time interval is known, is called the "time series" and demonstrated by the notation Y_t where t defines the sample size. Time series can be used in many fields such as statistics, mathematics, economics and engineering. In time series, the main aim is to observe the variability of a subject in a certain time period. With this analysis, forecastings about the future can be made by obtaining information from past to the present. The observation values are collected at daily, weekly, monthly, annual or in longer time intervals. The important thing in the time series is that the observation process must be obtained at regular intervals (Napier, 2020). Also time series analysis has four components called seasonal, trend, cyclical, and irregular. Along with the effects created by these components, whether the data is stationary in time series analysis also has an important role in determining the model (Tsay, 2005).

The time series data can be analyzed in two ways as follows; Stock series are obtained by measuring the attributes of the data at a given time. On the other hand, flow series are obtained by measuring the attributes of the data over a given time period. Time series can be divided into discrete and continuous time series. The difference between these series is that the "discrete time series" can be obtained at certain intervals, while the "continuous time series" can be recorded continuously over time (Kıran, 2014).

On the other hand, the new coronavirus, which emerged in an animal market in Wuhan, China on December 1, 2019, caused by the SARS-CoV-2 virus and affected the whole World. It was declared a pandemic by the World Health Organization (WHO) on March 11, 2020. Especially since 2020, time series analyses are frequently used for modeling COVID-19 pandemic data to forecast the number of COVID-19 cases, deaths, and etc. all over the world. Some of the studies that we investigated about modeling COVID-19 pandemic data by time series analyses can be given as follows; Abotaleb et al. (2021), Yonar et al. (2020), Jain et al. (2021), Sellam et al. (2021), Yu et al. (2021), Thapa (2022), Hernandez-Matamoros et al. (2020), Khanday et al. (2020), Sardar et al. (2021), Sayadi et al. (2020), Contoyiannis et al. (2021), Vokó and Pitter (2020), Coelho et al. (2020), McGough et al. (2020), Ratnasari (2020), and Coelho et al. (2020).

2. Materials and Method

In this section, some basic knowledge and the underlying theory of time series that will be used in this study will be given as follows;

2.1. Components of Time Series

Time series data is affected by some factors. With the effect of these factors, it can be seen that the observations made at different time points are dependent on each other. In order to explain this situation, the factors affecting the data should be revealed. These factors are also called time series components. There are four components that constitute the time series as follows (Brockwell & Davis, 2002);

i. Seasonal (S): In time series, the observed values change depending on the calendar effect. This change takes place at certain periods. If there is a consistent change of approximately the same magnitude in the data at a certain time of the year, this can be called as the “seasonality effect”. An example of the seasonality effect is the increase in water consumption due to the warmer weather in the summer months. This effect is an effect that can be seen frequently in time series and can be easily detected.

Although there are many methods to detect this effect, one of the best methods is to draw a seasonality graph. If seasonality effect is detected in time series, it should be removed from the series. This change takes place at certain times.

ii. Trend (T): Trend effect is when a time series data show an increasing or decreasing trend in the long run. In other words, a trend is a long-term change in the mean of the process over time (Napier, 2020). This effect can be up or down sloping. Trend effect can be seen as deterministic or stochastic in time series. This effect can be linear or in some cases non-linear. A demonstration of a time series showing a non-linear trend is given in Figure 1.



Figure 1. A graph of time series with trend effect

iii.Cyclical Components (C): It is the periodic change over a longer period of time that is unrelated to the seasonal change. This component causes up and down fluctuations around the trend effect in time series. One of the methods that can be used to determine this component is the Box-Jenkins method.

iv.Irregular Components (I): These are changes whose cause is unknown. This component is unpredictable. It is the only unexplained component out of all the components that can affect it when modeling a time series. This component, which makes it a random variable, is always seen in time series.

Two types of models can be considered for these four components that make up the time series. These are called the “additive model” and the “multiplicative model”. These two model types are given as follows, respectively (Brockwell & Davis, 2002);

$$\text{Additive Model : } Y_t = S + T + C + I \quad (1)$$

$$\text{Multiplicative Model : } Y_t = S \times T \times C \times I \quad (2)$$

Time series may contain all these four components or only one of them. These effects can be observed separately as well as in conjunction with each other. In order to make an accurate analysis and to obtain a realistic result in forecasting models for the future, these components should be removed from the series and then will be analyzed.

2.2. Stationarity

Stationarity means that time series data are free from components such as trend or seasonality, and their statistical properties have not changed over time. Time series must be stationary to be meaningful when modeling. If not, it should be stabilized by applying various tests, since inconsistent results can be obtained in the analyzes made. Unit root tests are used to determine the stationarity of the series and to understand how stationary it is.

2.2.1. Strictly Stationarity

It is the case of distributions being independent of time. For a time series Y_t to be perfectly stationary, the combined distribution of $(Y_{t1}, Y_{t2}, \dots, Y_{tk})$ must be the same as $(Y_{t1+s}, Y_{t2+s}, \dots, Y_{tk+s})$. In other words, complete stationarity means that the distribution $(Y_{t1}, Y_{t2}, \dots, Y_{tk})$ is insensitive to time shifts. This is a difficult condition to prove in practice. Therefore, it is generally assumed that the Y_t series is weakly stationary. It is almost impossible to find the perfectly stationary series in time series analysis (Akdi, 2003).

2.2.2. Weak Stationarity

For a Y_t series to be weakly stationary, the covariance of Y_t with the mean $(Y_t$ to $Y_{t-l})$ must be time-independent where l is any integer.

If Y_t is a time series,

- i. $\forall t \in T$ for $E(Y_t) = \mu < \infty$ (That is, the mean of the series is constant over time)
- ii. $\forall t, s \in T$ for $\text{Cov}(Y_t, Y_s)$ covariance depends only $|t - s|$.

If these properties are met, the time series Y_t is said to be weakly stationary or covariance stationary or simply stationary (Akdi, 2003).

2.3. Unit Root Tests

Unit root tests analyze the stationarity of the time series and examine whether it is necessary to take a difference. Widely utilized tests are Dickey-Fuller's ADF test, PP unit root test, and KPSS stationarity test. Here there will only be information about Dickey-Fuller's ADF test (Dickey & Fuller, 1981).

The ADF test tests the null hypothesis of $I(1)$ versus the alternative that a time series Y_t is $I(0)$, assuming that the data have an $ARMA(p, q)$ structure. If the ADF test statistic value for π is overmore the critical value, H_0 is rejected in the regression model given by Eq. (3).

$$\Delta Y_t = \beta_0 + \beta_1 t + \pi Y_{t-1} + \sum_{j=1}^p \psi_j Y_{t-j} + \varepsilon_t \quad (3)$$

2.4. Correlation and Autocorrelation Function

Correlation coefficients are coefficients that show the degree of correlation between the observations in time series. The correlation formula for random variables X and Y is as follows;

$$\rho_{x,y} = \frac{cov(X,Y)}{\sqrt{Var(X)Var(Y)}} = \frac{E[(X-\mu_x)(Y-\mu_y)]}{\sqrt{E(X-\mu_x)^2 E(Y-\mu_y)^2}} \quad (4)$$

In Eq. (4), μ_x and μ_y represent the averages of X and Y . The value of $\rho_{x,y}$ ranges from -1 to 1. However, if $\rho_{x,y}=0$, it can be said that there is no relationship between the X and Y random variables. If X and Y are normally distributed random variables and $\rho_{x,y}=0$ then X and Y are also independent. Relationship and independence do not go together in a time series. Independence is more important than the relationship term. For the sample $\{(X_t, Y_t)\}_{t=1}$,

$$\hat{\rho}_{x,y} = \frac{\sum_{t=1}^T (x_t - \bar{x})(y_t - \bar{y})}{\sqrt{\sum_{t=1}^T (x_t - \bar{x})^2 \sum_{t=1}^T (y_t - \bar{y})^2}} \quad (5)$$

where $\bar{x} = \sum_{t=1}^T x_t / T$ and $\bar{y} = \sum_{t=1}^T y_t / T$ (Tsay, 2005).

Suppose the time series Y_t is stationary. The correlation is called "autocorrelation" when it is dealt with the linear relationship is between Y_t and its previous values Y_{t-l} . Autocorrelation between Y_t and Y_{t-l} is called autocorrelation with $l > 0$ delay and is denoted by ρ_l as follows;

$$\rho_l = \frac{Cov(Y_t, Y_{t-l})}{\sqrt{Var(Y_t)Var(Y_{t-l})}} = \frac{Cov(Y_t, Y_{t-l})}{Var(Y_t)} = \frac{\gamma_l}{\gamma_0} \quad (6)$$

Here γ_0 denotes $Var(Y_t)$ and γ_l denotes $Cov(Y_t, Y_{t-l})$. Autocorrelation function (ACF) for delay l is calculated by Eq. (7) as follows (Tsay, 2005);

$$\hat{\rho}_l = \frac{\sum_{t=l+1}^T (Y_t - \bar{Y})(Y_{t-l} - \bar{Y})}{\sum_{t=1}^T (Y_t - \bar{Y})^2}, 0 \leq l < T - 1 \quad (7)$$

2.5. Partial Autocorrelation Function

The partial correlation coefficient gives the amount of correlation between two variables, assuming no effect of other variables in the regression model. The partial autocorrelation function (PACF) gives the amount of relationship between Y_t and Y_{t-k} series when the effects of other lagged series ($Y_{t-1}, Y_{t-2}, \dots, Y_{t-k+1}$) are neglected. The partial correlation function is found by subtracting the effect of the terms between the correlation Y_t and Y_{t-k} values. The partial autocorrelation coefficient is denoted by “r” in Eq. (8) for stationary Y_t as follows;

$$r_k = \frac{\gamma(k) - \text{Cov}(Y_{k+1}, \mathbf{Y}_{2,k}^T) \Sigma_{2,k}^{-1} \text{Cov}(Y_{2,k}, Y_1)}{\gamma(0) - \text{Cov}(Y_1, \mathbf{Y}_{2,k}^T) \Sigma_{2,k}^{-1} \text{Cov}(Y_{2,k}, Y_1)}, \quad k \geq 1 \quad (8)$$

where $\gamma(\cdot)$ is the autocovariance function of Y_t , $\mathbf{Y}_{2,k} = (Y_k, Y_{k-1}, \dots, Y_2)^T$ and $\Sigma_{2,k} = \text{Var}(\mathbf{Y}_{2,k})$ (Fan & Yao, 2005).

2.6. White Noise

If the data in the Y_t time series are independent and have the same distribution (where mean and variance are finite), Y_t is called a white noise (WN) process and has the properties as follows;

$$E(Y_t) = 0 \quad (9)$$

$$\text{Variance}(Y_t) = \sigma^2 \quad (10)$$

$$\text{Covariance}(Y_t, Y_{t-1}) = 0 \quad (11)$$

If $Y_t \sim N(0, \sigma^2)$, it is called the Gaussian White Noise process. In the white noise series, all of the ACFs must be zero. The white noise process should not have too many delays (Franses, 1998).

2.7. Random Walk

If the mean or variance of a time series can change with time, it means that the series is in the process of random walking. Random walk is another time series model in which the current observation is equal to

the previous observation with a random step up or down. This process argues that the data is affected by random movements. The data are not random, but the reason for the differences between the data is not time but random behavior.

$$E(Y_t) = E(\sum u_t) = t \cdot \mu \quad (12)$$

$$\text{Var}(Y_t) = t \cdot \sigma^2 \quad (13)$$

If we model the random walk process,

$$Y_t = Y_{t-1} + u_t \quad (u_t, \text{white noise}) \quad (14)$$

$$Y_t - Y_{t-1} = u_t \quad (15)$$

Since the random walk process is not stationary, it is made stationary by taking the first difference (Franses, 1998).

2.8. Linear Time Series Models

In time series analysis, the series must be stationary in order to obtain correct results from modeling. While modeling stationary series, autoregressive (AR) models, moving average (MA) models and a combination of these two models as autoregressive moving average (ARMA) models are used. Other models can be used for non-stationary series.

2.8.1. Autoregressive (AR) Models

AR(p) model is also called the p -order autoregressive model. This model is a kind of classical model in time series analysis method and is widely used in many fields. The AR model can be calculated as in Eq. (16).

$$Y_t = \delta + \sum_{i=1}^p \varphi_i Y_{t-i} + u_t \quad (16)$$

where u_t is the white noise series with mean value 0 and variance σ^2 , p is the order of the AR model and φ_i is the parameter of the AR model of order $i = 1, \dots, p$.

The autocovariance function for the AR(p) time series given by Eq. (16) is given as follows;

$$\begin{aligned}
\gamma(k) &= \text{Cov}(Y_t, Y_{t+k}) \\
&= \text{Cov}\left(Y_t, \sum_{i=1}^p \phi_i Y_{t+k-i} + u_{t+k}\right) \\
&= \sum_{i=1}^p \phi_i \text{Cov}(Y_t, Y_{t+k-i}) \\
&= \phi_1 \gamma(k-1) + \phi_2 \gamma(k-2) + \cdots + \phi_p \gamma(k-p), \quad k > 0
\end{aligned}$$

Depending on the autocovariance function, the autocorrelation function of the series is obtained as follows;

$$\rho(k) = \phi_1 \rho(k-1) + \phi_2 \rho(k-2) + \cdots + \phi_p \rho(k-p), \quad k > 0 \quad (17)$$

The k -degree partial autocorrelation coefficient $\phi(k)$ for the $AR(p)$ model can be calculated with the help of Eq. (8).

2.8.2. Moving Average (MA) Models

Moving average (MA) models are a time series models that explains very short-term autocorrelation and indicate that the next observation is the average of each past observation. It can be estimated by looking at the ACF graph.

We can introduce MA models with two approaches as follows;

- **1st Approach:** Considering the model as a simple extension of the white noise series.

- **2nd Approach:** It is to consider the model as an infinite degree AR model with some parameter constraints (Tsay, 2005).

The q -order moving average (MA) model is expressed as follows and denoted as MA(q),

$$Y_t = \mu + w_t + \theta_1 w_{t-1} + \theta_2 w_{t-2} + \cdots + \theta_q w_{t-q} \quad (18)$$

Here it is defined as $w_t \sim N(0, \sigma_w^2)$. The expected value of the Y_t time series is as follows;

$$E(Y_t) = E(\mu + w_t + \theta_1 w_{t-1} + \theta_2 w_{t-2} + \cdots + \theta_q w_{t-q}) = \mu \quad (19)$$

The variance of the Y_t time series that have a MA(1) process is as follows;

$$\text{Var}(Y_t) = \text{Var}(\mu + w_t + \theta_1 w_{t-1}) = \sigma_w^2(1 + \theta_1^2) \quad (20)$$

Autocovariance function can be given in Eq. (21) as follows;

$$\gamma_x(h) = \begin{cases} \sigma_w^2(\theta_1^2 + 1) & h = 0 \\ \theta_1 & h = 1 \\ 0 & h > 1 \end{cases} \quad (21)$$

ACF of Y_t time series in Eq. (20) is as follows (Griffin, 2019);

$$\rho_x(h) = \begin{cases} \frac{\theta_1}{\theta_1^2 + 1} & h = 1 \\ 0 & h > 1 \end{cases} \quad (22)$$

2.8.3. Autoregressive Moving Average (ARMA) Models

A stationary and reversible series can be constructed and analyzed with either an autoregressive (AR) model or a moving average (MA) model. A high-order model is needed to make a good approximation, and in this case the data for AR and MA models may contain too many parameters. We may need to include both models in the process, as a large number of parameters can reduce the estimation efficiency. This inclusion process combines the autoregressive (AR) model and the moving average (MA) model to form the autoregressive moving average (ARMA) model as a mixed model. In ARMA(p, q) model,

$$Y_t = \phi_1 Y_{t-1} + \dots + \phi_p Y_{t-p} + \theta_1 w_{t-1} + \dots + \theta_q w_{t-q} + w_t \quad (23)$$

Here $w_t \sim N(0, \sigma_w^2)$, Y_t is stationary, $\phi_i \neq 0, i = 1, \dots, p$, $\theta_q \neq 0$, $j = 1, \dots, q$, $\sigma_w^2 > 0$; p is the autoregressive model order, q is the moving average model order.

Autocovariance function can be given as follows;

$$\gamma_x(h) = \begin{cases} 0.5\gamma(0) - 0.5\sigma_w^2 & h = 1 \\ 0.5\gamma(h-1) & h > 1 \end{cases}$$

Here the variance is $\gamma(0) = \sigma_w^2$ (Griffin, 2019).

2.9. Autoregressive Integrated Moving Average

This model is used when the series is not stationary. In this model, the ARIMA model as a mixed model, is created by combining the autoregressive and moving average models, like the ARMA model. In addition to the p and q arguments, the ARIMA model also includes a " d " argument. This argument gives us the number of non-seasonal differences required for stationarity. So this argument makes the series stationary by removing the trends. Minor terms are chosen for difference terms. If terms that are too high are chosen, it will cause the model to represent the data incorrectly. There are two rules for choosing the difference term as follows;

- Taking a difference should not increase the variance
- Model autocorrelation should be less than -0.5

ARIMA (p, d, q) model,

$$Y'_t = \phi_1 Y'_{t-1} + \dots + \phi_p Y'_{t-p} + \theta_1 w_{t-1} + \dots + \theta_q w_{t-q} + w_t \quad (24)$$

where y'_t is the differenced series (Hyndman and Athanasopoulos, 2018).

2.9.1. Seasonal ARIMA model

ARIMA models are also capable of modeling a wide variety of seasonal data. A seasonal ARIMA pattern is expressed as SARIMA(p, d, q)[m]. Here, order of the autoregressive part is p , order of the moving average part is q , degree of first differencing involved is d , number of observations per year is m .

The seasonal portion of an AR or MA pattern will be seen in the seasonal lags of PACF and ACF. For example, if we examine an ARIMA(0,0,0)(0,0,1)[12] model, the delay in ACF increases by 1 in 12, but there is no other significant increase. There is an exponential decrease in seasonal lags of PACF, namely 12, 24, 36.

While modeling for seasonal ARIMA, the difference from non-seasonal ARIMA data is that seasonal components of AR and MA processes should be selected (Hyndman and Athanasopoulos, 2018).

2.10. Model Selection, Validity and Forecasting

In a time series with ARIMA(p,d,q) process, the lag lengths are decided with the help of ACF and PACF graphs. (Wickham et al., 2015) Akaike (AIC) and Schwarz Bayesian (BIC) criteria give suggestions for determining the most appropriate number of delays. (Brockwell and Davis, 2002) The fact that the residual terms for the selected model are uncorrelated and random are important tools in examining model validity. For this, it is checked whether the residual ACF graph shows a pattern. The Ljung-Box Q statistic provides information about the correlation of residuals. (Çınar and Sevüktekin, 2017)

In order to obtain the predictive values, $t+1$ is written instead of t unit in the ARIMA (p,d,q) model given by Eq. (24).

$$Y'_{t+1} = \phi_1 Y'_t + \dots + \phi_p Y'_{t-p+1} + \theta_1 w_t + \dots + \theta_q w_{t-q+1} + w_{t+1} \quad (25)$$

In Eq. (25), $w_{t+1} = 0$ and w_t is replaced by \hat{w}_t obtained from Eq. (24) (Hyndman and Athanasopoulos, 2018; Hamilton, 1994).

3. An Application on Time Series Analysis of Financial Data in the COVID-19 Pandemic

The Turkish Lira (TRY) price series of the US Dollar (USD) has been compiled to be used in linear time series analysis. The USD value appreciated up to 18 TRY in December 2021 with the jump due to the conjuncture. In this study, the changes in the exchange rate during the COVID-19 process are examined and the purchase prices up to the time of the jump are obtained from the official website of the Central Bank of the Republic of Turkey.



Figure 1. *Graph of Dollar prices during the Covid 19 process*

The graph in Figure 1 has been created for the data from 11/3/2020, the date when COVID-19 cases started to be seen, to the present. The time series to be used in the ARIMA model is the daily purchase price data between 11/3/2020 and 19/11/2021, and the number of observations is $n=422$. The time graph of the series and the graphs of ACF and PACF are given in Fig. 2.a, Fig.2.b., and Fig.2.c., respectively.



Figure 2.a. *Price graph of time series belonging to the financial data in the COVID-19 pandemic*

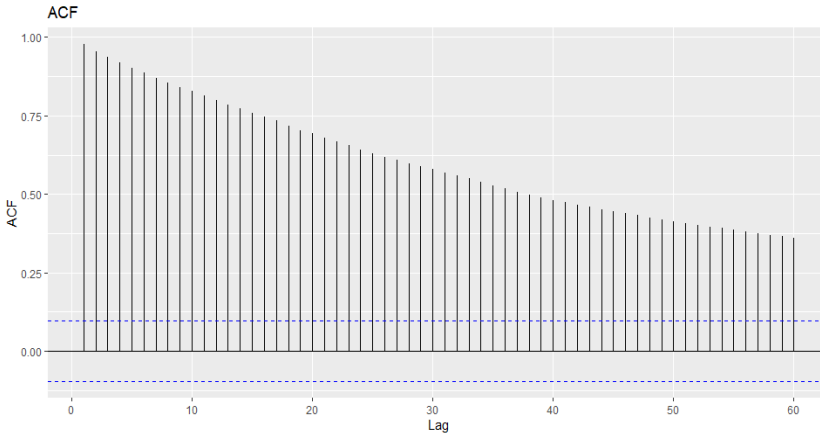


Figure 2.b. ACF graph of time series belonging to the financial data in the COVID-19 pandemic

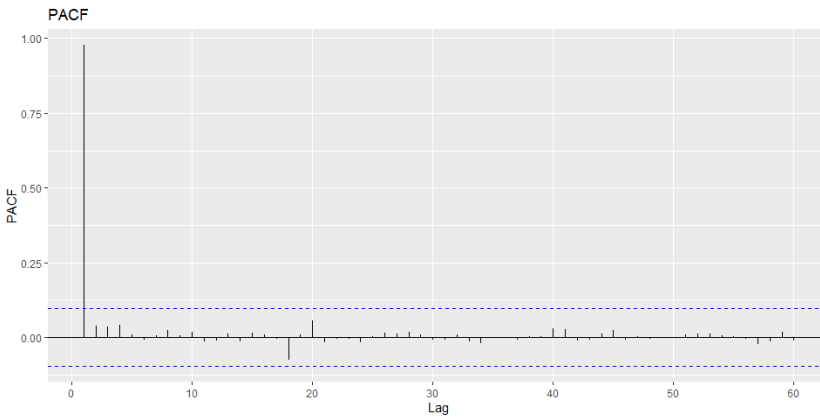


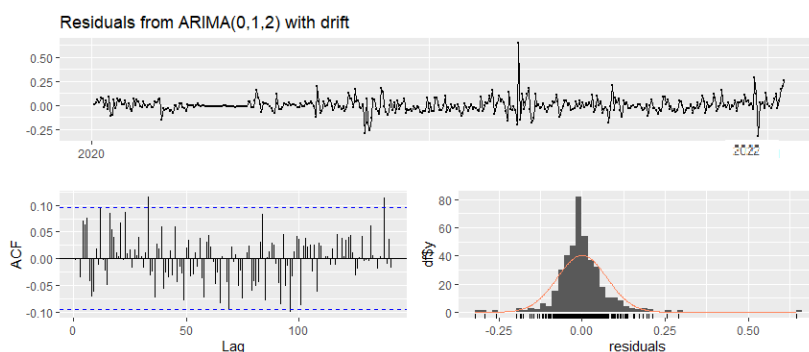
Figure 2.c. PACF graph of time series belonging to the financial data in the COVID-19 pandemic

The price graph and the ACF and PACF graphs in Fig. 2.a, Fig.2.b., and Fig.2.c, indicate that there is a trend in the series, respectively. The ARIMA model ensures that the trend is removed and the linear model is revealed by applying the difference process in the series. The ARIMA model suitable for the USD price series is obtained as ARIMA(0,1,2). The coefficients and the information criteria related to the model are given in Table 1.

Table 1. Coefficients and information criteria related to the time series model belonging to the financial data in the COVID-19 pandemic

	MA1	MA2	Drift
Coefficient	0.09	0.0718	0.011
Standard error	0.0498	0.048	0.0042
	AIC	AICc	BIC
	-980.86	-980.77	-964.69

Graphs of the residuals obtained from the ARIMA(0,1,2) model are given in Figure 3. When the ACF graph is examined, it can be said that the residual terms do not follow a pattern. In addition, the Ljung-Box statistic ($p=0.423$) shows that the residuals are not correlated.

**Figure 3.** The residual plots for the ARIMA(0,1,2) model belonging to the financial data in the COVID-19 pandemic

The next 10-day forecasted values obtained from the ARIMA(0,1,2) model, 80% and 95% confidence bands and actual prices are given in Table 2. Although the forecasted values are in the direction of increase, they lagged behind the rapid increase in prices.

Table 2. Predictive values from the ARIMA(0,1,2) model belonging to the financial data in the COVID-19 pandemic

Date	Realized Price	Point Forecast	Low %80	High %80	Low %95	High %95
11/22/2021	11.0266	10.7448	10.64862	10.84095	10.59772	10.89185
11/23/2021	11.1712	10.7742	10.6319	10.91639	10.5566	10.99169
11/24/2021	12.1556	10.7852	10.60431	10.96604	10.50857	11.06179
11/25/2021	12.6082	10.7962	10.58363	11.0088	10.47109	11.12133
11/26/2021	12.0001	10.8073	10.56709	11.0474	10.43997	11.17452

11/29/2021	12.0786	10.8183	10.55342	11.08314	10.41321	11.22335
11/30/2021	12.6595	10.8293	10.54185	11.11677	10.38968	11.26894
12/1/2021	12.9387	10.8403	10.53194	11.14875	10.36868	11.312
12/2/2021	13.3363	10.8514	10.52337	11.17939	10.34973	11.35303
12/3/2021	13.4067	10.8624	10.5159	11.20892	10.33247	11.39236

The graph of the predictions is given in Figure 4. Since the rapid increase in USD prices, which accelerated at the end of December and continued in January, depends on the seasonal conjuncture, the forecast range obtained from the previous period reflects the increase, but does not sufficiently contain it.

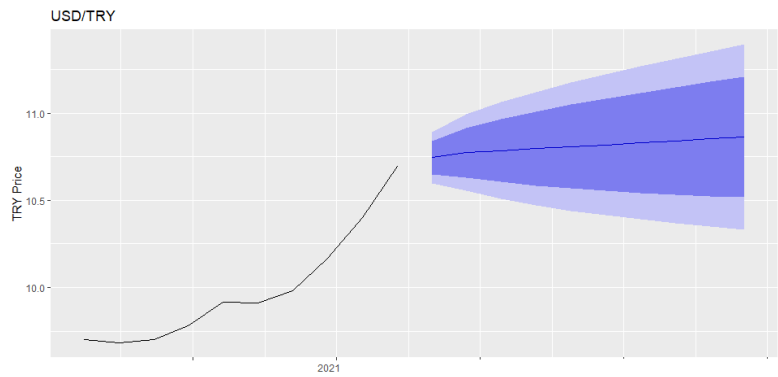


Figure 4. Graph of the predictive values from the ARIMA(0,1,2) model belonging to the financial data in the COVID-19 pandemic

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CHAPTER 18

COMPARISON OF TELECOMMUTING BEFORE AND AFTER COVID-19 PANDEMIC USING TOPIC MODELING ON TWITTER

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1. Introduction

Telecommuting is used to characterize employees' work-related activities from a point away from the typical workplace. It can be used as a similar meaning in telework or teleworking (Di Martino & Wirth, 1990). Any place to work remotely can be an alternative workspace; a home office, telework center, satellite office, a client's office, an airport lounge, a hotel room (Gibson et al., 2002). Telecommuting arrangements are critical for organizations and managers. It is essential for organizations considering such program implementations to know what can be done to achieve many potential benefits and to reduce or eliminate many possible problems (Guimaraes & Dallow, 1999). Telecommuting has long been a subject studied by the public and private sectors. Many studies have discussed the advantages and disadvantages of telecommuting.

According to the literature, in addition to its organizational benefits and harms in general, its effects on the environment and the economy have also been covered. From an organizational perspective, the effect of telecommuting on productivity (Hartman et al., 1991; Neufeld & Fang, 2005; Widy Soenanto & Hamzah, 2016), morale, recruitment and absentee relations (Solomon, 2000), quality of social life, career development (Khalifa & Davison, 2000), workers' supervision, information security, impact on profit (Leonard, 2001), teamwork and time to respond to rapid change (Armour, 2001) came to the fore. In the studies examined in terms of environment and economy, topics such as air quality (CO₂ emission), energy, traffic, travel costs (Dissanayake & Morikawa, 2008; Hook et al., 2020; Mokhtarian et al., 1995) were analyzed.

It is seen that empirical and experimental studies are in the majority in studies conducted for telecommuting. Survey applications, one-to-one interviews, and structural analysis methods constitute the study's general methods (Gibson et al., 2002; Giovanis, 2018; Glenn Dutcher, 2012; Guimaraes & Dallow, 1999; Kim, 2017). Recently, with social media analytics, it has gained value in the extraction of useful information via social media. Although the COVID-19 pandemic reports are being published gradually about the status and future of the telecommuting, it is predicted that making a comparison by doing social media analytics will help the institutions' strategies.

Telecommuting applications have increased its popularity as technology has developed. However, it cannot be said that governments and businesses have been acting too quickly to switch to the way telecommuting (Ansong & Boateng, 2018). After the COVID-19 pandemic, in most public and private sectors, if there was a suitable environment for telework, it had to switch to telecommuting quickly. As employees start to get used to working

remotely, what kind of a corporate structure will be post-pandemic is one of the questions that has been questioned recently.

This study aims to reveal the topics that can be useful for the government and businesses, such as what is talked about before and after COVID-19 about telecommuting, what has changed about the application, emerging risks, and opportunities as the output of the study, managers, and strategists enable their organizations to review the results when they want to draw road maps that provide plans and forecasting.

The rest of the article is structured as follows: Section 2 describes the related literature, Section 3, the Topic Modeling, and Section 4, the application and findings. Section 5 yields the discussions of the analysis and presents the conclusions.

2. Literature Review

Telecommuting was defined in different forms until the rise of the oil crisis in the 1970s until Jack Nilles put forward the term “telecommuting” (Nilles, 1975). Later, the researchers made investigations on every aspect of this subject and occasionally reached contradictory results while achieving detailed results from time to time (Allen et al., 2015). The methodology of the studies, to whom it is applied and in which dimension it is examined, affects the result of the study.

In this context, it is useful to see what different methods researchers consider for telecommuting. The relationship between travel and distance work has always been the focus of attention. While Mannering & Mokhtarian (1995) used multinomial logit models as a function of employees' frequency of remote work, travel, and business attitude factors, Sangho Choo et al. (2002) analyzed multivariate data between distance work and travel distances with time series. Asgari & Jin (2015) carried out an impact analysis of the reduction in mileage traveled as a result of telecommuting. Menezes et al. (2017) have established a simulation model in Sao Paulo in which he is an alternative to telecommuting to reduce carbon absorption in the transportation sector. Hopkins & McKay (2019) conducted an online survey to investigate telecommuting's application to reduce traffic in smart cities. With the increase of personal computers, the frequency of remote employees connecting to the systems began to be measured. Mokhtarian & Meenakshisundaram (2002) have applied Cluster Analysis to determine the daily login for 115 users in California Tele-center and the frequency of telecommuting within six months. To estimate the interest in telecommuting. One of the main issues examined was to reveal the advantages and disadvantages of telecommuting. Gajendran & Harrison (2007) conducted a Meta-Analysis to reveal the positive and negative results of telecommuting. Sroka (2018) used the literature survey, demographic and

statistical data from Gallup, Eurostat, and individual economic institutions to evaluate the advantages and disadvantages of telecommuting. Green (2019) applied Regression Analysis to see employees' perceived results on issues such as social isolation, occupational isolation, career loss, job insecurity, and long working hours, by telecommuting.

Social media platforms, where everyone expresses their opinions clearly, can be data to give an idea about working remotely. With this feature, it is an essential significant data source for researchers working on data analysis and models in social sciences (Cioffi-Revilla, 2017). Topic modeling, as a method to extract meaningful information from these data, usage areas have been revealed. By examining how models can be trained in the dataset, Hong & Davison (2010) have addressed the problem of using standard topic models in micro blog environments. Combining the advantages of traditional collaborative filtering and probabilistic topic modeling, Wang & Blei (2011) have developed an algorithm to suggest scientific articles for users. In order to assist in historical research, Torget et al. (2011) examined the text processing task applied to historical newspaper collections and tried the topic model method. Lee et al. (2012) propose an interactive visual analysis system called iVisClustering for document clustering based on Latent Dirichlet Allocation (LDA), a common topic modeling method. Rhody (2012) showed that the topic modeling works with poetry modeling, although it has some failures, to understand how it deals with the language of poetry. Yau et al. (2014) researched methods including LDA and its extensions to divide a series of scientific publications into several clusters. By using topic modeling, Jeong et al. (2019) have identified product issues that are discussed by customers on social media by modeling products for a multifunctional product. Dahal et al. (2019) analyzed it using text mining techniques such as an extensive data set of geotagged tweets containing some keywords related to climate change, volume analysis, and topic modeling and sensitivity analysis. Hidayatullah et al. (2019) aimed to reveal useful information for the island by applying the topic modeling approach using LDA for the Twitter dataset shared by BMKG's official Twitter account on Java Island. De Oliveira Capela & Ramirez-Marquez (2019) proposes a method for identifying and comparing cities' identities using topic modeling and news articles. Uncovering the unique topics for each city has revealed their interests and perspectives. Kao & Luarn (2020) have findings that can be a reference for a better understanding of the social, opportunity, change, business, network, and team issues affecting social enterprises with topic modeling.

Within the scope of the literature, it is seen that the same topics or different topics are covered with different methods. However, there are not many examples of telecommuting using social media analysis methods. It will contribute to the literature with this feature. Telecommuting

generally refers to four underlying phenomena; environment, economic, technological, and social-organizational factors (Hopkins & McKay, 2019). With these together, given the changing ideas and concerns after the COVID-19 pandemic, research that social media analysis can benefit managers and strategists seems appropriate.

3. Topic Modeling

Topic modeling is a concept widely used in computer science, such as information retrieval, natural language processing, and text mining. In machine learning and natural language processing, the topic model is a statistical model used to discover abstract “topics” that arise in a collection of documents (Mimno et al., 2011). Topic modeling is a commonly used text-mining tool for the discovery of hidden semantic structures in the body of the text. Methods are provided that enable us to filter the necessary and useful information automatically from large amounts of data (Blei et al., 2010).

Topic modeling has started to be developed since the early 1990s. First, Scott Deerwester et al. (1990) introduced the LSA (Latent Semantic Analysis) method. In this method, the basic idea is to take the matrix of the document or terms owned and divide it into a separate document-subject matrix and subject-term matrix.

Later, Hofmann (2001) developed pLSA (Probabilistic Latent Semantic Analysis) to use a probabilistic method instead of SVD (Singular Value Decomposition) to solve the problem. The basic idea is to find a probabilistic model with obscure titles that can produce the data observed in the document term matrix.

Blei et al. (2003) Bayesian version, the extended version of the pLSA method, developed the LDA (Latent Dirichlet Allocation) method. In particular, it uses dirichlet priorities in document subject and word subject distributions and lends itself to better generalization.

3.1. Data Collection

Data can be obtained from social media in a few different ways. Firstly, datasets prepared by third parties from open source databases can be used. Examples of these platforms are Kaggle, UCI, TUIK, some public databases (Kumar Sharma et al., 2018). Secondly, some commercial companies that understand that data is increasingly essential can provide data sets for a fee. There are data from various social media platforms such as Twitter, Tumblr, and Foursquare in their portfolios. Thirdly, analysts can compile their data via Application programming interfaces (API). As part of their business models, social media companies often offer their application programming interfaces to third parties (Lomborg & Bechmann, 2014).

Generally, researchers prefer to get the data they want from API because they can be free and more flexible. Therefore, Ahmed (2018) tested

web-based and desktop tools to get Twitter data: Boston University Twitter Collection and Analysis Toolkit (BU-TCAT), Chorus Project, COSMOS Project, DiscoverText, Echosec, Follow the Hashtag, Mozdeh, Netlytic, NodeXL, Twitter Archiving Google Spreadsheet, Twitonomy, NVivo, Pulsar Social, SocioViz, Visibrain, Webometric Analyst. Unlike these, there is also a GOT(GetOldTweets) project developed by Jefferson Henrique (Nakade et al., 2018).

3.2. Data Preparation

There are many sources of noise on social media, such as advertisements, marketing messages, robots, and conversations that are not relevant. Many social media studies have shown that over 70% of the original data sets may be noise or irrelevant messages. For this reason, keeping the data preprocessed enables the analysis of the data to produce more quality analysis and produce more meaningful information from the data (Hotho et al., 2005).

In general terms, data preprocessing steps are as follows (Figure 1);

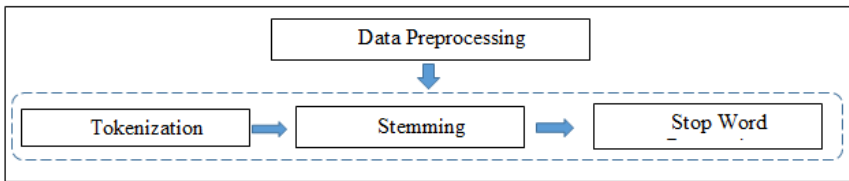


Figure 1. Data preprocessing steps (Vijayarani & Janani, 2016)

Tokenization is a step that breaks longer strings of text into smaller pieces or tokens. Welbers et al. (2017) defined string breaking text as dividing into small pieces. Larger pieces of text can be made sentences; sentences can be specified as words. The purpose of separating a string is to search for words in a sentence. The list of tokens becomes an input for further processing, such as parsing or text analysis (Kannan & Gurusamy, 2014).

It is a technique used to obtain information to combat the problem of dictionary mismatch, where the words of a query do not match the words of a document. In English and many other Western European languages, stemming is primarily a suffix abstraction (Baradad & Mugabushaka, 2015). Knowing the roots of the words provides similarities between the words.

Stop words are part of the natural language. The need to remove the words from a text is because it seems less critical to analysts (Vijayarani et al., 2015). Removing stop words reduces the size of the term gap.

Various tools are used for data preprocessing. Some of these tools have been identified or used in studies; NLTK Word Tokenize (Perkins, 2010), TextBlob Word Tokenize (Loria, 2020), Nlpdotnet Tokenizer (Vijayarani & Janani, 2016), Mila Tokenizer (Vijayarani & Janani, 2016).

3.3. LDA (Latent Dirichlet Allocation)

LDA assumes that a document covers several topics, and since each word in a document is sampled from probability distributions with different parameters, each word is produced with a hidden variable to show the distribution it came. By calculating the extent to which each topic is represented in a document, the document's content can be represented at a higher level, that is, as a series of topics. The process model is shown in Figure 2. Accordingly, in a corpus (D), the following steps can be given to creating the w document (Mo, 2016).

Choose K topics $\Phi \sim \text{Dir}(\beta)$ (K : number of topics; β : hyperparameter on topics-word distribution; Φ : a set of parameter vectors for generating word w , according to z)

- Choose topics proportion $\theta_m \sim \text{Dir}(\alpha)$ (θ_m : a set of parameter vectors for generating a specific topic z in document m ; α : hyperparameter on document-topic distribution)

- Choose a document length $N_m \sim \text{Poisson}(\xi)$

- For each word w_n in document m :

- Choose a topic $z_{n,m} \sim \text{Multinomial}(\theta_m)$ ($z_{n,m}$: a topic indicator for n . word in document m)

- Choose a word $w_{n,m}$ from $p(w_{n,m} | \Phi_{z_{n,m}}, \theta_m)$, a multinomial probability conditioned on the topic z_n ($w_{n,m}$: n . word in document m).

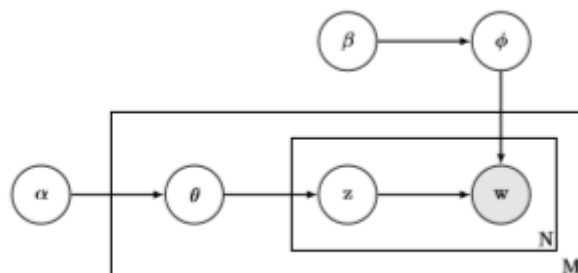


Figure 2. Graphic model of LDA

Hyperparameters α and β are the parameters of previous probability distributions that make the calculation easier. Hyperparameters can be started as fixed values. They can also be thought of as hidden variables that require estimation (Heinrich, 2005).

$$p(w_m, z_m, \theta_m, \phi; \alpha, \beta) = \prod_{n=1}^{N_m} p(w_{n,m} | \phi_{z_{n,m}}) p(z_{n,m} | \theta) p(\theta_m | \alpha) p(\phi | \beta) \quad (1)$$

This is the basis of many other derivatives. Thus, by integrating θ_m

and Φ outputs and summing on $z_{m,n}$, w_m document, one of its marginal distributions, is obtained.

$$p(w_m | \alpha, \beta) = \int p(\theta_m | \alpha) p(\phi | \beta) \prod_{n=1}^{N_m} \sum_{z_{m,n}} p(w_{n,m} | \phi_{z_{m,n}}) p(z_{n,m} | \theta_m) d\phi d\theta_m \quad (2)$$

$$= \int p(\theta_m | \alpha) p(\phi | \beta) \prod_{n=1}^{N_m} p(w_{n,m} | \phi_{z_{n,m}}) d\phi d\theta_m \quad (3)$$

Finally, the possibility of a compilation is the production of the probability of independent documents.

$$p(D | \alpha, \beta) = \prod_{m=1}^M p(w_m | \alpha, \beta) \quad (4)$$

4. Application and Findings

Information about the stages of the application carried out within the scope of the study is presented under this title. As shown in Figure 3, to collect the topic models before and after COVID-19 for telecommuting, data collection, data preparation, determining the number of LDA suitable topics, running the LDA Mallet algorithm, and determining the highest contributing document, stages were applied.

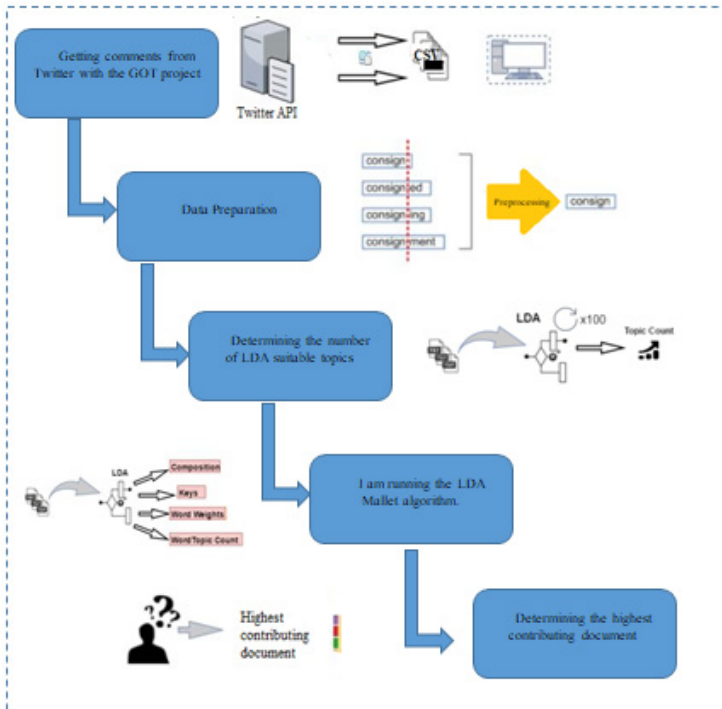


Figure 3. Stages of the study

In the study, the “Python” program was used. Python is preferred because it is an open-source programming language, and it has many libraries that can be used during application. Besides, the performance, data mining, and emotion analysis that it shows in large volumes of data sets are other factors that make it stand out. By downloading Python 3.7 from the Anaconda platform, Jupyter (IDE) interface was used.

4.1. Getting Comments from Twitter

The GOT (GetOldTweets) project created by Jefforsan Henrique in Python language was chosen as the data collection tool. There are limitations on Twitter, such as being able to shoot 60 tweets per minute and not being able to view tweets older than a week. These limitations are bypassed using the GOT project. It is also a project open for use, shared on the Github website. After the relevant code is downloaded, the words to be searched are executed by editing in the personal PC (Python-IDE) and saved in the “CSV” file format.

In the study, as in the following queries, related word groups were written, and comments were received between 01/01 / 2019-31 / 12/202019 for the previous and between 01/01 / 2020-04 / 27/2020 for the later.

- `python Exporter.py --querysearch “telecommuting” --since 2019-01-01 --until 2019-12-31`
- `python Exporter.py --querysearch “telecommuting” --since 2020-01-01 --until 2020-04-27`
- `python Exporter.py --querysearch “teleworking” --since 2019-01-01 --until 2019-12-31`
- `python Exporter.py --querysearch “teleworking” --since 2020-01-01 --until 2020-04-27`

By searching each word group with these query codes, the data collected were combined in the excel file, 15891 comments were obtained before, and 64931 comments were obtained after.

4.2. Data Preparation

Since Twitter comments are limited to 140 characters, users can generally use abbreviations, punctuation marks, emojis in tweets. Apart from this, spelling mistakes, comments, or advertisements that are not related to the subject can be said as sources of noise in tweets. In order to draw meaningful results from the data and to create more accurate classifications, the data should be cleaned with pretreatment as much as possible.

Tokenization, since splitting to synthetics, is defined as dividing a text into parts; twitter comments are divided into words in the study.

Stemming is used to separate the roots of words and find similarities. Finding similarities is also crucial for reducing vector space. NLTK library was used in the study within the body. Stop words removal; stop words can be considered as conjunctions in the sentence. These words are not measured as keywords, considering the attributes to be obtained from the data. Otherwise, the text is also reduced in size. In the study, the English conjunctions in the NLTK library were taken for the stop words. As a result of these operations, the data has been made available for topic modeling.

4.3. Determining the number of LDA suitable topics

Issues with mixed and weakly related concepts often do not produce a meaningful idea for researchers (Mimno et al., 2011). It has been observed that there is a strong relationship between the number and quality of the subjects evaluated by the experts. As the number of topics increases, the quality of the word distribution forming the topic decreases (Abrishamkar & Khonsari, 2019).

The approach finding the most appropriate number of topics was made by creating many LDA models with different numbers of subject values (k) and choosing the model that gives the highest consistency value. In the study, different topic number values have been set with the parameters of the “compute_coherence_score” function. Accordingly, the consistency values of the number of subjects, starting from the number of 2 subjects, up to 27, with 6 steps, were calculated. Figure 4 shows the results of the appropriate topic model of comments for telecommuting before COVID-19. Figure 5 shows the results after.

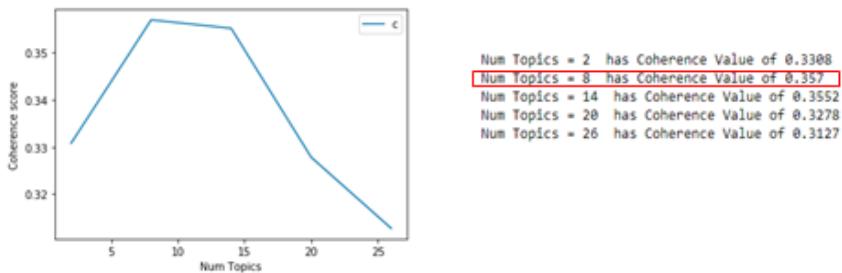


Figure 4. Coherence score obtained by the number of topics before COVID-1

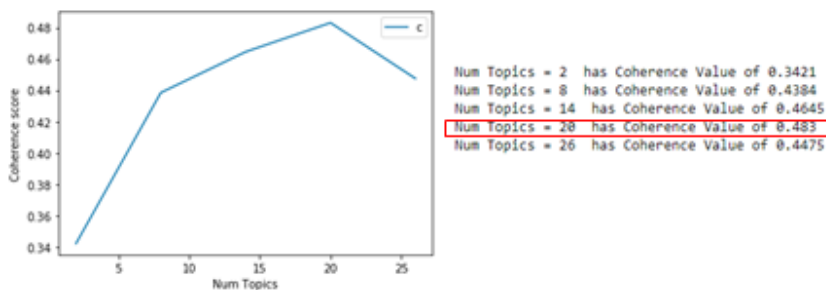


Figure 5. Coherence score obtained by the number of topics after COVID-19

4.4. Running the LDA Mallet algorithm

For the LDA algorithm, one of the Python libraries, the Gensim library, was used. Gensim was written by Radim Rehurek in 2008. Gensim is a compelling library used for natural language processing. It is an open-source topic modeling tool implemented in Python. It can be used in documents for word vectoring, topic modeling, and comparison with other documents (Barde & Bainwad, 2017).

The approach to LDA topic modeling is to see each document as a collection of topics at an individual rate and a topic as a collection of keywords at an individual rate. MALLET has a practical application in the LDA method. It is known to work faster and provides better subject separation. MALLET is a product of the University of Massachusetts Amherst. It was written in 2002 by Andrew McCallum and a collaboration team. It is a Java-based package for natural language processing or text mining. It is used for text classification, text clustering, information retrieval, topic modeling (Barde & Bainwad, 2017).

Table 1 shows the keywords for topics and weights obtained before COVID-19. In Table 2, there are post heads and weights.

Table 1

No. Keywords	
0	0.134**telecommute" + 0.047**work" + 0.040**opportunity" + 0.036**part" + 0.036**http" + 0.035**twitter"
1	0.103**people" + 0.044**live" + 0.033**move" + 0.032**city" + 0.031**big" + 0.027**life"
2	0.129**telecommuting" + 0.125**company" + 0.058**offer" + 0.034**option" + 0.024**flexibility" + 0.023**hire"
3	0.171**teleworking" + 0.043**tomorrow" + 0.035**law" + 0.024**arrangement" + 0.020**sign" + 0.019**boss"
4	0.111**make" + 0.086**time" + 0.036**give" + 0.025**easy" + 0.024**stay" + 0.022**productive"
5	0.113**telecommute" + 0.096**business" + 0.034**internet" + 0.034**future" + 0.034**traffic" + 0.029**car"
6	0.154**employee" + 0.147**http" + 0.100**telecommuting" + 0.090**bit" + 0.040**telework" + 0.034**policy"
7	0.358**twitter" + 0.112**pic" + 0.045**status" + 0.018**impact" + 0.017**transit" + 0.016**share"

Phrases for topics before COVID-19

Table 2
Phrases for topics after COVID-19

No.	Keywords
0	0.155**teleworke" + 0.154**day" + 0.076**today" + 0.073**week" + 0.028**hour" + 0.025**feel"
1	0.134**telecommute" + 0.047**work" + 0.040**opportunity" + 0.036**part" + 0.036**http" + 0.035**twitter"
2	0.039**technology" + 0.027**travel" + 0.026**lot" + 0.025**support" + 0.024**position" + 0.021**service"
3	0.103**people" + 0.044**live" + 0.033**move" + 0.032**city" + 0.031**big" + 0.027**life"
4	0.096**telecommute" + 0.087**good" + 0.056**thing" + 0.051**year" + 0.029**start" + 0.021**back"
5	0.129**telecommuting" + 0.125**company" + 0.058**offer" + 0.034**option" + 0.024**flexibility" + 0.023**hire"
6	0.171**teleworking" + 0.043**tomorrow" + 0.035**law" + 0.024**arrangement" + 0.020**sign" + 0.019**boss"
7	0.218**teleworke" + 0.144**office" + 0.051**today" + 0.032**love" + 0.023**plan" + 0.022**open"
8	0.271**telecommuting" + 0.171**http" + 0.053**news" + 0.038**www" + 0.025**software_market" + 0.020**rise"
9	0.111**make" + 0.086**time" + 0.036**give" + 0.025**easy" + 0.024**stay" + 0.022**productive"
10	0.113**telecommute" + 0.096**business" + 0.034**internet" + 0.034**future" + 0.034**traffic" + 0.029**car"
11	0.154**employee" + 0.147**http" + 0.100**telecommuting" + 0.090**bit" + 0.040**telework" + 0.034**policy"
12	0.358**twitter" + 0.112**pic" + 0.045**status" + 0.018**impact" + 0.017**transit" + 0.016**share"
13	0.112**work" + 0.095**telecommute" + 0.082**benefit" + 0.067**employer" + 0.049**flexible" + 0.041**bit"
14	0.047**increase" + 0.043**reduce" + 0.040**productivity" + 0.034**worker" + 0.033**save" + 0.032**state"
15	0.192**remote" + 0.080**remotework" + 0.055**work" + 0.039**tip" + 0.034**team" + 0.031**worker"
16	0.306**job" + 0.089**telecommute" + 0.056**home" + 0.050**find" + 0.048**call" + 0.047**leave"
17	0.069**commute" + 0.039**time" + 0.035**reason" + 0.035**great" + 0.030**drive" + 0.025**long"
18	0.457**work" + 0.245**home" + 0.021**remotely" + 0.015**life_balance" + 0.014**base" + 0.012**place"
19	0.265**telecommute" + 0.152**http" + 0.067**twitter" + 0.045**estate" + 0.045**change" + 0.022**changed_real"

4.5. Determining the highest contributing document

Sometimes it can be tough to understand what the topic is from the topic keywords. For this reason, the document with the highest contribution can be found to assist in understanding the subject. To better understand the subject, comments that make the highest contribution to that subject have been made. Table 3 and Table 4, the comments obtained are given respectively.

Table 3

No.	%Contrib.	Keywords	Text
0	0,2801	telecommute, work, opportunity, part, http, twitter, check, grow, great, staff	SmallBusinesses can be sustainable 24/7: No bottled water Start a garden Clean up a park Use recycled paper Zero print day Install light timers Replace light bulbs Install faucet aerators Allow telecommuting Engage staff Tell others For more/
1	0,2446	people, live, move, city, big, life, high, area, kid, school	Young adults who have telecommuting jobs are more likely to move out of urban centers and move out to smaller towns...and is it any surprise? They are in search of more affordable housing, larger lots, quality schools, and lower costs.
2	0,243	telecommuting, company, offer, option, flexibility, hire, workplace, top, program, culture	The war for talent is becoming profound in the #tech sector, but offering #remotework and #telecommuting can help companies compete in a tight labour market, says Ceridian Chief People & Culture Officer, Lisa Sterling
3	0,2793	teleworking, tomorrow, law, arrangement, sign, boss, alternative, require, watch, phone	Green Computing and Green IT Best Practices on Regulations and Industry Initiatives Virtualization Power Management Materials Recycling and Telecommuting
4	0,2127	make, time, give, easy, stay, productive, case, family, manager, snow	#WorkingFromHome has been the greatest gift for me but its not for everyone. Balance & boundaries are absolutely key. Extreme loneliness or the perfect balance? How to work from home & stay healthy* #remotework telecommuting
5	0,2091	telecommute, business, future, internet, traffic, car, email, road, encourage, problem	Expansion of alternatives to single-occupancy vehicle travel is the only answer. These include encouraging carpooling, telecommuting , many more bus routes across all the river crossings and of course expansion of rapid transit.
6	0,2247	employee, http, telecommuting, bit, telework, policy, number, perk, datum, management	NEW DATA: Telecommuting Could Save US \$700B Yearly of employees working-at-home regularly up 159% 50% of workforce have jobs that are compatible for telework Theres LOTS more! Global Workplace Analytics crunched the numbers
7	0,2297	twitter, pic, status, impact, transit, share, walk, commuter, trip, marketing	Telecommuting and telepresence are the biggest opportunities for virtual reality in the workplace, in terms of potential positive impact. No, we've not hired Spock and Kirk to head up marketing strategy.... Give it a go

most contributing document before COVID-19

The

Table 4
The most contributing document after COVID-19

No.	%Contrib.	Keywords	Text
0	0,2585	telecommuting, telecommute, http, video, tech, zoom, benefit, productivity, future, pandemic	Google Meet gets Gmail integration, will soon display up to 16 video call participants
1	0,277	people, job, worker, telecommute, option, lot, live, pay, city, move	Corporate bailouts. Low wage earner bailouts. School loan bailouts. Bank bailouts. Airline bailouts. Auto bailouts. Shale bailouts. Restaurant bailouts. Cruiseline bailouts. Middle-class taxpayers telecommuting at home worried about their jobs: Get capitalism.
2	0,2651	employee, telecommute, employer, telework, covid, government, due, policy, issue, shift	Cybersecurity risks grow as thousands of federal employees shift to telecommuting : The Trump administration has ordered hundreds of thousands of federal employees to be prepared to work from home full time and use VPNs to connect to government systems.
3	0,2338	day, telework, teleworking, today, watch, put, break, play, finally, listen	I normally wear suits to work but like many, I'm mostly telecommuting due to #Covid19 . Day 1, I wore khakis & a dress shirt. By day 3, jeans and a golf shirt. Today (day 5) I'm wearing 10 yr old sweat pants & a shirt I won in a contest that says " Made Me a Legend."

Table 4 (Continued)

No.	%Contrib.	Keywords	Text
4	0,2725	good, telework, thing, day, bad, morning, walk, long, turn, dog	Digerati Technologies Integrates its UCaaS Solutions with Microsoft Teams® Powered by Office 365 for Expanding Availability to a Growing Base of 44 Million Daily Active Users
5	0,2231	time, telecommute, hour, year, covid, full, part, set, telework, job	Are you seeking a part-time or full-time telecommuting reinsurance marketing role? PR10501-Remote, Oregon-Pryor Per
6	0,2214	telework, week, start, day, today, feel, back, month, tomorrow, end	How are you managing your newly remote workforce? Download a Teleworking agreement with Policy and Process. COUPON: 6N985P FOR 20% OFF #COVIDProblems Download and customize our Teleworking Policy Template Today! #teleworking #covid -19 #cyber #itsecurity #networksecurity
7	0,208	telework, call, teleworking, email, internet, talk, send, phone, boss, hear	Y'all remember when phone calls and FaceTimes were a leisure activity?? Now, I'm teleworking all the damn time! I'm tired of talking on the phone. I'm tired of my phone getting overheated. I'm tired of talking to a computer screen. I want my check still, but I am tired!
8	0,32	telework, company, stock, software, offer, buy, http, pandemic, sell, million	On the same day (2/27) Trump publicly predicted the virus would soon disappear "like a miracle," Senator Loeffler reported more than \$50K in stock sales. And then she sold much more holdings and invested in a company that sells teleworking software.
9	0,223	staff, meeting, online, continue, service, virtual, provide, update, person, student	#Essential #Business Info: This does not preclude the provision of work and services by entities not on this list either online, by telephone or by mail/delivery. Note that teleworking and online commerce are permitted at all times for all businesses.
10	0,3185	home, work, telecommute, office, people, world, business, order, place, perfect	The COVID-19 pandemic has ushered in a new world order for businesses: working from home during government recommendations to self-quarantine. And with more people telecommuting , the home office is becoming more of a property.
11	0,3252	work, telecommuting, remote, make, remotely, home, manage, lead, tool, story	CFOs looking to make remote work, telecommuting more permanent following COVID-19, says Gartner survey - ZDNet: CFOs looking to make remote work, telecommuting more permanent following COVID-19, says Gartner survey ZDNet

12	0,2567	plan, close, health, public, spread, case, virus, community, prepare, measure	Physical Distancing is important to protect our community. Telecommuting , avoiding crowded places and non-essential gatherings, increasing personal space and avoiding handshakes and hugs are all measures you can take to help #FlattenTheCurve . #COVID19
13	0,2214	twitter, pic, http, teleworke, status, tatus, stayhome, stayathome, st_atus, excellent	Increase in teleworking bureaucrats makes Canadian government more vulnerable to cyberthreats than ever: experts
14	0,2483	http, tip, read, team, check, telecommute, challenge, productive, share, article	Local cybersecurity CEOs warn that the mass teleworking migration has created a prime opportunity for cyber hackers to pounce. Its kind of like how a virus attacks a human body," said John Murchison .
15	0,259	support, crisis, http, technology, team, security, learn, increase, network, access	With #teleworking being the new norm, how can you ensure that your data is protected and secure? Secure Global File Share (SecureGFS) offers a secure way to enable collaboration between internal teams, customers, and partners.
16	0,1884	teleworking, office, stay, safe, teleworke, hope, open, social_distance, healthy, leave	Previous pace was 1-2 years from planning to implementation for such upgrades. Now completed from days to weeks! #CyberAware #Cybersecurity #DoD Defense Department Details Rapid Increase in Teleworking Capacity Thats Here to Stay
17	0,2561	business, telecommute, telework, big, commute, reduce, change, impact, small, traffic	#2: Early data show 1/3 of US workers shifted to telecommuting . THATS HUGE! Small drops in car trips can bring big drops in congestion. But wont new car trips fill the telecommute gap thru induced demand? And wont trips saved by telecommutes come out of transit, not driving?
18	0,2359	telecommute, make, give, thing, life, show, people, face, easy, number	3. Through aggressive sanitation efforts, diligent hand-washing, canceling large gatherings, minimizing travel, teleworking , and similar measures we can "flatten out the epidemic curve", keeping the number of people simultaneously infected at a low enough level to be manageable.
19	0,2623	teleworke, school, find, kid, twitter, normal, family, telecommute, care, home	Cooking is not necessarily a task that gets easier when you are telecommuting — especially when you're also juggling kids out of school or daycare, a partner or spouse also finding a new normal, and stress over how to get gro.

After finding the keywords for topics and the most contributing comments, appropriate topic models were created. The final topic models are given in Table 5 and Table 6.

Table 5
Topics before COVID-19

No.	Keywords	Topics
0	telecommute, work, opportunity, part, http, twitter, check, grow, great, staff	Advantages
1	people, live, move, city, big, life, high, area, kid, school	Moving to smaller cities and living cheaper
2	telecommuting, company, offer, option, flexibility, hire, workplace, top, program, culture	Competing in the labor market
3	teleworking, tomorrow, law, arrangement, sign, boss, alternative, require, watch, phone	Green informatics and regulations
4	make, time, give, easy, stay, productive, case, family, manager, snow	Loneliness, health and balance
5	telecommute, business, future, internet, traffic, car, email, road, encourage, problem	Reduction of traffic
6	employee, http, telecommuting, bit, telework, policy, number, perk, datum, management	Savings and 50% employees have jobs to work remotely
7	twitter, pic, status, impact, transit, share, walk, commuter, trip, marketing	Virtual reality at work

Table 6
Topics after COVID-19

No.	Keywords	Topics
0	telecommuting, telecommute, http, video, tech, zoom, benefit, productivity, future, pandemic	Video Conference programs (Efficiency, future, benefits)
1	people, job, worker, telecommute, option, lot, live, pay, city, move	People's concerns about their jobs (Rescue packages)
2	employee, telecommute, employer, telework, covid, government, due, policy, issue, shift	Cybersecurity risks (government policies)
3	day, telework, teleworking, today, watch, put, break, play, finally, listen	Daily activities at home (dressing, rest)
4	good, telework, thing, day, bad, morning, walk, long, turn, dog	Communication environments in the cloud
5	time, telecommute, hour, year, covid, full, part, set, telework, job	New business models (working remotely)
6	telework, week, start, day, today, feel, back, month, tomorrow, end	Defining telecommuting policies and processes
7	telework, call, teleworking, email, internet, talk, send, phone, boss, hear	Negative psychology of distance work
8	telework, company, stock, software, offer, buy, http, pandemic, sell, million	Investment in companies that work on teleworking software
9	staff, meeting, online, continue, service, virtual, provide, update, person, student	Telecommuting and online trading
10	home, work, telecommute, office, people, world, business, order, place, perfect	A new layout for businesses
11	work, telecommuting, remote, make, remotely, home, manage, lead, tool, story	CFOs will direct up to 20% of employees remotely
12	plan, close, health, public, spread, case, virus, community, prepare, measure	Social Distance
13	twitter, pic, http, telework, status, tatus, stayhome, stayathome, status, excellent	Cybersecurity

Table 6 (Continued)

No.	Keywords	Topics
14	http, tip, read, team, check, telecommute, challenge, productive, share, article	Cyberhacker
15	support, crisis, http, technology, team, security, learn, increase, network, access	Cybersecurity firms
16	teleworking, office, stay, safe, telework, hope, open, social distance, healthy, leave	Cybersecurity software updates
17	business, telecommute, telework, big, commute, reduce, change, impact, small, traffic	Exchange of traffic
18	telecommute, make, give, thing, life, show, people, face, easy, number	Epidemical
19	telework, school, find, kid, twitter, normal, family, telecommute, care, home	Household chores (cooking)

5. Discussion and Conclusion

In this section, the findings obtained through the analysis to reach the research objectives are reviewed and discussed together with the literature, and the results are listed.

The number of comments received on twitter about telecommuting before the COVID-19 pandemic was the first remarkable one, while it was 15891 in the one year, and the number of comments received in the 5-month period was 64931. In a shorter time, about four times, the comment was made. As can be understood from here, telecommuting has become more of a focus for both institutions and employees.

The topics before the COVID-19 pandemic are generally compatible with the literature when checked. It was revealed that organizational advantages and disadvantages, and environmental and economic topics

came to the fore. The advantages and disadvantages of telecommuting have been investigated in many studies (Gajendran & Harrison, 2007; Mokhtarian & Meenakshisundaram, 2002; Sroka, 2018). It is emphasized that remote workers can work from small towns, and creative small cities can be created (Bajracharya et al., 2009; Waitt & Gibson, 2009). It has been concluded that it will provide a competitive advantage by reducing costs (Guimaraes & Dallow, 1999; Karnowski & White, 2002). Green technology policies are developed depending on working remotely (Nelson et al., 2007). Psychological conditions, such as morale, loneliness, and career-related to their jobs, have been revealed (Khalifa & Davison, 2000; Solomon, 2000). Its contribution to traffic has been addressed in many studies (Asgari & Jin, 2015; Hopkins & McKay, 2019; Mannering & Mokhtarian, 1995; Menezes et al., 2017; Sangho Choo et al., 2002). Reports on how long the employee worked remotely were presented (WorldatWork, 2009). System design studies on virtual reality have been done (Venkatesh & Johnson, 2002).

However, the topics after the COVID-19 pandemic are more specific and contain different opportunities and risks. In this case, the study is proof of why it is necessary and its originality. Cybersecurity, which was not one of the main topics before the COVID-19, became the focus afterward. Topics such as a cyber hackers, cybersecurity firms, software updates for cybersecurity are discussed. While more information security is discussed before pandemic (Godlove, 2012), it is seen that cybersecurity comes to the fore after pandemic (Belzunegui-eraso, 2020).

Video conferencing applications are one of the elements that emphasize cybersecurity. However, they have been the most used apps for telecommuting after COVID-19. In previous studies, teleconference, video-conference, and webinars applications were discussed in a more controllable way (Babulak, 2009). Although various video conferencing applications are used after COVID-19, research continues how to hold digital meetings (Baert et al., 2020).

In previous studies, it was revealed that the results regarding the increase in employee productivity were obtained (Hartman et al., 1991; Neufeld & Fang, 2005). However, with COVID-19 employees working from home, there are discussions to reduce or eliminate the adverse effects of employees working at home. For example, we can show the topics of daily activities at home (dressing, rest), Negative psychology of telecommuting, Household chores (cooking), and people's concerns about their jobs.

Another discussion highlights the topics related to structuring corporate strategies, according to telecommuting. In the new order, it seems that determining regulations first, how many employees as senior management

will work remotely after this process, new investment areas, and online marketing will have questions to be answered. Reports that are similar to the reports of research organizations such as WorldatWork, covering the post-COVID-19, are likely to increase.

We can say that the contribution of telecommuting to the environment and economy (Dissanayake & Morikawa, 2008; Hook et al., 2020; Mokhtarian et al., 1995) was emphasized before COVID-19, was somewhat in the background. The reason for this is that we can say that the problems arising in the suddenly working remote system are emphasized. Regarding the environment, only the traffic problem has been the topic discussed after COVID-19.

A final topic is that we can understand from Epidemical and Social Distance titles that the effects of the pandemic will have an impact on both organizations and employees for a while. It can be considered as two concepts that are not discussed for pre-pandemic telecommuting, but arising from the necessity of widespread telecommuting due to pandemics.

This study aims to make comparisons and obtain inferences about before and after COVID-19 related to distance work. In this regard, it is thought that presenting inferences will benefit the structuring of remote working strategies for both the public and private sectors. Studies conducted after COVID-19 are in the form of reports published as a result of the analysis of the data obtained through surveys and face-to-face interviews. In this study, using social media analytics, removing titles that could be comparatively useful has made a new contribution to the literature.

Telecommuting has been a continuous field of research for institutions. With COVID-19, this order was compulsory. As the pandemic period extends, it has become a task to work for more days and to plan this order in institutions. For this reason, it is an alternative method for classical methods to obtain useful information by making topic modeling on social media with developing technologies.

It can be demonstrated evidence that the topic models obtained before the COVID-19 are compatible with the literature, and that the topic models obtained after COVID-19 can be used for strategic plans for institutions.

This study is a preliminary step for institutions and especially managers, to give different ideas or make decisions about working remotely. In this context, it is useful to emphasize some limitations of the study. This study only covers twitter comments. It would be useful to include it in data from different platforms. Including larger platforms can be more accurate inferences. In addition, more consistent results can be found by changing the LDA model parameters used.

The findings of the study provide some implications for future research. In order to broaden the approach presented in the article, by adding methods such as emotion analysis approach, emotion classes of topic models can be determined, and the positive or negative effects of the topics can be revealed. Also, reliability comparisons between algorithms can be useful using different machine learning algorithms.

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CHAPTER 19

THE MISMATCH BETWEEN THE CAMEROONIAN HEALTH REALITIES AND THE INTERNATIONAL POLICIES OF THE WORLD HEALTH ORGANIZATION: A POST-COLONIAL ANALYSIS

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1. INTRODUCTION

The relationship between energy use and economic growth has been one of the long-debated issues in the energy economics literature. There are four main possibilities regarding this controversial relationship. According to the conservation hypothesis, energy use affects economic growth regardless of the direction of these effect is being positive or negative. Similarly, there occurs a unidirectional causality running from energy consumption to economic growth, if conservation hypothesis is valid. On the other hand, growth hypothesis suggests the exact opposite of conservation hypothesis. Growth hypothesis states that economic growth expected to affect energy consumption regardless of the direction of the relationship is being positive or negative. Growth hypothesis also suggests a causal relationship between economic growth and energy consumption where causality would be running from the former to the latter. The relationship between energy usage and economic growth expected to be existing in both ways and the causality relation expected to be mutual, if the feedback hypothesis is not rejected. Finally, if there is no relationship between these two variables, then the neutrality hypothesis is valid.

In this study, the relationship between energy consumption and economic growth is analyzed. To this end, per capita aggregate energy consumption is used as a proxy for energy consumption and per capita GDP is used as a proxy for income. The possible electricity-income relationship analyzed for the case of Turkey by using time series techniques that are suitable with the data set.

The remainder of the paper is structured as follows: Section 2 reviews the existing literature regarding the relationship between electricity usage and economic growth; section 3 provides the model used, introduces the data, explains the econometric techniques used in the study and provides the empirical results; finally, section 4 concludes and provides policy implications.

2. LITERATURE REVIEW

Following Kraft and Kraft's (1978) study, which is considered to be the pioneering work of the energy economics literature, in which the researchers concluded that there exists a unidirectional causality running from GNP to energy according to the results of the employed Sims (1972) technique for the US by using the data for the period 1947-1974, many works have been devoted to shed more light on the potential relationship between income and energy, although the findings of these works are failed to set energy economist's minds at rest with regard to energy-growth relationship.

This section of the paper focused only on the studies that dealt with the relationship between electricity consumption and income. These studies are categorized into two sub-categories as the studies concerning the single country apart from Turkey and/or multi country whether including Turkey or not, and the studies concerning only the case of Turkey.

Ferguson, Wilkonson and Hill (2000), Ghosh (2002), Shiu and Lam (2004), Hondroyiannis (2004), Moritomo and Hope (2004), Jumbe (2004), Wolde-Rufael (2004), Narayan and Smyth (2005), Yoo (2005), Rufael (2006), Mozumder ve Marathe (2007), Zachariadis and Pashourtidou (2007), Narayan and Prasad (2008), Abosedra, A. Dah and Ghosh (2009), Ciarreta and Zarraga (2010), Apergis and Payne (2011), Gurgul and Lach (2012), Abbas and Choudhury (2012), Tnag and Yan (2013), Shahbaz, Sbia, Hamdi and Ozturk (2014), Iyke (2015), Osman, Gachino and Hoque (2016), Bah ve Azam (2017), Campbell (2018), Das and McFarlane (2019), Tiwari, Eapen and Nair (2020), Arčabić, Gelo, Sonora and Šimurina (2021), and Xu, Yang and Schwarz (2022) are the core and/or recent studies in the area of energy economics that dealt with the electricity consumption and economic growth relationship for the cases where Turkey is not included or Turkey is not the only country analyzed.

The studies concerning the relationship between economic growth and electricity consumption for the case of Turkey are presented in Table 1 in detail.

Table 1. Literature Review for the case of Turkey”

Study	Period	Data Frequency	Methods	Main Findings
Terzi (1998)	1950-1991	Annual	VEC, Granger non-causality	Bi-directional causality between economic growth and electricity consumption. Bi-directional causality between economic growth and electricity use both for industry and commerce sectors.
Altınay and Karagöl (2005)	1950-2000	Annual	Granger non-causality Dolado–Lütkepohl Test	Unidirectional causality running from electricity consumption to income.
Nişancı (2005)	1970-2003	Annual	Johansen cointegration Granger non-causality VEC	Cointegration between electricity demand and national income. Unidirectional causality running from electricity consumption to income. Income elasticity of electricity demand is less than 1 in the short run and greater than one in the long run.

Karagöl, Erbaykal and Ertuğrul (2007)	1974-2004	Annual	ARDL Bounds Test	Cointegration between electricity consumption and economic growth. Negative relationship in the short, positive relationship in the long run between the variables.
Halicioğlu (2007)	1968-2005	Annual	ARDL Bounds Test Augmented form of Granger non-causality	Cointegration between per capita residential electricity consumption, per capita income, real residential energy price and urbanization rate. Income and price elasticities of residential energy demand in the long run are greater when compared with short run the short. Unidirectional causality running both from income and price to residential energy demand.
Kar and Kınık (2008)	1975-2005	Annual	Johansen cointegration VECM Granger non-causality	Unidirectional causality running both from total and industrial electricity consumption to economic growth. Bi-directional causality between residential electricity consumption and per capita income.
Aktaş ve Yılmaz (2008)	1970-2004	Annual	Johansen cointegration VECM Granger non-causality	Bi-directional causality between electricity consumption and GDP in the short run. Unidirectional causality running from electricity consumption and economic growth in the long run.
Ağır and Kar (2010)	2000-2001	Annual	Cross-Sectional Analysis	Electricity consumption affects the levels of income and value-added within the same direction.
Ertuğrul (2011)	1998-2011	Quarterly	Johansen cointegration Kalman Filter	Electricity consumption affects GDP within the same direction.
Yapraklı ve Yurttañçıkılmaz (2012)	1970-2010	Annual	Johansen cointegration VECM Granger non-causality	Bi-directional causality between electricity consumption and GDP.
Saatçi ve Dumrul (2013)	1960-2008	Annual	DOLS FMOLS	Electricity consumption affects economic growth within the same direction.
Uzun, Emsen, Yaçıkaya ve Hüseyini (2014)	1980-2010	Annual	Johansen cointegration VECM Granger non-causality	Electricity consumption affects economic growth within the same direction in the long run.
Altıntaş and Koçbulut (2014)	1960-2011	Annual	ARDL Bounds Test VECM Granger-non causality	Income affects electricity consumption within the same direction in the long run. Unidirectional causality running from electricity consumption to per capita income in the short run.

Usta (2016)	2004-2011	Annual	Panel Regression	Regional energy consumption affects economic growth within the same direction.
Savaş and Durgun (2016)	1980-2010	Annual	Johansen cointegration VECM Granger non-causality	Unidirectional causality running from economic growth to electricity consumption in the short run.
Uygun and Günay (2018)	1975-2016	Annual	ARDL Bounds Test Toda-Yamamoto Granger-non causality	Bi-directional causality between economic growth and electricity consumption. (Toda-Yamamoto) Unidirectional causality running from economic growth to electricity consumption. (Granger)
Türkmen, Özbek and Karakuş (2018)	1980-2014	Annual	Johansen cointegration VECM Granger non-causality	Electricity consumption affects economic growth within the same direction in the long run.
Aydın and Bozdağ (2018)	1977-2014	Annual	Johansen cointegration VECM Granger non-causality	Unidirectional causality running from electricity consumption to economic growth.
Tayyar (2019)	1970-2017	Annual	Toda-Yamamoto Dolado-Lutkepohl	Bi-directional causality between economic growth and electricity consumption in commercial, residential and industrial breakdowns. (T-Y) Unidirectional causality running from electricity consumption in official breakdown to economic growth. (T-Y) Unidirectional causality running from economic growth to electricity consumption in street lightning breakdown. (T-Y) Unidirectional causality running from economic growth to electricity consumption in residential, street lightning and other breakdowns (D-L)

Başar, Tosun and Bartik (2020)	1990-2018	Annual	ARDL Toda-Yamamoto	Electricity consumption affects economic growth within the same direction in the long run for residential and street lightning breakdowns. Electricity consumption affects economic growth within the opposite direction in the long run for industrial breakdown. Unidirectional causality running from economic growth to electricity consumption for residential and official and breakdowns. Unidirectional causality running from electricity consumption for industrial and street lightning breakdowns to economic growth.
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3. MODEL, DATA SET, METHODOLOGY and EMPRICAL FINDINGS

3.1. Model

The potential relationship between energy consumption and income is investigated by using the model which is shown in Eq. below.

$$GDPPC_t = f(AELCPC_t) \tag{1}$$

where *GDPPC* and *AECPC* represents per capita income, per capita aggregate electricity consumption, respectively.

The model which is derived from Eq. by using logarithmic transformation is shown in Eq. as follows.

$$gdppc_t = \alpha_{0a} + \alpha_{1a}aecpc_t + \epsilon_{t0} \tag{2}$$

where *gdppc* and *aelc*, represents the natural logarithms of per capita GDP and per capita aggregate electricity consumption, respectively. Additionally, α 's show the OLS estimators of the model, and ϵ is the white noise error term.

3.2. Data Set

To examine the relationship between energy usage and income, annual data which covers the 1980-2019 period that is collected from Turkish Electricity Distribution Corporation's (TEDAŞ in Turkish) Turkish Electricity Distribution Report of 2020, OECD and World Development Indicators (WDI) is used. GDP per capita in US dollars with constant prices where 2015 is the base year is obtained from WDI and used as a proxy for income. Aggregated electricity consumption is collected from TEDAŞ in GWh and converted into kWh and transformed into per capita series by dividing it by population data gathered from OECD, and this per capita aggregated electricity consumption series which is calculated by the

author in kWh is used to represent energy consumption.

3.3. Methodology and Empirical Findings

All the variables are used in their natural logarithms, and the potential short-term and long-term relationships between the variables is examined by using linear time series procedures.

3.3.1. Unit Root Tests

To avoid the spurious regression problem which causes to obtain biased and inconsistent estimators, the stationarity properties of the variables is analyzed with the help of Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) methodologies.

The results of the ADF and PP unit root tests are presented in Table 2.

Table 2. “ADF and PP Unit Root Tests Results”

Variable	ADF ^a		PP ^b	
	Constant	Constant and Trend	Constant	Constant and Trend
	-0.03 (0)	-2.50 (0)	0.14 (4)	-2.54 (1)
	-6.56* (0)	-6.49* (0)	-6.73* (4)	-6.66* (4)
	-2.92*** (0)	-0.40(0)	-5.48* (9)	0.65 (8)
	n/a	-5.93* (0)	n/a	-7.67* (10)

^a Maximum lag length for the ADF unit root test is 4 lags and optimal lag length is determined by using SIC criterion. The values in parentheses are the chosen lag lengths.

^b Barlett kernel is used as the spectral estimation method and Newey-West Bandwidth is used as the bandwidth for the PP unit root test.

*, **, *** represents statistical significance 1%, 5% and 10% level, respectively.”

According to the results showed in Table 2, per capita GDP (*gdppc*) is found to be level stationary both in ADF and PP tests regardless of the related model includes trend term or not. On the other hand, ADF and PP tests results revealed that aggregate electricity consumption per capita (*aecpc*) is a stationary variable in its first difference form, if both ADF and PP tests include the trend term. However, aggregate electricity consumption per capita (*aecpc*) becomes an I(0) variable when the trend term is not taken into account both for the ADF and PP tests.

As a whole, the results of regarding unit root tests yielded mixed results for (*aecpc*). However, (*gdppc*) is found to be I(1), whether both ADF and PP test models includes trend or not, and no variables is found to be stationary at its second or higher difference.

3.3.2. Determination of the Appropriate Econometric Methodology

Both ADF and PP test findings revealed that per capita GDP is stationary at its first difference while per capita aggregate electricity use is stationary at its level when the unit root test models does not include the trend. Therefore, to investigate the relationship between income and energy consumption, models like Vector Autoregression (VAR) which is developed by Sims (1980) where it is assumed that all the variables are stationary at their levels or the conventional cointegration methods like Engel-Granger (1987), Johansen (1988), Johansen and Juselius (1990) and Gregory-Hansen (1996) where all the variables assumed to be first-difference stationary, cannot be used due to the fact that the estimators will be biased and inconsistent since the data set is found to be a mix of $I(0)$ and $I(1)$ variables.

Therefore, possible dynamic relationships among the variables in concern is analyzed with the ARDL approach to cointegration which is developed by Pesaran and Pesaran (1997), Pesaran and Smith (1998), Pesaran and Shin (1999), and Pesaran and others (2001), since the ARDL bounds test methodology yields consistent and unbiased estimators when the data set is a mix of $I(0)$ and $I(1)$ variables as in this study and even if the sample size is small. However, to get the consistent and unbiased estimators by using ARDL approach to cointegration, it has to be taken into account that the dependent variable needs to be first difference stationary and there are no variables in the data set that becomes stationary at their second or higher difference.

3.3.3. Determination of the ARDL Model with Appropriate Lag Length and the Findings of the Diagnostic Tests

As suggested by Pesaran and Pesaran (1997), Pesaran and Smith (1998), Pesaran and Shin (1999), and Pesaran and others (2001), to investigate the possible short and long run dynamics among the variables, Unrestricted Error Correction Model (UECM) needs to be established, estimated and checked for normality, auto correlation, heteroskedasticity, model misspecification and parameter stability. For these purposes, the UECM model which includes trend variable for Eq. (2) is established and presented in Eq. (3).

$$\Delta gdp_{pct} = \alpha_{0b} + \sum_{i=1}^{c_1} \alpha_{1b} \Delta gdp_{pct-i} + \sum_{i=0}^{c_2} \alpha_{2b} \Delta aec_{pct-i} + \alpha_{3b} T + \beta_{1b} gdp_{pct-1} + \beta_{2b} aec_{pct-1} + \epsilon_{t1} \quad (3)$$

where, Δ is the difference operator, i being $i=1,2,3$, c_i 's represents maximum lag lengths, T is the trend variable. The remaining symbols are used for aforementioned meanings.

To estimate the UECM form of the ARDL model, the maximum lag length is determined as 4 and AIC criterion is used. Estimation of the Eq.(3) revealed that the ARDL model with the appropriate lag length is ARDL(1,4). Having determined the appropriate ARDL model, ARDL(1,4) model is checked for normality with Jarque-Bera (χ^2_N) test, for serial correlation with Breusch-Godfrey LM (χ^2_{SC}) test, for heteroskedasticity with ARCH (χ^2_{HS}) test, and for model misspecification with Ramsey RESET (χ^2_{MM}) test.

The results of the above-mentioned diagnostic test are presented in Table 3.

Table 3. “Diagnostic Test Results”

Test	Test Statistic	p-value
χ^2_N	0.71	0.70
χ^2_{SC}	0.09	0.76
χ^2_{HS}	0.43	0.51
χ^2_{MM}	0.22	0.63

As can be seen from the results presented in Table 3, ARDL(1,4) model successfully passed all of the above-mentioned diagnostic tests at 5% significance level.

In addition to these diagnostic tests, ARDL(1,4) model also checked for parameter stability with CUSUM (CS) and CUSUMSQ (CS^2) tests. The results of the parameter stability tests are shown in Figure 1.

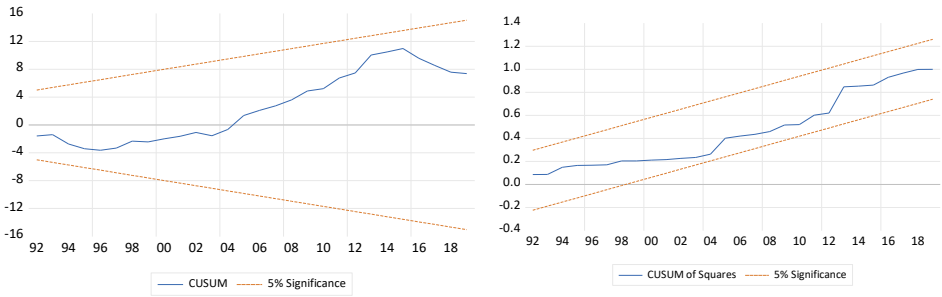


Figure 1. “Parameter Stability Findings

Parameter stability check results in Figure 1 showed that the estimated parameters of the ARDL(1,4) model is stable over time at 5% significance level.

3.3.4. Bounds Test

To investigate whether the variables in consideration, namely, per capita GDP ($gdppc$), and aggregate electricity consumption per capita ($aecpc$) are cointegrated, the null hypothesis which states that there is no

cointegration between the variables needs to be tested against alternative hypothesis that suggest the variables are cointegrated with the help of F and t tests which also known as bounds testing procedure.

In the bounds testing procedure, both for the F and t tests, the absolute value of the regarding calculated statistic needs to be compared with the upper and lower bound table values. If the absolute value of the calculated statistic exceeds the upper bound value, then the null hypothesis is rejected. If it is found that the absolute value of the calculated statistic falls behind the lower bound value, then the null hypothesis cannot be rejected. If the absolute value of the calculated statistic falls between lower and upper bound values, then the result is inconclusive.

In this regard, the existence of the cointegration relationship among the variables of interest is investigated with the F and t tests where the null hypothesis of no cointegration $H_0: \beta_{1b} = \beta_{2b} = \beta_{3b} = \beta_{4b} = 0$ is tested against alternative hypothesis of cointegration $H_1: \beta_{1b} \neq \beta_{2b} \neq \beta_{3b} \neq \beta_{4b} \neq 0$ for Eq.(3).

The results of the bounds test for the ARDL (2,2,2) model are presented in Table 4 both for F and t tests.

Table 4. “Bounds Test Findings”

Test	Calculated Test Statistic	Upper-bound Value (5%)	Lower-bound Value (5%)
F	7.43**	6.56	7.30
t	-3.82**	-3.41	-3.69

***represents statistical significance at 5% level.”

Bounds test results revealed that the absolute values of both calculated F and t statistics are exceeded the regarding upper-bound table values. Therefore, per capita GDP ($gdppc_t$) and aggregated electricity usage per capita ($aecpc_t$) are found to be cointegrated where aggregated electricity usage per capita ($aecpc_t$) is the long run forcing variable of per capita GDP ($gdppc_t$).

3.3.5. Long Run Form of the ARDL Model

Having found that there exist a cointegration relationship between the variables, the long run model which is derived by normalizing the parameters of the ARDL model with the appropriate lag length needs to be estimated.

The results of the estimation of the long run parameters for the ARDL(1,4) model are shown in the Table 5.

Table 5. “Long Run Parameter Estimations for the ARDL(1,4) Model”

Variable	Coefficient	t-statistics	p-value
aecpc_t	-0.49*	-5.80	0.00

“*represents statistical significance at 1% level.”

According to the results presented in the Table 5, the estimated long run coefficient of the aggregate electricity usage per capita (**aecpc_t = -0.49**) is found to be statistically significant, and the estimated coefficient of the **aecpc** implies that a 1% change in aggregate electricity consumption per capita will cause a 0.49% change in per capita GDP within the opposite direction.

3.3.6. Error Correction Form of the ARDL Model

Having estimated the long run form of the ARDL model, the error correction form of the ARDL model needs to be established as shown in Eq.(4).

$$\Delta y_t = \alpha_{0b} + \sum_{i=1}^{c_1} \alpha_{1b} \Delta y_{t-i} + \sum_{i=0}^{c_2} \alpha_{2b} \Delta x_{t-i} + \alpha_{3b} T + \gamma_1 ect_{t-1} + \epsilon_{t1} \quad (3)$$

where, **ect_{t-1}** represents the one period lagged error correction term.

The parameter estimations for the error correction form of the ARDL (1,4) model are presented in Table 6.

Table 6. “Parameter Estimations of the Error Correction Form of the ARDL(1,4) Model”

Variable	Coefficient	t-statistics	p-value
c	8.47*	3.90	0.001
T	0.03*	4.13	0.000
Δaecpc_t	0.96*	7.28	0.000
Δaecpc_{t-1}	0.46**	2.44	0.021
Δaecpc_{t-2}	0.27	1.69	0.103
Δaecpc_{t-3}	0.29***	1.99	0.056
γ₁	-0.47*	-3.92	0.001

“*, ** and *** represents statistical significance 1%, 5% and 10% level, respectively.”

As can be seen from Table 6, all the estimated coefficients with the exception of **Δaecpc_{t-2}** are statistically significant. Moreover, the estimated coefficient of the one period lagged error correction term (**γ₁ = -0.47**) is found to be negative as expected and has an absolute

value which is less than 1. The estimated coefficient of the one period lagged error correction term revealed that 47% of the disequilibrium of the previous year's shocks adjust back to the long run equilibrium level of the present year.

4. USION and POLICY IMPLICATIONS

In this study, the potential relationship between electricity consumption and economic growth for the case of Turkey is analyzed by using linear time series techniques. To this end, the variables in concern are tested for stationary with the help of ADF and PP unit root tests that produced mixed results. However, due to the fact that the independent variable which is per capita GDP is found to be first difference stationary and none of the variables are I(2) in all tests, ARDL approach to cointegration method is used to shed more light on the relationship between electricity consumption and income both in the short and long run. Bounds test results showed that there exists a dynamic relationship between the variables of interest where aggregate electricity consumption per capita are is found to be long run forcing variable of per capita GDP.

The data derived from the ECM form of the ARDL model suggested that the short run deviations from the long run equilibrium of the model will bounce back and cleared out almost within two periods.

The results obtained from the long run model revealed that there is a statistically significant long-term relationship between per capita aggregate electricity usage and per capita GDP within the same direction. Therefore, the policy makers who are responsible from the designation of the income policies for Turkey need to take into account that aggregate electricity usage per capita may be used as an efficient tool whether to boost the economic growth or slow it down. Moreover, energy policy makers also keep in mind that the changes in per capita aggregate electricity consumption that will occur from the implication of new energy policies have a potential to affect the growth rate for the case of Turkey either positively or negatively depending on the direction of the change in per capita aggregate electricity consumption.

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CHAPTER 20

THE RELATIONSHIP BETWEEN SECTORAL ELECTRICITY CONSUMPTION AND EMPLOYMENT WITH STRUCTURAL BREAKS AN ARDL ANALYSIS FOR THE CASE OF TURKEY

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1. “INTRODUCTION”

Despite the existing and still growing literature which consisted of a great number of researches, the controversy about employment-energy consumption nexus is still ongoing. Some of the researchers argue that the findings of their study strongly support that employment affects energy consumption either in a negative or positive way and/or there exists a causal relationship between these two variables where the causality is running from employment to energy usage, while some of the others advocated that their research empirically proves the direction of the relation is the exact opposite either in the short or long run. Moreover, there are also some researchers who found that there exists a relationship between energy consumption and employment, however, the relation is not one sided but runs in both ways with feedback effect. Nonetheless, some other researchers suggested that there is no relationship between employment and energy consumption based on the empirical findings of their studies.

The aim of this study is to contribute to the existing literature by analyzing the long-debated energy-employment nexus by using sectoral data for the case of Turkey. To this end, annual data which is collected for the period 1980-2019 is used and the appropriate linear times series methods are employed. To contribute the employment-energy use debate, total number of employees and per capita sectoral electricity consumption series are used as dependent and independent variables, respectively.

The rest of the paper is organized as follows: in section 2 the existing literature about electricity usage and employment is reviewed, in section 3 the data set, the model, econometric techniques and empirical findings are presented, and in section 4 policy implications are proposed.

2. “LITERATURE REVIEW”

Akarca and Long's (1979) paper has been widely accepted as the first work that uses relatively modern econometric techniques to investigate the relationship between energy consumption and employment. Unidirectional causality running from energy to employment is found by the researchers where they used monthly data for the period 1973–1978 for the case of US. Following their pioneering work, many studies have been devoted to analyze the employment-energy consumption relationship, by using different time periods and econometric techniques for different countries or country groups. Despite the growing size of the literature regarding employment-energy consumption relationship, the relation remains still controversial among energy economists.

In this section of the study the regarding literature consumption is reviewed within the concept of electricity and employment relationship.

The works of, Narayan and Smyth (2005), Narayan and Singh (2007), Sarı, Ewing and Soytas (2008), Ziramba (2009), Ghosh (2009a), Lean and Smyth (2010), Apergis and Payne (2011), Gurgul and Lach (2012), Apergis and Payne (2012), Ubani (2013), Lean and Symth (2014), Fakihi and Marrouch (2015), Khodeir (2016), Bryan, Evans, Jones and Munday (2017), Bass (2018), Zhong, Jiang, Zhang and Shi (2019), Arvanitopoulos and Agnolucci (2020) and Apinran, Usman, Akadiri and Onuzo (2022) are either the milestone or recent papers regarding the literature of the electricity and employment relationship where in none of these researches, Turkey was not the case country and/or not analyzed separately.

The researches devoted to investigate the electricity-employment relationship for the case of Turkey are shown in detail in Table 1.

Table 1. Literature Review for the case of Turkey”

Study	Period	Data Frequency	Methods	Main Findings
Sarı and Soytas (2004)	1966-1999	Annual	Generalized Forecast Error Variance Decomposition	No findings provided for employment and electricity consumption relationship.
Soytas and Sarı (2007)	1968-2002	Annual	Johansen cointegration VEC Granger non-causality	Neutrality between employment and electricity consumption. For manufacturing industry.
Aktaş (2009)	1970-2006	Annual	Johansen cointegration VEC Granger non-causality	Uni-directional causality running from employment to electricity consumption.
Öztürk and Acaravcı (2010)	1968-2005	Annual	ARDL Bounds Test Augmented form of Granger non-causality	Neutrality between employment ratio and electricity consumption.
Polat, Uslu and San (2011)	1950-2006	Annual	ARDL Bounds Test Augmented form of Granger non-causality	Uni-directional causality running from employment to electricity consumption.
Bayat, Aydın, Kayhan and Adigüzel (2011)	1975-2005	Annual	Toda-Yamamoto Dolado-Lutkepohl	Neutrality between employment and electricity consumption.

Acaravcı and Öztürk (2012)	1968-2006	Annual	ARDL Bounds Test Augmented form of Granger non-causality	Neutrality between employment and electricity consumption.
Aslan (2013)	1980-2018	Annual	ARDL Bounds Test Augmented form of Granger non-causality	Neutrality between electricity consumption and labor force.
Oransay (2017)	1986-2011	Annual	Johansen cointegration VEC Granger non-causality	Neutrality between employment and electricity consumption.
Etokakpan, Osundina, Bekun and Sarkodie (2020)	1970-2014	Annual	Bayer-Hanck combined cointegration ARDL Bounds Test VECM Granger non-causality	Neutrality between employment and electricity consumption.

3. MODEL, DATA SET, METHODOLOGY and EMPRICAL FINDINGS”

3.1. Model”

The model used to analyze the relationship between employment and energy consumption is given in Eq.(1).

$$EMP_t = f(ELRPC_t, ELCPPC_t, ELIPC_t, ELLPC_t, ELOPC_t,) \tag{1}$$

where, *EMP* is employment, *ELRPC* is residential electricity consumption per capita, *ELCPCPC* is commercial and public electricity consumption per capita, *ELIPC* is industrial electricity consumption per capita, *ELLPC* is lightning electricity consumption per capita, *ELOPC* is other electricity consumption per capita, and *t* is the time period.

The log transformed model for Eq. (1) is given below in Eq.(2)

$$emp_t = \alpha_{0a} + \alpha_{1a}elrpc_t + \alpha_{2a}elcppc_t + \alpha_{3a}elipc_t + \alpha_{4a}ellpc_t + \alpha_{5a}elopc_t + \epsilon_{0t} \tag{2}$$

where *emp*, *elrpc*, *elcppc*, *elipc*, *ellpc* and *elopc* are the natural logarithms of employment, residential electricity consumption per capita, commercial and public electricity consumption per capita, industrial electricity consumption per capita, lightning electricity consumption per capita, and other electricity consumption per capita, respectively.

3.2. “Data Set”

The data employed in this study that covers the 1980 - 2019 period are annual. Total electricity consumption data which is measured in GWh for each sector is obtained from Turkish Electricity Distribution Corporation’s (TEDAŞ in Turkish) Turkish Electricity Distribution Report of 2020 and converted into per capita electricity consumption series which is measured

in kWh by using the population data which is collected from the Historical Population database of OECD. Employment data is obtained from OECD's Employment by activities and status database.

3.3. "Methodology and Empirical Findings"

Having used the data in logarithms, appropriate linear time series techniques that are in line with the econometric properties of the data set are employed. The regarding time series methods and the results obtained from these methods are explained in the following section of the study in detail.

3.3.1. "Unit Root Tests"

To obtain unbiased and consistent estimators which requires to avoid spurious regression issue, unit root tests are performed. In this regard, ADF, PP, and LS tests which are developed by Dickey and Fuller (1979), Perron (1989) and Lee and Strazicich (2003), respectively are used to check for the stationarity levels of the series.

The results derived from ADF, PP and LS unit root tests with two breaks are given in Table 2, Table 3 and Table 4, respectively.

Table 2. "ADF Unit Root Tests Results"

Variable	ADF ^a	
	Constant	Constant
<i>emp</i>	-0.18 (0)	-1.44 (0)
<i>Δemp</i>	-5.21* (0)	-5.13* (0)
<i>elrpc</i>	-3.22* (0)	-0.27 (0)
<i>Δelrpc</i>	n/a	-4.35* (0)
<i>elcppc</i>	-1.92 (0)	-0.16 (0)
<i>Δelcppc</i>	-5.56* (0)	-5.40* (1)
<i>elipc</i>	-2.18 (0)	-2.13 (0)
<i>Δelipc</i>	-6.05* (0)	-6.54* (0)
<i>ellpc</i>	-2.67*** (0)	-0.79 (0)
<i>Δellpc</i>	n/a	-5.46* (0)
<i>elopc</i>	-1.64 (0)	-3.43*** (0)
<i>Δelopc</i>	-9.22* (0)	n/a

^a Maximum lag length for ADF unit root test is 3 lags and optimal lag length is determined by using SIC criterion. The values in parentheses are the chosen lag lengths.

, ** and * represent statistical significance at 1%, 5%, and 10% levels, respectively.”*

ADF unit root test results showed that all the variables with the exception of *elrpc* and *ellpc* being a level stationary variable, all the variables are found to be stationary in their first differences, if the trend variable is not included. If the trend variable is included in the model, then with the exception of *elopc* being a level stationary variable, all the variables are found to be stationary in their first differences.

Table 3. “PP Unit Root Tests Results”

Variable	PP ^b	
	Constant	Constant &Trend
<i>emp</i>	-0.29 (3)	-1.73 (3)
<i>Δemp</i>	-5.22* (2)	-5.13* (2)
<i>elrpc</i>	-2.81*** (1)	0.27 (0)
<i>Δelrpc</i>	n/a	-4.18* (4)
<i>elcppc</i>	-1.97 (1)	-0.06 (1)
<i>Δelcppc</i>	-5.52* (2)	-6.16* (2)
<i>elipc</i>	-3.83* (8)	-1.75 (5)
<i>Δelipc</i>	n/a	-7.73* (7)
<i>ellpc</i>	-2.47 (2)	-0.83 (1)
<i>Δellpc</i>	-4.73* (3)	-5.45* (1)
<i>elopc</i>	-1.85 (4)	-1.27 (0)
<i>Δelopc</i>	-8.52* (4)	-9.33* (3)

“^b Barlett kernel is used as the spectral estimation method and Newey-West Bandwidth is used as the bandwidth for PP unit root test. The values in parentheses are the chosen lag lengths.

, ** and * represent statistical significance 1% , 5% and 10% levels, respectively.”*

PP unit test results indicated that *elrpc* and *elipc* are level stationary, while all the remaining variables are first-difference stationary, if the model without trend is taken into account. However, all the variables are found to be first-difference stationary, when the trend variable included in the model.

Table 4. “*LS Unit Root Test Results*”

Variable	Crash Model		Break Model	
	Test Statistic	Break Years	Test Statistic	Break Years
<i>emp</i>	-2.51 (3)	1992-2002	-4.02 (3)	1998-2008
<i>Δemp</i>	-5.19* (0)	1989-2008	-6.35* (1)	2002-2007
<i>elrpc</i>	-2.02 (1)	1985-1990	-4.73 (3)	1990-2005
<i>Δelrpc</i>	-4.33* (0)	1986-1998	-6.67 *(3)	1989-1997
<i>elcppc</i>	-1.99 (3)	1995-1999	-5.47 (1)	1990-2004
<i>Δelcppc</i>	-5.88* (0)	1985-1989	-7.49* (1)	1989-1999
<i>elipc</i>	-3.42*** (3)	2000-2008	-5.35 (3)	1992-2008
<i>Δelipc</i>	n/a	n/a	-6.72** (1)	1986-1999
<i>ellpc</i>	-2.53 (3)	1985-1987	-3.90 (2)	1988-2002
<i>Δellpc</i>	-3.94** (1)	1994-2002	-7.72* (0)	1985-2001
<i>elopc</i>	-2.62 (2)	1986-2008	-3.99 (3)	1994-2008
<i>Δelopc</i>	-3.77** (1)	2011-2014	-7.52* (2)	1988-2014

“*, ** and *** represents statistical significance at 1%, 5% and 10% levels, respectively.”

LS unit test results stated that, all the variables are stationary at $I(1)$ with the exception of *elipc* which is found to be $I(0)$, if the model includes only the constant term. On the other hand, *LS* unit test results for the model with constant and trend produced similar results with *PP* unit test where also both constant and trend variables are included. *LS* unit root test results also determined that employment becomes stationary at its first difference when the break years are 1989-2008.

Although the unit root test yielded different results for different models, in all tests it is found that *emp* which is the independent variable of the model is a first-difference stationary variable. Moreover, all variables became stationary before taking the second differences according to the results of all unit root test. For the following part of the paper, results of the crash model version of the *LS* stationarity test are taken into account due to the fact that it includes two structural breaks which increases the relative power of the test when compared with the conventional unit root tests.

3.3.2. “Determination of the Appropriate Econometric Methodology”

Since the unit root test results showed that the independent variable, namely employment, is first-difference stationary and some of the electricity usage per capita series which are dependent variables of the model is level stationary it is concluded that the data set used in this study is a mix of $I(0)$ and $I(1)$ variables.

Thus, to investigate the relationship between electricity consumption and employment, the conventional econometric methodologies¹ that requires a data set consisted of variables with the same level of integration are not suitable for our data set, since they will yield statistically inconsistent and biased parameter estimations.

Therefore, to obtain unbiased and consistent parameter estimations, the possible relationships between the variables are investigated with ARDL bounds test technique which allows one to analyze both short and long run dynamics between the mixed set of variables, in terms of stationarity, even working with the data sets with small sample size as in this paper. However, to use the ARDL methodology, the independent variable of the model needs to be $I(1)$ and no variable which is integrated at second or higher degree should be included in the data set.

In the following part of the paper the steps of the ARDL method which is introduced by Pesaran and Pesaran (1997) and developed by Pesaran and Smith (1998), Pesaran and Shin (1999), and Pesaran and others (2001) are employed.

3.3.3. Determination of the ARDL Model with Appropriate Lag Length and the Findings of the Diagnostic Tests

First, Unrestricted Error Correction Model (UECM) for Eq.(2) is formed. The dummy variables which represent the structural breaks are also included in UECM form of the ARDL model which is presented with Eq.(3).

$$\begin{aligned} \Delta emp_t = & \alpha_{0b} + \sum_{i=1}^{c_1} \alpha_{1b} \Delta emp_{t-i} + \sum_{i=0}^{c_2} \alpha_{2b} \Delta elrpc_{t-i} + \sum_{i=0}^{c_3} \alpha_{3b} \Delta elcppc_{t-i} \\ & + \sum_{i=0}^{c_4} \alpha_{4b} \Delta elipc_{t-i} + \sum_{i=0}^{c_5} \alpha_{5b} \Delta ellpc_{t-i} + \sum_{i=0}^{c_6} \alpha_{6b} \Delta elopc_{t-i} + \alpha_{7b} d1989 + \alpha_{8b} d2008 \\ & + \alpha_{9b} T + \beta_{1b} emp_{t-1} + \beta_{2b} elrpc + \beta_{3b} elcppc + \beta_{4b} elipc + \beta_{5b} ellpc + \beta_{6b} elopc + \epsilon_{1t} \quad (3) \end{aligned}$$

where, Δ represents difference operator, c 's represent maximum lag lengths, and $d1989$ and $d2008$ represent time dummy variables where $d1989$ takes the value of zero before the year 1989 and takes the value of one starting from the year 1989, and $d2008$ takes the value of zero before the year 2008 and takes the value of one starting from the year 2008, and T is trend variable.

¹ VAR model developed by Sims(1980), and Engel-Granger (1987), Johansen (1988), Johansen and Juselius (1990) and Gregory-Hansen (1996) cointegration tests.

The best fitting model with the appropriate lag length is chosen as the ARDL (4,4,4,3,4,4) model after evaluating and comparing all possible models according to the AIC.

Having found the best fitting model, the model also needs to be diagnostically tested for some possible statistical problems, namely, serial correlation, normality, heteroskedasticity, model misspecification and parameter stability.

The results of the diagnostic tests are given in Table 5.

Table 5. “Diagnostic Test Results”

Test	Test Statistic	p-value
χ^2_N	2.62	0.26
χ^2_{SC}	0.26	0.64
χ^2_{HS}	0.023	0.88
χ^2_{MM}	2.23	0.23

As seen from Table 5, Jarque-Bera (χ^2_N) test results showed that there is no normality problem in the model. Breusch-Godfrey LM (χ^2_{SC}) test results indicated no serial correlation issue. There exists no heteroskedasticity problem according to ARCH (χ^2_{HS}) test results. Ramsey RESET (χ^2_{MM}) test results found no model misspecification problem.

Apart from above mentioned tests, the model is also tested for parameter stability, and the results are given in Figure 1.

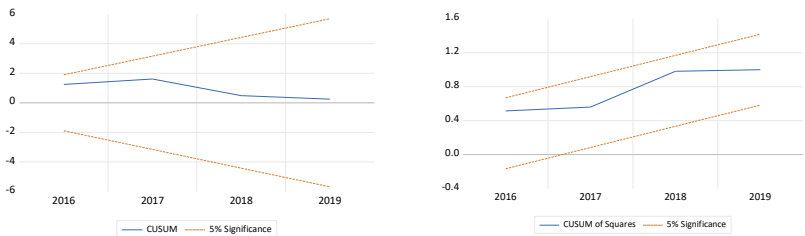


Figure 1. “Parameter Stability Results”

As can be seen from Figure 1 CUSUM (CS) and CUSUMSQ (CS^2) tests detected no parameter instability issue at %5 level of significance.

Having evaluated all the test results, it is found that ARDL (4,4,4,3,4,4) model is not suffered from diagnostic issues.

3.3.4. Bounds Test

After establishing the UECM form, finding the ARDL model with appropriate lag length, and checking the model with diagnostic tests, the next step of the ARDL methodology is to perform bounds testing to conclude whether cointegration relation exists among the variables or not. In the

bounds testing procedure, the null hypothesis which suggest no cointegration relation needs to be tested against the alternative hypothesis of cointegration with F test. If, the value of calculated test statistic is greater than the upper bound value, then the null hypothesis of no cointegration needs to be rejected. If, the test statistic's value is less than the lower bound value, then the null hypothesis cannot be rejected. Additionally, if the value calculated F statistic is neither greater than the upper bound value nor less than the lower bound value, then the result regarding cointegration is inconclusive.

The results of the bounds testing procedure for the ARDL (4,4,4,3,4,4) model are given in Table 6.

Table 6. "Bounds Test Results"

Test	Calculated Test Statistic	Lower-bound Value (5%)	Upper-bound Value (5%)
F	4.69**	3.12	4.25

*"** represents statistical significance 5% level"*

The results of the bounds testing procedure as can be seen in Table 6 showed that the null hypothesis of no cointegration is rejected, since the calculated value of F statistic is greater than the upper-bound value. Thus, employment (emp) and sectoral electricity consumption series are found to be cointegrated where $elrpc$, $elcppc$, $elipc$, $ellpc$ and $elopc$ are the long run forcing variables of emp at 5% level of significance

3.3.5. Long Run Form of the ARDL Model

In the ARDL approach to cointegration procedure, following the bounds testing, the parameters which will be derived by using the normalization procedures of the long run form of the model needs to be estimated.

The results obtained from the parameter estimation of the long run model are presented in Table 7 for the ARDL (4,4,4,3,4,4) model.

Table 7. "Long Run Parameter Estimations for the ARDL (4,4,4,3,4,4) Model"

Variable	Coefficient	t-statistics	p-value
$elrpc$	1.23	4.16	0.014
$elcppc$	-1.34	-4.65	0.010
$elipc$	-0.68	-2.86	0.046
$ellpc$	0.29	4.33	0.012
$elopc$	-0.48	-6.99	0.002

" represents statistical significance 5% level"*

The results obtained from the estimation of long run model which are shown in Table 7 showed that all the variables are statistically significant. The results unfolded that the long run coefficient of the per capita residential electricity consumption is found to be 1.23, per capita lightening electricity consumption is found to be 0.29, per capita commercial and public electricity consumption is found to be -1.34, per capita industrial electricity consumption is found to be -0.68 and per capita other electricity consumption is found to be -0.48. Hence, in the long run, 1% percentage change in per capita residential electricity consumption and per capita lightening electricity consumption will cause a 1.23% and a 0.29% change in employment within the same direction, respectively. On the other hand, in the long run, 1% percentage change in per capita commercial and public electricity consumption, per capita industrial electricity consumption and per capita other electricity consumption will cause a 1.34%, 0.68% and a 0.48% change in employment within the opposite direction, respectively.

Having dealt with long run estimation of the ARDL model, the error correction representation of the ARDL model is formed which is shown in “Eq. (5)”.

$$\begin{aligned} \Delta emp_t = & \alpha_{0b} + \sum_{i=1}^c \alpha_{1b} \Delta emp_{t-i} + \sum_{i=0}^c \alpha_{2b} \Delta elrpc_{t-i} + \sum_{i=0}^c \alpha_{3b} \Delta elcppc_{t-i} \\ & + \sum_{i=0}^c \alpha_{4b} \Delta elipc_{t-i} + \sum_{i=0}^c \alpha_{5b} \Delta ellpc_{t-i} + \sum_{i=0}^c \alpha_{6b} \Delta elopc_{t-i} + \alpha_{7b} d1989 + \alpha_{8b} d2008 \\ & + \alpha_{9b} T + \gamma_1 ect_{t-1} + \epsilon_{t1} \end{aligned} \quad (4)$$

where, ect_{t-1} is error correction term with one lag.

The parameter estimation results acquired from for the error correction form of the ARDL (4,4,4,3,4,4) model are presented in Table 8.

Table 8. “Parameter Estimations of the Error Correction Form of the ARDL (4,4,4,3,4,4) Model”

Variable	Coefficient	t-statistics	p-value
c	43.21	7.96	0.001
T	0.24	7.93	0.001
Δemp_{t-1}	1.51	5.88	0.004
Δemp_{t-2}	2.47	7.78	0.002
Δemp_{t-3}	1.11	5.17	0.007
$\Delta elrpc_t$	0.93	7.72	0.002
$\Delta elrpc_{t-1}$	-0.58	-4.71	0.009
$\Delta elrpc_{t-2}$	-1.11	-7.42	0.002
$\Delta elrpc_{t-3}$	0.39	4.64	0.010

$\Delta elcppc_t$	-1.24	-8.44	0.001
$\Delta elcppc_{t-1}$	1.60	7.11	0.002
$\Delta elcppc_{t-2}$	0.65	4.40	0.012
$\Delta elcppc_{t-3}$	0.56	4.33	0.012
$\Delta elipc_t$	-0.33	-2.69	0.055
$\Delta elipc_{t-1}$	0.20	2.60	0.060
$\Delta elipc_{t-2}$	0.68	7.25	0.002
$\Delta ellpc_t$	0.17	5.47	0.006
$\Delta ellpc_{t-1}$	-0.53	-7.20	0.002
$\Delta ellpc_{t-2}$	-0.89	-7.98	0.001
$\Delta ellpc_{t-3}$	0.09	2.14	0.099
$\Delta elopc_t$	0.06	2.52	0.065
$\Delta elopc_{t-1}$	0.57	6.65	0.003
$\Delta elopc_{t-2}$	0.27	5.34	0.006
$\Delta elopc_{t-3}$	0.32	6.46	0.003
d1989	-0.49	-7.21	0.002
d2008	-0.05	-2.48	0.068
γ_1	-1.91	-7.96	0.001

“*, ** and *** represents statistical significance at 1%, 5% and 10% levels, respectively.”

As shown in Table 8, all coefficients are found to be statistically significant. As for the coefficient of the error correction term which is estimated to be $\gamma_1 = -1.91$ is negative as expected and it is between -1 and -2 which implies oscillatory convergence.

4. CONCLUSION and POLICY IMPLICATIONS

In this paper, the dynamic relations between employment and per capita electricity consumption in residential, commerce and public, industry, lightening and other sectors both in the short run and long run for the case of Turkey is analyzed by using a comparatively recent cointegration analysis technique, namely ARDL bounds test, due to the fact that the data set consisting of as a mix of I(0) and (I1) variables, according to the results obtained from related unit root tests.

The bounds test results of the ARDL model captured a statistically significant cointegration relationship between sectoral electricity consumption and employment. Moreover, long run results exposed that there is a relationship between both residential per capita electricity consumption and employment, and lightening per capita electricity consumption and employment that moves in the same direction where a change in electricity consumption will also cause a change in employment. There also

exists a negative relationship between per capita commercial and public electricity consumption and employment, per capita industrial electricity consumption and employment, and per capita other electricity consumption and employment.

As for the short run, one period lagged error correction term's coefficient revealed that the disequilibrium of the previous period's shocks converges to the long run equilibrium fadingly.

When the above-mentioned results of the study are evaluated from the policy makers perspective, the findings showed that sectoral electricity consumption can be used as a stimulating tool to affect the employment, in other words, the designers of the employment policies in Turkey should bear in mind that they can benefit from energy policies that are designed to change the sectoral electricity use. Similarly, energy policy designers of Turkey should also be aware of the fact that if the energy policies designed by them aims to increase the per capita electricity consumption in residential and lightening sectors, then these policies will boost employment, but not vice versa. On the other hand, energy policies designed to increase the per capita electricity consumption in industrial, commercial and public and other sectors will harm the level of employment.

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