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Department of Economics, Istanbul, Turkiye

Correspondence Address
Istanbul University, Faculty of Economics,
Sociology and Methodology Research Center,
Merkez Kampüs, 34452, Beyazıt, İstanbul, Turkiye
Phone: +90 (212) 440 00 00 / 11548
E-mail: jecs@istanbul.edu.tr
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Research Article

Effects of February 6, 2023 Kahramanmaraş Earthquakes on Housing Preferences vis-à-vis Sociology of Disasters

Aykut SIĞIN[1], Nihal Arda AKYILDIZ[2]

[1]Assoc. Prof., Aksaray University, Faculty of Science and Letters/Department of Sociology, Aksaray, Türkiye
[2]Assoc. Prof, Balıkesir University, Department of Architecture, Balıkesir-Türkiye

Corresponding author : Aykut SIĞIN
E-mail : aykutsgn@gmail.com

ABSTRACT

On February 6, 2023, two major earthquakes occurred in Kahramanmaraş, Türkiye. This study analyzes the transformations in housing preferences of the earthquake victims. Accordingly, 30 earthquake victims who were in Adana, Hatay, Kahramanmaraş, and Malatya during the earthquakes were reached via snowball sampling, and then semistructured interviews were conducted with them. After transcribing the interviews, the software ATLAS.ti 9 was used to identify the five themes of the study: 1) preferences shifting from vertical to horizontal housing, 2) preferences shifting from comfort-oriented options to those with safety, 3) preferences shifting from urban to rural areas, 4) rising demand for buildings complying with the earthquake legislation, and 5) reasons for not leaving the earthquake zone because of economic or family reasons despite lack of trust in the building/area. The findings revealed that safety needs were prioritized over other needs, supporting Maslow's theory of hierarchical structuring of needs. This study might make a general contribution to the field of sociology of disasters and guide development of public policies postdisaster.

Keywords: Sociology of disasters, Urban sociology, Kahramanmaraş earthquakes, Housing preferences

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1. Introduction

Urban spaces started to carry majority of the population after the Industrial Revolution. However, these spaces also house all kinds of human problems. Disasters are more than mere "natural occurrences" because they affect the flow of life physically, socially, economically, politically, and culturally (Can, 2020, p. 17; Akgüngör, 2010, p. 19), and they highlight the times when urban problems are highly "naked" and visible. Disasters are among the earliest threats witnessed by humanity and have occurred throughout history in the form of earthquakes, floods, droughts, forest fires, avalanches, hurricanes, explosions, and epidemics among others. Many strategies have been devised against these risks. For example, as a precaution against disasters, people have built their settlements far from places where these risks are likely to occur and have constructed durable structures. When subjected to the devastating effects of disasters, people have been forced to develop new strategies to facilitate recovery and ensure a more secure future.

Earthquakes affect various regions worldwide. Challenges related to economy, family, migration and related issues, and anomic situations are some obvious consequences of earthquakes (Fırat, 2020, p. 167). These disasters considerably damage the functioning of daily life in cities so much so that the damage can merely be overcome via efforts of the victims alone (UNDRR, 2023).

On February 6, 2023, two strong earthquakes occurred in Kahramanmaraş, Türkiye, resulting in major losses in the neighboring provinces, namely Adana, Adıyaman, Diyarbakır, Elazığ, Gaziantep, Hatay, Kilis, Malatya, Osmaniye, and Şanlıurfa. The Disaster and Emergency Management Presidency (AFAD) recognized Bingöl, Kayseri, Mardin, Tunceli, Niğde, and Batman as "Disaster Zones with a General Impact on Life" because of the aftershocks (Anadolu Ajansı, 2023). Government officials placed some of the earthquake victims in hotels, guesthouses, and dormitories in the cities that were not affected by the earthquakes, while others were guided to move in with relatives or volunteer families in different cities. All this created a number of life-related difficulties postearthquake.

This study analyzes the transformations in housing preferences of the victims of the February 6, 2023 earthquakes. Hence, a qualitative research design was followed to assess the thoughts and feelings of the earthquake victims. "What kind of transformations occurred in housing preferences of the victims of the February 6 earthquakes" is the problem statement of this study. Before beginning the field research, a permission was obtained from the Aksaray University Human Research Ethics Committee with the decision dated 25.04.2023, numbered E-34183927-000-00000826388 with decree no. 2023/03-20.

2. Materials and Methods

The study group consisted of earthquake victims from Adana, Hatay, Kahramanmaraş, and Malatya, four cities directly affected by the February 6, 2023 Kahramanmaraş-centered earthquakes. These four cities were specifically selected for this study because the researchers had acquaintances in these cities; these acquaintances could both participate as interviewees in the study and guide the researchers. Snowball sampling was employed in this study, and semistructured interviews were conducted with 30 people. Snowball sampling is used when access to potential participants is restricted (Dattalo, 2008, p. 6). Although there was a shared earthquake experience in the field (meaning everyone in the field could have potentially participated), the participants were specifically asked if they could direct the researchers to other potential participants who would be willing to contribute to this study. The interviews were ended upon reaching theoretical saturation.

The first researcher conducted interviews in Adana and Hatay between May 01 and 05, 2023, while the second researcher conducted interviews in Kahramanmaraş and Malatya during the same period. Face-to-face interviews (n = 22) with earthquake victims in the earthquake zone and remote interviews (n = 8) with victims who had left the earthquake zone were conducted. The face-to-face interviews were conducted in the Credit and Dormitories Institution buildings, tent cities, and container areas.

Approximately 40–50 min were allocated for each interview. However, in some cases, the interview was halted for the interviewees who became emotional, and they were allowed to rest. The interview was resumed only after they expressed no problem in continuing with the interview.

An interview form including demographic questions and questions regarding the earthquake and postearthquake experiences and housing preferences was prepared within the scope of this study. The participants were first allowed to see the interview form, and interviews were conducted only if they provided their consent. After autorecording the interviews, , they were transcribed and the themes of the study were identified using the software ATLAS.ti 9:

1. Preferences shifting from vertical to horizontal structuring,
2. Preferences shifting from comfort-oriented options to those prioritizing safety function,
3. Rising demand for earthquake-legislation-compliant buildings,

4. Preferences shifting from urban to rural areas, and
5. Reasons for not moving out of the earthquake zone/city despite lack of trust in the building/ area: economic conditions and family ties.

The main reason for using the qualitative research method was to attempt to collect in-depth data from the participants without the aim of prediction and generalization. This method is inquisitive and interpretative and aims to understand the problem in its natural environment (Denzin & Lincoln, 2005, p. 3). Accordingly, during the face-to-face interviews with the earthquake victims, observations were made in the field and notes were taken.

3. Conceptual Framework and Literature Review

The conceptual framework of this study involved housing as one of the basic human needs: The American psychologist Abraham Maslow's hierarchy of needs provides a basis for this study. In addition, the main arguments of this study were shaped via literature on sociology of disasters.

3.1. *Housing and Living Spaces*

In 1943, Maslow published his work "A Theory of Human Motivation" and argued that human decision-making processes are determined by a hierarchy of psychological needs. Maslow mentioned five needs as the source of motivation for human behavior. Considering these needs with respect to a pyramid, they progress from the pyramid's bottom to top as physiological needs, safety needs, love and social belonging needs, esteem needs, and self-actualization needs in the same order. The higher needs, i.e., esteem and self-actualization needs, cannot be met without meeting the basic needs, i.e., physiological, safety, and social belonging needs.

In Maslow's classification, physiological needs include those such as breathing, nutrition, sexuality, and sleep and shelter needs, while safety needs include those such as employment safety, resources, family, health, and property needs. Maslow asserted that physiological needs are essential ones because living beings strive to fulfill these needs throughout their lives. The safety needs become a priority after physiological needs are met. In this study, shelter need represents physiological needs and property safety need represents safety needs.

Humans have always needed shelters to protect themselves from threats of the outside world. Shelters, which provide rest and protection from weather and wild animals, is one of the most essential needs along with nutrition and clothing (Shelter, n.d.). With time, houses made of straw were replaced by adobe-styled houses, reinforced concrete houses, and eventually by today's multistory houses. In today's society, residential buildings differ in terms of form, function, and visuality according to socioeconomic and sociocultural demands of the user. Hence, spatial designs of settlements vary by geography, climate, belief system, lifestyle, and economic conditions.

People with shifting sociocultural and socioeconomic preferences frequently change housing types, which are an important factor in shaping the urban space. A city's potential to grow and develop like a living organism also causes it to produce new residential areas with various types of housing structures. The recent residence-type housing production is equipped with shopping areas on residential floors, as well as spaces supporting cultural and sporting activities. Noteworthily, a common label for these high-rise housing types is "secure living spaces." This new type of housing has considerably changed the skylines of cities. Abandoning low-rise building types has created a distinction between new and old urban settlements in cities.

Safety of the house is an important issue in urban life. Accordingly, gated buildings are particularly preferred by the upper middle class. Gated buildings or multistory buildings can be considered "safe" against external threats of modern life, but we must discuss whether they are "safe" in the case of disasters too.

3.2. *Sociology of Disasters*

Notwithstanding Voltaire's examination of the earthquake in Lisbon in 1755, the first real sociological analysis of natural disasters was Samuel Henry Prince's doctoral dissertation "Catastrophe and Social Change" completed at Columbia University in 1920. Prince analyzed the Halifax explosion, which occurred in 1917 in Halifax, Canada after the explosive-laden cargo ship SS Mont-Blanc collided with SS Imo, within the framework of social theory. His thesis examined the intricate relationship between disasters and social structure.

A more systematic sociological study of disasters dates to the 1940s and 1950s. The US military formed a research team to study the manner in which the American public reacted to emergencies and disasters such as tornadoes, fires, and chemical releases. These disasters were considered natural experiments to examine individual and collective behaviors. Enrico Quarantelli at the National Opinion Research Center (NORC), University of Chicago focused on

social dimensions of panic behavior (1954) and examined folk myths in disaster response (1960). Other students at NORC addressed issues such as the blame society places on the communities it perceives as having caused or worsened the disaster. NORC's director, Charles Fritz, summarized the results of the project in a 1961 text edited by the prominent sociologists Robert Merton and Robert Nisbet. Fritz emphasized the commonality of phenomena, such as people finding a common ground, people directly moving to a disaster area postdisaster, and development of norms emerging from altruistic motivations (as cited in Drabek, 2017, p. 140). These observations contrasted with the widespread perception at the time of mass hysteria and the need for the government to direct and control the process, prevent looting and consider other public safety measures.

Sociologists studying disasters noted that social processes become more visible in times of disasters because they occur in a dramatic fashion in a short period. These processes, which are veiled in less stressful times, become conspicuous in times of disasters (Peek et al., 2021, p. 222). In this context, the early studies on sociology of disasters particularly focused on the reflexes of society in the process immediately following a disaster. Drabek (2017, pp. 141-144) asserted that most disaster sociology studies today referred to one of the four stages of disaster response: preparedness, response, recovery, and mitigation.

Sociology of disasters, as a field, is in a relatively understudied state because the research requires occurrence of a disaster, following which only sociological discussions can be built. Alkın (2020, p. 73-76) concludes that the contemporary discussions in the field of sociology of disasters can be grouped as risk, disaster management, emergency, and recovery. He also notes that the literature in the Turkish context is lacking in both theory and methodology, and that most recent studies are on disaster management. Hence, regarding theoretical discussions, this study notably contributes to the literature by providing in-depth insights from inside the field.

3.3. *Literature on Postearthquake Housing*

The literature on settlements after disasters consists mostly of architectural studies published as macroscale reports on shortcomings of the damaged or destroyed buildings (Comerio, 2013; Hamideh et al., 2018; ABAG, 2000). However, studies employing a human-based perspective have been less than those based on technical issues. A literature review on postearthquake housing revealed that studies should focus on issues such as extent to which resettlement projects are acceptable to the people they house, whether the houses provided meet the needs of occupants, and whether resettlements built to be safe remain safe in future disasters. Postearthquake housing is frequently considered an important aspect of disaster recovery. The literature shows the following: horizontal housing is preferred to vertical housing, safety becomes more important than comfort, and active involvement in the community is preferred postdisaster (Aysan, 1987; Habitat, 1994; Kronenburg, 1995; Fallahi, 2007; Bozkurt, 2023). However, limited space is an issue for occupants of temporary shelters (Ekinci, 2000; Yüksel & Hasırcı, 2012), which could have implications for preferences for permanent settlements.

This study fills the aforementioned gap in the literature by analyzing the transforming effects of disasters as experienced in the February 6 earthquakes. It also contributes to the relevant literature, which seems to be predominated by macrolevel quantitative studies, through a qualitative research design, providing in-depth insights into the earthquake experience. The findings, which originate from people who experienced the February 6 earthquakes, could guide future construction policies.

4. Results and Discussion

Table 1 presents the demographic information of the interviewees.

Table 1. Demographic information of the interviewees

Interviewee no	Gender	Age	Occupational status	Educational status	Province, district during the earthquakes
(I)nterviewee 1	Male	26	Software Specialist	Bachelor's	Adana
I2	Male	54	Teacher	Bachelor's	Adana
I3	Female	28	Architect	Bachelor's	Adana
I4	Male	37	Self-employed	Bachelor's	Adana, Kozan
I5	Female	33	Teacher	Bachelor's	Adana
I6	Male	26	Architect	Bachelor's	Adana
I7	Female	18	Student	Middle School	Adana
I8	Male	59	Engineer	Master's	Hatay
I9	Female	24	Nurse	Bachelor's	Hatay
I10	Female	25	Architect	Bachelor's	Hatay
I11	Female	18	Student	Middle School	Hatay
I12	Female	39	Housewife	Middle School	Hatay
I13	Male	25	Unemployed	Middle School	Hatay
I14	Male	24	Paramedic	Associate Degree	Kahramanmaraş, Nurhak
I15	Male	25	Architect	Bachelor's	Kahramanmaraş
I16	Male	35	Worker	Middle School	Kahramanmaraş
I17	Male	31	Academic	Master's	Kahramanmaraş
I18	Female	33	Academic	Doctorate	Kahramanmaraş, Pazarcık
I19	Male	23	Student	Middle School	Kahramanmaraş, Elbistan
I20	Female	25	Architect	Bachelor's	Kahramanmaraş
I21	Male	24	Graphics Designer	Bachelor's	Kahramanmaraş
I23	Male	46	Police Officer	Bachelor's	Malatya
I24	Female	44	Housewife	Bachelor's	Malatya
I25	Male	30	Engineer	Master's	Malatya
I26	Female	42	Worker	Elementary School	Malatya
I27	Female	52	Housewife	Elementary School	Malatya
I28	Male	21	Graphics Designer	Bachelor's	Malatya
I29	Female	38	Teacher	Bachelor's	Malatya
I30	Female	26	Engineer	Master's	Malatya

The researchers observed the emotional state of the people in the field. The urban fabrics had been considerably damaged in Adana, Hatay, Kahramanmaraş, and Malatya; the earthquake victims still maintained their ties to the city because they had been living in that city for a while, their relatives resided there, and settling in another city was economically difficult. The researchers also observed that the earthquake victims struggled for existence and survival with feelings of helplessness and obscurity. The participants frequently used words that can be grouped under the concepts of structure, family, and feelings. The following word cloud was obtained from the transcriptions:

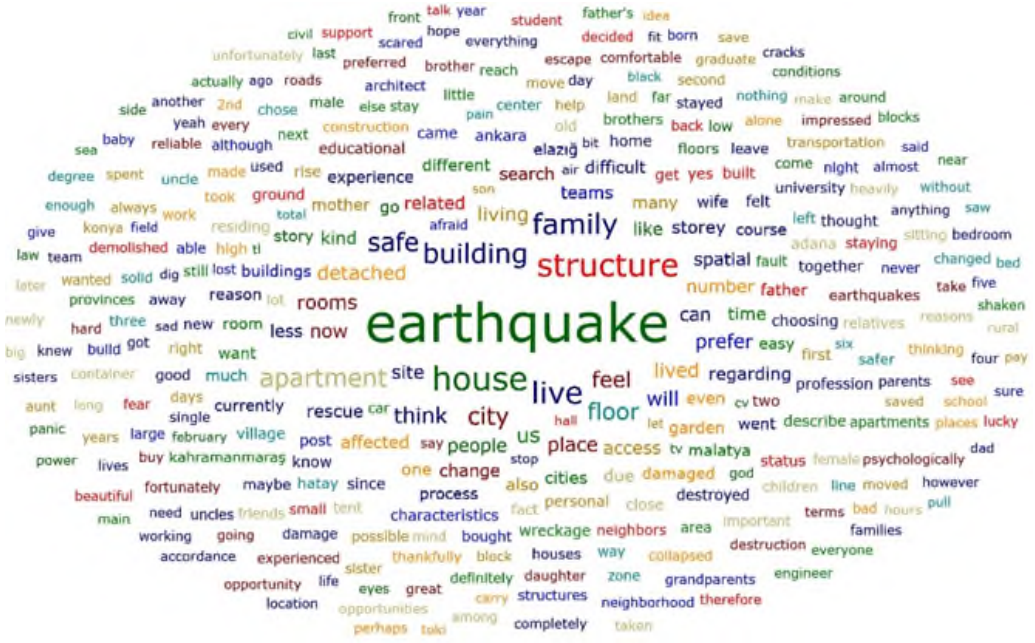

Figure 1. Word cloud

The identified themes are evaluated in the following.

4.1. *Preferences Shifting from Vertical to Horizontal Structuring*

The interviewees frequently mentioned that living in high-rise buildings was not as safe as they had previously thought. They expressed their changing attitudes by indicating their preferences for vertical structuring (apartment buildings [apartman], housing estates [site], residences [rezidans]) rather than horizontal structuring (detached houses [müstakil ev], houses with gardens, floors close to the ground in multistory buildings). They frequently stated that they had become hesitant to live in multistory buildings and would prefer to live in buildings with at most two or three stories. A total of 21 interviewees stated that they prefer horizontal constructions to vertical ones. Some of them stated that the earthquake would not have victimized them as much if they had lived in detached houses:

> If I had lived in a single-story house, I would have been shaking considerably less than on the fifth floor and I could even have escaped by jumping out of the window. This would definitely have made me feel less affected (I7).
> If we had lived in a single-story house, we would have been more composed during the earthquake and perhaps would have felt safe... Fortunately, our house did not collapse during the first tremor until we left, but it was heavily damaged and collapsed after the second earthquake. If I had lived in a detached, single-story house, I would not have been psychologically affected so much (I23).

Some interviewees expressed their interest in low-rise buildings made with light steel or prefabricated building materials rather than concrete:

> I definitely want a building with a garden similar to the one I live in now. I will purchase a plot of land as per my means. I will build a detached house made of light steel or perhaps prefabricated materials. I will hold the same preference even if the house is far from the center. The house can be in one of the districts of Ankara; I am currently seeking a plot of land in Polatlı. (I4).
> I definitely prefer to stay in a low-rise or detached house. The house can even be made of light steel or prefabricated materials because the idea of being stuck in concrete piles is frightening (I25).

Some stated that they would have been considerably less affected by the earthquake if they had lived in an apartment building with fewer stories:

> Everything would have been completely different if we had been in a different structure. We would have been affected considerably less if it had been a low-rise building, perhaps with two or three stories, and if the apartment buildings had not been so contiguous. The apartment buildings were wrecked because they were both high-rise and adjacent (I12).
> I probably would have panicked less in a building with fewer floors. You do not know at the time if the building is strong and can withstand an earthquake; we learned by experience. But how do you move down from the sixth floor? Should I go downstairs? Should I go upstairs to the attic? These questions cross your mind. I experienced considerable fear (I17).

We understood from the interviews that the interest had shifted from vertical to horizontal architecture. Horizontal architecture was one of the most important architectural topics in the 19th and 20th centuries. Le Corbusier, a pioneer of the modernist architectural movement, found vertical construction reasonable vis-a-vis enabling urban green spaces and rational use of land. However, the thinkers Frank L. Wright, Ebenezer Howard, and Catherine Bauer supported horizontal architecture asserting it was more humane and unifying than vertical construction (as cited in Bıçkı & Kırkan, 2022, p. 290). The horizontal construction strategy, also approved in ecological and sustainable urban designs, is preferred for reasons such as enabling both urban and rural users to live in harmony with nature and interacting with the outside world in a faster manner. In this context, we observed that the earthquake experience brought the victims closer to the ground and nature and, followed by an understandable preference shift from vertical to horizontal architecture.

4.2. *Preferences Shifting from Comfort-oriented Options to Safety-function Prioritizing Options*

Stating that their perspectives on life have changed after the earthquake experience, the interviewees revealed that they have evolved to prefer not comfort-oriented settlements but safety-prioritizing minimalist spaces. A total of 8 interviewees stated that a house that is functional (safe) in a crisis is more important than a large or comfortable one. The comfort in question includes interior architectural features of the building, as well as the perception of its location in the city. Some of the statements are as follows:

> Of course, I would have been safer and less affected by the earthquake if I had lived in a detached, open-air, single-story house compared with an apartment building. . (I1).
> After this experience, I would prefer a minimal, prefabricated structure that meets our needs rather than a fancy, reinforced concrete structure that I had opted for only because it had an elevator. (I18).

Some interviewees stated that the safety function of their settlements became more important than comfort:

> Yes, we feel safe in this place, which meets our needs, even if it is as small as a container. This is because we are less affected by the aftershocks. Hence, we desire to live in a single-story building (I14).
> My mother was psychologically deeply affected after the earthquake and is undergoing treatment. I believe she will considerably benefit from living in a house with garden. Previously, I would insist that my father took us to live in attractive housing estates where I could quickly meet my friends and easily reach shopping malls and cafés in the city. However, now, I do not have any issues living in settlements where my mother will be more comfortable and my family safer. (I21).

"Function" in architecture means that each part/unit of the whole fulfills the task expected of it, serves the system, and contributes to the functioning of the whole (Gür, 1996, p. 98). Formation of a specific action or task involves several goals, of which usefulness, safety, social harmony, and comfort are most important (Cronberg, 1972, p. 13). The concept of luxury, however, involves conditions that provide an individual a sense of comfort, happiness/satisfaction, and perception of convenience, but the individual really does not need it (Kıray, 2005, p. 15). Hence, we might say that an individual's luxury consumption behavior, that is, his/her understanding of comfort, is parallel to his/her "identity formation experience" rather than quality and performance qualities (Kıyan, 2013, p. 57). In this respect, the February 6 earthquakes damaged both the urban (i.e., city dweller) identity of the inhabitants of these cities and the urban fabric, which had almost disappeared. In addition, the need to ensure minimum safety took precedence over accessing the opportunities (or comfort) offered by the city.

4.3. *Rising Demand for Earthquake-legislation-compliant Buildings*

Disasters, which often raise awareness by serving as "wake-up call" for society, transform the relationship of city dwellers with the city. In this study, the statements of the interviewees hinted as to how they entered a phase in which they had started to inquire about the inspection certifications in buildings. A total of 17 interviewees emphasized the importance of these kind of inquiries. Some statements by the interviewees are as follows:

> We would have been affected considerably less had our house been a newer, two/three-story, earthquake-resistant apartment building. Our house would not have collapsed, and perhaps my father would have survived (I11).
> We should discuss the ground of the building and the control mechanism employed during construction rather than the building itself. An earthquake can be survived with less anxiety if buildings are built as per the regulations and legislations. I would like to live in a country

where constructions are built by earthquake-conscious professionals and where earthquake regulations are strictly enforced and inspections conducted. It is not the earthquake that kills, but the building (I30).

Several interviewees indicated that some measures should be implemented at the macro scale, i.e., at the citywide scale, (such as compliance with zoning legislation, expansion of earthquake-resistant, low-rise building constructions) rather than at the micro building scale:

Currently, any building that I will not reside in is the most comfortable one. It is highly sad, perhaps frightening, but, as an architect, I have ignored many issues such as design, comfort, usability, and sustainability, i.e., many issues we should consider when designing a building... My only desire is to build safe and low-rise buildings. If the city zoning does not allow for this, we need to expand the number of buildings and create new settlements on the periphery of the city (I6).

No aid reached Malatya for the first two or three days. However, this had nothing to do with the state's means because the Erkenek Tunnel had collapsed on the roads leading to Malatya. Consequently, the aid trucks reached late. Let alone the buildings, the city itself is not safely built. Imagine, the tunnel collapses! Now the entire city should be rebuilt as per the legislation (I28).

Vertical construction agrees with urbanization because of the following: 1) the changing housing types in line with structural and technological innovations in the construction sector, 2) land limitations in urban spaces, and 3) high construction costs. However, several ethical rules vis-à-vis the inspection mechanism have been compromised because multistory residences are built by large companies. Notably, these large companies inspect buildings via their own inspection companies, encouraging ethical violations and presenting obstacles in construction of earthquake-legislation-compliant buildings. The building legislation and inspection rules in Türkiye are generally considered comprehensive (Akyıldız, 2020, p. 28). However, they are violated because the contracting professional does not possess any certification or offer professional supervision, resulting in construction of inappropriate structures. The information on disaster-resistance, manufacturing quality, and materials of the buildings is revealed only postdisaster. Considering the raised collective awareness seen after disasters, one can understand why the interviewed earthquake victims prefer earthquake-legislation-compliant buildings.

4.4. *Preferences Shifting from Urban to Rural Areas*

Cities not only offer social, economic, cultural, and technological advantages but also those associated with education and health. Waves of migration from rural to urban areas continuously occur because the demands of different social classes are met in the heterogeneous urban space. However, shocking experiences such as disasters "shake," change, and transform even the deeply ingrained preferences of individuals. In the immediate aftermath of the February 6 earthquakes, the reflex to seek shelter in detached houses in rural areas (villages, towns, or surrounding districts) owned by relatives is revealed from the transcriptions of 11 interviewees. The interviewees preferred these settlements as safe living spaces, even if for a short time. We understood, within the confines of this study, that there was a general tendency to move from metropolis to the countryside. Some examples from the interviews are as follows:

Of course, the fear of earthquakes deeply affects our lives... It has traumatized many people, my relatives. Now, even at the slightest tremor, we think it is an earthquake, following which we look upward and check if the chandelier is shaking. The fear is permanent... Hence, I prefer rural, quiet settlements in cities without fault lines (I1).

We will continue to live in Kahramanmaraş but in a rural area. We have decided to live in a single-story building because it seems more reliable. We will live in a safe structure, even if it is simple and has only two rooms. I want to keep my family safe when our baby is born (I14).

Actually, I had wanted to live in İstanbul, but now an earthquake is expected there too... Therefore, I would like to live in a place with employment opportunities and solid ground, but in a village, in the countryside (I16).

However, some interviewees stated that rather than living in the countryside, they would prefer to live in a quiet area that is not considerably far from urban space. The statements of some interviewees preferring to live in the urban periphery are as follows:

Safety of the house is more important even if it is slightly far from the city... I was thinking of changing house before the earthquake. However, upon seeing the buildings that collapsed due to the earthquake, I realized that even the new buildings do not guarantee any safety. Hence, I left the idea of shifting to a luxury house. I want a house with garden, near to the city but not excessively near the center... a house where my children and I will be safer (I24).

Actually, it has always been our dream; I own a small piece of land slightly far from the city, which I had purchased by working myself. I advise you too to save and invest while working... Two months before the earthquake, I was sufficiently fortunate to have bought this highly needed piece of land. It is a small place but is sufficient for us. I plan to live there in a small prefabricated house... This is what I have always wanted: to work with trees and soil, to be close to the ground... God willing, I plan to live such a life (I29).

Although rural–urban migration, which mostly began in the 1950s, determines the main conceptual framework of rural–urban interaction in Türkiye, the reverse migration processes experienced in the recent years as a result of different dynamics also warrants discussion. Recently, the contributions of rural areas to the economy of the city have become

increasingly visible with their sociocultural, spatial, and natural attraction points, thereby creating discussions vis-a-vis rural tourism. In addition to the horizontal architectural strategy of rural areas intertwined with natural life, the potential of a calm, quiet life offered by these areas has become more visible with increase in the repulsive aspects of urban space (such as air and noise pollutions and urban stress). Thus, rural areas have emerged as an important living space alternative for urban users.

The responses received in this study show that earthquake victims tend to move away from high-rise urban silhouettes because of the physical, psychological, and social impacts of the destruction of housing in urban spaces postearthquake and seek a new, safer life in rural areas in which horizontal construction is dominant. Some interviewees who could not abandon the city revealed that they prefer living on the city's periphery rather than in the center, revealing a change in preferences from urban toward rural.

4.5. *Reasons for not Moving Despite Lack of Trust in the Building or Area: Economic Conditions and Family Ties*

The earthquake victims who had not known whether their houses had been safe against earthquakes until the earthquake experience stated that they realized the importance of this issue and considered the possibility of moving postearthquake. The interviewees whose houses were moderately damaged stated that changing their house/city would not be possible because of economic reasons and/or family ties. In this respect, 12 interviewees stated that either economic conditions tied them to their house/region or that they would not migrate even if they had the means because of having established their spatial belonging via their extended families living in that region. In this direction, some interviewees stated that they could not leave their settlements in the cities because of family ties despite having had experienced the earthquake:

> Perhaps, I was not in the settlements where the earthquake was most severe, but I would not think of living in a city other than Adana. After all, most of my family is here and I cannot leave them. That is why, I did not think of such a thing (I2).
> After the earthquake, I did not think about changing cities. However, if my family was not here and if I had to change, I would prefer regions where there was no earthquake. Even if I do not change the city, I want to change the house (I24).

Some interviewees stated that they could not leave their provinces where they experienced the earthquake because of insufficient economic conditions:

> No, we do not have the means to change cities anyway. Where should we go? We are in a tent; we are helpless. We do not have a closed place. Sometimes we stay in the tents of our neighbors. Women stay in one tent and men in another (I16).
> I would like to live in my village. I want to stay in Malatya because I have a garden here, and we have animals. We pick apricots, dry them, and sell them. This is a big part of our livelihood. We also have animals; eggs, milk... I took care of our garden for years. I made considerable effort here, and our means are limited anyway... I have worked on every inch of this land. Perhaps the earth was angry with us because of which it cracked, but we cannot leave it, we cannot abandon it (I27).

The Turkish saying "Home is not where you were born, but where you are fed" reveals the determinant role of economy in formation of spatial belonging. The main reasons for the participants who wanted to change their residence and/or region after the earthquake were economic opportunities or their workplaces being in the region in question. The participants with insufficient economic means mentioned the impossibility of shifting to a new residence. However, earthquake victims who were provided with free/temporary settlement opportunities in different provinces decided not to benefit from these opportunities so as not to break away from the labor force in the region. Family ties in the earthquake zone were another reason cited for not leaving the region.

In the transition from an agrarian society to an industrial one, the family largely lost its role as an economic unit but did not lose its function of providing support to its members; on the contrary, this function was only strengthened. Shanas (1979, p. 5) indicated that the modern family is the first source of emotional and social support and crisis intervention. Although the 21st century has seen a considerable amount of disengagement and dissolution from traditional family models, the family today is the most fundamental gateway of switching from individual existence to social existence. Thus, one's spatial ties are largely established through one's family. Considering that the Turkish family structure is based on close relationships, expectedly the interviewees would not want to live far from their families even if they had the means to do so.

5. Conclusions

This study analyzed the transformative impact of the February 6, 2023 Kahramanmaraş earthquakes, which resulted in major devastation in the surrounding provinces, on housing preferences of the earthquake victims. In-depth interviews with 30 participants revealed that the postearthquake preferences of the victims tended to shift from vertical to horizontal

construction and from comfort-oriented options to safety-prioritizing ones. The earthquake victims stated that they would feel safer by living nearer to the ground in low-rise buildings. In this context, basic needs such as those relating to shelter and safety of property, as in Maslow's hierarchy of needs, took precedence over the need for comfort, luxury, or prestige. Similarly, the preferences shifting from urban to rural areas showed that the opportunities offered by the city and the status of "city dweller" were "shaken" by the earthquake experience, and that the priority was not comfort or ease of access to opportunities but safety and survival. Therefore, we understood that while compliance with the earthquake legislation had not been the primary priority when selecting a house before the earthquake experience, this changed postearthquake. However, a lack of trust in the building or region did not necessarily mean that one would move out of that building or region at first opportunity. This is because economic conditions and/or family ties also played a role. Furthermore, the findings were valid for all irrespective of age or gender. However, occupational status indicated a difference, as architects considered building their own settlements postearthquake. In addition, the higher the level of education (bachelor's degree and higher), the more was the perceived importance of earthquake-legislation-compliance inquiries.

Table 2 summarizes the changes in housing preferences of the interviewees.

Table 2. Changes in housing preferences of the interviewees

Interviewee no	Residence during the earthquakes	Residence immediately after the earthquakes	Current residence	Preferred settlement
I1	Third floor of a seven-story building, 3+1 apartment	Although the structure was sound, they stayed outside because of fear	Third floor of a three-story apartment building	Living in the countryside of a city that is not a fault line/earthquake zone
I2	Second floor of a six-story building, 3+1 apartment	Took refuge in brother's detached house with a garden	In a tent with family	House in the village/rural area, living in a single or a house with at most two or three stories
I3	Second floor of an eight-story building, 4+1 luxurious apartment	Took shelter in a garden house with relatives	In a container	Living in Ankara, in a house with gardens in the front and backyard, with at most three stories
I4	Third floor of five-story residential blocks, 1+1 apartment	Was taken to Elazığ after being in the rubble for 12 hr	Moved home and business to Ankara, garden floor of a three-story apartment building	Buying a plot of land and living in a detached house if possible
I5	Ground floor of a three-story building floor, 3+1	Stayed in the car, outside	Family stays in a tent	Living in a single-story prefabricated building in the same city
I6	Ground floor of a four-story building	In the second earthquake, stayed under the rubble for 3 hr while helping	First 25 days in a tent, then in a container with family	Living in a one- or two-story building
I7	Fifth floor of an eight-story building, 4+1 apartment	Moved to the summer house in Mersin	In their current home	Living in a one- or two-story detached building outside the earthquake zone/fault line
I8	Ground floor of an eight-story	Outside	In a container	Living in a one- or two-story house with garden

Table 2. Continued

I9	Ground floor of a six-story building floor, 3+1 apartment	Moved to Ankara with family to live with relatives	Three-story apartment building in Ankara, on the first floor.	Living in a detached one- or two-story building with large garden
I10	Second floor of a six-story building, 3+1 apartment	First in the car, then in their grandfather's three-story village house	In a single-story village house	Living in a single-story building with garden in a city with no earthquake risk
I11	Ground floor of a five-story building, 3+1	20 hr under the rubble	In the outbuilding of a detached house in Ankara, Ahlatlıbel	Satisfied with the area lived in, does not want anything different
I12	Third floor of a six-story building, 2+1 apartment	Was pulled from the rubble 12 hr later and brought to Konya	On the 1st floor of a three-story family apartment building	Living in a one- or two-story detached building
I13	Ground floor of a six-story building, 3+1	Stayed in the vehicle for two days and then went to Ankara with uncle	Ground floor of a two-story building, 3+1 apartment in Ankara, Öveçler	Living in a low-rise, detached house with garden in a fault-free city
I14	Second floor of a six-story building	Wife is out of town; he is on ambulance duty	In a container	Living in rural Maraş in a one- or two-story house or in light-material structures such as containers
I15	Third floor of a twelve-story, two-block complex	Returned to Tunceli to join family	With family in a two-story village house in Tunceli	Living in a single or two-story detached house
I16	Two-story masonry adobe building, 3+1 apartment.	Tried to save family, parents died.	In a tent	Living in a new solid adobe house in the village or countryside
I17	Sixth floor of eleven-story TOKİ blocks, 3+1 apartment	Remained in the structure despite initial uneasiness	At home because the building is undamaged	Living in a safe structure in compliance with technical legislation

Table 2. Continued

I18	Fourth floor of a six-story building, 2+1 apartment	Went to Kahramanmaraş and then to Ankara	On the second floor of a three-story building in Elazığ	Living in a prefabricated structure in Konya or Ankara
I19	First floor of a two-story detached building, 2+1	Scared but stayed in at home	In the same structure.	Living in a new two-story building in the same city
I20	Fourth floor of a seven-story three-block complex, 3+1	Stayed out on the first day	At home with minor damage	Living in the same city but in a low-rise building
I21	Second floor of a ten-story two-block complex, 3+1 apartment	Took relatives from Hatay and went to Ankara	On the second floor of a two-story building in Bursa	Living in a single-story building with garden
I22	Second floor of a three-story, three adjoining blocks	Stayed in the car with family.	In Elazığ Ahmet Kabaklı Student Dormitory	Living in a safe single-story house in hometown
I23	Sixth floor of a twelve-story complex with six blocks, 3+1 apartment	First stayed in the car and then went to Elazığ to their relatives.	In father's house in Elazığ, which is on the 3rd floor of a 4-story building, 2+1 apartment	Living in a safe structure not in earthquake zone
I24	Second floor of an eight-story apartment building	Moved to sister's detached house with a garden	In their old house with small damage	Living in the countryside of the same city in a building with two stories at most
I25	Third floor of an eight-story complex with four blocks, 3+1 apartment	Stayed in the car on the first day	In a tent in the hospital garden	Living in low-rise/detached housing or light steel/prefabricated construction
I26	Single-story village house, 3+1 apartment	Back to the same house	In the same house	Living in the same house.
I27	Single-story village house, 3+1 apartment	Back to the same house	In a tent with family	Living in a rural area in the village
I28	2nd floor of a four-story building, 3+1 apartment	First to relatives' place, then to Sivas	In Sivas Binali Yıldırım Dormitory	Living in a low-rise building in a town without fault line
I29	1st floor of a nine-story building, 4+1 apartment	Stayed in the car and then went to the Akçadağ district	In Elazığ Ahmet Kabaklı Student Dormitory	Living in a prefabricated house on a small plot of land in rural Malatya
I30	4th floor of a five-story building	Stayed in the car	In the same city and home	Living in the garden house bought with savings

As previously mentioned, sociological discussions on disasters usually occur only after a "wake-up" disaster experience. In this context, clearly, the February 6 earthquakes alerted on other possible earthquake experiences such as the expected Marmara/İstanbul earthquake. This study analyzed the process from the perspective of the earthquake survivors. Whether it is the wrong and/or inadequate decisions taken thus far, or the "earth being angry with us" as quoted by one of the participants, the importance of taking positivist measures in future has emerged once again for all kinds of disasters. The needs for shelter and the safety of property must be first ensured, only after which human beings can progress on the path of "self-realization." The statements of the interviewees revealed that they have changed their preferences in this direction. However, in the context of the sociology of disasters, we must remember that individual changes and transformations create a meaningful impact only when they gain a wide social scale and involve the decision-making authorities as well. Therefore, policymakers should prioritize vertical structuring and more strictly check whether the buildings are earthquake resistant.

Speaking of limitations of this study, the findings could become more meaningful upon conducting follow-up visits to the earthquake zone and encouraging further studies. Furthermore, determining whether the change in preferences from vertical to horizontal structuring, from comfort-oriented options to safety-prioritizing ones, or from urban to rural areas is temporary or permanent is difficult based on a single study. Only a few months following the earthquakes, the earthquake victims who had to relocate to rural areas for work, education, etc. seem to have returned to the city. Thus, a follow-up study seems necessary to determine if the findings of this study still hold or if the changing preferences of the victims were merely a temporary result of the disaster experience.

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Informed Consent: The participants were first allowed to see the interview form, and interviews were conducted only if they provided their consent.

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ORCID :

Aykut SIĞIN 0000-0002-1197-552X
Nihal Arda AKYILDIZ 0000-0003-1948-188X

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Research Article

A New Era of Capital Structure Choices in Technology Firms: Insights on Cultural Dimensions

Filiz BOZAGAÇ[1], Ömür SALTIK[2], Mert AKTAŞ[3], Süleyman DEĞİRMEN[4]

[1]Dr. Toros University, Department of Business, Mersin, Türkiye
[2]Asst. Prof. Dr., Department of Economics, Konya Food and Agriculture University, Konya, Türkiye
[3]Prof. Dr., Department of Business, Toros University, Mersin, Türkiye
[4]Prof. Dr., Department of Economics, Mersin University, Faculty of Economics and Administrative Sciences, Mersin, Türkiye

Corresponding author : Filiz BOZAGAÇ
E-mail : fbozagac@gmail.com

ABSTRACT

This study investigates the correlation between corporate financial ratios and cultural dimensions across countries in order to guide technology firms in adapting to the current financial landscape characterized by limited borrowing options and higher interest rates. Using Hofstede's subregional continental classification, it examines the relationship between capital structure and value among 4,237 publicly listed technology firms in 46 countries. The study analyzes financial ratios and connects them with Hofstede's subdimensions of individualism and uncertainty avoidance culture. The findings reveal a significant relationship between cultural dimensions and financial ratios, with individualism and uncertainty avoidance being influential factors. Countries emphasizing individuality tend to have higher borrowing rates, whereas those with a strong preference for uncertainty avoidance exhibit higher gross margins and total debt-to-equity ratios. The borrowing rate variable does not directly affect the dimensions of femininity versus masculinity and uncertainty avoidance; however, it impacts the dimension of individualism versus collectivism. Overall, this study provides valuable insights to enable technology firms to make informed decisions, manage financial structures, and effectively navigate the current financial landscape.

Keywords: *Cultural dimensions, Corporate finance, Capital structure, Structural equation model, Technology sector*

Jel Codes:*C3, M21, O16*

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Structured Abstract

The study explores the relationship between cultural dimensions and financial ratios in technology firms. Data from 4,237 publicly listed technology firms across 46 countries are analyzed based on Hofstede's cultural dimensions theory and the countries' structural activity index. The findings demonstrate a significant correlation between cultural dimensions and financial ratios in technology firms. Additionally, Hofstede's individualism and uncertainty avoidance dimensions are found to influence financial ratios, including interest rates, financial leverage, and gross margin (GM). The research reveals that technology firms maintain low inventory levels and rely on paid-up capital and capitalization increases instead of profit-distribution policies. They frequently invest in high-risk capital and utilize financial leverage, such as acquiring other technology firms and spending on research and development, even if these strategies are initially unprofitable. The study suggests that cultural dimensions, particularly individualism and uncertainty avoidance, are crucial in shaping technology firms' financial performance. In cultures characterized by risk aversion, high uncertainty avoidance, and a focus on individualism, establishing stable relationships between fund providers and seekers becomes essential. Such relationships can ensure accurate information availability for investors and lenders while facilitating firms' access to sufficient funds from money and capital markets. This study highlights the importance of profitability metrics, such as GM and net profit margin, as indicators of future profitability. It demonstrates that cash accumulation is a natural outcome in the technology industry, and investments for saving money and corporate acquisitions are prioritized over profit distribution. In rapidly evolving industries like technology, where competition and research and development (R&D)-based capital expenditures (CapEx) are prevalent, product innovation, patents, copyrights, and inventions become quickly outdated. The findings further support the pecking order hypothesis, which suggests that firms prefer funding capital projects using retained earnings, resort to borrowing when internal resources are insufficient, and issue shares as a last resort. This approach fosters trust in institutions rather than individuals, helping firms avoid adverse selection (lemon markets) and moral hazard. In cultures with high uncertainty avoidance and individualism, borrowing and lending for risky investments is more common. Access to low borrowing costs in markets with efficient information dissemination and optimal capital structures can help firms minimize an important capital cost component and ultimately increase firm value. To enhance finance accessibility and improve profitability in technology firms, the study recommends recognizing the significant impact of financial ratios. Technology firms should prioritize establishing stable relationships with fund providers, optimizing capital structures, and thereby minimizing capital costs. Additionally, they should focus on utilizing future investments for savings and corporate acquisitions rather than concentrating solely on profit distribution. In conclusion, cultural dimensions, particularly individualism and uncertainty avoidance, significantly influence the financial performance of technology firms; acknowledging these factors and their impact on financial ratios can allow technology firms to improve their access to finance and enhance profitability.

1. INTRODUCTION

Economic theories acknowledge the difficulty of satisfying infinite human needs with finite resources and are aimed at ensuring efficient resource allocation. In corporate finance theories, this focus on resources underscores the importance of effectively using production elements, particularly financial capital, for profitability and organizational growth. Microeconomic firm theory emphasizes the critical role of precisely identifying the capital component and structuring capital to maximize firm profits. Capital structure is the proportion of debt to equity employed in financing corporate activities (Myers, 1984; Ardalan, 2017). This concept is centered on the interplay between debt (loans, debt securities, and maturing coupons) and equity (issued share capital, reserves, reserved surplus, and preference share capital). It focuses on how funds are organized to guarantee their optimal use in short-, medium-, and long-term corporate operations. The three primary theories of capital structure are traditional, modern, and new capital structure theories (Harris & Raviv, 1991; Du et al., 2019).

This study analyzes the capital structures of firms during the period from 2014 to 2019 and investigates the influence of cultural elements on these structures in order to understand the risk-taking and investing behaviors of entrepreneurs and individuals from a socioeconomic perspective. To this end, the study utilizes the 2014–2019 financial data of technology firms in 46 countries where IBM operates and applies the cultural dimensions scales developed by Hofstede and Bond (1988). The profitability of firms is assessed using financial ratio analyses derived from the firms' capital structures to establish a consistent research model that encompasses the diverse set of countries. Statistical analysis techniques are employed to analyze the administrative and financial records of the 46 countries. The observations are normalized, and a structural equation model (SEM) path analysis is conducted to ascertain the relationships between the variables.

The following section examines various theories of capital structure and explores the potential influence of cultural factors on capital structure decisions. The third section includes a review of traditional theories, such as the trade-off and pecking order theories, and more recent ones, such as the agency, market timing, behavioral finance, and information asymmetry theories. Additionally, this section discusses the data and model used in the study and how cultural dimensions may play a role in shaping capital structure decisions. The fourth section presents the methodology and results of the SEM analysis. Finally, the last section discusses policy implications of the findings in the context of capital structure.

2. Theoretical Framework

2.1. *Traditional Capital Structure Theories*

The net income, net operating income, and compromise theories are the three main types of traditional capital structure theories (Figure 1). Durand's (1952; 1959) net income theory posits that increasing a firm's value corresponds to decreasing the weighted average cost of capital. However, this theory is based on several limiting assumptions: (1) no impact of firms' borrowing and lending policies on investors' trust; (2) the absence of financing resources such as preference share capital and retained earnings; (3) a uniform dividend distribution policy; (4) unlimited financial resources; and (5) fully efficient markets. Conversely, the net operating income theory posits that a firm's borrowing policy increases its financial risks, affecting stakeholders' perception of risk, such as bankruptcy risk. In this theory, an increase in debt in the capital structure does not alter a firm's value due to higher return expectations. Here, a fixed overall cost of capital and absence of corporate taxation is also assumed. Lastly, the compromise theory argues that the optimal capital structure is achieved when the weighted average cost of capital (WACC) is minimized and the market value of assets is maximized. It suggests that firms can reach this optimal capital structure when the marginal cost of borrowing is equivalent to the cost of equity. However, increasing financial leverage beyond a certain point diminishes a firm's value and raises borrowing costs. These theories offer different perspectives on capital structure decisions; nonetheless, it is important to recognize that they are based on various assumptions and may not fully reflect the complexities of real-world financial decision-making (Harris & Raviv, 1991; Banerjee et al., 1999; Korajczyk & Levy, 2003).

2.2. *Modern Capital Structure Theories*

Modigliani and Miller's (1958) hypothesis on the irrelevance of capital structure is a cornerstone in modern finance and capital structure theory. Their hypothesis posits that in a world without taxes and bankruptcy costs, the use of financial leverage does not affect a firm's value. Specifically, in the absence of corporate taxes, a firm's value is based solely on the risks outlined in traditional theories. However, when taxes are considered, the tax benefits associated with debt financing can enhance a firm's value. This hypothesis challenges the foundational principles of finance and real-world practices.

In 1958, Modigliani and Miller expanded their theory to include corporate taxes in the analysis of capital structure irrelevance. They explore the trade-offs that firms face when weighing the tax benefits of borrowing against the risk of bankruptcy. The consideration of such tax deductibility has influenced the understanding of debt risk in the static trade-off theory and has significantly impacted the findings of the Modigliani–Miller (M&M) irrelevance theory. This has led to the development of models that aim to determine the optimal debt-to-equity ratio by balancing the financial risk of borrowing with the WACC.

Incorporating taxes into the analysis offers a more realistic framework for understanding capital structure decisions. It considers the interplay between tax advantages, financial risk, and the overall cost of capital (Modigliani & Miller, 1958; Scott, 1976; Du et al., 2019; Agyei et al., 2020).

2.3. *New Capital Structure Theories*

The signal theory and the M-M capital structure irrelevance theory assume perfectly functioning capital markets. However, such ideal conditions seldom occur in reality due to various factors such as imperfect information, managerial expertise, market disruptions, intermediation costs, taxes, and business failures. To address these market imperfections, the new capital structure theory introduces several concepts that factor in real-world complexities.

One such theory is the pecking order theory (POT), which states that firms prefer internal financing and, when necessary, debt financing over equity financing due to the costs associated with asymmetric information. Thus, firms prioritize their financing sources based on the principle of least resistance or cost.

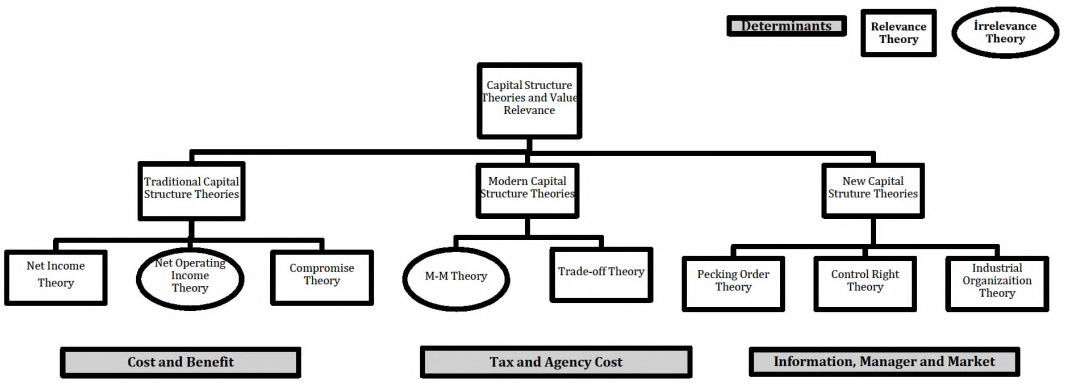

Figure 1. Capital Structure Theories and Relation With Firm's Value **Sources**; Xhaferi and Xhaferi 2015; Du et al., 2019

The control right theory (Roberts and Sufi, 2009) focuses on the diverse perspectives of shareholders regarding debt retention and sunk costs. It challenges the notion that financial decisions, such as those made by CFOs, are solely driven by factors such as taxes, sunk costs, and asymmetric information. Instead, it advocates for developing capital structure techniques from the viewpoint of lenders and creditors rather than just shareholders.

The industrial organization theory, introduced by Titman (1984), builds upon the models derived from the M-M irrelevance theory. It considers the dynamics between multiple firms in output and input markets and posits that a firm's capital structure decision is not made in isolation but is closely linked to its market strategy and its input and produce quality.

Harris and Raviv (1991) further developed a capital structure model within the industrial organization framework, incorporating the interaction between input and output markets. This theory emphasizes that a firm's capital structure is influenced by its competitive environment and market positioning.

Lastly, various market agents, including CFOs, shareholders, government, and stakeholders, are integral as cross-section units. The market timing theory proposed by Baker and Wurgler (2002) highlights the importance of market timing in determining the debt-equity ratio. This theory draws on the concept of business cycles from a macroeconomic perspective, suggesting that each era has its unique dynamics.

Al-Zoubi et al. (2018) conducted cyclical analyses, identifying the continuous and cyclical nature of firms' capital structures. Contrary to the tendency toward mean reversion of financial leverage, the trade-off theory, POT, and market timing theory emphasize nonlinear patterns in firms' use of debt and equity.

Baker and Wurgler (2002) introduced an innovative financing index that identifies periods characterized by high demand for debt and equity. This index can illustrate the periodicity in firms' financing choices, reflecting the cyclical nature of capital markets and corporate finance strategies.

These theories collectively build upon the foundational works of several key scholars in finance. Myers (1984) and Myers and Majluf (1984) contributed significantly to the understanding of capital structure, particularly for information asymmetry and financing hierarchy. Titman (1984) and Harris and Raviv (1991) expanded the discussion to include the interplay between a firm's capital structure and its market strategy.

Lyandres (2006), Roberts and Sufi (2009), and Luigi and Sorin (2009) explored various aspects of capital structure decisions, including the impact of market conditions and stakeholder perspectives.

Al-Zoubi et al. (2018) represent a more recent contribution, providing empirical evidence of the cyclical patterns in capital structure and reinforcing the relevance of market timing in corporate finance decisions.

In summary, the market timing theory offers a nuanced understanding of capital structure dynamics, underscoring the importance of market conditions, investor sentiment, and macroeconomic cycles in shaping corporate financing strategies.

At the core of this theory lies the distinction between systematic and nonsystematic information. Systematic information is accessible to both managers and investors, encompassing general knowledge about corporate expectations and market conditions. However, with nonsystematic information, managers often have access to more detailed, insider information about the firm's operations, prospects, and potential risks; this information is not readily available to investors. This information disparity creates a significant challenge for investors, particularly in distinguishing between low- and high-quality firms (Papaioannou & Karagözolu, 2017).

Information asymmetry introduces a complex optimization problem, similar to scenarios encountered in game theory. Firm managers with positive internal forecasts are generally less inclined to issue new stock when they believe that the

market has adequate information to fairly value their shares. Conversely, if they perceive that the market undervalues their firm due to information asymmetry, they might avoid issuing new shares to prevent further undervaluation.

This behavior may inadvertently send negative signals to the market and lead to declining stock prices and lower firm valuations. Investors interpreting these signals may become wary of investing in such firms, exacerbating the issue.

However, investors might view a firm's decision to raise capital through debt or finance bills more favorably than equity issuance. This is because a firm's willingness to commit to debt obligations reflects confidence in its future cash flows and profitability. This aspect of the signal theory highlights the strategic importance of financing decisions in managing investor perceptions and market signals (Heinkel, 1982; Yang, et al., 2014; Wardani & Subowo, 2020; Hasanuddin, 2021).

In summary, the signal theory underscores the critical role of information asymmetry in corporate finance, influencing both managerial decisions and investor behavior. It reveals the nuanced interplay between internal knowledge, market perceptions, and strategic financing choices in shaping corporate value and investor confidence.

POT offers a distinctive perspective on how firms approach their capital structure decisions. Introduced by Myers and Majluf (1984) and further developed by Lucas and McDonald (1990), this theory challenges the notion of an optimal capital structure, instead proposing a hierarchy in financial decision-making (Myers, 1984; Myers & Majluf, 1984; Lucas & McDonald, 1990).

According to the POT, firms prioritize their financial sources based on the principle of least resistance or cost. This hierarchy of prioritization typically begins with the use of internal funds, primarily retained earnings, as the most preferred source due to the lower costs and fewer complexities associated with internal financing compared with external sources.

If internal funds are insufficient, firms move to the next level in the hierarchy: issuing debt securities. Debt is often preferred over equity because it does not dilute existing shareholders' control and typically has tax advantages. Additionally, debt issuance is generally perceived as less risky compared with equity issuance, which can be interpreted as a signal of firm overvaluation.

The next steps in the hierarchy include selling assets, borrowing, issuing convertible bonds, and, as a last resort, issuing new stocks. POT posits that firms resort to equity issuance only when other sources of financing are exhausted or unfeasible as equity issuance can send negative signals of firm overvaluation.

POT also acknowledges the role of various market failures in influencing capital structure decisions, particularly factors such as asymmetric information, where managers have more information about firm prospects than outside investors. Cultural differences and managerial skills also significantly affect perceptions of risk and preferences for different financing options, thus impacting these decisions.

Studies by Frank and Goyal (2003), Chen and Chen (2011), Ahmad and Atniesha (2018), and Yıldırım and Çelik (2021) have contributed to the understanding of how these market failures and external factors impact firms' short-term capital structure decisions. Their research highlights the complexity and context-dependent nature of firms' financial decision-making, demonstrating that capital structure choices are influenced by several factors beyond financial metrics.

POT primarily assumes that managers of publicly traded firms possess more detailed and accurate inside information regarding the firm's financial position, prospects, and future endeavors compared with investors in the secondary market. This information asymmetry creates a disadvantage for firms when they seek external funding. The financial hierarchy theories mentioned above prioritize internal sources of financing, such as retained earnings, and assume that firms prefer internal financing over external financing and debt over equity, regardless of the external factors influencing capital structure. The financial hierarchy suggests that profitable firms with high or low marginal returns on capital can borrow at lower interest rates (Myers, 1984; Myers & Majluf, 1984; Shyam-Sunder & Myers, 1999; Bukalska, 2019).

The collateral value of a firm's assets, non-debt tax shields, growth expectations, agency problems, uniqueness, industry classification, firm size, earnings volatility, profitability, and other factors impact a firm's capital structure. The abovementioned theories aim to lower financing costs, improve the income-generating mechanism for owners and shareholders, provide operational flexibility, and minimize risks. However, cultural differences among firm owners and investors can influence their interpretations of capital structure risks. Using equity and debt as the sole measures in evaluating capital structure theories may limit our ability to understand the effects of cultural differences on these decisions (Shahar & Manja, 2018).

2.4. *Cultural Dimensions*

Culture can be defined in various ways; it encompasses processes such as shared values, emotions, thought patterns, shared meanings, identities, social context, historical events, language, and religious beliefs. Culture represents a shared

understanding of reality, including language, values, and norms, which influence behavior and differentiate people's experiences (House et al., 1997; Kluckhohn, 1962).

Hofstede et al. (1990) presented a comprehensive understanding of culture, encompassing both superficial and deeper aspects. They argued that within a culture, symbols, words, gestures, images, or objects possess specific meanings unique to that culture. Moreover, they asserted that the heroes who shape a culture, whether real or fictional and deceased or alive, possess distinctive attributes. Hofstede (1990) explained that symbols, heroes, and rituals are referred to as "practices" because their cultural meanings can differ significantly between insiders and outsiders of the culture; additionally, the essence of culture is not inherently specific, i.e., the distinction between good vs. bad, beautiful vs. ugly, usual vs. unusual , or rational vs. irrational can be ambiguous. However, culture manifests in behavioral alternatives. Furthermore, Hofstede et al. (1990) examined cultural variations at the national, professional, and organizational levels, emphasizing that just as every nation has its unique culture, so do organizations.

To compare the similarities and differences between cultures, Hofstede (1980:1983:1997:2001) identified four cultural value dimensions that he considered fundamental and significant aspects of culture.

Power distance (PD) is another cultural value dimension that reflects the extent of power inequality and dominance in a society. It measures individuals' perception and acceptance of hierarchical relationships and social inequalities. Research has shown that cultures with low PD tend to value egalitarianism, promote equality, and encourage participation in decision-making processes (Schwartz & Sagiv, 1995; Chui et al., 2002; Kearney et al., 2012; Rashid et al., 2020). Such cultures emphasize disseminating information, providing equal access to educational opportunities, and fostering open dialogue and critical thinking in organizational contexts (House et al., 1997).

Individualism versus collectivism (IC) is a cultural value dimension that indicates the level of individuals' integration into groups. In societies characterized by individualism, personal autonomy and self-interest are prioritized over the goals and values of the group. Conversely, societies with a collectivist orientation emphasize interdependence among individuals. In such cultures, people exhibit commitment to the group as loyalty to the collective is highly valued. Such societies reinforce the notion of individual responsibility toward other group members and foster strong interpersonal relationships (Hofstede & Bond, 1988). Studies indicate that in societies with high individualism, firms prefer low levels of debt utilization in financial matters (Gleason et al., 2000). Conversely, collectivist societies exhibit an inverse relationship between individualism and leverage, implying that higher levels of collectivism are associated with lower levels of financial leverage (Kearney et al., 2012; Rashid et al., 2020).

The masculinity versus femininity (MF) dimension indicates gender role distribution within a society. In feminine cultures, values such as modesty and nurturance are emphasized, whereas masculine cultures value assertiveness and competitiveness. Notably, this dimension does not imply that only males exhibit assertiveness and competitiveness; it also includes womn in the computation. Thus, the expression of masculine and feminine values varies across countries. Studies have identified associations between cultural characteristics of masculinity and stock market depth (De Jong & Semenov, 2002). Furthermore, societies with masculine cultural traits have been found to exhibit higher rates of short-term debt utilization and lower leverage levels (Zheng et al., 2012; Kearney et al., 2012; Wang & Esqueda, 2014).

Uncertainty avoidance (UA) is the degree to which a culture instills in its members a sense of comfort or discomfort in unfamiliar or unpredictable situations. Cultures with high levels of UA tend to establish strict laws, regulations, and security measures to minimize unexpected events. Societies with such cultures resist change and perceive uncertainty as a risk. They implement control mechanisms to eliminate or prevent sources of uncertainty. Individuals in cultures with high UA often display heightened emotions and internal drive.

Conversely, cultures that are tolerant of ambiguity show greater acceptance of diverse opinions and have fewer rules and regulations. Societies with such cultures tend to be open-minded toward and accepting of various philosophies and religions; they allow for the coexistence of multiple viewpoints and ideologies. Individuals in these cultures are often reserved, contemplative, and less emotionally expressive.

Research has indicated a negative relationship between UA dimensions and the utilization of short-term and long-term debt. Additionally, countries with high UA are more likely to possess a bank-based financial system (Hofstede & Bond, 1988; Esperanca et al., 2003; Kearney et al., 2012; Arosa, et al., 2014; Kwok & Tadesse, 2006).

3. Data and Model

Table 1 presents the countries and firms included in the analysis, along with the average values of the financial components examined.

Table 1. Countries Cultural Dimensions and Tech Firms Financial Variables (2014-2019)

			Scores for the Hofstede IBM study (Hofstede, 2001)				Macroeconomic Indicator and Financial Ratios							
	COUNTRY	**ITEMS**	**PD**	**UA**	**IC**	**MF**	**BR**	**EPSG**	**SG**	**CS**	**GM**	**NPM**	**LTDE**	**TDE**
1	**USA**	**400**	40	46	91	62	0,79	10,61	8,3	9,49	48,42	9,56	54,03	62,04
2	**ARGENTINA**	**2**	49	86	46	56	41,63	13,01	24,92	38	49,57	8,38	8,46	11,45
3	**AUSTRALIA**	**32**	36	51	90	61	0,84	12,6	12,32	29,23	62,31	5,54	29,76	36,66
4	**AUSTRIA**	**59**	11	70	55	79	-0,40	17,6	10,1	12,04	53,89	13,53	67,3	79,38
5	**BELGIUM**	**13**	65	94	75	54	-0,41	3,09	2,89	1,43	56,57	12,93	40,37	63,71
6	**BRAZIL**	**7**	69	76	38	49	8,08	29,66	7,04	13,29	46,66	10,28	19,17	33,67
7	**BULGARIA**	**2**	70	85	30	40	-0,02	-0,96	4,41	-13,63	48,74	5,43	8,79	17,74
8	**CANADA**	**43**	39	48	80	52	0,91	10,27	13,21	7,98	23,63	4,45	12,1	38,96
9	**CHILE**	**7**	63	86	23	28	2,4	3,64	4,67	-8,28	31,61	-10,26	3,03	32,15
10	**CHINA**	**782**	80	30	20	66	2,91	9,98	17,87	19,75	34,15	8	10,75	41,11
11	**CROATIA**	**4**	73	80	33	40	0,14	15,3	3,87	8,74	28,74	3,66	114,38	153,51
12	**CZECH REPUBLIC**	**1**	57	74	58	57	1,41	16,86	28,89	4,36	72,43	18,24	168,45	177,62
13	**FRANCE**	**74**	68	86	71	43	-0,63	6,54	5,33	7,73	58,66	5,41	53,52	70,92
14	**GERMANY**	**393**	35	65	67	66	-0,64	16,65	9,02	11,52	49,75	8,15	49,27	71,33
15	**GREECE**	**21**	60	112	35	57	-0,26	37,92	10,54	7,43	40,7	1,79	28,46	49,01
16	**HONG KONG**	**153**	68	29	25	57	0,04	11,07	5,93	13,74	30,72	3,43	20,81	45,98
17	**HUNGARY**	**2**	46	82	80	88	0,61	108,58	18,52	10,53	63,87	15,3	40,42	83,03
18	**INDIA**	**208**	77	40	48	56	3,81	13,4	11,78	12,64	54,77	7,8	16,43	45,01
19	**INDONESIA**	**10**	78	48	14	46	3,61	4,03	19,93	67,71	10,73	3,03	18,12	52,07
20	**IRELAND**	**2**	28	35	70	68	-0,56	24,59	14,35	-14,55	26,16	-4,27	12,58	13,95
21	**ISRAEL**	**30**	13	81	54	47	0,04	12,73	6,59	21,2	34,38	7,58	52,39	71,51
22	**ITALY**	**32**	50	75	76	70	-0,46	11,41	12,69	13,83	57,53	11,31	48,71	66,2
23	**JAPAN**	**589**	54	92	46	95	-0,13	10,68	6,34	9,55	35,65	6	16,83	32,98
24	**VIETNAM**	**36**	104	36	26	50	1,82	-6,51	4,02	10,07	35,53	8,38	8,9	20,46
25	**TURKEY**	**17**	56	96	59	47	-0,37	7,92	6,65	-27,63	37,04	-4,47	30,44	119,85
26	**THAILAND**	**40**	81	82	30	69	4,85	13,64	10,26	12,69	52,01	16,02	70,18	86,09
27	**TAIWAN**	**623**	70	68	46	53	1,37	9,32	5,05	14,49	44,78	7,88	7,08	12,79
28	**SWETZERLAND**	**21**	38	53	80	14	-0,64	15,65	15,04	13,28	53,51	9,92	33,03	41,3
29	**SPAIN**	**2**	31	50	69	8	0,24	5,74	7,54	4,14	67,05	2,32	26,62	43,61
30	**SOUTH KOREA**	**342**	55	70	14	50	8,15	-9,89	13,44	-10,83	30,14	8,37	36,89	105,56
31	**SOUTH AFRICA**	**19**	64	87	16	42	1,11	38,92	42,42	48,49	56,98	57,91	70,3	70,14
32	**SINGAPORE**	**43**	94	44	32	64	1,8	2,47	8,11	1,21	15,17	-7,31	5,65	33,98
33	**SERBIA**	**1**	68	93	60	64	-0,01	14,71	11,2	14,83	40,67	6,83	9,19	21,28
34	**RUSSIA**	**24**	63	104	27	31	-0,63	-21,72	-7,24	-14,8	79,09	-0,05	102,78	171,45
35	**ROMANIA**	**3**	90	90	30	42	1,85	-3,38	-1,29	-1,42	53,39	10,66	12,19	13,09
36	**PORTUGUAL**	**3**	93	95	39	36	5,55	25,77	10,92	9,92	51,8	18,61	81,42	90,66
37	**POLAND**	**57**	86	92	25	43	1,1	100,28	33,22	87,17	30,84	2,63	0,56	4,82
38	**PHILLIPHINES**	**4**	74	8	20	48	0,33	4,29	-0,26	0,16	27	6,01	10,94	30,17
39	**PERU**	**5**	49	49	65	63	5,4	-6,01	7,88	2,09	38,65	10,89	29,82	49,01
40	**PAKISTAN**	**4**	60	85	18	39	0,66	3,86	5,99	9,44	27,53	5,51	10,34	34,77
41	**NORWAY**	**10**	57	86	51	42	-0,53	-33,31	26,67	2,28	61,73	7,11	42,35	77,84
42	**NETHERLANDS**	**10**	34	58	68	70	-0,77	2,29	7,2	2,02	49,65	6,55	83,86	112,88
43	**MOROCCO**	**4**	58	69	17	45	0,13	7,49	3,94	10,28	25,78	8,18	16,86	41,07
44	**MEXICO**	**49**	64	64	20	34	1,37	-6,53	4,49	4,41	22,2	5,59	10,24	46,2
45	**MALTA**	**1**	66	85	37	45	18,2	16,57	16,36	18,67	31,95	23,58	12,37	61,15
46	**MALAYSIA**	**53**	70	30	20	40	0,29	10,89	6,2	6,97	8,53	4,32	6,16	9,55

BR: Borrowing Rate; EPSG: 5 Year Earning Per Share Growth; 5 Year Sales Growth; CS: 5 Year Capital Spending Growth; GM: 5 Year Gross Margin; NPM: 5 Year Net Profit Margin; LTDB: Long Term Debt To Equity; TDE: Total Debt To Equity.

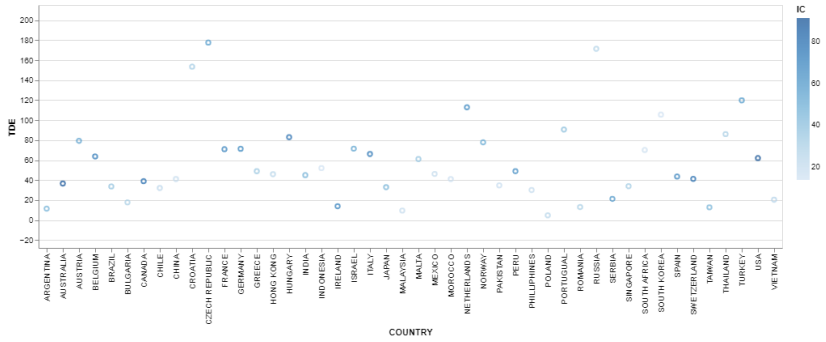

Figure 2. (a) Companies' Debt Structures, Borrowing Costs, and Gross Profit Margins Colored by Individualism and Collectivism Values of Countries Total Debt To Equity Ratio

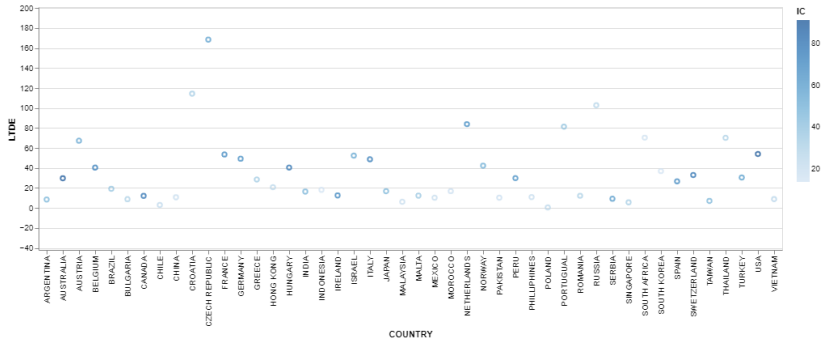

Figure 2. (b) Companies' Debt Structures, Borrowing Costs, and Gross Profit Margins Colored by Individualism and Collectivism Values of Countries Long Term Debt To Equity Ratios (colored by IC)

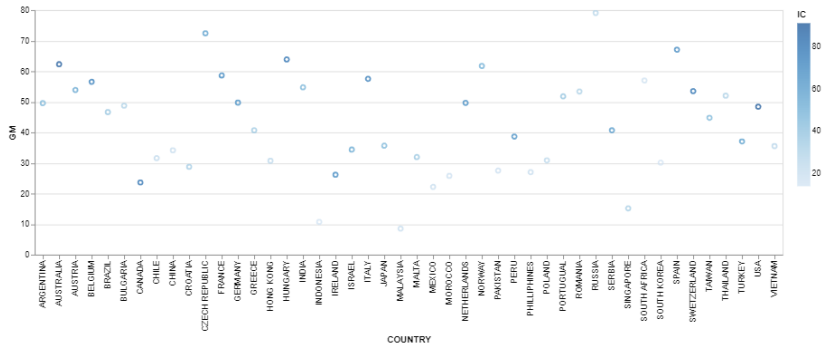

Figure 2. (c) Companies' Debt Structures, Borrowing Costs, and Gross Profit Margins Colored by Individualism and Collectivism Values of Countries Long Term Debt To Equity Ratios (colored by IC) Gross Margin (colored by IC)

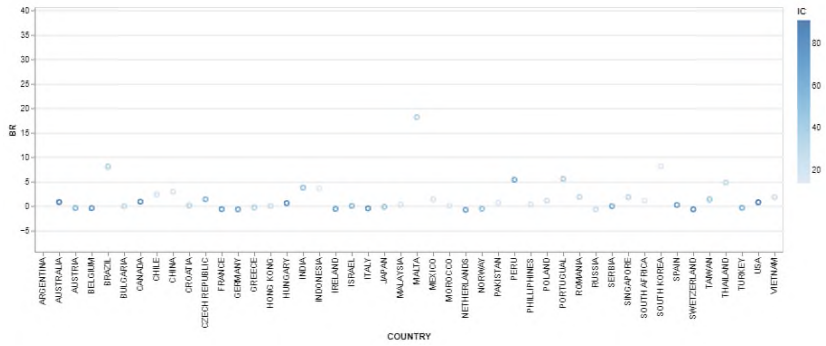

Figure 2. (d) Companies' Debt Structures, Borrowing Costs, and Gross Profit Margins Colored by Individualism and Collectivism Values of Countries Borrowing Rate By Country (colored by IC)

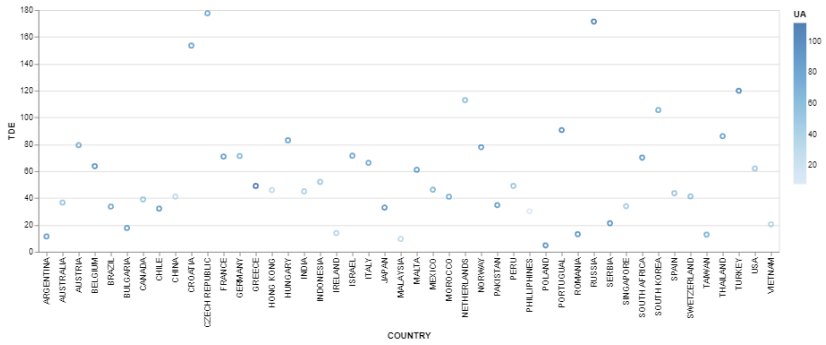

Figure 3. (a) Companies' Debt Structures, Borrowing Costs, and Gross Profit Margins Colored by Uncertainty Avoidance Values of Countries Total Debt To Equity Ratio (colored by UA)

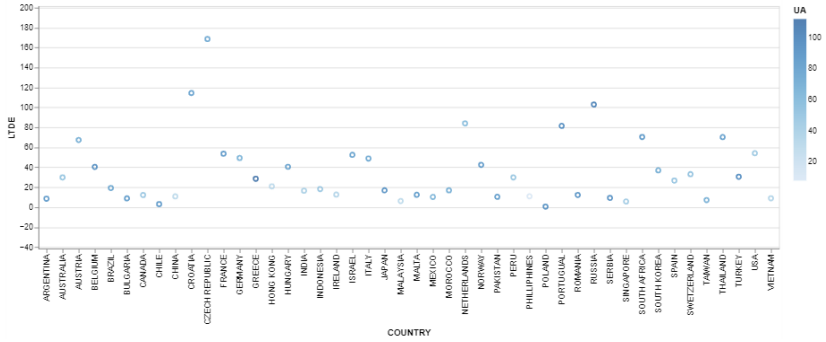

Figure 3. (b) Companies' Debt Structures, Borrowing Costs, and Gross Profit Margins Colored by Uncertainty Avoidance Values of Countries Long Term Debt To Equity Ratios (colored by UA)

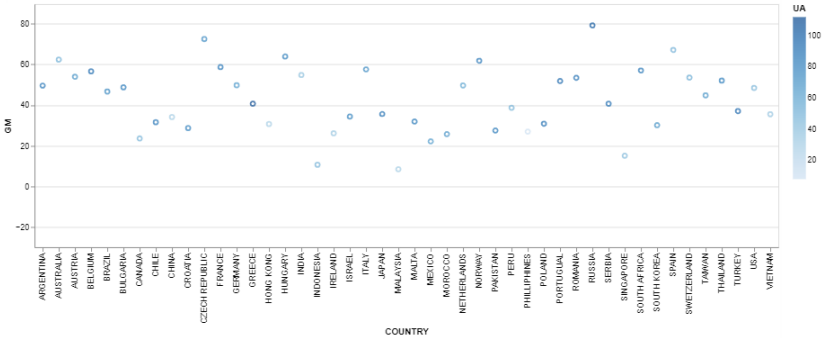

Figure 3. (c) Companies' Debt Structures, Borrowing Costs, and Gross Profit Margins Colored by Uncertainty Avoidance Values of Countries Gross Margin (colored by UA)

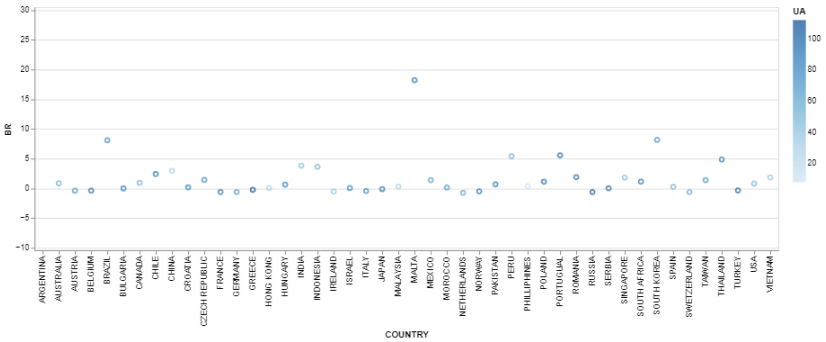

Figure 3. (d) Companies' Debt Structures, Borrowing Costs, and Gross Profit Margins Colored by Uncertainty Avoidance Values of Countries Borrowing Rate By Country (colored by UA)

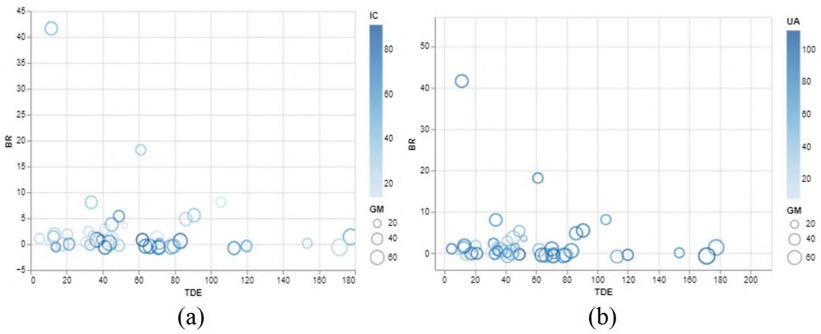

Figure 4. Total Debt To Equity Ratio Relationship with Borrowing Rate (Colored by IC and UA, and sized by GM)

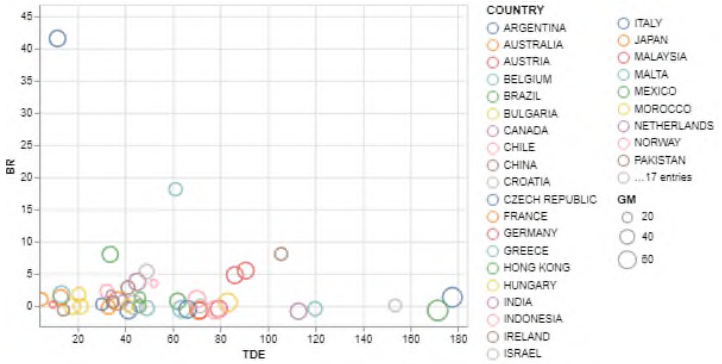

Figure 5. Total Debt To Equity Ratio Relationship with Borrowing Rate (Colored By Country, and sized by Gross Margin)

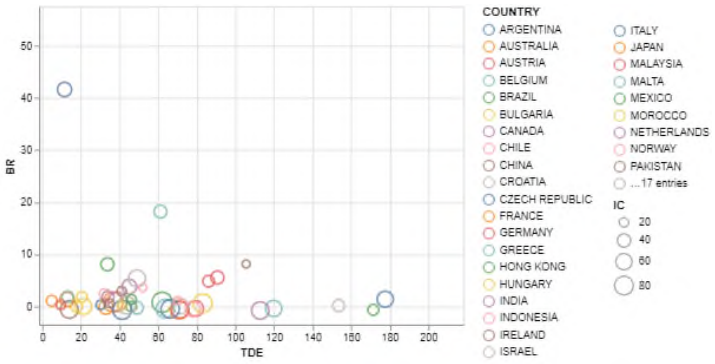

Figure 6. Total Debt To Equity Ratio Relationship with Borrowing Rate (Colored By Country, and sized by IC).

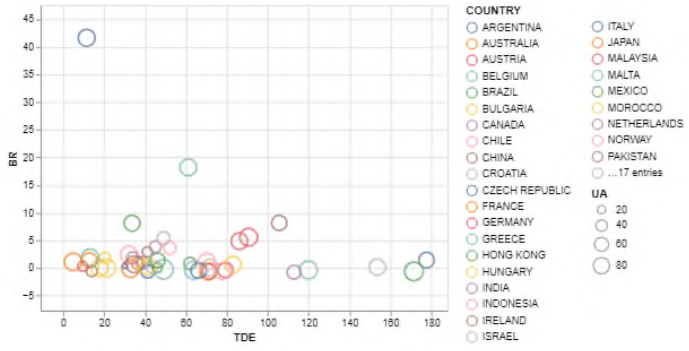

Figure 7. Total Debt To Equity Ratio Relationship with Borrowing Rate (Colored By Country, and sized by UA).

The borrowing rate, also known as the bond yield, plays a crucial role in the model used for determining the cost of capital for financing business and investment activities, particularly when establishing a firm's capital structure (see Figure 2 and Figure 3). In the dynamic and competitive technology sector, characterized by Schumpeter's concept of creative destruction, borrowing rates become particularly significant in shaping firms' capital structures and financing investments in technology, R&D, and innovative products and services protected by intellectual property rights. Additionally, the model incorporates a 5-year average variable for CapEx, reflecting the funds allocated for this purpose. Assessing a firm's borrowing capacity and ability to benefit from the leverage effect of CapEx is essential for ensuring sustainable growth. Long-term debt is preferred for financing CapEx as it allows the present value calculations of cash flows to be spread over a longer period, thus reducing firms' risk premium. Furthermore, the model includes ratios such as long-term debt to equity and total debt to equity (TDE) to quantitatively measure the impact of financial leverage on the capital structure and a firm's capacity for short- and long-term borrowing for CapEx (see Figure 4 and Figure 5).

Firms' profitability rate and return on investments, whether using debt or equity for CapEx and considering the motivations of investors and lenders, heavily depend on an accurate assessment of the demand for their products and services. This is crucial because investments are only viable if they can efficiently and swiftly generate funds. To capture the current state and future momentum of demand for products and services within sectors and firms, the model incorporates the 5-year sales growth variable. The data reveal that the analyzed firms exhibit an average revenue growth exceeding 5% over the past five years. This ratio indicates homogenization and standardization among large-, medium-, and small-cap firms in our dataset, with no instances where a firm's stocks are not favored based on sales trends.

Due to the fierce competition in the technology industry and the need for continuous investment in R&D, there is an increasing demand for higher CapEx and suitable financing options. Consequently, accurately assessing the competitive strength of firms in this industry is crucial, considering the high sales and cost of capital. To achieve this, our model incorporates the 5-year average 'growth margin' and 'net profit margin' variables. A firm's potential to generate profit is influenced by its competitive environment in the industry, alongside investors' profit expectations and lenders' confidence in receiving repayment.

Failure to meet these expectations can engender a decline in profitability. Once the firm has successfully generated profits, the distribution of these profits to investors becomes important as it accounts for the involvement of both firm partners and lenders. Further, 5-year EPS growth $\frac{\text{NetIncome-PrefferedDividens}}{\text{WeightedAvarageofCommonShares}}$ is a measure of the firm's willingness to employ internal resources and its capability to generate earnings per outstanding share. Notably, dividends provided to preferred shareholders are considered similar to debt. This is because preferred shareholders anticipate higher returns due to the higher risk associated with their position and expect to receive dividends before regular shareholders. This ratio is included in the model to assess a firm's ability to increase its current dividend and internal financing in its capital structure. Alongside economic and financial ratios, external factors such as the cost of capital, debt-equity ratio, competitiveness, profitability, and profit distribution policies also influence a firm's capital structure. In this study, the model incorporates four cultural characteristics from Hofstede (2001) that impact capital structure: PD, IC, MF, and UA (see Figures 6 and 7).

Hofstede and Bond (1988) concluded that the cultures of 53 countries primarily differ in the aforementioned four dimensions, which are associated with economic growth. In our study, the dimensions have been correlated with the financial performance indicators of 4,237 technology firms in 46 countries. We focus on these dimensions to include a broader sample of countries and assess international cultural differences.

4. Methodology and Results

We applied the scales used by Hofstede and Bond (1988) in their study of 53 countries where IBM operates. The macroeconomic and firm-based financial data from the 46 countries included in this study were scaled differently. To establish a standardized research model, we initially used averaged financial data from technology firms in these 46 countries over a 5-year period. These data were used to assess firm profitability through financial ratio analyses derived from their capital structures. For standardization, Z-values were calculated using the SPSS software and applied to the administrative and financial records of the 46 countries (Cheung & Chan, 2009). After normalizing the observations, a SEM path analysis was conducted.

The model developed in this study was aimed at investigating the relationships between culture dimensions and firms' financial factors. Additionally, the role of the cost of borrowing (BR) as a potential mediator was examined.

This study aimed to examine whether the independent factors had a significant impact on the dependent variables.

A path analysis model was constructed using AMOS 24 software for SEM, as depicted in Figure 8, to analyze the relationships between the variables.

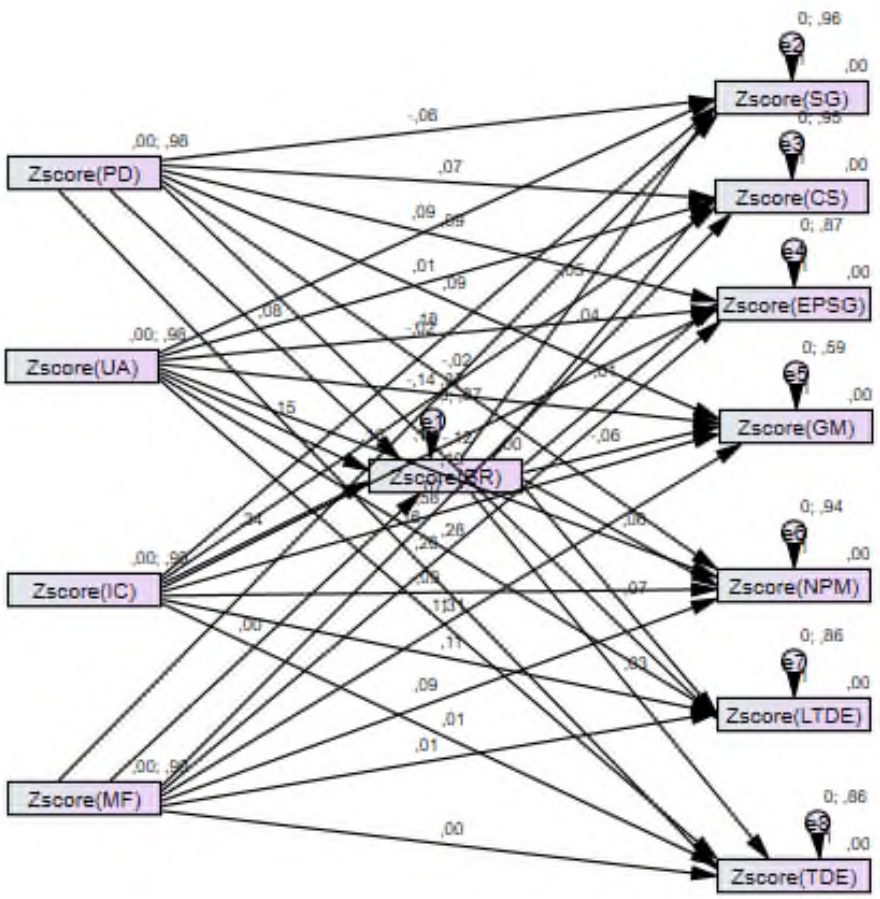

Figure 8. SEM Modelling Route Analysis

The regression coefficients for the model and the standardized regression coefficients are presented in Tables 2 and 3, respectively.

The predictive value of the BR variable on the IC dimension is 0.338. The critical ratio is 2.400, and the p-value of the estimated value is 0.016, which is less than 0.05, indicating that BR is significant. This result is meaningful given that the path coefficient is 0.332 (see Table 3) and the critical ratio is 5.980, which is greater than 1.96 at the 0.05 significance level. This result indicates that countries that emphasize individuality also tend to have higher borrowing rates.

For the impact of GM on the UA dimension, the predicted value is 0.373. The critical ratio is 3.185, and the p-value is 0.001, which is below 0.01, indicating significant GM influence. This is meaningful considering that the path coefficient is 0.357 and the critical ratio is 3.185, surpassing the 1.96 threshold at the 0.01 significance level. This implies that countries with high UA also tend to have a significant GM dimension.

The influence of the UA dimension on the TDE variable shows a predicted value of 0.313. The critical ratio is 2.211, and the p-value is 0.027, which is below the 0.05 mark, denoting significance for UA. This is meaningful as the path coefficient is 0.313 and the critical ratio is 2.211, both exceeding the 1.96 benchmark at the 0.05 significance level. These results indicate that countries with high UA tend to have a higher TDE dimension.

The predicted impact of the IC dimension on GM is 0.585. The critical ratio is 4.754, and the p-value is less than 0.01, confirming its significance. This is meaningful as indicated by the path coefficient of 0.560 (see Table 3) and a critical ratio of 4.754, both exceeding the 1.96 threshold at the 0.01 significance level.

The effect sizes between variables were interpreted using Cohen's (1988) effect size guidelines. According to these, effect sizes of 0.02–0.15 indicate a low level of effect, 0.15–0.35 suggest a moderate level of effect, and values above

Table 2. Model Regression Coefficients

			Estimate	S.E.	C.R.	P	Label
ZBR	<---	ZPD	,083	,141	,587	,557	
ZBR	<---	ZUA	-,147	,141	-1,044	,297	
ZBR	<---	ZIC	,338	,141	2,400	,016**	
ZBR	<---	ZMF	,001	,141	,005	,996	
ZSG	<---	ZBR	-,053	,156	-,341	,733	
ZCS	<---	ZBR	,039	,155	,248	,804	
ZEPSG	<---	ZBR	-,014	,149	-,095	,924	
ZGM	<---	ZBR	-,056	,123	-,452	,651	
ZNPM	<---	ZBR	,065	,155	,419	,675	
ZLTDE	<---	ZBR	,067	,148	,452	,651	
ZTDE	<---	ZBR	,032	,148	,218	,827	
ZSG	<---	ZPD	-,057	,148	-,383	,702	
ZCS	<---	ZPD	,072	,147	,488	,626	
ZEPSG	<---	ZPD	,085	,141	,606	,545	
ZGM	<---	ZPD	,089	,116	,768	,443	
ZNPM	<---	ZPD	-,018	,146	-,126	,900	
ZLTDE	<---	ZPD	-,116	,140	-,832	,406	
ZTDE	<---	ZPD	-,158	,140	-1,123	,261	
ZSG	<---	ZUA	,091	,149	,612	,540	
ZCS	<---	ZUA	,007	,148	,044	,965	
ZEPSG	<---	ZUA	,182	,142	1,277	,201	
ZGM	<---	ZUA	,373	,117	3,185	,001*	
ZNPM	<---	ZUA	,185	,148	1,256	,209	
ZLTDE	<---	ZUA	,279	,141	1,978	,048	
ZTDE	<---	ZUA	,313	,141	2,211	,027**	
ZSG	<---	ZIC	-,019	,156	-,118	,906	
ZCS	<---	ZIC	-,139	,156	-,895	,371	
ZEPSG	<---	ZIC	,117	,149	,781	,435	
ZGM	<---	ZIC	,585	,123	4,754	***	
ZNPM	<---	ZIC	-,092	,155	-,592	,554	
ZTDE	<---	ZIC	,007	,148	,049	,961	
ZLTDE	<---	ZIC	,115	,148	,774	,439	
ZSG	<---	ZMF	,100	,147	,677	,499	
ZCS	<---	ZMF	,074	,147	,506	,613	
ZEPSG	<---	ZMF	,257	,141	1,829	,067	
ZGM	<---	ZMF	-,113	,116	-,972	,331	
ZNPM	<---	ZMF	,094	,146	,646	,518	
ZLTDE	<---	ZMF	,010	,140	,069	,945	
ZTDE	<---	ZMF	-,003	,140	-,022	,983	

Not: ** p<0.01anlamlılık değerinde yorumlanmıştır. ** p<0.01 interpreted as significance.
*p<0.05 anlamlılık değerinde yorumlanmıştır. *p<0.01 interpreted as significance.

Table 3. The Standardized Regression Coefficients

			Estimate
ZBR	<---	ZPD	,081
ZBR	<---	ZUA	-,144
ZBR	<---	ZIC	,332
ZBR	<---	ZMF	,001
ZSG	<---	ZBR	-,054
ZCS	<---	ZBR	,039
ZEPSG	<---	ZBR	-,014
ZGM	<---	ZBR	-,054
ZNPM	<---	ZBR	,066
ZLTDE	<---	ZBR	,069
ZTDE	<---	ZBR	,033
ZSG	<---	ZPD	-,057
ZCS	<---	ZPD	,072
ZEPSG	<---	ZPD	,085
ZGM	<---	ZPD	,085
ZNPM	<---	ZPD	-,018
ZLTDE	<---	ZPD	-,117
ZTDE	<---	ZPD	-,158
ZSG	<---	ZUA	,091
ZCS	<---	ZUA	,007
ZEPSG	<---	ZUA	,181
ZGM	<---	ZUA	,357
ZNPM	<---	ZUA	,185
ZLTDE	<---	ZUA	,282
ZTDE	<---	ZUA	,313
ZSG	<---	ZIC	-,018
ZCS	<---	ZIC	-,140
ZEPSG	<---	ZIC	,116
ZGM	<---	ZIC	,560
ZNPM	<---	ZIC	-,091
ZTDE	<---	ZIC	,007
ZLTDE	<---	ZIC	,116
ZSG	<---	ZMF	,099
ZCS	<---	ZMF	,074
ZEPSG	<---	ZMF	,256
ZGM	<---	ZMF	-,108
ZNPM	<---	ZMF	,094
ZLTDE	<---	ZMF	,010
ZTDE	<---	ZMF	-,003

0.35 indicate a wide-ranging influence. When considering the R^2 transformation, effect sizes of 0.02–0.13 suggest a low level of effect, 0.13–0.26 a moderate level, and values above 0.26 a wide-ranging influence.

It was observed that the BR variable does not directly impact the MF and UA dimensions. However, there is a direct effect of BR on the IC dimension, as indicated in Table 4.

Table 4. Direct Effect Results

	ZMF	ZIC	ZUA	ZPD	ZBR
ZBR	,001	,338	-,147	,083	,000
ZTDE	-,003	,007	,313	-,158	,032
ZLTDE	,010	,115	,279	-,116	,067
ZNPM	,094	-,092	,185	-,018	,065
ZGM	-,113	,585	,373	,089	-,056
ZEPSG	,257	,117	,182	,085	-,014
ZCS	,074	-,139	,007	,072	,039
ZSG	,100	-,019	,091	-,057	-,053

5. Policy Implications

Significant shifts were observed in global monetary and financial market conditions before and after the study period. The onset of the Great Financial Crisis in 2007–2008 profoundly impacted global economies, particularly owing to the implementation of quantitative easing strategies. As 2022 approached, the global economy was poised for a dramatic transformation. Central banks, including the FED, ECB, and BOJ, decided to end the period of quantitative easing. This transitional period created challenges for policymakers who had relied on quantitative easing and negative interest rates to stimulate economic growth at the macro level. Simultaneously, individuals and businesses had to adapt to a changing landscape in terms of consumption, savings, and investment financing channels at a micro level. The COVID-19 pandemic prompted central banks to shift their focus toward raising interest rates, implementing tapering measures, and reducing their balance sheets to control inflation in economies that showed pre-crisis growth patterns in the fourth quarter of 2021. The post-pandemic era was likely to exhibit decreased risk appetite and reduced market liquidity. Thus, it was essential to consider how technology firms, which require substantial cash reserves, would organize their capital structure to finance their investments in this backdrop. Technological progress is often considered a key driver of modern economic growth, making it crucial to understand how these firms navigate the changing financial landscape.

This study aimed to analyze the capital structures of firms between 2014 and 2019 and investigate the influence of varying cultural elements on their capital structure. Hofstede's four cultural dimensions were utilized to examine the risk-taking and investing attitudes of entrepreneurs and individuals from a socioeconomic perspective.

In 2019, the average debt-to-equity ratio of 4,237 businesses from 46 countries was 53.63%. Among these countries, 27 had a debt-to-equity ratio below the average, indicating that they benefited less from financial leverage: Poland, Malaysia, Argentina, Taiwan, Romania, Ireland, Bulgaria, Vietnam, Serbia, Philippines, Chile, Japan, Brazil, Singapore, Pakistan, Australia, Canada, Morocco, China, Switzerland, Spain, India, Hong Kong, Mexico, Greece, Peru, and Indonesia.

In terms of borrowing, interest rates for these 27 nations were 2.92, whereas the other 19 countries had rates of 1.89. According to World Bank data the anticipated changes in the capital structure for 2022 were particularly interesting, with forecasts of higher interest rates and lower global risk appetite and signs indicating the end of negative real interest rates.

Over the previous 5 years, CapEx for technology firms in the 46 countries increased by 10.90%. Among the countries with debt-to-equity ratios lower than the average, the growth in CapEx was 13.33%, while it was 7.45% for the remaining 19 countries. This suggests that in countries with a lower debt-to-equity ratio and significant CapEx growth, internal resources and equity funds are the primary sources of financing. There was no statistically significant difference between the two groups of countries regarding earnings per share. However, sales growth was higher in the 19 countries compared to the 27 countries with debt-to-equity ratios below the 5-year average. In countries with a lower debt-to-equity ratio and higher CapEx, the GM was 36.5%, and the net profit margin was 4.86%. In contrast, countries with a higher debt-to-equity ratio had a GM of 49.26% and a net profit margin of 12.5%, which is more than 2.5 times higher than the other group. These findings indicate that relying more on internal financing options instead of borrowing does not significantly impact the competitive advantage and sales profitability of technology firms. In the 27 countries with lower debt-to-equity ratios, long-term debts accounted for approximately 14% of resources, while in

the other 19 countries, it was 64%. The long payback period of capital investments and the low present value of cash flows at a 1% annual rate negatively affect the profitability of firms in financing costs.

Technology firms typically maintain minimal inventory levels and prefer paid-up capital and capitalization increases over profit distribution policies. Even if these undertakings initially yield low profitability. However, metrics such as GM and net profit margin are crucial indicators of future profitability.

Accumulating cash is a natural outcome in the technology industry; therefore, profit distribution becomes secondary to saving for future investments and corporate acquisitions using internal financing methods. In economies where risk is well-defined and formality prevails, individuals with strong individualistic and UA tendencies prefer leveraging effects to increase their gross profit margins through income and borrowing.

Cultures with high UA heavily rely on social norms, regulations, and processes, whereas cultures embracing individualism tend to avoid uncertainty and rely on formal connections. At the firm level, interest rates are influenced by funders' perception of firm value. Stable relationships between fund providers and seekers are more likely in cultures where risk is measured, UA is high, and individualism prevails.

Financial ratios like interest, debt-to-equity ratio, and GM are associated with Hofstede's cultural subdimensions of individualism and UA. The findings of this study suggest that improving access to accurate information for investors and lenders directly contributes to informed decision-making, thereby aligning actions with expected returns and risk appetite and ultimately increasing opportunities for firms to secure sufficient funds from money and capital markets.

Product, patent, and copyright innovations quickly become outdated in industries with strong competition and emphasis on R&D-based CapEx. This is particularly evident in technology, manufacturing, and service provider industries, which have high cash requirements and intense competition. In such industries, converting received funds into profits to finance future expenditures is essential. Accessing funds at the lowest possible cost is crucial to generate income quickly, especially before products and services reach market maturity, and support internal financing for capital investments.

According to POT, firms prioritize funding capital projects using retained earnings; they resort to borrowing when internal resources are insufficient and issue shares only as a last resort. Effective risk assessment fosters trust among market participants through official channels, thereby avoiding issues like lemon markets and moral hazard. This approach strengthens faith in institutions rather than relying solely on individuals in firm establishment and operation.

In cultures characterized by high UA and individualism, there is an increased inclination to borrow and lend for risky investments. In markets where full information is available and the optimal capital structure is operational, low borrowing costs can minimize firms' capital costs significantly, thus allowing firms to maximize profits. This aligns with the POT and supports the notion that a hierarchical capital structure can enhance a firm's value.

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ORCID :

Filiz BOZAGAÇ	0000-0002-3764-0111
Ömür SALTIK	0000-0001-8507-8971
Mert AKTAŞ	0000-0003-3791-6664
Süleyman DEĞİRMEN	0000-0001-8750-652X

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Research Article

Dynamics of Fulfillment: A Comparative Exploration of Life Satisfaction in European Muslim and Christian Communities

Leyla Zeynep VERÇIN[1], Özlem YORULMAZ[1]

[1]Istanbul University, Faculty of Economics, Department of Econometrics, Division of Statistics, Istanbul, Turkiye

Corresponding author : Leyla Zeynep VERÇİN
E-mail : leylavercinn@gmail.com

ABSTRACT

Life satisfaction has become an important indicator for understanding the welfare level of countries, particularly today when immigration is increasing for various reasons such as war and the desire for better living conditions, good job opportunities, and high-quality education. This study investigates the life satisfaction of people who have left their community and established a new life at the expense of being a foreigner and a member of a minority community. In this study, the data of people living in Europe were used. Since the dominant religion in Europe is Christianity, Muslims are considered a minority. The study selects Islam as one of the minority religions in Europe and examines whether the life satisfaction of people who state that they are Muslim differs from that of non-minority Christians. For this purpose, ten countries with Muslim minorities were selected from the data of the European Social Survey (ESS). The life satisfaction of two groups, Muslim minority and Christians, was analyzed through a path model, which consists of socio-economic indicators, and the trust component, using the path analysis method. Age, income, interpersonal trust, and governmental trust indicators were significant variables in both groups. Unexpectedly, religiosity was shown to have a positive effect on life satisfaction only for the Christian group and had no significant effect for the Muslim minority group.

Keywords: Minority, Majority, Path Analysis, Life Satisfaction

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1. INTRODUCTION

Various kinds of indicators show levels of adaptation to the society in which one lives, such as subjective well-being, happiness, life satisfaction, and psychological well-being (Paparusso, 2021). Increased satisfaction in life is a result of attaining better living conditions and having a sense of belonging to a particular place and society. Life satisfaction is a visible quality of life that can be explained by individuals' mental and physical health and which indicates how well people are thriving (Veenhoven, 1996). The term life satisfaction is interchangeably used with different terms, such as happiness/well-being and subjective well-being, by some scholars.

Subjective well-being can be divided into three main components: (1) Life satisfaction as a general subjective judgment about one's entire life , (2) the frequency of one's positive emotional experiences , and (3) negative emotional experiences (Busseri, 2018). Life satisfaction covers only the cognitive dimension of happiness (Kortt et al., 2015) and is a measure of subjective well-being that assesses a person's feelings and attitudes about life at a given time (Boccaccio et al., 2021). Individuals' perceptions of themselves are important for their life satisfaction. If they feel good about themselves, they will most probably feel higher life satisfaction.

In a study conducted on a Portuguese group living in Paris, it was observed that the number of Portuguese friends and the perception of ethnic identity led to differences in life satisfaction. According to the results of the same study, life satisfaction decreases isolation, difficulties in the adaptation process, and social anxiety. At the same time, it strengthens integration and locus of control, that is, the idea that one's efforts are effective and produce results (Neto, 1995).

Conversely, when life satisfaction decreases, marginalization (social exclusion) increases (Kuo, 1978). Socially excluded people tend to be divided into groups. Life satisfaction also varies greatly among sexual minorities in Europe, largely because of the social stigma surrounding sexual minorities and the pressure to hide their sexual orientation (Bränström, 2017).

Minority groups are defined within the following categories: ethnicity, race, religion, sexual orientation, and/or state of being disabled (Ritzer, 2015). People belonging to a minority group are defined by sociologist Louis Wirth as people and/or communities who, because of being segregated based on any physical or cultural difference, face unequal treatment, and find themselves the subjects of collective discrimination (1993). It is known that minority groups have lower life satisfaction than non-minority (majority) groups (Tran et al., 1991; Utsey et al., 2002; Verkuyten, 2008).

According to the Religiosity as Social Value Hypothesis, which has been used by evolutionary psychology researchers, religiosity, as expected, is much more accepted in (same religion) religious cultures (Gebauer et al., 2012). If being religious is seen as valuable by society, then religious people living in a religious society have positive feelings and thoughts about themselves. However, in secular cultures, religiosity is not socially valued, and religious individuals feel less good about themselves. Belonging to one of the religious minority groups in a society directly affects an individual's life satisfaction (Gebauer et al., 2012).

Many European citizens are Christian, and there are religious minority groups such as Muslims, Jews, and Hindus. The largest religious minority group is Muslims (Pew Research Center et al., n.d.). Earlier studies on the life satisfaction of Muslims in the EU show a significant decline compared with those belonging to the majority religion (Christianity), with Judaists and Buddhists experiencing even lower levels of life satisfaction than Muslim groups (Ngamaba & Soni, 2018). When minority groups are faced with discrimination, it affects their well-being (Branscombe et al., 1999) and individual well-being is directly correlated with life satisfaction (Berlin & Fors Connolly, 2019).

Studies evaluating the life satisfaction of minorities focus mainly on "being a minority based on ethnicity/race" (Castellanos et al., 2016; Kirmanoğlu & Başlevent, 2014; Neto, 1995, 2001; Safi, 2010; Werkuyten & Nekuee, 1999). Among previous research studies, there are some on religion, but they are usually centered on Christianity. There are some studies on Christianity and Eastern religions, but there is no comprehensive study that uses data on Muslims from more than 5 countries. Studies that have included Muslim minority groups have been conducted on a single-country basis and do not provide generalizable results.

This study conducts a comparative analysis of the impact of age, health, education, religiosity, income, interpersonal trust, and political trust on life satisfaction among Muslim minority and Christian groups across ten European countries. Using data from the year 2019 of the European Social Survey (ESS), this research employs path analysis to assess the life satisfaction of Muslim minorities and Christian majorities residing in European countries through two different path models. These models are examined separately for both the Christian majority and Muslim minority populations to investigate whether there is a statistically significant difference between these two groups in terms of life satisfaction indicators. To the best of our knowledge, no previous study has conducted research into this topic from the perspective of our selected countries using the models we use.

1.1. BACKGROUND AND HYPOTHESES

When examining studies addressing life satisfaction in the literature, it becomes evident that socioeconomic and demographic indicators such as age, education level, income level, health status, religiousness, interpersonal trust, and government trust have been identified as factors affecting satisfaction. In this section, we provide a review of the literature on factors that directly and indirectly affect life satisfaction and present the hypotheses that will be tested using path models.

Higher income levels are positively and directly related to life satisfaction (Boccaccio et al., 2021). In the model built within the framework of the findings of previous years, it is estimated that high-income status affects life satisfaction. **Hypothesis: As the income level decreases, life satisfaction decreases**.

In a study by Verme (2011) using the World Values Survey (WVS), life satisfaction increased with increasing age. At the same time, according to a study using data from close to 2000 war veterans, age and life satisfaction are positively correlated (Angelini et al., 2012; Mroczek & Spiro, 2005). However, researchers have also pointed out that the reason for this is the interaction between age and health conditions. In other studies, a negative relationship between subjective well-being and advancing age, poor health, and physical disability has been reported (Edwards & Klemmack, 1973; Jeffers & Nichols, 1961). **Hypothesis: Age has a significant effect on life satisfaction**.

The research presents divergent views on the age-religiosity relationship; some posit a positive correlation, while others suggest a negative correlation. The moderating role of age in the connection between religiosity and life satisfaction is highlighted, where advancing age potentially facilitates the harmonization of internal (faith) and external (e.g., belief in a higher power) influences (Fiori et al., 2006). Moreover, age is linked to a protective aspect that mitigates depression, fostering spiritual growth. Notably, studies have indicated a positive age-related increase in religiosity for both Christianity and Islam (Stearns et al., 2018). **Hypothesis: Age has a positive effect on the level of religiosity**.

Various research results show that in the long run, people with higher education maintain a stable level of life satisfaction, whereas people with lower education experience a gradual decline in life satisfaction (Wetzel et al., 2016). Another study lists the factors positively associated with life satisfaction as higher education level, marriage status, high trust in people and institutions, the importance of religion, and the value of family and friendships in one's life (Verme, 2011). Stryzhak (2020) found that education not only contributes to income growth but also makes people happier. **Hypothesis: Education level has a positive effect on income level**.

In India, a study conducted on students in the years 2017 and 2018 found that higher educational attainment was negatively correlated with religiosity (Kumar & Voracek, 2022). When the population as a whole is compared, people with lower education and those from lower income strata are found to be somewhat more religious; however, the correlations are generally low and often insignificant (Ruiter & van Tubergen, 2009). In a study using the World Values Survey, education level has a small but significant negative effect on religiosity (Höllinger, 2019). **Hypothesis: Education level has a significant effect on the level of religiosity**.

Good health is one of the factors that positively affect life satisfaction (Monteiro & Haan, 2022), and each of these findings is consistent with existing life satisfaction research (Bartram, 2011; Helliwell, 2003). In addition, poor health has a negative impact on life satisfaction (Broman, 1997). In a study conducted on people over the age of 56 living in Europe, having good health was perceived as having higher life satisfaction (Angelini et al., 2012). **Hypothesis: Health status has a positive effect on life satisfaction**.

While life satisfaction increases with age, older people are more likely than younger people to rate their lives as "dissatisfied", and there is little difference in life satisfaction among participants younger than 75 years (Angelini et al., 2012). However, researchers have also pointed out that the reason for this is the interaction between age and health conditions. Other studies have also reported a negative relationship between subjective well-being and advancing age, poor health, and physical disability (Edwards & Klemmack, 1973; Jeffers & Nichols, 1961). **Hypothesis: Age has a negative effect on health status**.

Religion often provides a sense of purpose, meaning, and a moral framework for individuals, which can contribute to their overall well-being and life satisfaction. Religious beliefs and practices can provide individuals with a sense of control over their lives and a source of comfort during challenging times, such as through prayer or religious rituals (Pargament et al., 1988). There are studies suggesting that religious belief becomes a defense mechanism against stressful events in people's lives and acts as a stress buffer (McFadden, 1995). While religious coping methods can foster healthy conditions for believers, they can also, depending on an individual's interpretation of their faith, give rise to adverse circumstances, with the key determinant being how one understands their religiosity. Potentially influenced by their perception of their relationship with God and the utilization of religious coping mechanisms as harmful forms of religious coping, attitudes such as framing a religious event as a punishment from God also exist (Pargament et

al., 1988). The level of religiosity has been found to have a significant effect on life satisfaction, not only the level of religiosity but also the trust factor (social trust & political trust) has been found to be a significant factor in explaining life satisfaction among minorities (Wilkes & Wu, 2017; Ziller, 2017). Hypothesis: The level of religiosity has a significant effect on life satisfaction. **Hypothesis: The level of religiosity has a significant effect on interpersonal trust**.

Another study investigating whether there is a relationship between the level of religiosity of African Americans and life satisfaction did not find a direct link (Fiori et al., 2006). However, according to research conducted in the USA, the Netherlands, and Denmark, a positive correlation was observed between religiosity and happiness. The results obtained in the USA are stronger than those found in the Netherlands and Denmark, but positive but weak relationships were observed in all three countries (Snoep, 2008). **Hypothesis: The level of religiosity has a significant effect on life satisfaction**.

People with a high sense of trust have high life satisfaction (Calvo et al., 2012; Hamamura et al., 2017; Helliwell & Wang, 2010; Mansyur et al., 2008; Poortinga, 2006; Zhang, 2020). There are also studies in the literature, including one of 18 countries examining trust and life satisfaction, showing that trust in society, not interpersonal relationships, is positively related to life satisfaction (Zhang, 2020). Most studies in the literature show a strong, significant, and positive relationship between trust and life satisfaction (or happiness) (Helliwell & Wang, 2010). In a study conducted in European countries, it was observed that interpersonal trust, also known as social trust, affects political trust and vice versa (Bargsted et al., 2022). Hypothesis: The level of interpersonal trust has a significant effect on life satisfaction. **Hypothesis: The level of interpersonal trust has a significant effect on the level of governmental trust**.

Studies show that less trust in institutions makes a society less livable and affects life satisfaction. A study that used data from ESS found that trust in the state and state institutions positively affected life satisfaction in Eastern European societies (Baltatescu, 2009). Trust in the state does not change in terms of gender, but it has a significant effect (Herbst, 2011). A study using data from the European Values Study for the years 1972 to 1994 shows that there is a relationship between happiness and trust in the state and that life satisfaction is successful in predicting trust in the state (Brehm & Rahn, 1997). **Hypothesis: The level of governmental trust has a significant effect on life satisfaction**.

2. DATASET AND METHODOLOGY

The dataset used was the round 9 data collected for 2018 by the European Social Survey (ESS) and 31 different countries were included in the round 9 data. The countries selected for this study were determined according to the criteria. Care was taken to ensure that these countries are not Muslim-majority countries (Montenegro, Bosnia, etc.) because the selected minority group in this study is Muslims, and it is important to select countries where Muslims are a minority group so that the results of this selection support the hypotheses as strongly as possible. The countries selected for use in the analysis are Bulgaria, France, Sweden, Austria, Belgium, the United Kingdom, Germany, Norway, Denmark, and the Netherlands. Two more countries meet the mentioned criteria and could have been included in this list, but the data for those two countries, Greece and Switzerland, were not included in the ESS dataset (Pargament et al., 1988). Multigroup analysis was used to assess the differences between the Muslim minority and Christian groups.

When the data of the Christians and Muslims were selected, the observations outside these religion-based groups were eliminated, and the remaining total number of observations was 7746. The participants included in the study were Christian citizens, accounting for 7174, and Muslim citizens 572. Christians constitute 93% of the data and Muslims 7%. The distribution of how many data (Christian and Muslim) were received from which country in total is as follows: Bulgaria (1029), France (827), Sweden (498), Austria (1319), Belgium (684), the United Kingdom (723), Germany (1080), Norway (506), Denmark (722), and the Netherlands (358). The mean age of the total participants was 54.22 years (SD = 17.95), 52.8% female and 47.2% male.

The survey questions and scale types used in this study are listed in Table 1.

The interpersonal trust variable was created by taking the median value of 3 different variables from the ESS. The questions of the combined variables are as follows: "Would you say that most people can be trusted, or that you can't be too careful in dealing with people?" (scale range: 0-10), "Do you think that most people would try to take advantage of you if they got the chance, or would they try to be fair?" (scale range: 0-10) and "Would you say that most of the time people try to be helpful or that they are mostly looking out for themselves?" (scale range: 0-10). Median values were used to form the "Interpersonal Trust" variable. The same process was used for the "Trust in Government" variable. The questions for the variables used are as follows: "It is important to her/him that the government ensures her/his safety against all threats." (scale range: 1-6), "To what degree would you say that the government in your country considers the interests of all citizens?" (scale range: 1-5) and " In your opinion, to what extent are decisions in your country's politics transparent, meaning that everyone can see how they are made?" (scale range: 1-5).

Table 1: Survey Questions and the Types of Scales

Variable Names	Questionnaire	Coding	The types of Scale
Age	In what year were you born?	Calculated by turning into age.	Ratio
Level of Income	In which decile (decile) do you think your household's total income after taxes and mandatory deductions from all sources belongs?	1 - 1st decile ... 10 - 10th decile	Ordinal
Interpersonal Trust	Would you say that most people can be trusted, or that you can't be too careful in dealing with people?	0 - You can't be too careful … 10 - Most people can be trusted	Ordinal
	Do you think that most people would try to take advantage of you if they got the chance, or would they try to be fair?	0 - Most people try to take advantage of me … 10 - Most people try to be fair	Ordinal
	Would you say that most of the time people try to be helpful or that they are mostly looking out for themselves?	0 - People mostly look out for themselves … 10 - People mostly look out for themselves	Ordinal
Level of Education	What is the highest level of education you have successfully completed?	Primary/Middle School, High School, University or Higher Education	Ordinal
Health Status	How is your health in general?	1 - Very good .. 5 - Very bad	Ordinal (reverse coded)
Religiousness	Regardless of whether you belong to a particular religion, how religious would you say you are?	1 - Not at all religious … 10 - Very religious	Ordinal
Governmental Trust	It is important that the government is strong and ensures safety.	1 - Not at all … 5 - A great deal	Ordinal
	To what degree would you say that the government in your country takes into account the interests of all citizens?	1 - Not at all … 5 - A great deal	Ordinal
	In your opinion, to what extent are decisions in your country's politics transparent, meaning that everyone can see how they are made?	1 - Not at all … 5 - A great deal	Ordinal
Life Satisfaction	All things considered, how satisfied are you with your life as a whole these days?	0 - Extremely dissatisfied … 10 - Extremely satisfied	Ordinal

One of the methods employed in statistical analysis is path analysis which represents multivariate relationships between variables in accordance with theoretical principles (Suhr, 2008). Path analysis is a variant of multiple regression analysis and is a worthwhile method for examining causal relationships. Typically, path analysis is preferred when a predefined causal model is present. Later in this approach, to comprehend the cumulative results of related effects, separate regressions are conducted for every single dependent variable, which is illustrated using path diagrams (Stage et al., 2004).

Not only direct paths but also indirect paths are assessed using the path analysis procedure because causality between a set of variables is prioritized (Duncan, 1966). Independent variables are referred to as exogenous variables, while dependent variables are referred to as endogenous variables. Moreover, the arrows, which are called paths, between

two rectangles, which represent variables, that can be seen in the model show the hypothesis and indicate the direction of the effect (Baron & Kenny, 1986). Path coefficients or standardized partial regression coefficients (beta) indicate the rate of change in the dependent variables for which the predictor (i.e., exogenous) variable is responsible.

Model parameters are often estimated using maximum likelihood estimation in path analysis (Jöreskog, 1969). SEM software is used to assess model fit using goodness-of-fit indices such as CFI and RMSEA. The goodness-of-fit indicators of the model, such as CFI and RMSEA as well as the significance of direct and indirect relationships are based on t-statistics (Hatcher, 1996).

The goodness-of-the-fit is tested for the established models. For this test, fit indices showing how well the model fits the information obtained from the correlation matrices are examined, which is necessary to evaluate the adequacy of the model (Stage et al., 2004).

The chi-squared statistic is a traditional measure used to assess the overall model fit of covariance structure models, providing a fit test where the null hypothesis is that the model fits the population data perfectly (Kline, 2016). The values of CFI and GFI greater than .95 are indicators of a suitable model (Hu & Bentler, 1998; Tabachnick & Fidell, 2001). GFI is used to calculate the minimum discrepancy function necessary to obtain a perfect fit under maximum likelihood conditions (Jöreskog & Sörbom, 1996). RMSEA value close to zero is an indicator of a good fit (Kline, 2016), and while values below .08 are considered an acceptable fit, .05 or less is considered a good fit (Browne & Cudeck, 1992). The values below 0.05 for SRMR are indicators of an acceptable fit (Siguaw & Diamantopoulos, 2000).

As summarized in Figures 1a and 1b, Model 1 is adapted from research that examines the life satisfaction level of Roma groups living in Central and Southeastern Europe. The aforementioned research shows that life satisfaction level is affected by the impact of education level (Fleischmann & Phalet, 2016), income, and subjective health status (Kamberi et al., 2014). Also, Verme's (2011) study examining Muslim minority groups living in Europe formed the basis of Model 1.

In addition to the first model established, the explainability of minorities' life satisfaction with the variable of trust was examined using the path analysis method. Thus, it is expected that Model 2 will deepen the discussion. Variables within Model 2 are based on trust in the state, the state's attitude toward citizens' requests, and satisfaction with public services (Liu et al., 2020). All exogenous variables positively affect endogenous variables. A negative relationship was found between distrust towards people and life satisfaction (Baltatescu, 2009; Mueller, 2009). In this study, trust in people is predicted to affect life satisfaction positively; therefore, it is included in the model.

The studies on which Model 2 is based can be summarized as follows. One of them analyzed the life satisfaction of migrants and non-migrants using the SEM method. The results confirm the direct relationship between trust and life satisfaction for both non-migrants, i.e., natives, and third-world citizens. At the same time, it emphasizes that trust in politics and trust in people are equally important for third-world citizens, while for natives, trust in people is more important than trust in politics (Prada & Roman, 2021). The other study examined the extent to which life satisfaction in Western and Eastern Europe is influenced by government and interpersonal relationships, finding that Eastern Europeans' trust in political institutions influences life satisfaction, while Western Europeans' interpersonal trust has an impact on life satisfaction (Kamberi et al., 2014).

In Model 1, age, education level, health status, income level, and religiosity are used as mediators. In Model 2, interpersonal trust, trust in government, and religiosity variables are used as mediators. Life satisfaction was the outcome variable in both models. Believing in Islam or Christianity (religion) is used as a predictor and utilized as the multigroup variable. There are 11 and 5 paths (hypotheses) in Model 1 and Model 2, respectively.

3. FINDINGS

In the first stage of the application, descriptive statistics of some of the variables used in Model 1 and Model 2 were evaluated by independently considering Muslim and Christian communities. Descriptive statistics present significant and predictable differences; the Muslim minority group has lower values in every item except religiosity. Religiosity has the highest difference among all. Both groups display similar levels of trust in the government; however, there is a notable difference in interpersonal trust, with the Muslim minority exhibiting lower levels of trust. Furthermore, the Muslim minority group reported lower scores for life satisfaction than the Christian group. It is evident that the median values of the variables "life satisfaction, income, interpersonal trust, and governmental trust" obtained based on the Likert scale are higher for Christians.

Table 2: Descriptive statistics

	Sample 7746 Median	Muslim 572 Median	Christian 7174 Median
Life satisfaction	8	7	8
Education	2	2	2
Income	3	2	3
Health	2	2	2
Religiosity	6	7	6
Interpersonal Trust	6	5	6
Trust in Government	3	2	3
Age	56	39	57

3.1. MODEL 1

The (unconstrained) goodness-of-fit indicators for the model with education, income, age, religiosity, and health variables are as follows: χ^2 /df ratio of Model 1 is less than 3 (0.903), which refers to a good model; the CFI statistics are greater than 0.90 (0.98), which is the threshold value for a good model fit, SRMR statistic is less than 0.05 (0.0031). Finally, the RMSEA statistic is also less than 0.07 (0.05), supporting a good fit for the model. Figures 1a and 1b reflect direct and indirect relationships between Christian and Muslim communities, respectively.

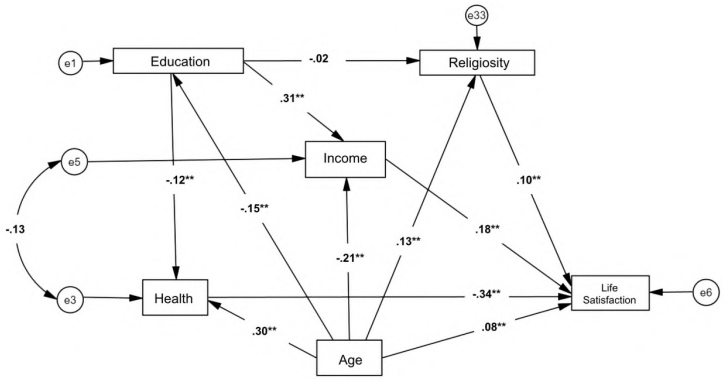

Figure 1a. Christian Group standardized β avalues for Model 1

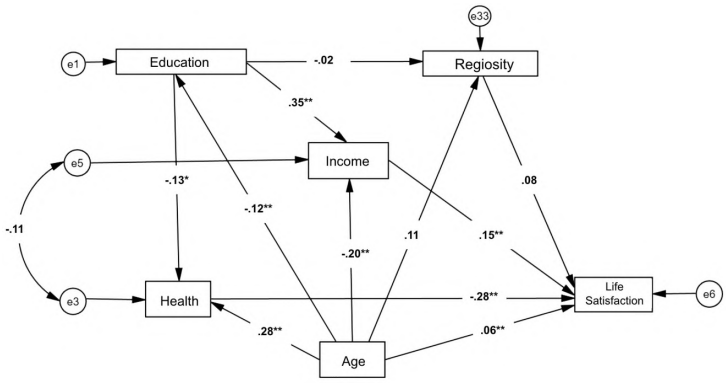

Figure 1b. Muslim Group standardized β values for Model 1

*In Figures 1a and 1b, where the magnitude of direct and indirect relationships (standardized beta) are presented, ** values appear next to the coefficients that are significant at the 5% significance level.*

According to the model, for both Muslim minorities and Christians, age negatively affects life satisfaction ($p<0.05$), and level of education positively affects income ($p<0.05$). Age positively affects religiousness ($p<0.05$) for Christians but, contrary to our hypothesis, negatively affects the Muslim minority ($p>0.05$). However, for the Muslim minority, it is not significant. Age negatively affects health status ($p<0.05$) for both groups, although it is not a significant effect. The difference between the groups is demonstrated by the abovementioned hypotheses. Unexpectedly, religiosity has a positive effect on life satisfaction only for the Christian group ($p<0.05$) and has no significant effect for the Muslim minority ($p>0.05$). Table 3 shows whether the magnitude of direct and indirect relationships evaluated based on Model 1 is statistically different for the Muslim and Christian groups.

Table 3: β Coefficient and Z-Value Table for Model 1

Hypothesis	Direct Effects	β Coefficient (Christian)	β Coefficient (Muslim Minority)	Z-Value
H1.1	Age → Life Satisfaction	-0.091**	-0.118**	**-4.228**
H1.2	Age → Religiosity	0.138**	-0.065	**-4.353**
H1.3	Age → Education	-0.144**	-0.169**	-1.131
H1.4	Age → Health	0.294**	0.418**	**4.032**
H1.5	Age → Income	-0.212**	-0.205**	0.183
H1.6	Health → Life Satisfaction	-0.341**	-0.211**	1.899
H1.7	Religiosity → Life Satisfaction	0.096**	0.073	-0.174
H1.8	Education → Religiosity	-0.18	-0.028	-0.191
H1.9	Education→ Income	0.326**	0.228**	**-3.794**
H1.10	Education → Health	-0.124**	-0.077*	1.299
H1.11	Income → Life Satisfaction	0.180**	0.175**	0.927

**: $p \leq 0.01$, *: $p \leq 0.05$

Beta scores in Table 3 show that the strongest direct effect on life satisfaction is health status found to be significant for both the Muslim minority and the Christian group, which is in line with similar studies in the literature. For the Christian group, the lowest direct effect on life satisfaction is observed for religiosity. Also, the highest indirect effect on life satisfaction is age, which is a negative effect, and it is followed by education, a positive effect. For the Muslim minority group, the lowest direct effect on life satisfaction is observed for religiosity. The highest indirect effect on life satisfaction is age, which is a negative effect. This result is the same for the Christians, however, the indirect education effect is not as high for Muslims as Christians. According to Z scores, while the relationships between age-life satisfaction, age-religiosity, age-health, and education-income are different for both groups, the remaining direct and indirect relationships do not differ for both groups ($Z \leq 1.96$).

3.2. MODEL 2

The model with the trust variables shows a good fit in the fit index results with its unconstrained form. Vales for Model 2 are as follows: χ^2/df = 2.649, CFI = 1.00, SRMR = 0.0056, and RMSEA = 0.007, supporting a good fit for the model.

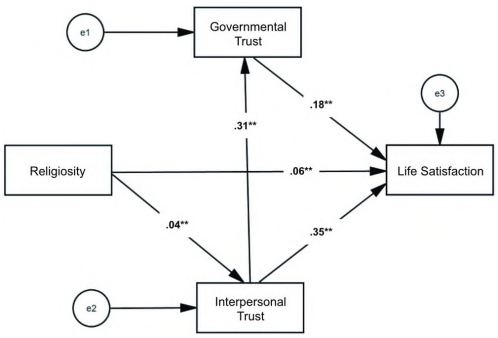

Figure 2a. Muslim Group standardized β values for Model 2

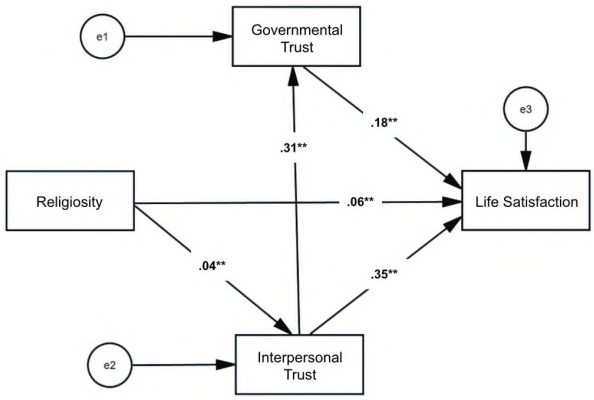

Figure 2b. Christian Group standardized β values for Model 2

According to the model, for both Muslim minorities and Christians, interpersonal trust positively affects governmental trust ($p<0.05$). Being a Muslim minority or Christian makes a difference in the level of interpersonal trust in the government. Religiosity has a positive effect on life satisfaction only for the Christian group ($p<0.05$) and has no significant effect for the Muslim minority ($p>0.05$). Table 4 shows whether the magnitude of direct and indirect relationships evaluated based on Model 2 is statistically different for Muslim and Christian groups.

Table 4: β Coefficient and Z-value Table for Model 2

Hypothesis	Direct Effects	β Coefficient (Christian)	β Coefficient (Muslim Minority)	z-value
H1.1	Religiosity → Life Satisfaction	0.065**	0.055	-0.202
H1.2	Religiosity → Interpersonal Trust	0.040**	0.030	1.608
H1.3	Interpersonal Trust → Governmental Trust	0.306**	0.279**	**-1.986**
H1.4	Interpersonal Trust → Life Satisfaction	0.355**	0.220**	0.019
H1.5	Governmental Trust → Life Satisfaction	0.172**	0.231**	0.095

**$p \leq 0.01$, *: $p \leq 0.05$

Beta scores in Table 4 show that the strongest direct effect on life satisfaction is interpersonal trust found to be significant for both the Muslim minority and the Christian group. However, the highest direct and indirect effect on life satisfaction is governmental trust for Muslim minorities. The lowest indirect effect on life satisfaction is observed for religiousness for both Muslim minorities and Christians. According to Z scores, while the relationships between interpersonal trust and governmental trust are different for both groups, the remaining direct and indirect relationships are not different for both groups ($Z \leq 1.96$).

4. DISCUSSION

This research primarily aimed to study how life satisfaction is affected by belonging to a minority group among European residents. Two path models were employed for this purpose. The first model, Model 1, aims to examine the extent to which the life satisfaction of minority groups is affected by socio-demographic characteristics, while Model 2 examines the effects of religiosity, interpersonal trust, and trust in the state. When the direct and indirect effects are also analyzed, the results of the analyses reveal some differences between the Christian and Muslim minority groups.

The most substantial factor directly affecting life satisfaction is health status, but it has a much more significant effect on Christian groups than on Muslim minority groups. Furthermore, for the Christian group, age is positively related to life satisfaction, but for the Muslim minority group, it has a negative effect. As age increases, resulting in the years of treatment due to being a minority, negative emotions increase. Also, as people grow, they start a family, and having a family could make one's life more satisfying but also the transition from individual concerns to family concerns can

be observed. Therefore, life satisfaction does not get better. On the contrary, in Christian groups, as age increases, the connection to the community and the place where one lives becomes stronger, and social support becomes more likely. While the literature shows that religiosity increases life satisfaction, this is not observed in the Muslim minority group. Being a Muslim living in Europe means being a minority in two different aspects; as a religious minority and as (most of the time) a racial minority.

The Rejection-Identification Model, which is used for intergroup discrimination, argues that group discrimination can lead people to identify with the stigmatized group and then help them survive (Wellman et al., 2022). According to this model (Branscombe et al., 1999), adopting one's stigmatized identity can counteract the negative consequences of discrimination on happiness (Wellman et al., 2022). As an example, high levels of religiosity reflecting religious group identity may protect life satisfaction from the negative effects of religious discrimination (Vang et al., 2019). However, the results found in this study do not support this model.

The most substantial factor directly affecting life satisfaction is health status, but it has a much stronger effect on Christian groups than on Muslim minority groups. Furthermore, for the Christian group, age is positively related to life satisfaction, but for the minority group, the Muslim minority, it has a negative effect.

As age increases, negative emotions increase with the treatment minority groups are exposed to, and with the establishment of a family, a transition from individual concerns to familial concerns occurs. Therefore, life satisfaction does not get better. On the contrary, in Christian groups, as age increases, the connection to the community and the place where one lives becomes stronger, and social support becomes more likely.

Another finding is that while the literature shows that religiosity increases life satisfaction, this is not observed in the Muslim minority group. Being a religious Muslim living in Europe means being a minority in two different ways: both as a religious minority and as a racial minority. For this reason, being religious/spiritual has no effect on life satisfaction for Muslim minority groups living in Europe.

Having a religious belief can sometimes mean being connected to a community of people who share the same belief. Such belonging can hinder individuals from belonging to another community. In some cases, belonging to a group creates a suitable environment for intense but dysfunctional behaviors. For example, Muslim minority groups living in a country may develop a deeper sense of belonging to the Muslim community as they feel more discrimination directed toward them. This situation leads to more radical (fundamentalist) behaviors in their beliefs (Güngör et al., 2011).

The fact that people become more "religious" as they get older is explained by the fact that their death becomes a tangible possibility, and as they get older, they begin to integrate religion into their lives more and more easily, especially among people who were not religious when they were younger (Moberg, 2001). Another theory suggests that the increase or tendency towards religious behavior stems from the fear of death, where individuals tend to turn to religion for inner solace, to feel more at ease when thinking about the afterlife and the impending end of their own lives.

Studies investigating the life satisfaction of minorities are very limited in the literature, especially those that focus on and compare Christian and Muslim minorities. Another difference that distinguishes this study from other studies is the fact that the sample covers 10 different countries. Apart from this, it differs from other studies in that it is a study that explains the state of being a minority with more than one model. As a result, the analyses show that there are differences that affect life satisfaction between the Christian and Muslim minority groups.

The findings from this study come with limitations. The presence of similar personality trait patterns across participants could interfere with the collected data. Therefore, data dependency might not be assured across the ten European countries.

Furthermore, variations in cultural norms and societal contexts could influence the perception and measurement of factors like religiosity and trust, due to the nature of cross-cultural studies. Additionally, the reliance on self-reported data introduces the possibility of response bias, whereby respondents might provide socially desirable answers that do not accurately reflect their true experiences.

Despite these limitations, this study serves as an auxiliary exploration of the inescapable connections between age, health, education, religiosity, income, interpersonal trust, and governmental trust on life satisfaction among Muslim minority and Christian groups in Europe.

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ORCID :

Leyla Zeynep VERÇIN 0000-0002-0032-1790
Özlem YORULMAZ 0000-0003-1029-5749

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Research Article

Stress and Quality of Life: The Mediating Role of Happiness

Serpil AYTAC[1], Nuran BAYRAM-ARLI[2], Mine AYDEMİR DEV[3]

[1]Prof. Dr, Fenerbahce University, Faculty of Economics, Administrative and Social Sciences, Istanbul, Türkiye
[2]Prof. Dr, Bursa Uludag University, Faculty of Economics and Administrative Sciences, Bursa, Türkiye
[3]Dr, Bursa Uludag University, Faculty of Economics and Administrative Sciences, Bursa, Türkiye

Corresponding author : Serpil Aytaç
E-mail : serpil.aytac@fbu.edu.tr

ABSTRACT

The aim of the study is to test the mediating role of happiness in the relationship between stress and quality of life. The study uses the Turkish version of the World Health Organization's (WHO) brief Quality of Life (WHOQOL-BREF) Scale to measure quality of life. The WHOQOL-BREF Scale has four main domains: physical, psychological, social relations, and environmental. In addition, the study uses the Turkish version of the Oxford Happiness Questionnaire to measure individuals' happiness levels and the stress sub-scale from the Turkish adaptation of the Depression, Anxiety, and Stress Scale (DASS-42) to measure stress levels. A total of 216 people aged 18 or older participated in the study. Model 4 in Process Macro was used to test the hypotheses related to the research model. The highest relationship between domain values was obtained between the psychological and physical domains. According to the mediation analysis findings, happiness mediates the relationship between stress and all domains of quality of life. These results emphasize the importance of happiness in individuals' lives. The study has concluded stress to have an indirect and large effect size on all domains of quality of life and found the highest indirect effect size of stress to be on the psychological domain. Based on the results, paying special attention to happiness levels is suggested in order to improve quality of life, the ability to cope effectively with stress and tension, and to empower oneself.

Keywords: WHOQOL-BREF, quality of life, happiness, stress

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1. Introduction

In recent years, the concept of quality of life has gained importance both in the field of health and in daily life. According to the World Health Organization (WHO), quality of life is the individual's perception of one's position in life, which is shaped according to the culture and value system in which one lives and in accordance with one's goals, objectives and expectations (WHO Quality of Life [WHOQOL]-Group, 1995). Many factors are found to affect this comprehensive concept, including physical health, psychological state, level of independence, social relations, environmental factors, religious beliefs, and personal beliefs (WHOQOL-Group, 1993, 1994, 1995, 1997, 1997, 1998a, 1998b).

In today's rapidly changing world, stress has an important impact on individuals' quality of life. As stress factors increase, people's levels of happiness and life satisfaction can be negatively affected. This emphasizes the impact of stress not only on psychological health but also on overall quality of life. Happiness is defined as the general judgment of a person's life, the satisfaction in one's life, the increase in good feelings, and the reduction to a negligible level of the negative effects encountered in life (Diener et al., 1999). Happiness is the feeling that a person has as a result of experiencing pleasant feelings, having positive emotions, and performing meaningful and moral tasks appropriate for themself (Fisher, 2010). According to another definition, overall happiness is the degree to which an individual positively evaluates the overall quality of his or her life as a whole (Veenhoven, 2015). A few years ago, the positive psychology approach, which focuses on happiness and quality of life, emerged under the leadership of Martin Seligman (2002), who emphasized the importance of building strengths in people by focusing on increasing quality of life, by making it Fight satisfying and productive, and by identifying talented people. This approach emphasizes what is right rather over what is wrong with individuals and focuses on ways to live a happy life. Positive psychology also helps develop strategies for coping with stress and maximizing personal potential (Seligman, 2002).

Happiness and quality of life are influenced by many different individual factors such as income level, education level, age, gender, and employment status. In addition, health status and utilization of health services are important factors affecting both variables. several different mechanisms are found through which a positive perspective positively affects happiness and quality of life. Firstly, a positive perspective can reduce stress levels by providing a better ability to cope in the face of challenges. Also, individuals with a positive outlook tend to have a better mood and higher self-esteem levels. In turn, this can help them build healthier relationships, develop a more optimistic vision of the future, and lead a more satisfied life in general (Seligman, 2006). Positive thinking can reduce stress and increase happiness and quality of life by enabling a person to approach daily experiences and events from a more positive perspective.

Many researchers have addressed the positive effects and mediating role of happiness in various areas. The literature review shows studies to have investigated the mediating role of happiness in explaining turnover intention (Yang et al., 2018; Al-Ali et al., 2019; Alserhan et al., 2021), job satisfaction (De Guzman et al., 2014), work engagement (Kim, 2019), and psychological well-being (Arslan, 2023). Meanwhile, interviews with experts show them to have stated a definite relationship to exist between violence and happiness (Sarkar, 2021). According to the literature review, however, no study is found to have addressed the relationship among stress, quality of life, and happiness alongside examining the mediating role of happiness in the relationship between stress and quality of life. Therefore, this article aims to analyze the impact of stress on quality of life and the mediating role of happiness in this relationship. The analysis aims to contribute to formulating strategies for mitigating the negative effects of stress and for helping individuals lead healthier and more fulfilling lives. In addition, the study has the secondary objective of revealing which demographic variables differentiate individuals' quality of life. In this context, the first objective will test the conceptual model in Figure 1 separately regarding each quality-of-life domain (i.e., physical, psychological, social relations, and environment).

As Figure 1 shows, the research model aims to test hypotheses H1, H2, and H3 that are stated as follows:
H1. Stress is negatively associated with happiness.
H2. Happiness is positively associated with the quality-of-life domains.
H3. Stress is negatively associated with the quality-of-life domains.
In addition, the research model also tests hypothesis H4, which forms the following statement:
H4. Happiness mediates the relationship between stress and quality of life.

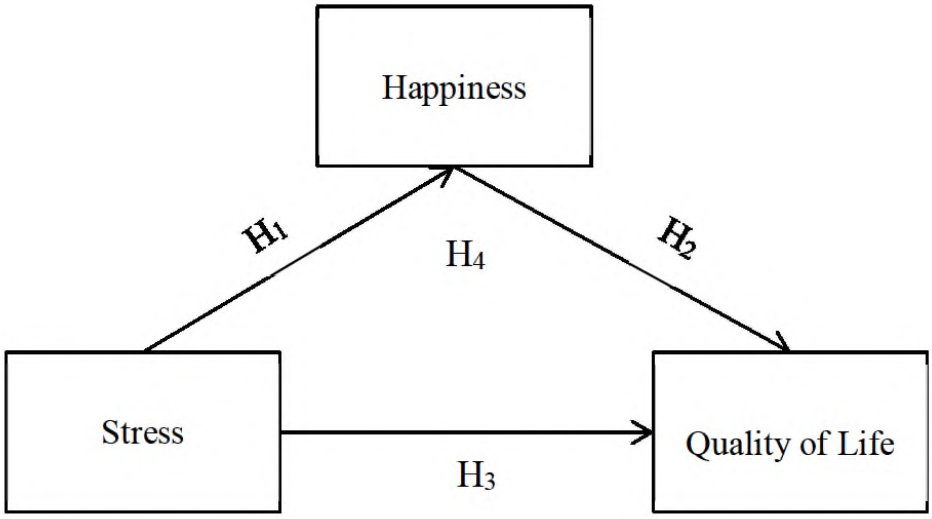

Figure 1. The research model and its hypotheses.

Method

Participants

The study uses and online questionnaire to collect the data for testing the conceptual model. The survey involves demographic questions and some scales as measurement tools. Participants were chosen using convenience sampling in August 2023, with 216 people participating in this questionnaire. The sample consists of participants who vary in terms of gender, age, marital status and perceived income. The study uses three different measurement tools (i.e., the WHO Brief Quality of Life (WHOQOL-BREF) Scale, the Oxford Happiness Scale, and the Depression-Anxiety-Stress Scale (DASS-42). The study was approved by the Fenerbahçe University Ethics Committee (Approval No. 2023/8-2).

Constructs and Measures

WHOQOL-BREF

The study uses the Turkish version of the WHOQOL-BREF scale to measure the participants' quality of life as translated into Turkish by the WHOQOL Turkey group, with the validity and reliability analyses being performed by Eser et al. (1999a, 1999b) and Aydemir and Köroğlu (2006). WHOQL-BREF is a shorter version of the WHOQOL-100 Scale (WHOQOL, 2012) and provides ease of application due to its brevity. WHOQOL-BREF can be considered an instrument that is sensitive to differences regarding both health-related and socioeconomic variables. In addition, quality of life scores can be used as an input for community health indicators and summary health measures (Eser et al., 1999a; Yıldırım et al. 2011; Dadhich et al. 2023). The WHOQOL-BREF scale consists of 26 questions and includes one Perceived Quality of Life question, one Perceived Health question, and questions on the Physical Domain (i.e., pain, physical strength, sleep, mobility, daily activities, medication dependence, and capacity to work), Psychological Domain (i.e., positive emotions, thinking and decision-making, memory, self-esteem, body image, negative emotions, and personal beliefs), Social Relationships Domain (i.e., relationships with others, social support, and sex life), and Environment Domain (i.e., physical safety, home environment, material resources, health and social services, access to new information, leisure time, physical environment, and transportation facilities). The questions are score on a 5-point Likert-type scale. Each section is assessed on a maximum of 20 or 100 points, with this study basing the assessment on 100 points, where higher scores indicate a higher quality of life.

Oxford Happiness Scale-Short Form

The Oxford Happiness Scale was developed by Hills and Argyle (2002). The Turkish adaptation of the 7-item scale's short form was conducted by Doğan and Çötok (2011). Scores between 7-35 can be obtained from the scale, with higher scores indicating a higher level of happiness.

Depression-Anxiety-Stress Scale (DASS-42)

The study uses the Turkish version of the Depression, Anxiety, and Stress Scale (DASS-42) developed by Lovibond & Lovibond (1995) for testing depression, anxiety, and stress levels, with the Turkish adaptation and validity-reliability analyses having been conducted by Bilgel and Bayram (2010). the study only uses the stress sub-scale from DASS-42. Scores between 0-42 are obtainable from the scale, with higher scores indicating higher stress levels.

Analysis

Sample characteristics were evaluated by considering standard descriptive analyses. Cronbach's alpha values were calculated to show the internal consistency of the scales. The study then examined the linear relationships among the variables using the Pearson product-moment correlation coefficient (r). The study also conducts t-test and variance analyses for the scales with regard to various demographic data before lastly analyzing the mediating role of happiness in the relationship between stress and quality of life. The study uses IBM SPSS 26.0 to analyze the data and Process Macro (Hayes, 2018) to test the hypotheses related to the research model.

Findings

Descriptive Statistics and Group Differences

The participants' ages range between 18-78 years (M = 41.50, SD = 12.76), and 63% are female. 31.9% of the participants reported low monthly earnings and 27.8% reported high monthly earnings. Demographic information of the study group is presented in Table 1.

Table 1. *Demographic Characteristics*

	Frequency	%
Gender		
Female	136	63.0
Male	80	37.0
Education status		
High school and below	25	11.6
University and above	191	88.4
Marital status		
Married	114	52.8
Single	102	47.2
Perceived income		
Low	69	31.9
Moderate	87	40.3
High	60	27.8

Of the participants, 88.4% stated having a university education or higher. In this regard, the individuals in the sample are seen to have a high level of education. Means, standard deviations, and Cronbach's alphas for the scales are presented in Table 2.

Table 2. *Mean, Standard Deviation, and Cronbach's Alpha Values*

Scales	Item	*M*	*SD*	Cronbach's alpha
Physical	7	26.61	4.51	0.78
Psychological	6	21.54	4.65	0.86
Social Relations	3	10.36	2.50	0.72
Environment	8	27.61	5.56	0.83
Happiness	7	23.63	5.00	0.78
Stress	7	10.21	4.73	0.85

Cronbach's alpha values for the reliability analyses range between 0.72-0.86, with all coefficients being found within acceptable limits. Table 3 shows the correlation values among the scales.

Table 3. *Correlations*

	Physical	Psychological	Social Relations	Environment	Happiness
Psychological	.653**				
Social Relations	.556**	.625**			
Environment	.573**	.597**	.565**		
Happiness	.647**	.800**	.642**	.623**	
Stress	-0.315**	-0.334**	-0.219**	-0.237**	-0.413**

** $p < 0.01$

When examining the correlations among the scales, statistically significant relationships were obtained at the 1% significance level. The highest correlation ($r = 0.653$; $p < 0.01$) was obtained between the psychological and physical domains. In addition, stress was found to have a significant inverse relationship with all quality-of-life domains and with happiness. In Table 3, the highest relationship was obtained between happiness and the psychological domain variables ($r = 0.800$; $p < 0.01$). Table 4 presents the t-test results by gender.

Table 4. *The Results from the t-Test With Respect to Gender*

Scales	Female	Male	*t*	*p*
Physical	67.29 ± 16.98	66.25 ± 19.56	.412	.237
Psychological	62.07 ± 18.74	63.12 ± 21.40	-0.379	.495
Social Relations	61.95 ± 21.24	60.94± 19.29	.349	.239
Environment	59.49 ± 17.60	58.96± 17.68	.212	.955
Happiness	3.44 ± .72	3.27± .70	1.662	.331
Stress	1.45 ± .70	1.48 ± .64	-0.326	.396

With regard to gender, no statistically significant differences are found between males and females regarding the domains of quality of life (i.e., physical, psychological, social relations, and environment). Likewise, no differences were found regarding happiness and stress with respect to gender. Table 5 presents the t-test results with respect to marital status.

Table 5. *The Results from the t-Test With Respect to Marital Status*

Scales	Married	Single	t	p
Physical	67.93 ± 18.09	65.76 ± 17.80	.885	.189
Psychological	66.59 ± 18.47	57.84 ± 20.14	3.328	.000
Social Relations	64.33 ± 18.73	58.50 ± 22.00	2.103	.018
Environment	61.49 ± 18.77	56.83 ± 15.90	1.957	.026
Happiness	3.47 ± .71	3.27 ± .71	2.135	.017
Stress	1.44 ± .64	1.48 ± .71	-0.497	.310

With respect to marital status, statistically significant differences were found between married and single people regarding the psychological, social relations, and environmental domains of quality of life. In addition, a statistically significant difference at the 5% significance level is found regarding happiness with respect to marital status. Accordingly, the quality-of-life (i.e., psychological, social relations, environment) and happiness levels of married people were found to be higher than those of single people. Table 6 present the results from the F-test with respect to perceived economic status.

A statistically significant difference was found at the 1% significance level regarding all the domains of quality of life with respect to perceived economic status. Accordingly, quality of life in relation to its physical, psychological, social relations, and environmental domains is higher for those who perceive their economic status to be high compared to those who perceive their economic status to be poor or moderate. In addition, a statistical difference at the 1%

Table 6. *The Results of the F-Test With Respect to Perceived Economic Status*

Scales	Low	Moderate	High	F	p	Post Hoc*
Physical	62.26 ± 20.81	66.11 ± 16.57	73.40 ± 14.32	6.658	.002	L = Mod < H
Psychological	58.43 ± 22.32	59.61 ± 16.79	71.22 ± 17.99	8.865	.000	L = Mod < H
Social Relations	57.61 ± 23.60	59.96 ± 19.39	68.47 ± 16.46	5.148	.007	L = Mod < H
Environment	50.58 ± 17.49	58.70 ± 15.48	70.17 ± 14.70	24.315	.000	L < Mod < H
Happiness	3.25 ± .76	3.27 ± .68	3.67 ± .63	7.536	.000	L = Mod < H
Stress	1.60 ± .71	1.43 ± .65	1.33 ± .65	2.764	.065	-

*Tukey; L = Low; Mod. = Moderate; H = High

significance level was found regarding happiness with respect to perceived economic status. The happiness levels of those who stated having a high economic status were found to be higher than those perceive their economic status as poor or moderate.

Analyzing the Mediation Effect

At this stage, the study conducts mediation tests in order to test the hypotheses by separately considering the domains that make up quality of life. The mediation effect was tested using Mediation Model 4 in the Process Macro program (Hayes, 2018). The number of resamples (bootstrapped) was taken as 5.000 at a 95% confidence interval. Table 7 presents the results from the mediation analyses for all domains.

Table 7. *Mediation Tests*

Paths	Std β	β	*SE*	95% CI	*p*	R^2
Stress → Happiness	-0.413	-0.437	0.066	[-0.566, -0.307]	0.000	0.17
Stress → Physical	-0.058	-1.555	1.521	[-4.552, 1.443]	0.308	
Happiness → Physical	0.623	15.634	1.437	[12.800, 18.467]	0.000	0.42
Stress → Happiness →Physical	-0.257	-6.825	0.042ǂ	[-0.337, -0.176]§	-	
Stress → Psychological	-0.004	-0.120	1.317	[-2.716, 2.476]	0.927	
Happiness → Psychological	0.799	22.042	1.245	[19.588, 24.496]	0.000	0.64
Stress → Happiness →Psychological	-0.330	-9.623	0.047ǂ	[-0.416, -0.232]§	-	
Stress → Social	0.056	1.695	1.746	[-1.747,5.138]	0.332	
Happiness → Social	0.665	19.087	1.651	[15.832, 22.341]	0.000	0.41
Stress → Happiness →Social	-0.274	-8.332	0.046ǂ	[-0.362, -0.183]§	-	
Stress → Environmental	0.024	0.622	1.531	[-2.396, 3.640]	0.685	
Happiness → Environmental	0.633	15.585	1.448	[12.731, 18.438]	0.000	0.39
Stress → Happiness →Environmental	-0.261	-6.804	0.043ǂ	[-0.349, -0.177]§	-	

ǂ Bootstrap standard error (BSe); § Bootstrap confidence interval (BCI)

When analyzing Table 7, stress is seen to statistically significantly affect happiness inversely (Std β=-0.413). In addition, 17% of the total variation in happiness is explained by stress alone.

When considering the physical domain of quality of life, stress was found to have no direct effect in the model. However, a significant indirect effect was found through happiness (β=-6.825; 95% CI [-0.337, -0.176]). Here, the fully standardized effect size of the mediation effect is seen to be η^2 = -0.257, thus revealing a high effect. In addition, the effect of happiness on the physical domain was found to be in the same direction and statistically significant. The model explains 42% of the total variance in the physical domain score.

When taking the psychological domain of quality of life into consideration, stress was not found to have any direct effect in the model. However, an indirect and significant effect was found through happiness (β=-9.623; 95% BCI [-0.416, -0.232]). When examining the standardized beta value here, the effect size is seen to be η^2 = -0.330. This value shows happiness to have a high effect. In addition, the effect of happiness on the psychological domain was found to be in the same direction and statistically significant, with the model explaining 64% of the total variance in the psychological domain score.

When analyzing the model that was established for the social relations domain, stress was found to have no direct effect, while happiness was found to have a direct effect. In addition, the model with the indirect effect was found to be

statistically significant (β=-8.332; 95% BCI [-0.362, -0.183]), with the model explaining 41% of the total variance in the social relations domain variable.

Again, no direct effect was found from stress in the model created for the environment domain. This model found happiness to found to have a full mediation effect. The fully standardized effect size of the mediation effect is η^2=-0.261. Through the established model, 39% of the total variance in the environmental domain score is seen to be explained by stress and happiness.

According to all the analysis findings, happiness is seen to mediate the relationship between stress and all domains of quality of life. In other words, stress is concluded to have an indirect effect on all domains of quality of life. In light of these results, all of the research hypotheses except H3 are found to be supported.

Discussion and Conclusion

According to the analysis results, no difference has been found between males and females regarding quality of life, happiness, and stress levels. This finding for quality of life coincides with the findings from the studies conducted by Caron et al. (2005) and Shafie et al. (2021). Fontana et al.'s (1993) study also found no statistically significant difference between stress and gender. In addition, Hudson and O'Regan (1994), Matud (2004), and Bayram and Bilgel (2008) found women to be more stressed than men. With respect to marital status, the current study has concluded married individuals to have higher levels for the psychological, social relations, and environmental domains and for happiness compared to single individuals. Individuals who stated having a high economic status were found to have higher levels of happiness and quality of life in all domains compared to those who stated having a poor or moderate economic status. Stack et al.'s (1998) study concluded married people to be happier, and Brakus et al. (2022) also found a positive relationship between perceived income and happiness. The results obtained from the current study can therefore be said to generally coincide with the literature.

Understanding which factors mediate happiness is important (Wesarat et al., 2014). The mediation test results from the current study show happiness to be able to improve individuals' quality of life by decreasing their perceived stress. For this reason, increasing and improving happiness can be considered an effective parameter for controlling individuals' stress levels. Moreover, in order to improve individuals' quality of life, paying attention to and understanding the factors that affect happiness are important.

Dehghan et al. (2020) conducted a path analysis of mindfulness using the variables of perceived stress and quality of life in cancer patients. They concluded perceived stress to affect mindfulness and mindfulness to play a mediating role. Meanwhile, the current study has concluded happiness to play a mediating role in the relationship between perceived stress and quality of life.

Bitsko et al. (2008), Santos et al. (2018), and Ferrer-Cascales et al. (2019) all found happiness to have a direct positive effect on quality of life, with their obtained findings overlapping with the results of the present study. At the same time, the current study has shown individuals with higher happiness levels to have lower perceived stress levels. Cohen-Louck and Levy (2023) stated individuals' happiness levels to be negatively related to their stress, and this result has been verified in several other studies (Park, 2014; Poormahmood et al., 2017; Kyoung Hwang & Lee, 2018; Yang et al., 2018; Tan et al., 2019). These findings emphasize the significance of happiness in decreasing individuals' stress levels.

This study found an indirect negative effect between stress and quality of life. Meanwhile, Yan et al. (2022) study found a direct negative effect between stress and quality of life. In addition, the studies by Delgado (2007), Bhandari, (2012), and Ribeiro (2018) found a negative relationship between stress and quality of life. These results coincide with those of the present study.

As suggested, the results show individuals' happiness to be able to buffer the effect of perceived stress on quality of life. In other words, as stressed individuals' happiness increases, so does their quality of life. The study's results may reveal how happiness can improve individuals' quality of life, with the results indicating that happier individuals are able to focus on existing problems and eliminate negative thoughts, which in turn reduces perceived stress and leads to an increase in quality of life.

As a result, this study has found happiness and perceived stress to affect individuals' quality of life and concluded happiness to directly affect quality of life and perceived stress to indirectly affect quality of life. In other words, happiness directly affects individuals' quality of life and plays a mediating role in stress' effect on quality of life.

The study's findings suggest that high levels of happiness have an important role in reducing individuals' stress and improving their quality of life. When considering the direct mediating role of happiness, the study suggests the use of happiness-enhancing practices to reduce some negative outcomes from things such as stress in individuals' lives.

This study has some limitations. One, it was conducted with a single sample. In other words, because it is a cross-sectional study, it does not reflect long-term effects. Meanwhile, the sample was obtained online using the convenience sampling method, and the sample also consists of individuals with a high level of education. Therefore, the obtained results have been evaluated within the scope of this sample. These limitations indicate that care should be taken when applying the study's findings to the general population. Future studies are also recommended to apply the conceptual model to different samples.

Ethics Committee Approval: The study was approved by the Fenerbahçe University Ethics Committee (Approval No. 2023/8-2).

Informed Consent: The participants were first allowed to see the interview form, and interviews were conducted only if they provided their consent.

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ORCID :

Serpil AYTAC 0000-0001-6659-4639
Nuran BAYRAM-ARLI 0000-0001-5492-184X
Mine AYDEMİR DEV 0000-0003-3276-8148

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Research Article

Role of Green Taxes on Economic Growth Goals of Sustainable Development Directly and Through Environmental Performance: A System GMM Approach*

Gülçin KAYA İNCEİPLİK[1], Onur ŞİMŞEK[2]

[1]Dr., (PhD) Istanbul University, Department of Economics, Istanbul, Türkiye
[2]Lecturer, Kastamonu University, (PhD Candidate) Istanbul University, Department of Economics, Kastamonu, Türkiye

Corresponding author : Gülçin KAYA İNCEİPLİK
E-mail : gulcinkaya85@gmail.com

*This study is an extension of the abstract paper titled "Green Taxes for the Economic Goals of Sustainable Development: Dynamic Panel Data Analysis Through Environmental Performance," which was presented at The Second International Istanbul Economics Research Conference, Faculty of Economics-Istanbul University, on November 25th, 2022.

ABSTRACT

Based on the UN's Millennium Development Goals, the Sustainable Development Goals (SDGs) are a global call to action that have led to structural changes in the means and objectives of countries' economic policies since 2016. This study examines green tax policies that are crucial for achieving environmental goals and analyzes the impact thereof on economic goals. The role of green taxes in sustainable development is determined by analyzing the data of 32 selected Organisation for Economic Co-operation and Development (OECD) countries for 2000–2019 with the system generalized method of moments (GMM) approach. The model indirectly focuses on CO emissions per capita and econometrically analyzes the impact of green tax revenues on the growth rate of real GDP per capita. Moreover, this study was evaluated in light of the double dividend debate. The study results suggest that green taxes contribute to environmental efficiency and offer empirical evidence on economic sustainability indicators. Furthermore, as the ratio of green tax revenues in GDP increases in the selected countries, the economic goals of sustainable development are closer and the positive effect increases as the CO_2 amount per capita decreases. In conclusion, harmonizing the basic principles of environmental policies with fiscal policies is crucial for combating environmental problems and for national economies.

Keywords: Sustainable Development, Green Taxes, Double Dividend, System GMM

Jel Codes: C01, H23, Q01

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1. Introduction

In a world with limited resources, reconciling current and future needs is imperative for the continuity of generations from an integrated perspective (UNECE, 2009: 21). Thus, the necessity of a sustainability approach to protect the integrity and diversity of nature brought governments and non-governmental organizations together under the International Union for Conservation of Nature (IUCN) in 1948 and constituted the first step in the development of the concept of sustainability (IUCN, 2022; ADB, 2012: 1). Sustainable development stems from the 1972 United Nations Conference on the Human Environment, where it received its first major international recognition (SDC, 2022). As a concept, it gained momentum with the publication of the 1987 Brundtland Report by the World Commission on Environment and Development and the establishment of the UN Commission on Sustainable Development in 1992 (Segger Marie-Claire & Khalfan, 2004: 15). Prior to signing of the Paris Agreement, politicians called for gradual progress in areas that were considered less politically damaging, such as clean technology and the polluter pays principle. This was based on the idea that the political consequences of various issues, such as controlling consumption, reducing the rate of population growth, and turning to renewable energy, could be damaging (Goodland, 1995: 13-14).

The Brundtland Report emphasizes that by meeting the needs of the present without compromising the ability of future generations, development would become sustainable. In this context, development will be sustainable within the limits of the ability of social organizations, technology, and the ecosystem to absorb human activities. Thus, sustainable development is a process of change in which resource use, technological development, investment, and institutional transformation act in harmony. If humanity could consider the impact of its actions on others, we could talk about sustainable development without absolute limits. Therefore, governments need to ensure isolation through laws, taxes, subsidies, education, etc. (Brundtland, 1987). Functioning as a milestone, the report led to global acceptance of the concept of sustainable development, with many countries focusing on these principles in their policymaking and strategic planning. The report emphasized a holistic approach that included economic growth alongside environmental protection and social justice.

The Brundtland Report laid the foundation for various international efforts, such as the Rio Conference (UN, 1992), the "Millennium Declaration on Sustainable Development" adopted in 2000, and the "Sustainable Development Goals" (SDGs) adopted in 2015. These efforts led to the emergence of today's green economy concept by clarifying SDGs and calling for action at the global level. Today, green taxes are integral in achieving SDGs by supporting climate and energy policies in the fight against climate change, reducing greenhouse gas emissions and promoting a cleaner environment. Green taxes, or environmental taxes, refer to taxes on energy, transportation, pollution, and resources (Taxation and Customs Union EC, 2022). Green taxes are both a form of government intervention to reduce costs imposed on others that are not taken into account by those taking action, such as the Pigou tax, and an important tool for achieving SDGs, such as promoting renewable energy investments (OECD, 2001).

As demonstrated by the upcoming literature review, studies on sustainable development and green taxes focus more on countries' environmental performance. However, economic goals are as important as environmental goals in sustainable development. The fiscal policies of countries help in achieving economic goals. Recently, whether green tax policies are an important driving force in achieving the economic goals of sustainable development such as, "decent work and economic growth" has become a topic of debate. In this direction, studies are directly related to growth and employment rather than development. Some of these studies have been defended with the double dividend argument, which claims that green taxes can have a positive impact on combating environmental problems as well as growth and employment. However, limited studies have examined these possible effects of green taxes with empirical evidence. In fact, econometric studies investigating this integrated relationship have been even more limited. Hence, this study econometrically analyzes the extent to which green tax revenues in selected countries in the Organisation for Economic Co-operation and Development (OECD) influence sustainable economic growth directly and through environmental performance. Unlike prior limited studies, an innovative dimension of this study is that it focuses on variables representing the economic dimension of sustainable development (e.g., annual growth rate of GDP per capita) rather than macroeconomic variables representing employment and direct growth (e.g., unemployment, GDP, and GDP per capita). Furthermore, the indirect inclusion of CO_2 per capita in the econometric model—one of the factors determining the environmental performance of countries—will enable the study to be evaluated from a different perspective regarding the double dividend theory. Moreover, sustainable development has become an important and urgent issue for countries to take action in their fields of practice as well as in the literature. Therefore, the evaluation of a development strategy based on the harmonization of sustainable growth targets and environmental policies via empirical studies will guide countries in developing policy measures.

With these objectives, the study comprises four sections. In the introduction section, the study's purpose and economic

importance are emphasized. Further, brief preliminary information regarding the study is provided by distinguishing it from other studies and emphasizing its contribution to the literature. The literature review subsequently examines the limited empirical literature on the study subject. The third section presents the study's methodology, econometric model, and findings. Finally, in the conclusion section, the study findings are interpreted by comparing the literature, and the importance of the study is emphasized.

2. Literature Review

The relationship between green taxes and sustainable development represents an important point in how environmental policies can achieve a balance between economic growth and environmental sustainability. From a literature perspective, theoretical and empirical studies on this relationship has developed over the last 30 years. However, these studies have mostly focused on the impact of green taxes on SDGs such as clean water, clean air (SDG 6), and clean energy use (SDG 7) (Larsen & Nesbakken, 1997; Baranzini, Goldemberg & Speck, 2000; Andersen, 2004; Aldy, Ley & Parry, 2008; Lin & Li, 2011; Jeffrey & Perkins, 2013; Jeffrey & Perkins, 2015; Fernando, 2019).

Reaching a consensus in the literature on the role of green taxes on the economic dimension of sustainable development is difficult. Some studies argue that environmental taxes may adversely affect economic growth by causing cost increases and emphasize that economic activity suffers from green tax practices due to the constraints created by environmental regulations, especially on the production side. While studies in this direction have shown that taxes have negative effects on macroeconomic indicators (Mcdougall, 1993; Van Der Ploeg & Ligthart, 1994; Siriwardana, Meng & Mcneill, 2011), other studies have argued that green taxes contribute to environmental protection objectives while also contributing to non-environmental welfare (e.g., growth and employment) by reducing pre-existing tax distortions. For instance, Tullock (1967), being the first to put forward this argument, argued that green taxes can bring various economic gains by reducing other distorting taxes and creating a more efficient tax system without creating an excessive burden like other taxes. This hypothesis, which is also known as the double dividend argument and first accepted as a theory with Pearce (1991), has been tested since the 1990s by using simulation scenarios and a few regression techniques based on these simulation studies rather than econometric modeling due to the difficulty of accessing macroeconomic data. Pearce's theory refers to an approach that suggests that a two-tiered benefit can be achieved by the imposition of environmental taxes.

- The first is environmental benefit:
  The main purpose of policies such as environmental tax practices is to increase environmental quality by reducing pollution and protecting natural resources. Green taxes promote using environmental resources in a more sustainable way by internalizing environmental costs.
- The second is economic benefit:
  Green tax practices may also be economically beneficial. Specifically, green taxes can minimize economic losses due to environmental degradation by internalizing environmental costs and directing economic agents toward cleaner and increasingly efficient production and consumption methods, thereby contributing to the sustainability of economic growth.

Pearce's double dividend theory has led to similar approaches to assessing the environmental and economic impacts of green taxes. Andre, Cardenete & Velázquez (2005), Bosquet (2000), Goulder (1995), Markandya, González-Eguino & Escapa (2012) and Maxim, Zander & Patuelli (2019) have investigated the positive secondary effect of taxes by focusing on employment and unemployment. Furthermore, Andersen et al. (2007) and Ricci (2007) have examined the empirical and theoretical support for the hypothesis by focusing on growth. These studies have explored whether green taxes can reduce environmental impacts and bring about a positive change in macroeconomic factors.

Majority of the aforementioned studies debate whether environmental taxation improves the environment and generates increased employment. The debate on whether taxes lead to gains in achieving development goals remains relatively weak in the literature. As a result of the literature review, among the econometric studies directly related to the subject of this study, Morley and Abdullah's (2014) study, which used panel cointegration and error correction techniques alongside the Granger causality approach for 25 European Union (EU) countries across 1995–2006, provides evidence that environmental taxes have no effect on economic growth in the long run but increase it, albeit slightly, in the short run.

Although not directly related to this study, another econometric study on similar topics, He et al. (2019), employed the unit root, cointegration, and Granger causality tests to investigate the impact of environmental taxes on economic and environmental performance in 36 OECD countries between 1994 and 2014 using the panel ARDL model. The results determined a long-term cointegration relationship between environmental taxes and GDP, unemployment rate,

greenhouse gas emissions, nitrous oxide emissions, and sulfur oxide emissions. However, it failed to offer evidence that environmental taxes reduce GHG emissions and unemployment.

Another empirical study analyzed the relationship between environmental taxes and economic growth in 28 EU countries from 1994 to 2018 (Mirovic, Kalas & Milenkovic, 2021). Based on panel data analysis, the revenue from environmental taxes was concluded to have a statistically significant and positive effect on the GDP ratio in the long run.

All these studies demonstrate that green tax policies can positively or negatively affect economies, both directly and indirectly. Unlike the aforementioned studies, this study focuses on sustainable economic growth indicators based on the theme of "decent work and economic growth" (SDG 8) in achieving SDGs instead of using the concept of growth. Furthermore, it includes the aim of "making economic growth sustainable per capita in accordance with national circumstances" (SDG 8.1) in the subtargets. Moreover, the research model, including the 13th SDG, entitled "Climate Action," is linked indirectly with the objective of "integrating climate change measures into national policies, strategies, and planning" (SDG 13.2), underlying this main goal. The inclusion of the annual growth rate of real GDP per capita (SDG 8.1.1), which an indicator of sustainable growth and indirectly the environmental performance values of countries (CO_2 emissions per capita; SDG 13.2.2) in the econometric model will enable the study to be evaluated from an innovative perspective regarding the double dividend hypothesis.

3. Methodology and Findings

3.1. *Data Set and Hypotheses*

This study analyzes the impact of green tax practices on sustainable development using a panel data set. The selected OECD countries cover 2000–2019 and include the countries' annual data. Table 1 presents the variables used.

Table 1. Identification of Variables

Code	Description	Type	Source
gg	Annual growth rate of real GDP (per capita)	Dependent	OECD https://stats.oecd.org/Index.aspx
sgdp	Environmentally related tax revenue as a share of each country's GDP	Independent	OECD https://stats.oecd.org/Index.aspx
oecd_c	Based on CO_2 emissions per capita (tonnes), it is given for countries below the OECD (European Region) average (value 0), for countries above it (value 1)	Dummy	It was created with data obtained from the OECD dataset on greenhouse gas emissions. https://stats.oecd.org/Index.aspx
sgdp_oecd_c	Based on sgdp and oecd_c variables	Interaction term	Created in the STATA program

Alongside the above dependent and independent variables, a derivative hypothesis was formed with the dummy variable and interaction term created in the model. The main hypothesis examines the following.

"Whether the ratio of green tax revenues to GDP has an effect on the annual growth rate of real GDP per capita."

Meanwhile, the derivative hypothesis seeks to answer the following.

"If this effect exists, whether this effect differs in countries with CO_2 emissions per capita below or above the OECD average."

Since almost 80% of the countries covered in the study are from Europe, the data averages are based on the average of the OECD European region. The data on the countries' per capita CO_2 emissions throughout the analysis period are shown in Figure 1. When the countries that emitted CO_2 emissions below the OECD average between 2000 and 2019 are analyzed, Latvia, Lithuania, and Turkey top of the list, followed by Sweden, Hungary, Portugal, France, Switzerland, Spain, Slovakia, Iceland, and Italy. However, the countries that emit more CO_2 than the OECD average are the developed countries, particularly the United States, Australia, and Canada (see Figure 1).

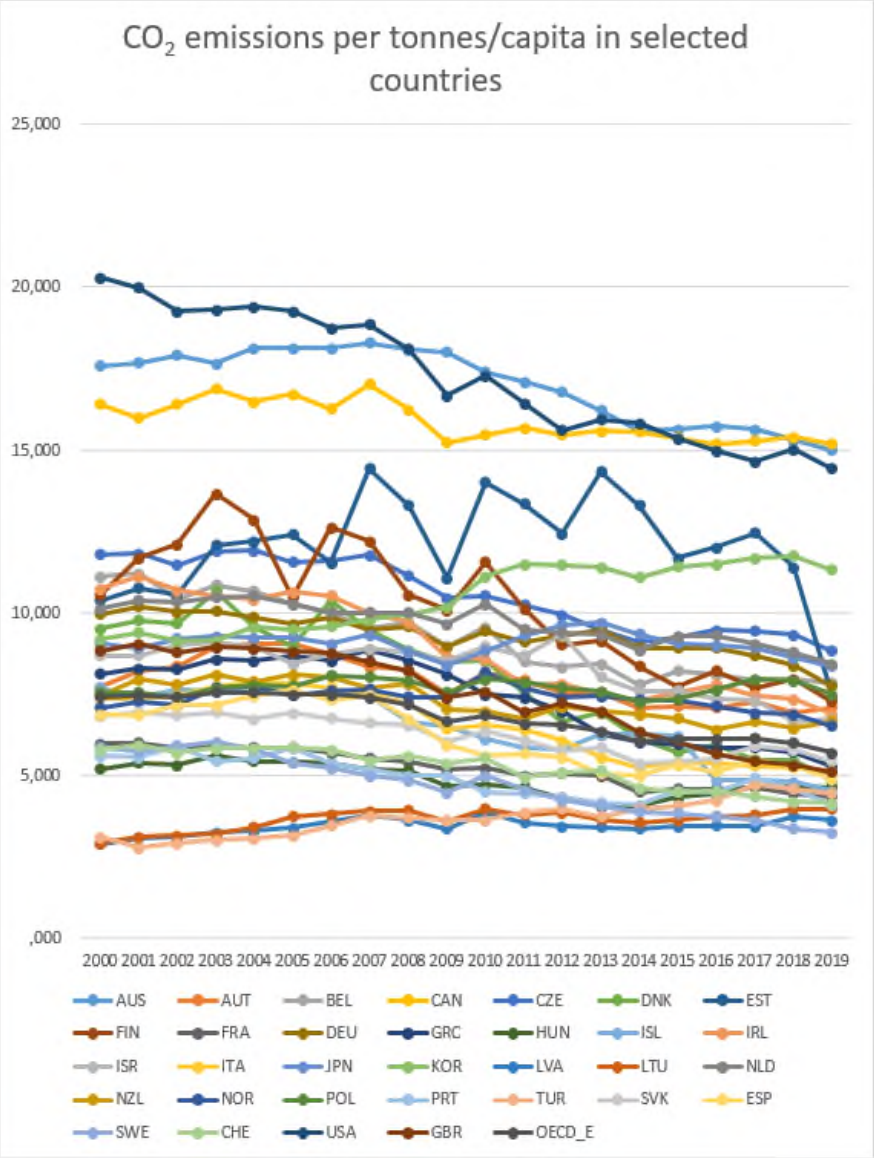

Figure 1. CO_2 emissions per capita in OECD countries between 2000 and 2019

3.2. *Method and Econometric Model*

Compared with static panel data models, dynamic panel data models analyze economic relations by incorporating the lagged values of variables as explanatory factors (Yerdelen Tatoğlu, 2020: 115).

Autoregressive panel data models come to mind when dealing with dynamic models. In this study, the autoregressive panel data model in which the lagged values of the dependent variable are included as independent variables is preferred. Numerous estimators are used in autoregressive panel data models and various methods are proposed to obtain consistent estimates. Several criteria need to be considered in choosing these estimators. The first criterion is the presence or absence of autocorrelation in the error term. Another criterion is whether the independent variables have endogeneity issues. Finally, the values of N and T might offer guidance regarding the preferred method (Yerdelen Tatoğlu, 2020: 155). Thus, this study employs a two-stage system generalized method of moments (GMM) estimator, which is a dynamic panel data analysis method. It is one of the most efficient methods used in unbalanced panel data models and when $T < N$, particularly for small samples. In response to the difference GMM approach's significant weaknesses, the approach developed by Arellano and Bover/Blundell and Bond by introducing forward orthogonal deviations for the loss of observations in unbalanced panel data provides more consistent estimates than most estimators (Arellano & Bover, 1995; Blundell & Bond, 1998; Bond, Hoeffler & Temple, 2001). Accordingly, the system GMM approach is

preferred, and the following econometric model is used to analyze the impact of green taxes on sustainable development.

gg_{it}= Annual growth rate of real GDP (per capita)
α_0= Intercept term in the model
β_0= Coefficient associated with the lagged dependent variable (gg_{it-1})
β_1= Coefficient associated with the environmentally related tax revenue($sgdp_{it}$)
β_2= Coefficient associated with the dummy variable ($oecd\_c_{it}$), which is based on CO_2 emissions per capita
β_3= The coefficient associated with the interaction term ($sgdp\_oecd\_c_{it}$), which is the product of (sg) and ($oecd\_c_{it}$). This interaction term allows for the possibility that the impact of environmentally related tax revenue on economic growth may depend on whether a country is above or below the OECD average in CO_2 emissions per capita.
ε_{it}= Error term

$$gg_{it} = \alpha_0 + \beta_0 gg_{it-1} + \beta_1 sgdp_{it} + \beta_2 oecd\_c_{it} + \beta_3 sgdp\_oecd\_c_{it} + \varepsilon_{it} \qquad \text{(Model 1)}$$

Considering the availability of data for the variables in Model 1, data from the OECD countries in Table 2 were included in the analysis.

Table 2. Countries Included in the Model

USA	France	Turkey	Belgium	Finland	S. Korea	Norway
UK	Netherlands	Austria	Denmark	German	Ireland	New Zealand
Italy	Canada	C.Republic	Greece	Slovakia	Portugal	Poland
Japan	Iceland	Letonia	Spain	Estonia	Lithuania	Sweden
	Israel	Hungary	Switzerland	Australia		

The numeric data of the variables for the countries in question are simply defined in Table 3.

3.3. *Findings*

Table 3 presents that the number of observations for the annual growth rate of real GDP per capita and the dummy variable for countries with CO_2 emissions per capita above and below the OECD average is 640, while the number of observations for the ratio of green tax revenues to GDP is 625. Therefore, model's estimation is based on an unbalanced panel data set. The mean value of the annual growth rate of real GDP per capita, which is the dependent variable, is 1.97015. Moreover, its standard deviation, minimum value, and maximum value are 3.212743, -14.45649, and 24.02172, respectively. The average value of the ratio of green tax revenues to GDP, which is the independent variable, is 2.42466663. Its standard deviation, minimum value, and maximum value are .7339901, .5644765, and 5.095356, respectively. The mean value of the oecd_c dummy variable, which is based on the per capita CO_2 emissions of the countries, is .625. Further, its standard deviation, minimum value, and maximum value are .4845016, 0, and 1, respectively.

Table 3. Descriptive Statistics of the Data Set

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
gg|	640	1.97015	3.212743	−14.45649	24.02172
sgdp |	625	2.424663	.7339901	.5644765	5.095356
oecd_c|	640	.625	.4845016	0	1

To ensure the accuracy of the econometric model's estimation, the presence of multicollinearity among independent variables should be analyzed. Therefore, the relationship between the independent variables is presented in Table 4.

Based on the correlation matrix, although there is a statistically significant relationship between the independent variables, there is also a negative correlation of 4%. Since the mean variance inflation factor has a value less than 5 or 10, there is no multicollinearity problem among the explanatory variables (Menard, 2001: 76).

Table 4. Correlation Matrix and VIF Criteria

	Sgdp	oecd_c	VIF	1/VIF
sgdp	1.000		1.00	0.997955
oecd_c	−0.0452	1.000	1.00	0.997955
			Mean VIF	
			1.00	

Consequently, the two-stage system of the GMM method was employed in the econometric model established by considering the characteristics of the variables within the scope of the analysis and their relationships. Table 5 presents the model estimation results.

Considering the model estimation results presented below, checking the assumptions are necessary. The independent variables are found to be significant in explaining the dependent variable when the Wald test result is first analyzed. Subsequently, when the Sargan test results are analyzed to determine whether the instrumental variables create endogeneity problems, the instrumental variables are found to be exogenous. Furthermore, the presence of first-order negative autocorrelation is confirmed in the model as expected, while second-order autocorrelation is absent. Finally, when the number of instrument variables is examined, the number of instrument variables (31) is, as expected, less than the unit size (32).

Thus, the findings of the two-stage system GMM estimation method suggest that the lagged values of the dependent, independent, and dummy variables as well as the interaction term are statistically significant. Table 5 shows that a single unit increase in the ratio of green taxes to GDP results in an increase of approximately 1.2 units in the annual growth rate of real GDP per capita. This positive effect is higher in countries with carbon per capita below the OECD average (see Figure 1). Furthermore, considering the effect of the dummy variable, the annual growth rate of real GDP per capita is higher in countries with CO2 emissions per capita above the OECD average (see Figure 1).

Table 5. Model Estimation Results

Variables	Coef.
gg(−1)	0.1092619 (0,000)*
sgdp	1.258018 (0,000)*
oecd_c	9.505221 (0,000)*
sgdp_oecd_c	−3.466508 (0,000)*
Key Assumptions	
Wald	χ^2 (8) = 13846.67 (0,000)*
Sargan	χ^2 (23) = 27.23811 (0.2460)*
AR(1)	z = − 2.6953 (0.0070)*
AR(2)	z = 0.45306 (0.6505)*
Number of Instruments	31
N	32

Note. The two-stage system GMM estimator of Arellano and Bover/Blundell and Bond was used. All results show statistical significance at the 1% level. *Values in parentheses are probability values.

Both green taxes and the indirect low level of CO2 emissions positively affect sustainable growth rates. In this respect, when the effect of the interaction term found by multiplying CO2 emissions and green tax revenues is analyzed, the green taxes paid by countries with high carbon emissions (as seen in Figure 1) slow down the sustainable growth rate. Essentially, the effect of green taxes on sustainable growth rates increases positively as CO2 emissions per capita decrease. The findings are expressed in Figure 2.

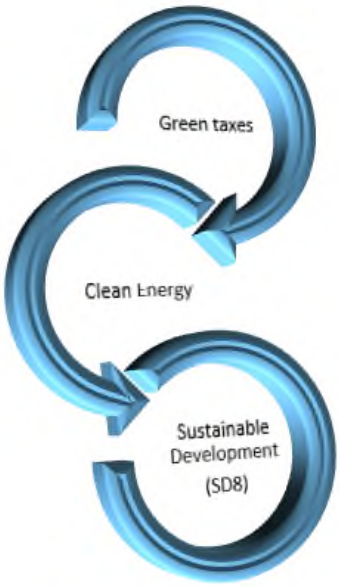

Figure 2. Summary of the econometric model

4. Conclusion

This study aimed to analyze the role of green taxes on sustainable development from an economic perspective and by indirectly including the environmental performance of countries. Thus, the system GMM approach was used. The effect of green taxes on the growth rate of annual GDP per capita, representing the economic aspect of sustainable development, was positively confirmed. Moreover, the amount of CO_2 emissions per capita in the countries indirectly included in the analysis changes the contribution of green taxes to sustainable growth. Thus, green taxes contribute more to sustainable growth with lower emissions. According to these results, the hypothesis of the double dividend theory—green taxes provide double dividends—is indirectly supported by this study. Consequently, the double dividend theory, which entered the literature through Pearce (1991), is also supported by the study's empirical findings. Moreover, green tax policies, which are mostly associated with clean water, air (SDG 6), and energy use (SDG 7) goals in the literature (Larsen & Nesbakken, 1997; Baranzini et al., 2000; Andersen, 2004; Aldy et al., 2008; Lin & Li, 2011; Jeffrey & Perkins, 2013; Jeffrey & Perkins, 2015; Fernando, 2019), are linked to the "economic growth" and "climate action" subtarget indicators in this study to reveal their contribution to SDGs. The study findings reveal that efforts to reduce carbon footprint—one of the subtargets (SDG 13.2)—are crucial factors that positively strengthen the impact of green taxes on a sustainable economy.

Fiscal policies that can enable a sustainable life in the present urgency of environmental measures have become a requirement rather than a preference. Therefore, based on the study results, including green energy in sustainable development objectives and implementing an optimal green tax policy will facilitate countries' achievement of sustainable growth. Hence, implementing a complementary tax system to achieve economic and environmental objectives will enable greater returns from both areas.

Future studies may focus on further examining the green tax policies of countries with CO_2 per capita below the OECD average and identifying examples of good practices. Specifically, studying Latvia, Lithuania, Turkey, Sweden, Hungary, Portugal, France, Switzerland, Spain, Slovakia, Iceland, and Italy could be fruitful. The fact that countries with worse environmental performance observe examples of good practice will further increase the contribution of green tax revenues to sustainable economies.

In conclusion, the hypothesis of this study can be re-evaluated using different variables and alternative analysis

methods that can represent the economic aspect of sustainable development and environmental policy instruments, including different country groups.

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ORCID :

Gülçin KAYA İNCEİPLİK 0000-0001-6181-4153
Onur ŞİMŞEK 0000-0003-2411-8655

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Research Article

Evaluating the Influence of Taxation Levels on the Degree of Economic Freedom of Countries

Yaroslava HLUSHCHENKO[1], Natalya CHERNENKO[1], Olena KOROHODOVA[1] and Tetiana MOISEIENKO[1], Kateryna MOSKVYCHOVA[2]

[1]Ph.D., Associate Professor, Department of International Economics National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" Kyiv, Ukraine
[2]Ph.D., Senior Lecturer, Department of Mathematical Analysis and Probability Theory, Faculty of Physics and Mathematics, National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" Kyiv, Ukraine

Corresponding author : Olena Korohodova
E-mail : o.korogodova@kpi.ua

ABSTRACT

The current phase of global economic growth is witnessing a convergence of interests among macro-level entities such as home countries, host countries, and third countries, associated with income and profit receipt. Concurrently, meso-level actors have emerged in the form of extensive cross-industry partnerships. Additionally, macro-level entities, such as international organizations, state associations, and supranational bodies, are playing a significant role. Considering that tax policies exert a substantial influence on a nation's economic dynamics, innovative activity, and competitiveness, assessing the impact of tax burden on the degree of economic freedom within countries is significant. This study aims to identify the ideal level of the tax burden, and its results have implications for various aspects of economic development. This research contributes to encouraging economic growth, fostering entrepreneurship and innovation, ensuring social justice, and improving the overall quality of life for the population. The model proposed in this study can be used for determining the ideal level of taxes (tax burden), thus striking a balance between societal and economic needs as well as the effect of taxation on economic freedom in a country.

Keywords: Tax, tax burden, international taxation, degree of economic freedom, exponential smoothing model

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1. INTRODUCTION

In the context of existing globalization and polarization trends across the world, the degree of economic freedom in a country influences and determines the types of its international economic relations. The degree of economic freedom in a nation can be significantly impacted by its tax burden. High taxes can discourage innovation and entrepreneurship, reduce worker and investor enthusiasm, and encourage tax cheating (Mankiw, Weinzierl, & Yagan, 2009) and unlawful activity. In contrast, low taxes can boost the economy, encourage entrepreneurship and investment, and promote employee engagement and innovation. However, low taxation can result in underfunding of the nation's socioeconomic initiatives, negatively impacting social justice and the standard of living of the general population. Therefore, the balance between economic needs and social obligations determines the ideal level of tax burden to ensure economic freedom in a country. While ensuring that the country has sufficient resources to meet its demands, it is crucial to avoid restricting entrepreneurship and investment through excessive taxation. There can be a considerable correlation between a country's degree of economic freedom and its level of innovation. A high degree of economic freedom typically engenders an atmosphere that is more conducive to innovation, facilitating the creation and application of creative ideas (Gwartney & Lawson, 2003).

One of the main economic factors influencing a country's progress is its tax burden. High taxes directly contribute to an increase in social inequality because they encourage illegal economic activity and negatively impact investment, innovation, and entrepreneurship. Research on the effects of tax burden on economic freedom can provide insights into how the tax system can be improved to attain the greatest possible level of economic development (Alesina & Ardagna, 2009). The ideal balance of economic freedom and tax burden may change depending on socioeconomic circumstances, political stances, and other influencing factors.

2. LITERATURE REVIEW, AIM, AND METHODOLOGY

The assessment of the impact of tax burden on the degree of economic freedom in countries is a pertinent and significant topic given that tax policies influence a nation's economic dynamics, innovative activity and competitiveness. Conducting research in this area aims to identify the ideal level of the tax burden, which has implications for economic development. This research promotes economic growth, fosters entrepreneurship and innovation, ensures social justice, and enhances the population's quality of life.

This study contributes to the literature by exploring the specific mechanisms and pathways identified in previous research (Hlushchenko, Korohodova, Moiseienko, & Chernenko, 2021). The current study expands previous findings by integrating new data sets, refining methodologies, and examining additional facets of the topic (Hlushchenko et al., 2023) to provide a more comprehensive analysis and understanding of the subject matter (Hlushchenko, Korohodova, Chernenko, & Moskvychova, 2024). This iterative approach strengthens the credibility of the current study and contributes to advancing the field theoretically.

Several scholars have assessed the scientific issues in determining tax burdens (e.g., Göktaş, 2023; Malikov & Abramova, 2012; Baranov, 2016; Brekhov & Korotun, 2015), providing theoretical and methodological ideas, new research techniques, tax burden schemes for corporate entities, and scheme implementation recommendations (Hretsa, 2016; Kovalenko, 2019; Koretska, 2011; Lingqi, 2021; Olihovskyi, 2012; Penno, 2021; Suprunenko, 2013). Despite this extensive research, some problems need to be addressed. In particular, it is necessary to study how tax burdens affect a country's degree of economic freedom. Considering details such as particular tax policies, processes, tariffs, institutional features, and international agreements based on cross-country comparisons, further research can expand our understanding of the impact of tax burden on the socioeconomic development of countries. Studies that consider these elements can have implications for social justice, economic development, innovative activity, and tax policy. Flawed and impervious tax burden systems obstruct the progress of branch entrepreneurship, restrain the expansion of competitiveness in external branch markets, and hamper the adoption of innovations and investments amidst a decline in entrepreneurial employment within the region (Lupenko, Andros, Lupenko, & Yarmolenko, 2021).

The current stage of the growth of the global economy is witnessing the convergence of the interests of macro-level entities (states - countries of registration; states - countries of implementation; states - countries receiving income, profits) with those of meso-level subjects, in the form of sizable cross-industry partnerships, and macro-level entities (international organizations, associations of states, and other supranational entities). Scholars have different views about the ideal level (load) of taxation. In the current context of dynamic economic and geopolitical development, it is important to substantiate the processes by which the tax burden develops as a component of the tax system, analyze its effectiveness and social impacts, and provoke debates on how to reduce it to the greatest extent possible while promoting sustainable economic growth and public welfare. One suggested measure is lowering taxes to boost entrepreneurship,

investment, and economic growth. Another measure involves tax progressivism, wherein wealthy individuals are made to pay greater taxes to promote social fairness and equitable income distribution. Additionally, the public good theory considers the particulars of taxation in relation to the supply of public goods and services that cannot be excluded from consumption and have the nature of collective consumption. It is employed in the framework of the theory of ideal taxation. The effective supply of public goods and mitigation of the effects of market externalities are considered when determining the ideal level of taxation. There are a number of optimal taxation theories in economics that consider current issues and trends. These include the "maximization of social welfare" hypothesis, which holds that the best amount of taxation maximizes social welfare for society while considering social fairness and the distribution of income in addition to economic factors. For example, Dogan and Secilmis (2020) observed that individuals who believe that the state should take more responsibility of citizens' lives have higher tax morale.

Consequently, previous research has examined patterns in the policy of tax burden distribution in highly industrialized nations (Beraldo, Passos, & Rister, 2023). The idea of tax burden has also been analyzed in depth by Hodovanets and Marshalok (2008), exploring its history and significance in the formation of the state's socioeconomic strategy. The tax burden factors into the nation's tax environment (Hrynkiv, Yu. & Hrynkiv, V., 2011). Each nation has its unique tax regulations and legislation. Managers of transnational corporations (TNCs) can use various strategies to lower their tax obligations. Transnational corporations can establish branches in countries with low tax rates or use tax treaties between countries to avoid double taxation and transfer profits to countries with low tax rates to count them as expenses.

The tax burden acts as a financial indicator that measures the value of tax deductions (Fradynskyi, 2010). This study uses the tax burden as a measurement indicator to examine and evaluate the level of efficiency of specific taxes or the tax system as a whole. There are various quantitative and qualitative methods for evaluating tax burden (Zhyvko & Rodchenko, 2020). Onufryk (2011) has provided a comparison of the base for calculating such a tax burden indicator using the gross domestic product (GDP) in Ukraine and gross national product in several developed countries, leading to a discrepancy in data interpretation. Others have suggested other methods for calculating the tax burden, including as a percentage of the budget's tax revenues to the total amount of private sector income, as the difference between the total budget's tax revenues and expenditures and transfers for maintaining the private sector, and as a share of tax budget revenues in GDP (Zhyvko & Rodchenko, 2020).

Due to a lack of a mechanism for calculating the amount of mandatory social contributions to extra-budgetary social funds, which belong to tax payments as they are of a compulsory nature, other researchers in the work (Fradynskyi, 2010) note the shortcomings of the current definition and calculation of the tax burden. They are created to fund existing obligations and lack the characteristics of direct equivalency.

According to Zhyvko and Rodchenko (2020), indices of income depend on how effectively taxes burden the economy and the capacity of tax authorities to collect legally mandated taxes. The authors confirmed that the ideal tax burden should be at 40%–42% of the GDP, although this claim is controversial. According to Podra and Stambulska (2022), Ukraine has a high tax burden in Europe, which negatively affects stable economic operations and business sector development. The tax burden in Ukraine was computed at 27.2% in 2021 (Podra & Stambulska, 2022) using the State Statistics Service of Ukraine's data. The amount of innovative activities, the scale of investments, and the level of tax burden rise as the tax burden is reduced. Both the macro level (for the state) and the micro level (for a person or a legal entity) can be used to estimate the tax burden's size. International tax planning can lower a single company's tax burden. The tax burden on a particular business might consequently have an impact on its profitability, competitiveness, innovation and investment activity. Within national borders, the tax burden serves as a quantitative indicator of the total amount of public goods the state provides. The level of consumption, investment, employment, R&D and general development are all influenced by the total amount of taxes placed on society.

To create successful tax regulation tactics, this study aims to investigate the impact of the tax burden on the degree of economic freedom within a country, considering both domestic and global factors.

This study analyzes recent research in the field, establishing a link between tax burden and the degree of economic freedom, developing and testing a model to identify the ideal tax structure, and fostering countries' economic growth.

This study uses data from the Organization for Economic Cooperation and Development, the World Bank, Forbes, the International Association of Tax Justice Network, and the Institute of Management Development. The theoretical and methodological basis of this research includes international taxation, tax planning, and economic theories. Further, we use the following methods: decomposition, scientific abstraction, and generalization are used to elucidate the conceptual and categorical apparatus of the tax burden; economic comparison and generalization are employed for assessing the tax burden of various countries; and multiple regression is conducted to build the exponential smoothing model (Hyndman, Koehler, Ord, & Snyder, 2008).

3. DATA, FINDINGS, AND FIELDWORK

Tax burden influences the degree of economic freedom in a nation (Ivanov & Nazarenko, 2010). According to a previous study (Cervello-Royoa, Devece, & Blanco-Gonzalez Tejero, 2023), economic freedom is the capacity of individuals and organizations to decide how to use their resources and how to conduct economic activities without governmental interference. The level of state control over the economy, the existence of market processes, conservation of property rights, and company regulation contribute to economic freedom. Countries with a high degree of economic freedom frequently have higher levels of success in luring investment to foster the introduction and growth of novel concepts, technologies, and goods. Government interference, inadequate protection of property rights, and other limits may hinder the growth of innovative activities in countries with a low degree of economic freedom.

Various aspects of a country's economic development affect its tax burden at different points in time (Hodovanets & Marshalok, 2008). Steady economic growth may lead to an increase in state spending. In Ukraine, the analytical divisions of the State Tax Service (Plans and reports of the State Tax Service of Ukraine, 2022) assessed the payment of taxes and fees using indicators such as the average tax burden in the industry as well as that in the nation as a whole, in the cross-section of regions, districts, and individual economic entities.

It is interesting to determine the relationship between a nation's tax burden and its degree of economic freedom with regard to previous findings. A high level of tax burden diminishes incentives for entrepreneurship, impedes the effective distribution of resources, and increases the level of state intervention in societal economic affairs according to an assumption made by the authors based on the cause-and-effect arguments presented above.

This study examines tax burdens in countries where some of the biggest transnational corporations are registered. As for the findings of Forbes in 2021, Figure 1 shows the spreading of the largest companies based on their country of establishment.

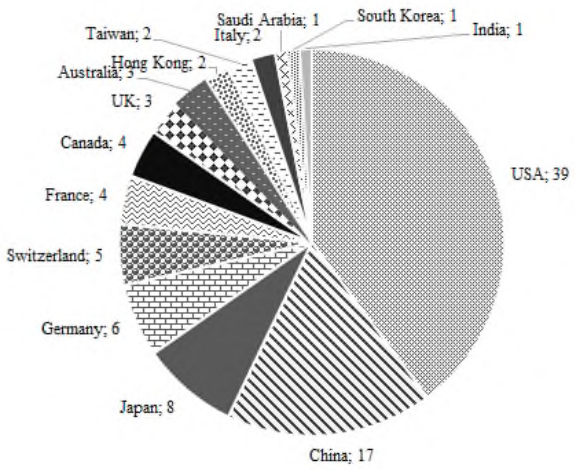

Figure 1. Distribution of the 100 largest companies in the world as per the Forbes Global 2000 rating for 2021

Source: Forbes Global 2000 Companies List (2021)

International scholars have demonstrated a strong connection between the operations of TNCs and various digital technologies, including the utilization of the Internet, e-commerce, Big Data analytics, blockchain, 3D printing, and artificial intelligence. These TNCs can be classified as digital multinational corporations. Their leading positions are interconnected with the technological breakthrough in the field of digitization, noted in the last decade in the countries of origin of TNC capital. When examining the positions held by these countries (World Ranking of Digital Competitiveness, 2019; World Ranking of Digital Competitiveness, 2020; World Ranking of Digital Competitiveness, 2021), of the countries listed in Figure 1, nine secured a place in the top twenty in both 2019 and 2021. In 2020, the number increased to ten (Table 1). According to Table 1, the United States secured the first place for three consecutive years. In 2021, Hong Kong moved from the fifth position in 2020 to the second. Switzerland maintained its sixth position in both 2020 and 2021. Other countries demonstrated considerable levels of digital competitiveness: South Korea fluctuated between the 12th and 8th positions throughout the study period, Taiwan ranged from the 13th to 8th place, and Great Britain improved from the 15th to the 13th position.

The tax burden is assessed as a percentage of the total taxes paid to the GDP (Kovalenko, 2019; Olihovskyi, 2012). Figure 2 illustrates the dynamics of this indicator for the studied countries between 2014 and 2020.

Table 1. Position of the studied countries in the World Ranking of Digital Competitiveness for 2019–2021

Country	2019		2020		2021	
	Place in the rating	Score	Place in the rating	Score	Place in the rating	Score
USA	1	100	1	100	1	100
Hong Kong	8	93,686	5	94,451	2	96,576
Switzerland	5	94,648	6	93,693	6	94,939
Taiwan	13	90,194	11	90,772	8	92,243
South Korea	10	91,297	8	92,252	12	89,724
Canada	11	90,836	12	90,482	13	87,31
United Kingdom	15	88,691	13	86,314	14	85,827
China	22	84,292	16	84,105	15	84,431
Germany	17	86,216	18	81,062	18	79,334
Australia	14	88,897	17	83,127	20	78,683
France	24	82,522	24	76,983	24	75,656
Japan	23	82,775	27	75,099	28	73,014
Saudi Arabia	39	69,036	34	67,910	36	64,349
Italy	41	67,903	42	60,911	40	61,767
India	44	64,952	48	54,836	46	55,126

Source: World Ranking of Digital Competitiveness, 2019; World Ranking of Digital Competitiveness, 2020; World Ranking of Digital Competitiveness, 2021

The data presented in Figure 2 reveals that the percentage of taxes to GDP in the studied countries remains below 25%, with the exception of Great Britain, which recorded a tax burden of 25.31% in 2017. France, Italy, and Australia demonstrate a tax burden ranging between 20%–25%. Among the countries with a tax burden ranging from 10% to 15%, is South Korea (with the exception of 2019 when the tax burden reached 15.2%), Canada, the USA, Germany, Taiwan, and India.

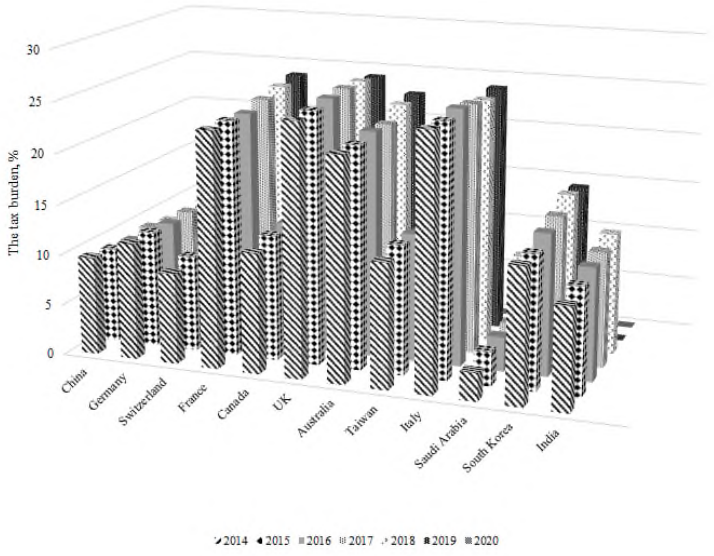

Figure 2. Dynamics of the tax burden of the studied countries for 2014–2020

Source: The World Bank (2023)

As illustrated in Figure 2, countries with a large number of corporations and relatively high levels of direct taxation establish a moderate tax burden indicator. This indicator is calculated as the ratio of total tax payments to GDP, suggesting a possible redistribution of the tax burden between legal entities and individuals.

The analysis reveals several key elements of taxation that corporations should consider when planning their ideal tax burden, while taking into account associated risks. These include the materiality of direct taxation, encompassing profit and capital, in both the countries of registration and of digital presence. The volatility of tax legislation and the adherence to principles of tax justice are important. This promotes economic growth, supports entrepreneurship and innovation, ensures social justice, and improves quality of life.

4. DISCUSSION AND CONCLUSION

The taxation system substantially influences the degree of economic freedom experienced by citizens and businesses in various countries (Markovich, 2006). Economic freedom encompasses the extent of unrestricted activity and mobility in the market that is free from significant governmental restrictions or interference. It includes aspects such as property rights, contract enforcement, entrepreneurial freedom, competition, regulation, and taxation. Economic freedom emphasizes the importance of limited government intervention, allowing businesses and individuals to make decisions regarding their financial and business affairs. It is essential for fostering sustainable economic growth, raising living standards, and ensuring societal prosperity. Countries with a high degree of economic freedom have strong economies, low unemployment, and high standards of living (About Tax Trap for the Ukrainian Economy, 2023).

4.1. EXPONENTIAL SMOOTHING MODEL

Among the time series models, ARIMA and exponential smoothing forecasting methods are popular methods in commerce, education, and finance (Ersöz, Güner, Akbaş, & Bakir-Gungor, 2022). Our analysis began by identifying nonstationarity within the data using the Dickey–Fuller test, prompting the search for alternatives to traditional ARIMA models. We harnessed exponential smoothing, an advanced time series forecasting technique useful for modeling trends and seasonality. This approach allowed us to capture the underlying trends within the nonstationary data and project forecasts for 2024. Through this process, this study gained valuable insights into forecasting.

Table 2. Forecast data of the future values of the index of economic freedom by country for 2024 based on the proposed model

Countries / Years	2019	2020	2021	2022	2023	IEF 2024
Australia	80,9	82,6	82,4	77,7	74,8	69,78
Canada	77,7	78,2	77,9	76,6	73,7	70,8
China	58,4	59,5	58,4	48	48,3	43,25
France	63,8	66	65,7	65,9	63,6	63,1
Germany	73,5	73,5	72,5	76,1	73,7	74.04
India	55,2	56,5	56,5	53,9	52,9	54.29
Italy	72,1	73,3	74,1	69,9	69,3	64,76
Japan	69,9	69,3	59,6	60,7	62,4	70,723
Saudi Arabia	60,7	62,4	66	55,5	58,3	58,44
South Korea	72,3	74	74	74,6	73,7	74,5
Switzerland	81,9	82	81,9	84,2	83,8	84,06
Taiwan	80,1	80,7	78	78,9	79,3	81,22
UK	78,9	79,3	78,4	72,7	69,9	66,7
USA	76,8	76,6	74,8	72,1	70,6	69,1

Source: Heritage Foundation (2023)

Based on Formula 1, the derived ratio provides a measure that captures the influence of tax burden on the degree of economic freedom.

$$\frac{TB}{IEF'} \tag{1}$$

where, IEF (Index of Economic Freedom) is the value of the index of economic freedom, in years, and *TB (Tax Burden)* is the level of tax burden in the country.

4.2. REPRESENTATIVE SPECIFICATIONS AND FORECAST

The ratio presented in Formula 1 provides insight into the extent to which taxation significantly influences the degree of economic freedom. The value of this ratio can indicate whether the tax system facilitates or hinders entrepreneurial activity and economic growth. A lower value of the tax burden–index of economic freedom ratio indicates more favorable conditions for economic development and greater economic freedom. The impact of the tax burden on the degree of economic freedom, as calculated using Formula 1, is displayed in Table 3.

Table 3. Change in the degree of economic freedom under the influence of tax burden (2019–2020)

2019	IEF	Tax Burden	Tax Burden/IEF	**2020**	IEF	Tax Burden	Tax Burden/IEF
Hong Kong	90,2	93,1	1,0	Hong Kong	89,1	93	1,0
Switzerland	81,9	70,5	0,9	Switzerland	82	70,1	0,9
Canada	77,7	76,8	1,0	UK	79,3	64,7	0,8
Taiwan	77,3	75	1,0	Canada	78,2	76,5	1,0
USA	76,6	74,6	1,0	Taiwan	77,1	75	1,0
Germany	73,5	60,8	0,8	South Korea	74	63,9	0,9
South Korea	72,3	64,2	0,9	Germany	73,5	60,9	0,8
Japan	72,1	68,2	0,9	Austria	73,3	51,3	0,7
Austria	72	50,5	0,7	Japan	73,3	68,3	0,9
France	63,8	48,4	0,8	France	66	48,8	0,7
Italy	62,2	55,6	0,9	Italy	63,8	56	0,9
Saudi Arabia	60,7	99,8	1,6	Saudi Arabia	62,4	99,8	1,6
China	58,4	70,4	1,2	China	59,5	70,4	1,2
India	55,2	79,4	1,4	India	56,5	79,4	1,4

Source: prepared by the authors.

The impact of the tax burden on the degree of economic freedom, as calculated using Formula 2, is presented in Table 4.

The research findings based on the proposed model confirm the influence of tax burden on the degree of economic freedom within a country (Tables 3 and 4). These results provide evidence of the interplay between taxation and economic freedom, demonstrating that changes in the tax burden affect the overall economic environment of a country.

High taxes have a negative impact on the country's economic growth and development, as demonstrated in previous research:

research by the International Monetary Fund revealed that a 10% increase in the tax burden led to a 0.5%–1% decline in economic growth (De Mooij & Keen, 2023);

the Organization for Economic Cooperation and Development showed that a 10% increase in the tax burden produced an increase of 1%–2% in the size of the shadow economy (Organization for Economic Cooperation and Development, 2022);

the World Bank demonstrated that a 10% increase in the tax burden resulted in a 2%–3% decline in investment volume (Ukrainian Pravda, 2018); and

research by the United Nations showed that a 10% increase in the tax burden caused a 1%–2% increase in social inequality (United Nations, 2021).

The results of this study show the significance of researching the impact of taxation on economic freedom. Such research allows for assessing the effectiveness of the tax code and reduction of tax risks, both of which support national economic growth.

Table 4. Changes in the degree of economic freedom under the influence of tax burden (2021–2023)

2021	IEF	Tax Burden	Tax Burden/ IEF	**2022**	IEF	Tax Burden	Tax Burden/ IEF	**2023**	IEF	Tax Burden	Tax Burden/ IEF
Switzerlad	81, 9	70,4	0,9	Switzerlad	84,2	70,1	0,8	Switzerland	83,8	70,6	0,8
Taiwan	78, 6	79,2	1,0	Taiwan	80,1	79,2	1,0	Taiwan	80,7	79,3	1,0
UK	78, 4	64,9	0,8	Canada	76, 6	75,7	1,0	Canada	73,7	75	1,0
Canada	77,9	76	1,0	Germany	76,1	59,9	0,8	Germany	73,7	60,2	0,8
USA	74, 8	76	1,0	South Korea	74, 6	60,4	0,8	South Korea	73,7	60,1	0,8
Japan	74,1	67,8	0,9	Austria	73, 8	45,5	0,6	Austria	71,1	45,7	0,6
South Korea	74	63	0,9	UK	72, 7	65,4	0,9	USA	70, 6	75,4	1,1
Austria	73,9	45,7	0,6	USA	72,1	75,9	1,1	UK	69, 9	65,4	0,9
Germany	72, 5	60,4	0,8	Japan	69, 9	67,4	1,0	Japan	69, 3	68,1	1,0
Saudi Arabia	66	99,1	1,5	France	65, 9	52,1	0,8	France	63, 6	52,9	0,8
France	65, 7	50,7	0,8	Italy	65, 4	57,7	0,9	Italy	62, 3	57,3	0,9
Italy	64, 9	58,1	0,9	Saudi Arabia	55, 5	99,3	1,8	Saudi Arabia	58, 3	99,4	1,7
China	58, 4	72,6	1,2	India	53, 9	79,5	1,5	India	52, 9	78,5	1,5
India	56, 5	78,7	1,4	China	48	71,2	1,5	China	48, 3	69,5	1,4

Source: prepared by the authors.

5. RESULTS AND RECOMMENDATIONS

This study developed and tested a comprehensive model for assessing the influence of tax rates, international agreements, and legislation on the degree of economic freedom within a country. Through this analysis, the study identified potential tax risks and explored opportunities for their mitigation. Identifying an ideal tax system is critical for fostering economic development, enhancing economic freedom, attracting investments, improving innovative activity, and addressing social inequality.

The ideal amount of taxes (tax burden) that strikes a balance between economic needs and social obligations can be determined by evaluating the influence of tax burden on the degree of economic freedom. By considering domestic and foreign factors, the study focused on the creation of efficient tax regulation solutions for the influence of tax burden. The study's exponential smoothing model enables analysis of tax risks and identification of specific opportunities to reduce them. A vital concern in fostering economic growth, increasing economic freedom, enhancing innovation activity, and reducing social inequality in the country is the search for the best possible tax structure. This study evaluates how taxes affect a country's degree of economic freedom in order to identify the ideal tax burden level. Reduced tax rates, streamlined tax processes, and increased fairness and transparency in the tax system may help achieve a balance between the societal and economic needs of a country. The study revealed that countries with the greatest number of largest companies of the world have a moderate tax burden despite having a high amount of direct taxation. This indicates a shifting of the tax burden between legal entities and individuals since the mentioned indicator is calculated as the ratio of all amounts of paid taxes to GDP. The authors suggest that research on the relationship between tax burden and economic freedom can establish a connection between these variables, enabling the evaluation of how tax policy affects a country's social equality and economic growth. This research can be helpful to elected officials and governmental organizations. Future research should consider the impact of a country's tax system on TNCs' tax planning as well as the effect of the tax burden on the degree of economic freedom in different sectors of the economy, specifically the impact of tax policies on the growth of small and medium-sized businesses or the development of information technology. Research should also consider how social norms and institutional frameworks affect the perception of tax policies and their influence on economic freedom. Additional research on how taxes affect a country's degree of economic freedom can improve tax policy, support economic growth, and advance social fairness.

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ORCID :

Yaroslava HLUSHCHENKO 0000-0003-1454-0369
Natalya CHERNENKO 0000-0002-7424-7829
Olena KOROHODOVA 0000-0003-2338-365X
Tetiana MOISEIENKO 0000-0002-2074-8062
Kateryna MOSKVYCHOVA 0000-0002-1870-9873

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Research Article

Tacit Racism Toward Roma Students: The Case of a Turkish Public School

Ozan UŞTUK[1]

[1]Assistant Professor, İzmir Institute of Technology, İzmir, Türkiye

Corresponding author : Ozan UŞTUK
E-mail : ozanustuk@iyte.edu.tr

ABSTRACT

This study aims to reveal hidden racist practices within a Turkish public school and explores their perpetuation through daily interactions between teachers and Roma students. As part of an applied research project dedicated to empowering Roma children in the educational setting, the study employs discourse analysis to expose tacit racist discourses circulating within the school. Using participant observation, casual conversations, in-depth interviews, and focus group discussions, the research reveals implicit discriminatory practices in classrooms. Teacher interviews expose a prevalent coping mechanism, i.e., denial, which reflects reluctance to acknowledge their role in perpetuating discrimination despite awareness of the structural inequalities faced by Roma students. While comprehending systemic challenges, the adherence of the teachers to the myth of meritocracy fosters cognitive dissonance, which results in a dismissive incomprehension of the realities of and occasional assignment of blame to Roma students. Cultural stereotypes and pseudogenetic explanations function as convenient means of rationalizing existing biases. Navigating cognitive dissonance, teachers frequently redirect their focus toward the behaviors of Roma people due to a sense of helplessness and the influence of the pervasive meritocratic narrative. This dynamic contributes to the perpetuation of institutional racism through the daily discourse of teachers, which inadvertently exacerbates this systemic issue.

Keywords: discourse analysis, inclusive education, institutional racism, Roma

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1. Introduction

Roma people in Turkey[1] have long been subjected to racial discrimination and segregation and regarded "as second-class citizens by the majority" (Marsh, 2008, p. 22). Despite a certain level of progress in recent years, this racism continues to persist in contemporary Turkish society and manifests itself in everyday discourse and institutional practice. Regardless of various and diverse components of Roma identity, such as class, gender, religion, and language, race remains the primary signifier of representation. However, in mainstream discourse, a tacit avoidance of using the term racism is evident while practicing it. Hence, the most common tactic among Roma people in Turkey is concealing the ethnic and racial components and signifiers of their identities, particularly in workplaces and schools (Uştuk, 2021, pp. 161–163). Racism plays a pivotal role in shaping Roma identity by fostering a pervasive environment of concealment and self-censorship, which influences individuals as they navigate various social spaces. Concurrently, the long-term socioeconomic disparity and perpetuation of cultural stereotypes intricately woven into historical roots and contemporary discriminatory practices reinforce a complex narrative that collectively shapes the identity of Roma people in Turkey. Nevertheless, this significant issue remains insufficiently addressed in a setting in which its impact is most profound: public schools.

The literature on Roma students in the Turkish education system is typically limited or superficial, which occasionally bears ethnocentric discourse and explanation. Notable studies, such as Akkan, Deniz, and Ertan (2017), elucidate the multidimensional exclusion of Roma, which is evident in stigmatized spaces across Turkey. The researchers highlight economic constraints, including the costs of school expenditures (e.g., uniform, stationery, and lunch), as factors that prevent Roma children from attending school. Similarly, Önen (2013) emphasizes the inequality in access to education and job opportunities for Roma communities, which indicates barriers that hinder them from fully benefiting from educational resources. Economic factors, exclusionary practices, and the lack of social support contribute to the disadvantaged status of Roma children in education (Kesik, Şahin & Zoraloğlu, 2018). Previous studies also reveal that Roma parents encounter discrimination and microassault behaviors in the schools of their children, which limits access to education for Roma children (Ateş & Ünal, 2022). However, studies that directly explore the daily narratives that perpetuate racist discourse and its impact on the early school withdrawal of Roma children are lacking.

Therefore, the current study examines the prevalence of concealed racist practices and their perpetuation through daily interaction between teachers and Roma students in a Turkish public school. As part of an applied research project dedicated to empowering Roma children in the educational setting, this article utilizes discourse analysis to unveil tacit racist discourse circulating within the school environment. In this manner, the study sheds light on the manifestation of racism in the everyday life, mundane actions of teachers and influences the educational prospects of Roma children.

2. Bringing the concept of race to the table

Numerous studies from the 1980s reveal that teachers are frequently hesitant to address controversial issues (Byford et al., 2009; Hand & Levinson, 2012; Kello, 2016; Kelly, 1986; Oulton et al., 2004; Stradling, 1984). Therefore, addressing racial discrimination could be even more challenging for teachers working in public schools that promote nationalist ideologies in the curricula. As this problem remains significant, the manner in which teachers address or ignore racial issues in schools can significantly affect the self-esteem and sense of identity of minority students (Journell, 2012, p. 383). Supporting students to understand and recognize their place and value in society can significantly impact their future abilities and aspirations (Markus & Nurius, 1986). However, the curricula in Turkish public schools barely move beyond ingrained nationalistic ideologies (Önal & Pala, 2022). In-depth interviews demonstrate that teachers operate within an environment in which ideological pressure is tacit but potentially strongly felt even if they do not fully internalize these ideologies.

In Turkish public schools, topics such as race, gender, and religion are considered nearly taboo and may "provoke strong emotional reactions" (Evans et al., 1999, p. 220) in daily scenarios. Conversely, discourses and practices that aim to foster national homogenization are widely circulated and naturalized. Even using the concept of race is contested (Baysu & Ağırdağ, 2019; Somer, 2002), and the majority of research on Turkish educational settings rely on the concepts of discrimination and segregation as a substitute for race without explicitly identifying the subjects or the oppressors. This substitution is a strategy for avoiding responsibility for perpetually reproducing and preserving the school environment as a racialized space. Gonsalves (2008, p. 5) calls this tendency "hysterical blindness," which

[1] The Roma people in Turkey are typically classified into three distinct groups, namely, Roms, Doms, and Loms (Marsh, 2010). Additionally, they have been recognized by various names given factors, such as geographical location, occupation, and/or way of life (Arayıcı, 2009). Despite the historical classification as nomads, semi-nomads, and settlers, the majority are now settled in Turkey (Avara and Mascitelli, 2014). In this study, the participants self-identify as Roma (Rom) due to their migration from Greece during the population exchange in 1923.

"operates as a defense mechanism against critical awareness of how educational inequality against others is intrinsic to maintaining individual privilege for some." Therefore, the tendency of teachers to deny and avoid the discussion of race could be viewed as a "mechanistic reflex that relies on available cultural scripts" (Wierzbicka, 1999). This predisposition can also be interpreted as a defense mechanism that "blocks any awareness of reality to evade the impact of traumatic recollections or current events" (Gonsalves, 2008, p. 10). However, "the denial of racism by school administrators" and teachers present a significant problem (Lund, 2006, p. 213) in creating an inclusive educational environment.

Against this background, the current study conducts a critical discourse analysis to reveal implicit racist discourse that promotes discriminatory practices in classrooms.

3. Methodology and analysis

This study used critical discourse analysis to analyze the narratives of teachers regarding Roma students as part of a broad ethnographic research that relies on participant observation, in-depth and focus group interviews, and casual conversations.

Researchers use discourse analysis to understand how individuals construct meaning in educational environments (Rogers et al., 2005, p. 336). Although communication conflicts are not purely discursive, they are intertwined with various "con-textual matters including cultural knowledge, attitudes and ideologies, norms and values, power relations between participants and their respective roles" (Van Dijk et al., 1997, p. 147). These contextual factors form the manner in which individuals communicate, interpret, and respond to one another, which highlights the importance of examining discourse as a means of understanding the operation of education as a social practice.

Critical discourse analysis is rooted in various ideas and methodologies for examining language practices. However, the central concept of critical discourse analysis is the concept of power, which articulates through and within discourse and results in domination and oppression (Rogers, 2011, pp. 2–3). Critical discourse analysis emerged from critical theory and is used to address issues in power, privilege, and hegemony (Rogers et al., 2005, p. 338). Discourse as language-in-use frames ideologies, which refer to unspoken beliefs or assumptions that guide the actions of people (Rymes, 2016). "Language connects with the social sin, struggles for power" (Fairclough, 1989, p. 15). Therefore, critical discourse analysis is an effective method for challenging normalization and taken-for-granted societal inequity (Souto-Manning, 2014, p. 162).

This methodological background presents a meaningful framework for investigating the intercultural interaction between teachers and Roma students and for demonstrating how teachers sustain and impose their worldview when challenged. In this case, teachers wield power, privilege, and resources, which they use to dominate the Roma and legitimize institutional discourse on education to maintain the myth of meritocracy.[2] This study aims to reveal the tacit meanings underlying widely circulating hidden scripts regarding the Roma. Toward this end, interviews were conducted with four preschool teachers and ten elementary school teachers. Two focus group interviews were conducted to compare and contrast their narratives. Afterward, they were interviewed again separately.

The selection of the specific school for the study is significant. Positioned in close proximity to a Roma ghetto neighborhood, parents have no choice but to enroll their children in this particular school. Despite being a governmental institution designed to cater to a diverse population, this school deviates from the norm by displaying a disproportionate concentration of Roma students, which is an uncommon scenario, compared with those of other schools in the region.

4. Findings: Various forms of denial

The denial of concealed racist practices in the school environment appears to function as a coping mechanism for teachers, which enables them to avoid responsibility of being a part of a school system that creates discrimination. When confronted with instances of racist discourse during the interviews, the teachers exhibited sensitivity and aloofness, which demonstrates reluctance to subject themselves to scrutiny and acknowledge their position and role in a racial hierarchy that ensures their tacit middle-class privileges. The most common manifestation of denial among the teachers were the recognition of diversity among Roma groups, discrimination within the school environment, and the severity of poverty and deprivation experienced by the Roma.

[2] Meritocracy, a concept related to the notion of individual merit that determines success, is typically encapsulated in "being made of the right stuff." As outlined in The Meritocracy Myth (2004), this formula includes qualities, such as innate talent, hard work, the right attitude, and adherence to established rules. Nevertheless, acknowledging that the education system frequently mirrors, legitimizes, and perpetuates class inequality, instead of strictly adhering to meritocratic principles, is crucial (McNamee & Miller, 2004, p. 112). This perpetuation not only masks systemic inequality but also hinders effort to address broad structural issues within educational systems.

4.1. *Denial of the multiplicity of otherness*

After the in-depth interviews, the study found that the denial of the diverse behaviors of Roma children is the most common attitude among elementary school teachers. The act of denial appears to function as a tool for fixing the mainstream representation of Roma people by creating a binary distinction between Roma and non-Roma students. Along with discriminatory practices, racial categorization is perpetuated through everyday speech, which is underpinned by the mental strategies and representations of majority group members (T. van Dijk, 1993, p. 104). As Eliasoph (1999, p. 480) stated, "the very act of speaking carries different meanings in different contexts." Racist discourse is a "deep system of defense" and inherently works to "secure us 'over here' and them 'over there,' to fix each in its appointed places" (Hall, 1992, p. 16). Everyday racism occurs in mundane practices that can be easily overlooked (Essed, 2008, p. 204); in fact, governments are prone to the willingness to overlook prevailing racism, because it is not always apparent in extreme incidents.

The Turkish mainstream discourse has also reflected this inclination. Until the Syrian refugee crisis, the term racism was generally absent from mainstream debates partially due to nationalist policies at the core of the nation-state formation, which holds the mainstream Turkish identity as a frame for all citizens of Turkey regardless of self-identification. In academic circles ethnic identities were similarly always on the agenda, but the concept of race was rarely scrutinized. This notion does not mean that racism is a new phenomenon that emerged from the Syrian migration; instead, it intends to point out that academic discourse overlooked such a concept.[3] Therefore, imagining the difficulty in training teachers to create an anti-racist environment for minorities is easy. However, to address and reveal the tacit racism that lurks in classrooms and is enacted through the everyday acts and deeds of teachers, the study must, first and foremost, tackle and overcome the climate of denial.

4.2. *Stereotyping regarding communication deficiencies*

The teachers commonly shared the belief that communication deficiencies among Roma students are responsible for the inequality they face. However, this view fails to recognize that discrimination against the Roma is a systemic issue derived from specific social and institutional conditions (Collins, 1988, pp. 300–306). The notion of communication deficiencies as an inherent characteristic of Roma culture is a supremacist view that homogenizes and stereotypes the Roma without acknowledging the complexity and diversity of their experiences. This view is embedded in mainstream psyche and reproduced by the media (Osei-Kofi, 2005, pp. 370–371).[4] As a result, many educators perceive the Roma as a culturally homogenous ethnic group, in which dance and music serve as the primary signifiers of their cultural representation. Consequently, strategies that are intended to increase the attendance rates of Roma pupils at schools involve engage them through music and dance activities regardless of particular tendencies toward other academic orientations.

> We formed a Romani Folk Dance group in the past years. With 25 students' attendance and the training provided by a private tutor, they started to dance on special occasions and celebrations. They even started to earn some money from it. As they grew up, they left the group. They cannot hold on to long-term goals.

Limiting the representation of Roma culture to music and dance not only restricts the breadth of their interests but also limits the approaches of the teachers to engage them in academic activities. This narrow perspective reinforces the stereotype that Roma students lack interest in academic fields and only excel in non-academic areas. As Hall (1992, p. 16) points out, racist beliefs are deeply entrenched and conceal a range of emotions, attitudes, and conceptions that resist "to be so neatly stabilized and fixed."

> It is necessary to ensure their participation through music and art. That is the only way.

This representation also depicts Roma as lazy and ignorant, which is prevalent in various narratives, as exemplified in the following interview script.

> One day an inspector came to our classroom. I had a male student who always came in such a tired state. The inspector asked his and his father's name. He couldn't answer for quite some time. The boy was visibly embarrassed. After the inspector left, I asked him: Don't you know your father's name? He said they always called his father Maviş (a nickname) in the neighborhood, so he was hesitant to answer quickly.

[3] This avoidance may have stemmed from the earliest struggles of anthropology as a newly established discipline in the Turkish academia, where it was recognized as the "science of race" (for a detailed discussion, see Demirer, 2011). However, neglecting its distinctive explanatory quality led to the utilization of the concept of ethnicity as a substitute for the concept of race. This change likely facilitated the disguise of everyday racism. However, viewing race merely as a component of ethnicity diminishes its historical specificity, which masks the independent influence of racism as a distinct explanatory factor (Chancer & Watkins, 2006: 55). In recent years, the concept of racism has slowly earned its place in everyday discourse through Twitter and other forms of new media, although it is occasionally misused.

[4] For a critical reading on the representation of Roma people of Turkey in Turkish audio–visual media, see (Tunç Cox & Uştuk, 2019).

This narrative poses a hidden agenda, i.e., implying that the Roma people have been unable to cope with the modernization process of the Turkish Republic since its establishment. During the formation of Turkey as a democratic state, the Surname Law in 1934 enforced the adoption of family names for modernizing and secularizing the nation-state and became a fundamental pillar of the Republic (Zürcher, 2017, pp. 184; 189; 412). The underlying point of the teacher is that the Roma have been unable to adapt to the modernization process, in contrast to other cultural groups considered part of mainstream society. This imagery portrays Roma people as *primitive* and in need of intervention to assimilate into the so-called *advanced* norms that are deemed acceptable in the contemporary era.

4.3. *Genetic essentialism*

The selection of stories that depict Roma communities as primitive is frequently accompanied by the narratives that aim to explain the behavior of Roma people through genetic explanations. In certain cases, teachers even attempted to draw a comparison between Roma people and Black people in the United States, which implies that both groups share a genetic predisposition toward non-academic activities such as sports and music.

> They have a "movement" gene in them. Like black children in America, those kids have boundless energy. They are naturally predisposed to sports and music. They just can't stay still in the classroom. Gypsies (Çingene)[5] always seem to win the competitions. They have too much energy mixed with hyperactivity. I think Gypsies are genetically predisposed to music, sports, and painting. We can use this predisposition to draw them to school.
> I used to have them paint instead of teaching math. The Gypsy children seemed happier when I did that.

A widespread agreement that Roma children can only be successful in other intellectual subjects and that they lack the necessary inclination toward STEM exists among teachers.

> I think the Roma are genetically inclined towards painting, music, and sports. But not much else.

Claiming that the Roma are genetically inclined toward dance and music not only perpetuates cultural stereotypes but also implies their lack of maturity in demonstrating success in STEM, which is typically regarded a key indicator of modernized societies. This notion is further supported by portraying them as "free-spirited people" who lack the patience and perseverance required to excel in the STEM fields. Evidently, teachers have not only relied on cultural stereotypes but have also resorted to pseudogenetic explanations to justify their views and interpretations of the behaviors of Roma students.

4.4. *Deliberate blindness toward hardship and poverty*

Apart from the reluctance to acknowledge the diverse interests of Roma children, a widespread belief also exists among the teachers that Roma people are exaggerating the hardships they are enduring. The counseling teacher even shares this viewpoint by arguing that Roma children are using their poor living conditions and hardships as an excuse to avoid complying with school regulations and obligations.

> They always complain about the hardships they face. But, it is an exaggeration for sure. My student was late for class. I said I believe you had a wedding celebration last night. She said that they frequently have weddings and have fun until very late. They are full of life! The teachers even talked about how it would be nice to live in such a place. There is nothing to worry about!

A clear discrepancy exists between the initial sympathy that teachers expressed toward the struggles of Roma people and the narratives they revealed during the interviews. At the beginning of the interviews, nearly all teachers claimed they were aware of the hardship faced by Roma people. However, as the interviews continued, they revealed narratives that made the researcher believe that their sympathy toward Roma people was, in fact, a part of impression management.

Developing a deeper relationship with the teachers during the course of the interviews, the researcher gradually discovered hidden biases and inconsistencies in their narratives. Evidently, the teachers were fully aware of the structural barriers faced by the Roma community, especially in terms of livelihood, which significantly impacts their school attendance rates.

The Roma people are known to work in the entertainment industry or in marginal jobs that offer little to no job security and benefits. As a result, they frequently have irregular work schedules that makes providing consistent care for children difficult in contrast to middle-class parents, who typically enjoy structured and predictable work arrangements (Uştuk, 2024). They are also struggling with the demand of the labor market for de-ethnicization and middle-class work

[5] The term Gypsy, which is known as "Çingene" in Turkish, is considered derogatory; as a result, many Roma find it offensive and prefer to be reffered to as Roma. However, a significant resistance is evident among non-Roma people in Turkey to accept their preference. This topic remains a significant issue for Roma NGOs that are actively working to promote their identity politics.

ethics that deem them unfit for many job requirements (Uştuk, 2021, p. 153). Despite awareness of the challenges that emerge from the poor living conditions of Roma parents, teachers continue to hold them responsible for their absence from the educational prospects of their children. A few teachers even pointed out that changing their livelihood is a viable solution, as if it is a matter of choice.

> When I talk to these parents, they agree with me. But, when it comes to execution, no promises come true. They do not have any economic problems. They have computers in their homes and the internet. They don't have any excuses! I called again and again, but they started not picking up my phone calls.

During the same interview, another teacher shared a story about how she had to go through trouble to enroll one of her students in the school. The parents of the students were separated, and the student was commuting between cities. The father, who lived in the Roma neighborhood, did not have an official living address, because he resided in a shed near a ghetto neighborhood that the government did not recognize. He was working as a scrap collector and struggling to look after the children. Despite these difficulties, the teacher continued to hold the belief that the effort of the father was insufficient for supporting the education of his child. She believed that the parents should prioritize education over other responsibilities.

> Since they work at night, they sleep in and do not look after their children. We need to change their livelihoods. This way, they will sleep and get up like normal people. That way, they'll be able to send their children to school.

The teacher does not seem to see any problem in suggesting a change in their lifestyle and blames the victim for being unable to change the structural restrictions they face such as racial discrimination in labor markets and spatial segregation (Uştuk, 2024). A dismissive incomprehension of the class position of the Roma and structural restraints lead to blaming the Roma for the conditions they suffer.

Teachers were not only deliberately blind to the hardships faced by the Roma people but were also unwilling to acknowledge the extreme poverty they endured.

> They like to live well, and their money is never short. It gets our attention. Sometimes we see that while the regular students buy a bagel (simit) and ayran (yoghurt-based drink), the Roma children buy many things at lunch. We don't believe they are as poor as they claim.

The study observes that the teachers even adopt a discourse that denies an apparent reality, because the Roma pupils are not exhibiting the deprivation that they are expected to demonstrate. The middle-class cultural values of the teachers regarding money and expenditure were not parallel to the portrayal of poverty in media. This judgment also reveals that they view themselves in a higher moral position to dictate the priorities of life and the appropriate way of using money. They do not imagine a household in which even children work; occasionally, an addicted parent could confiscate all money earned by the family members instead of buying food; and the children's lunch at school could be the only proper meal they could get that day.

> The municipality stepped in last year. I disapproved. Because I don't think that Roma children cannot attend school for financial reasons, they already get a lot of help from the authorities. They don't need it. But of course, the conditions of living in accordance are horrible.

A number of teachers do not openly deny the poverty of Roma people; instead, they blame them for being prodigal. This comprehension reflects a common stereotype that portrays Roma people as free-spirited ones who live without any worries about the future or consideration for potential future hardships.

> They get educational assistance, 200 to 300 Turkish liras.[6] They do not use to send their children to school, so we threatened the parents about ending this assistance. They always talk about they couldn't send their children to school due to lack of money. I think this is just an excuse to get more of the State's money. They are exploiting the system. I don't get any money to send my children to school, but I do it regardless.

These narratives demonstrate that teachers are prone to use the repressive state apparatus to force the Roma to assimilate into a middle-class lifestyle in the case that the ideological apparatus fails. By provoking the fear of losing monetary help, teachers believe that they can force the Roma parents to comply with the rules of the school and change their lifestyle.

> They can be frightened by fine. Since September last year, we have started persuasion efforts. I was angry with all of them! I said penalties would begin to pour in on all of you! Each day you do not send your children to school, it will cost you 225 Turkish liras. We submitted the penalty proposal in December. We followed this path because we have compulsory education, and it is the responsibility of parents! We send it through the official channels, first to the District directorate of national education, then the police, and then the court. But due to the pandemic, the file got stuck somewhere. I won't fail to keep my promise. After the pandemic, I will follow it and even go to press.

[6] Notably, the interviews were held at a time when the threshold for food deprivation for a four-person family had been established at 2.590 Turkish liras. This information provides valuable insights into the experiences of the participants, who were likely facing significant economic challenges and threats to food security.

This strategy inherently acknowledges the financial distress of the Roma. However, teachers interpreted this fear as a result of greed instead than poverty and were willing to take forceful actions to use this fear to alter the attitudes of the Roma.

In summary, the teachers have been immersed in the mainstream stereotypical cultural scripts about the Roma, which has led to significant harm in their endeavor to increase attendance rates. Mainstream Turkish cinema and audio–visual media perpetuate stereotypes by portraying the Roma through binary and derogatory lenses (Uştuk & Tunç Cox, 2020). The media reinforces negative stereotypes by depicting the Roma as thieves, beggars, and troublemakers, which emphasizes the perception that they live in poverty and squalor and positions them as a burden to society and incapable of improving their living conditions (Tunç Cox & Uştuk, 2019). These stereotypes are leading to decreased expectations, implicit biases, and misunderstanding regarding the capability and potential of Roma students. Consequently, teachers unintentionally perpetuate discriminatory practices, which hinders the creation of an inclusive and supportive learning environment for Roma students.

5. Conclusion

This study highlights the prevalence of concealed racist practices in a Turkish public school and their perpetuation through the daily intercultural interactions between teachers and Roma students. Through participant observation, casual conversations, and in-depth and focus group interview with teachers, the study discovered a few tacit racist discourses that underlie discriminatory practices in classrooms. By critically engaging with these discourses, which circulate via micro-interactions of school employees, provides an opportunity for examining how nationalist ideologies solidify through everyday interactions.

During the interviews, the study found that denial evidently serves as a prevalent coping mechanism for teachers, which leads to a notable hesitancy to fully acknowledge their role in perpetuating discrimination within the school system despite their awareness of the structural inequality faced by Roma students. Although teachers possess an understanding of the systemic challenges encountered by these students, they tend to uphold the myth of meritocracy that underpins the educational system. This cognitive dissonance results in a dismissive incomprehension of the harsh realities faced by Roma students, which occasionally leads to the unfair attribution of blame to them. Cultural stereotypes and pseudo-genetic explanations conveniently serve to alleviate the cognitive dissonance experienced by teachers, which provides a simplistic framework for rationalizing their biases and attitudes toward Roma students.

Struggling with the complexities of structural inequalities, teachers frequently find themselves in a challenging position. Feeling powerless to directly address these systemic issues, they redirect their focus toward the behaviors of the Roma and partially assign blame to the victims. This response is not only rooted in their sense of helplessness but is also influenced by the pervasive meritocratic ideology, which emphasizes individual responsibility and fosters the false belief that the educational system inherently provides equal opportunities for everyone. Consequently, the tendency to hold Roma students responsible for their conditions emerges as a complex interplay between the feelings of powerlessness of teachers in addressing broad issues and the influence of the meritocratic narrative within the educational system. As a result, institutional racism is perpetuated through the mundane, everyday discourse of teachers who inadvertently contribute to this systemic issue due to the lack of means and resources to confront their biases.

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ORCID :

Ozan UŞTUK 0000-0002-4062-8404

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Research Article

A Scale Development Study Regarding the Effects of Organized Industrial Zones on Regional Development: The Organized Industrial Zones Perception Scale*

Sedat MURAT[1], Ahmet Cem ESENLİKCİ[2]

[1]Prof. Dr, Istanbul University, Faculty of Economics, Department Of Labor Economics Industrial Relations, Istanbul, Türkiye
[2]Dr, Karadeniz Technical University, Araklı Ali Cevat Ozyurt Vocational School, Department Of Property Protection And Safety, Trabzon, Türkiye

Corresponding author : Ahmet Cem ESENLİKCİ
E-mail : cesenlikci@ktu.edu.tr

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ABSTRACT

One of the most crucial instruments for regional development is organized industrial zones, as these zones contribute to development in many areas, especially regarding the economy and social life in the regions where they are established. This situation has revealed the necessity to investigate the relationship between organized industrial zones and regional development. No single measurement tool has been identified in the literature review to quantify this link. Therefore, this study aims to contribute to the literature by developing a scale to explain the relationship between organized industrial zones and regional development. The sample of the study consists of 600 people aged 18 or over living in the districts where organized industrial zones are located in Trabzon, Türkiye. The programs SPSS23 and AMOS26 are used to analyze the research data. The analysis findings show the scale's item factor loadings to range between 0.606-0.860, with the total explained variance being calculated as 67.00%. The Organized Industrial Zones Perception Scale is comprised of 21 items and 5 components according to the findings from the confirmatory factor analysis (*CMIN / df* = 2.824; *RMSEA* = 0.055; *GFI* = 0.928; *AGFI* = 0.905; *NFI* = 0.923; *CFI* = 0.949; *IFI* = 0.949; *TLI* = 0.939).

Keywords: organized industrial zones, regional development, SPSS23, validity, reliability

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1. Introduction

All states on earth aim to increase the welfare of their citizens and ensure the enrichment of their country. Governments set several objectives to achieve this goal and implement various policies to achieve these objectives, with development being at the forefront of these. The concept of development refers to the upward movement of the entire social system. It has been an important issue since the beginning of the 20th century and taken on a regional understanding in the last 50 years (Myrdal, 1974). The theories produced in this direction emphasize that development should start from the local level. Countries have been divided into regions, and policies have started being produced to ensure the development of underdeveloped regions, with organized industrial zones being at the forefront of these policies (Çetin & Kara, 2008).

In 1962, Bursa became the site of Türkiye's first formal industrial zone (Özden, 2016). Since then, dozens of organized industrial zones have been built to complete the industrialization movement and ensure regional development. As of the end of 2022, a total of 380 organized industrial zones are found in various stages in Türkiye (Organized Industrial Zones Supreme Organization [OSBÜK], 2023).

In addition to the benefits that organized industrial zones provide to enterprises, they are also considered to provide significant advantages to the districts and regions where they are established. These advantages are important for regional development and manifest themselves in various fields. In line with this, the question arises as to which areas of a region that have established organized industrial zones are developed by these zones. This question reveals the necessity of examining the relationship between organized industrial zones and regional development.

The literature review reveals quite a low number of studies to have examined the relationship between organized industrial zones and regional development. Çetin and Kara (2008) conducted a survey covering 30 enterprises in the Isparta Süleyman Demirel Organized Industrial Zone on the relationship between regional development and organized industrial zones. The study concluded organized industrial zones to have a limited impact on the development of the Türkiye. Koç and Bulmuş (2014) comparatively examined the impact of organized industrial zones in Kayseri and Sivas provinces on regional development. As a result of their examination, they stated organized industrial zones to be an important factor in the development of the region. Özden (2016) conducted a study examining the impact of organized industrial zones on development in Türkiye. Özden's study stated organized industrial zones to have many benefits, especially balanced regional development and private sector investments being directed to certain regions. Çelik and Dinçsoy (2019) examined the impact of the Edirne Organized Industrial Zone on the regional economy and businesses. They conducted their study by applying a questionnaire to enterprises located within and outside the Edirne Organized Industrial Zone and emphasized that, although the Edirne Organized Industrial Zone plays an important role in the development of the region, it has deficiencies that need to be completed.

As a result of the examined studies, no measurement tool was determined to exist that measures the impact of organized industrial zones on regional development. In addition, the conducted studies were observed to cover the enterprises operating in organized industrial zones, not the people of the region. The aim of this study is to develop a measurement tool for examining how organized industrial zones contribute to regional development and their impact on the people of the region through the perceptions of the people in the region.

2. Method

2.1. Sample of the Research

The research was conducted in Arsin, Akçaabat, and Beşikdüzü, the three districts in Trabzon that have organized industrial zones. The total population of these three districts consists of approximately 185,000 people. People in these three districts who are at least 18 years old make up the research sample. Upon obtaining permission from the Istanbul University Social Sciences and Humanities Research Ethics Committee E-35980450-663.05-1596371 approval number and dated January 25, 2023, the study applied the questionnaire it prepared to the participants in person between January 1-March 1, 2023. Participants were informed that the data collected in the study would be used only for scientific purposes and that participation in the study was voluntary. As a result of the research, a total of 600 questionnaires, 200 from each of the three districts, were collected, with analyses being carried out over the 600 questionnaires.

This study uses Baş's (2008) table titled "Sample Sizes Needed for Different Target Population Sizes and Error Levels" for selecting the sample. The table determined the sample size for a target population size between 100,000-1,000,000 to be at least 383 people at a 95% confidence level. When considering that the total population of the three districts accepted as the research population is approximately 185,000 people, 600 questionnaires have been concluded as being sufficient for the sample size.

Upon analyzing the participants' demographic characteristics, 386 (64.3%) of the participants were observed to be male and 214 (35.7%) to be female. When analyzing the participants' ages, 117 (19.5%) were observed to belong to the 30 years-or-under age group, 93 (15.5%) to the 31-35 age group, 107 (17.8%) to the 36-40 age group, 89 (14.8%) to the 41-45 age group, 71 (11.8%) to the 46-50 age group, and 123 (20.5%) to the 51-or-over age group. In terms of educational status, 43 (7.2%) participants are primary school graduates, 193 (32.2%) are high school graduates, 107 (17.8%) have associate degrees, 227 (37.8%) have undergraduate degrees, and 30 (5%) have postgraduate degrees. In addition, 210 (35%) of the participants are public sector employees, 195 (32.5%) are private sector employees, 108 (18%) are tradespeople 58 (9.7%) are unemployed (retired or jobless), and 29 (4.8%) are students.

2.2. Data Collection Tool

The study's authors developed the questionnaire as its data collection tool. Four questions make up the first section of the questionnaire and ask the participants about their age, gender, education level, and work status. The second section has 35 items (e.g., "Organized industrial zones increase employment in the regions where they are established"). The questionnaire form uses a 5-point Likert-type scale to evaluate the items (1 = strongly disagree, 5 = strongly agree).

The study's scale was created as a result of examining domestic and foreign studies on the relationship between organized industrial zones and regional development. In addition, the study has three main limitations. The first involves the historical and geographical limitation of the research. The research was conducted in Trabzon province between January 1-March 1, 2023. Another limitation is related to the research method. The study makes use of a questionnaire as a quantitative research method, and the interview questions are thought to be able to be added to survey questions in future studies. The last limitation of the study is the reluctance of the participants, as only 600 people participated in the research. Reaching more participants is considered to be beneficial for further studies.

The scale's design process involved four stages. In the first stage, the authors turned the issues related to the effects of organized industrial zones on regional development into scale items. The second stage involved sending the scale items to experts for their opinions. These experts are academicians working in the field of regional development and people who have been managers in organized industrial zones for several years. As a result of the expert feedback, some of the items were modified, with the questions upon which the author and experts agreed forming the scale. The third stage involved interviewing a focus group of five individuals to get their feedback regarding the final version of the scale and to find out what they thought of the data collection tool. The fourth stage involved using the final questionnaire version in a pilot study with 30 participants. Following the pilot research, the questionnaire's internal consistency and comprehensibility were determined to be suitable, thus initiating the implementation phase of the questionnaire.

2.3. Data Analysis

Two statistical package programs, SPSS 23 and AMOS 26, were used to analyze the data in the study. AMOS 26 was used for the confirmatory factor analysis, and SPSS 23 was used for all other analyses.

3. Findings

The findings obtained as a result of the data collected in the study have been evaluated in a two-stage process. The first stage analyzes the developed scale in terms of construct validity, while the second stage consists of evaluating the results from the reliability analysis of the developed scale.

3.1. Construct Validity

The Organized Industrial Zones Perception Scale can be tested in terms of construct validity by performing explanatory factor analysis (EFA) and confirmatory factor analysis (CFA; Kalaycı, 2008). The first stage performs EFA, which can be expressed as a statistical technique that gathers together the variables measuring the same construct to allow the measurement tool to be explained by fewer factors (Büyüköztürk, 2005). In order to conduct EFA, the results of two tests are important. The first one is the Kaiser-Meyer-Olkin (KMO) sampling adequacy test. The KMO test takes a value between 0 and 1 (Williams et al., 2010). In addition, the KMO test is expected to result in value greater than 0.70 (Can, 2017). Barlett's test of sphericity is the second test needed before using EFA. The factorability of the correlation matrix is expressed by the *p*-value that is produced from the Barlett sphericity test, and its value should be less than 0.05 (Çömlekçi & Başol, 2019). The results of these tests are shown in Table 1.

Table 1. *KMO Value and Barlett Test Results*

Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy		0.911
Bartlett's test of sphericity	approx. χ^2	10,433.213
	df	595
	Sig. (*p*)	0.00

Table 1 displays the findings from the Barlett's test of sphericity and KMO sampling adequacy test for the dataset generated for the study. According to Table 1, the KMO test calculated a value of 0.911 and Barlett's test of sphericity a value of $p = 0.00$. In light of this information, the data were determined to be suitable and sufficient for EFA. After this stage, EFA was begun, with principal component analysis being selected from among the factor derivation models and the varimax method from among the factor rotation methods.

The EFA revealed a 7-factor structure that accounts for 62% of the overall variability. This structure was then re-evaluated by taking into account such factors as the variables' factor loading values, whether the variables have factor loadings under more than one factor (overlap), and whether the variables provide conceptual integrity with the other variables that make up the factor. The analysis used 0.50 as the minimal acceptable factor loading value (Dugard & Todman, 2007). Factor loading of a variable under more than one factor is referred to as overlap. In this case, the overlapping variable is accepted under whichever factor for which the variable has a higher value. However, to decide on this issue, the difference between the relationship levels exhibited by the variables that overlap in different factors should exceed 0.10 (Can, 2017).

In light of these explanations, three of the questions in the analysis were excluded due to low factor loadings, another three were excluded due to overlapping items, and four were excluded due to the lack of conceptual integrity with the questions from the factors in which they were loaded. After making these changes, the analyses were conducted again on 25 items.

Table 2. *KMO Value and Barlett Test Results for 25 Variables*

Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy		0.904
Bartlett's test of sphericity	Approx. χ^2	7,449.272
	df	300
	Sig. (*p*)	0.00

Table 2 shows the KMO value and Barlett sphericity test results for 25 variables. Upon closer inspection, Table 2 reveals a KMO value of 0.904. This value shows the sample size to be sufficient, with the Barlett sphericity test calculating $p = 0.00$.

Table 3. *Rotated Component Matrix Results for 25 Variables*

	Factors				
	Factor 1	**Factor 2**	**Factor 3**	**Factor 4**	**Factor 5**
m23	.823				
m20	.808				
m22	.802				
m21	.800				
m24	.791				
m18	.788				
m25	.750				
m19	.731				
m17	.643				
m16	.634				
m14		.765			
m12		.765			
m13		.720			
m15		.683			
m11		.681			
m8		.562			
m4			.741		
m5			.740		
m7			.688		
m6			.682		
m3			.585		
m10				.801	
m9				.747	
m1					.760
m2					.757

Table 3 shows the results from the rotated components matrix for 25 variables, the factors formed by the variables according to the rotated components matrix, and the factor loadings under these five factors. One can also understood from Table 3 that the factor loadings of the variables are above the accepted value of 0.50. In line with this information, EFA was conducted again. Table 4 displays the findings from this most recent analysis.

Table 4. *Eigenvalues and Total Explained Variance of the Correlation Matrix for 25 Variables*

Factor	**Initial Eigenvalues**		
	eigenvalue	**explained variance (%)**	**cumulative explained variance (%)**
1	7.567	30.268	30.268
2	4.248	16.992	47.261
3	1.570	6.279	53.540
4	1.168	4.673	58.212
5	1.074	4.296	62.508

Table 4 displays the EFA results for 25 variables. Accordingly, a 5-factor structure emerged that explains 62.5% of the total variance. The first factor among these five accounts for 30.268% of the total variability, followed by the second at 16.992%, the third at 6.279%, the fourth at 4.673%, and the fifth at 4.296%.

The statistical program AMOS 26 has been used for the CFA being conducted to verify the 5-factor structure that emerged as a result of the EFA. CFA is used to develop measurement models and aims to verify a predetermined

structure (Bayram, 2016). While EFA constitutes the first step in the development of a scale, CFA constitutes the second step in terms of examining whether the defined structure will work with regard to a new sample (Harrington, 2009). In the AMOS 26 package program, two values are important for examining the significance of the items. The first one is the standard regression coefficients, and these are desired to exceed 0.50 (Gürbüz, 2021). The second is the goodness-of-fit index values.

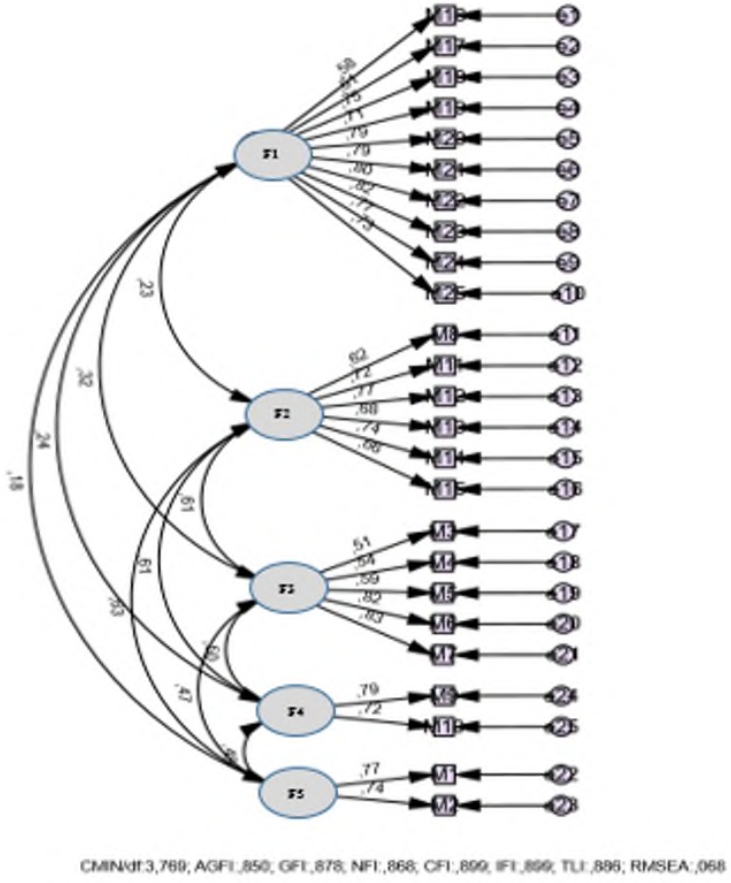

Figure 1. Confirmatory factor analysis model and results.

Figure 1 shows the CFA model and the results obtained using AMOS 26. The model includes the standard regression coefficients and goodness-of-fit index values for the items. Upon examining the standard regression coefficients for the model's items, the values are observed to exceed 0.50 (between 0.51-0.83). On the other hand, some of the goodness-of-fit index values under the model are seen to be below acceptable values for a valid model. Table 5 displays the goodness-of-fit index values derived from the model and those utilized in the CFA.

Table 5. *Goodness-of-Fit Index Values*

Index	Threshold value		Obtained Value
	Good Fit	Acceptable Fit	
CMIN / df	< 3	3 < *CMIN / df* < 5	3.769
AGFI	> 0.90	> 0.85	0.850
GFI	> 0.95	> 0.90	0.878
NFI	> 0.95	> 0.90	0.868
CFI	> 0.95	> 0.90	0.899
IFI	< 0.95	< 0.90	0.899
TLI	< 0.95	< 0.90	0.886
RMSEA	< 0.05	0.05 < *RMSEA* < 0.08	0.068

Source: Schermelleh-Engel et al., 2003; Hooper et al., 2008; Hu & Bentler, 1999.

Among the values in Table 5, *GFI, NFI, CFI, TLI*, and *IFI* were found below acceptable limits, while *CMIN / df, AGFI*, and *RMSE* were found above the cutoff level of acceptability. Therefore, to ensure acceptable goodness-of-fit values, the four items with the lowest standard regression coefficient were removed from the model, and CFA was repeated for 21 items.

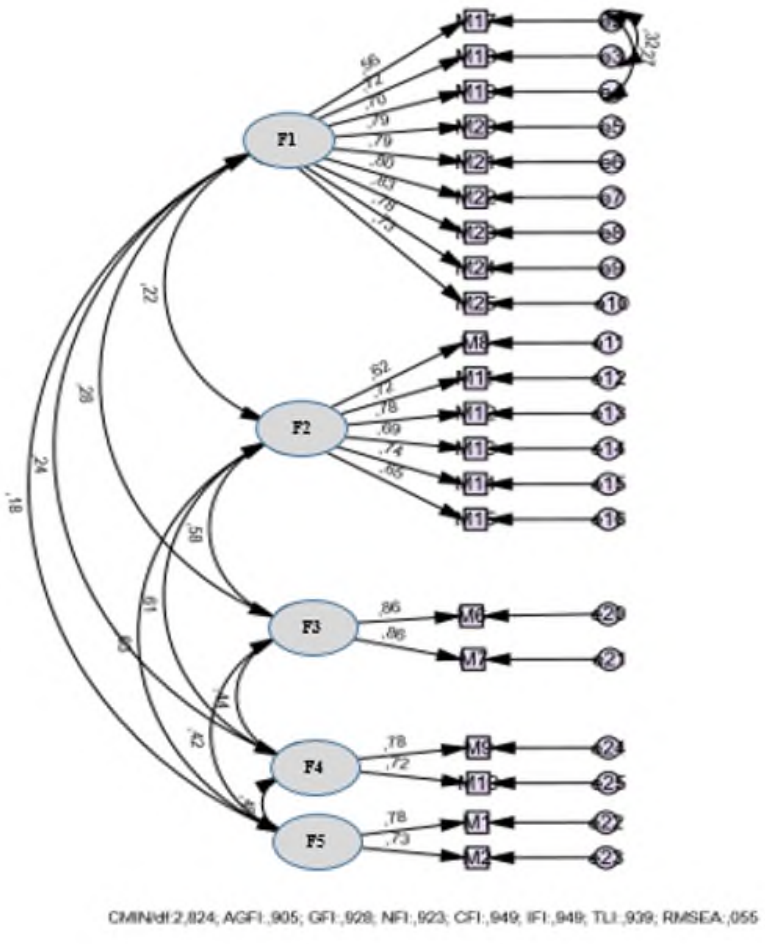

Figure 2. Confirmatory factor analysis model and results for 21 items.

Figure 2 shows the CFA model and the results for 21 items. To increase the goodness-of-fit index values in the model to acceptable levels, correction suggestions were utilized. In line with this, the items that reduced the goodness-of-fit in the model were identified, with covariances being drawn between Items M17-M18 and M17-M19 in order to ignore the covariance errors between the identified items. Figure 3 shows the standard regression coefficients of the items in the model to exceed 0.50 (between 0.56-0.86). Table 6 displays the new model's goodness-of-fit index values.

Table 6. *Goodness-of-Fit Index Values for 21 Items*

Index	Threshold value		obtained value
	Good fit	acceptable fit	
CMIN / df	< 3	3 < *CMIN / df* < 5	2.824
AGFI	> 0.90	>0.85	0.905
GFI	> 0.95	>0.90	0.928
NFI	> 0.95	>0.90	0.923
CFI	> 0.95	>0.90	0.949
IFI	< 0.95	<0.90	0.949
TLI	< 0.95	<0.90	0.939
RMSEA	< 0.05	0.05 < *RMSEA* < 0.08	0.055

When examining Table 6, the goodness-of-fit index values for the new model are seen to be *CMIN / df* = 2.824, *AGFI* = 0.905, *GFI* = 0.928, *NFI* = 0.923, *CFI* = 0.949, *IFI* = 0.949, *TLI* = 0.939, *RMSEA* = 0.055. All the calculated goodness-of-fit index values are seen to exeed the acceptable limit values. Accordingly, the Organized Industrial Zones Perception Scale, which examines the relationship between organized industrial zones and regional development through five factors and 21 items, can be said to have been properly validated.

Now that this final version of the Organized Industrial Zones Perception Scale consisting of five factors and 21 items has been confirmed by CFA, what percentage of the total variance in scores is explained by the eigenvalues of the factors and the factor loadings of the variables that make up the factors need to be determined and then lastly re-analyzed.

Table 7. *Eigenvalues and Total Explained Variance of the Correlation Matrix for 21 Variables*

Factor	Initial Eigenvalues		
	eigenvalue	explained variance (%)	cumulative explained variance (%)
1	6.824	32.496	32.496
2	3.941	18.765	51.261
3	1.163	5.538	56.799
4	1.093	5.203	62.002
5	1.050	4.998	67.000

Table 7 shows the principal component analysis to have been selected from among the factor derivation models and the varimax method from among the factor rotation methods. The Kaiser-Gutman rule accepts components whose eigenvalues are greater than 1 as factors, and this rule has been taken into consideration when determining the number of factors. Table 7 reveals five factors that account for 67% of the overall variability and that have eigenvalues greater than 1. In fact, 67% is greater than 50%, which is the expected total explained variance rate for social sciences (Beavers et al., 2013). The first factor among these five accounts for 32.496% of the total variability, followed by the second at 18.765%, the third at 5.538%, the fourth at 5.203%, and the fifth at 4.998%.

The Organized Industrial Zones Perception Scale was validated as a result of explanatory and confirmatory factor analyses and is seen to consist of five factors. After validating the scale, the obtained factors must now be named. Table 8 lists which items are under which factor, as well as the names of the scale's factors and their abbreviations.

Table 8. *Factor Names and Abbreviations, and Questions Forming the Factors on the Questionnaire*

Factor Name Abbreviations	Original Factor Name	Question Order on the Questionnaire
GE	Green Economy and Environment	17, 18, 19, 20, 21, 22, 23, 24, 25
EG	Economic Growth	8, 11, 12, 13, 14, 15
DSL	Development of Social Life	6, 7
CLU	Clustering	9, 10
IND	Industrialization	1, 2

The factor of Green Economy and Environment contributes to the scale with nine questions (i.e., items), the factor of Economic Growth with six questions, and the factor of Development of Social Life, the factor of Clustering, and the factor of Industrialization each with two questions each. Although opinions are found in the literature stating two-item structures to be weak, other opinions are also found stating that a factor can be represented by 2 items in cases where validity and reliability have been ensured (Alparslan & Ekşili, 2023). In line with this, the construct validity of the developed scale can be said to have been achieved regarding all 21 factors.

Table 9. *Items and Factor Loadings of the Organized Industrial Zones Perception Scale*

Factor 1 **(Explained Variance = 32.496%)** **Green Economy and Environment**			
Variables	**Factor Loading**	***M***	***SD***
Organized industrial zones establish policies to identify environmental risks in advance and take measures in this regard.	0.832	3.17	1.028
Organized industrial zones ensure green efficiency in production.	0.813	2.97	1.044
Organized industrial zones establish a link between economic and environmental efficiency.	0.810	3.25	1.017
Organized industrial zones set an example for other industrial organizations and enterprises by implementing policies to encourage waste-free production (zero waste).	0.808	3.14	1.039
Organized industrial zones encourage the use and support of energy-saving products and technologies.	0.802	3.32	.992
Organized industrial zones play an important role in ensuring environmental sustainability.	0.777	3.13	1.041
Organized industrial zones contribute to an environmentally friendly regional development approach.	0.761	3.33	1.090
Organized industrial zones pioneer the use of renewable energy sources.	0.740	3.36	1.031
The establishment of organized industrial zones prevents the opening of fertile agricultural land to industry.	0.631	3.20	1.079
Factor 2 **(Explained Variance = 18.765%)** **Economic Growth**			
Variables	**Factor Loading**	***M***	***SD***
Organized industrial zones increase exports in the regions where they are established.	0.778	4.23	.785
Organized industrial zones play an important role in attracting private sector investors to the region.	0.767	4.14	.807
Organized industrial zones contribute to enterprises benefiting more easily from public incentives.	0.725	4.03	.886
Organized industrial zones ensure the development of SMEs.	0.712	3.92	.787
Organized industrial zones increase employment in the regions where they are established.	0.689	4.30	.717
Organized industrial zones increase infrastructure investments in the regions where they are established.	0.606	3.91	1.026
Factor 3 **(Explained Variance = 5.538%)** **Development of Social Life**			
Variables	**Factor Loading**	***M***	***SD***
Organized industrial zones play a vital role in increasing workers' incomes.	0.860	3.81	.908
Organized industrial zones play a vital role in improving the living standards of workers.	0.855	3.75	.925
Factor 4 **(Explained Variance = 5.203%)** **Industrialization**			
Variables	**Factor Loading**	***M***	***SD***
Organized industrial zones contribute to the planned settlement of industry.	0.785	3.97	.762
Organized industrial zones ensure the discipline of industry.	0.783	3.92	.811
Factor 5 **(Explained Variance = 4.998%)** **Clustering**			
Variables	**Factor Loading**	***M***	***SD***
Organized industrial zones bring together enterprises engaged in similar or complementary businesses.	0.834	3.92	.753
Organized industrial zones enable enterprises to produce in harmony with each other.	0.789	3.86	.758

Table 9 shows the items' factor loadings in the Organized Industrial Zones Perception Scale. The factor loadings of the scale's items range between 0.606-0.860. The analyses reveal the Organized Industrial Zones Perception Scale with five factors and 21 items to be a valid scale.

3.2. Reliability

The Organized Industrial Zones Perception Scale's internal consistency was tested using Cronbach's alpha. In addition, the study examines the item-total correlations of the scale and Cronbach's alpha results when one item is deleted. Table 10 shows Cronbach's alpha of internal consistency for the Organized Industrial Zones Perception Scale and each of its factors.

Table 10. *Reliability Results of the Organized Industrial Zones Perception Scale*

Factor	Number of Questions	Cronbach's Alpha
Green Economy and Environment	9	0.921
Economic Growth	6	0.843
Development of Social Life	2	0.849
Clustering	2	0.723
Industrialization	2	0.725
Organized Industrial Zones Perception Scale	21	0.895

Cronbach's alpha of reliability takes the following ranges (Özdamar, 2002), where:
$0.00 \leq \alpha < 0.40$ is unreliable,
$0.40 \leq \alpha < 0.60$ shows a low degree of reliability,
$0.60 \leq \alpha < 0.80$ is quite reliable,
$0.80 \leq \alpha < 1.00$ is highly reliable.

According to Table 10, the internal consistency value is 0.921 for the factor of Green Economy and Environment, 0.843 for the factor of Economic Growth, 0.849 for the factor of Social Life Development, 0.723 for the factor of Clustering, and 0.725 for the factor of Industrialization. In addition, the reliability coefficient of the scale was found to be 0.895; thus, the Organized Industrial Zones Perception Scale can be said to be highly reliable.

Table 11. *Reliability Results for the Items of the Organized Industrial Zones Perception Scale*

Items	Item-Total Correlations	Cronbach's α when item is deleted
m1	0.396	0.893
m2	0.353	0.894
m3	0.474	0.891
m4	0.489	0.891
m5	0.421	0.893
m6	0.434	0.892
m7	0.369	0.893
m8	0.487	0.891
m9	0.448	0.892
m10	0.454	0.892
m11	0.491	0.891
m12	0.501	0.890
m13	0.551	0.889
m14	0.560	0.889
m15	0.612	0.887
m16	0.593	0.888
m17	0.570	0.888
m18	0.613	0.887
m19	0.626	0.887
m20	0.560	0.889
m21	0.595	0.888

The item-total correlations range between 0.353-0.626, as shown in Table 11. This value being larger than 0.30 implies the items to have a significant degree of discriminatory power (De Vaus, 2002). The internal consistency value evidently do not decrease when any of the scale's items are removed.

Discussion and Conclusion

The relationship between organized industrial zones and regional development has been an important issue since the early 20th century. Organized industrial zones contribute to regional development in various areas, especially to the economy of the regions where they are established. For this reason, states use organized industrial zones as policy tools for eliminating regional imbalances. When evaluated in line with this, examining the positive and negative effects of organized industrial zones on regional development and their contributions to the people of the region becomes necessary.

As a result of the literature review, although many studies were found to have been conducted on organized industrial zones and regional development, few studies were found to have examined the relationship between regional development and organized industrial zones. When analyzing these studies, they are seen to generally consist of evaluations based on various indicators. Field studies using quantitative methods were found to lack a scale that has been statistically analyzed and accepted as valid and reliable. In this regard, the development of a measurement tool for measuring this relationship is thought to be able to fill an important gap in the literature.

Meanwhile, determining the impacts and positive and negative contributions of organized industrial zones on the provinces, districts, and regions where they have been established, as well as on the people living there, is just as important for researchers working in this field as it is for organized industrial zone legal entities, local governments, and policy makers. Having organized industrial zones as legal entities learn the opinions of the people who live next to and in the same area of these zones with regard to industrial zones' perceived contributions is important for maintaining the peace and being able to establish good relations with the people of that region. The fact that companies operate in an organized industrial zone, employs people from the region, and make various investments in the region is how an organized industrial zone develops a region and enriches the people of that region. By measuring the contribution of an organized industrial zone to the region and the people of the region, local governments will be able to plan for both the expectations of the people of the region, as well as for the investments and services to be made in that region. When evaluated from this perspective, the developed scale will obviously be able to contribute to other fields.

The study has been designed with these purposes and subjected the scale to exploratory and confirmatory factor analyses in order to test its construct validity. In light of the information obtained as a result of the analyses, the data in the study are seen to be sufficient in terms of sampling adequacy and to be appropriate in terms of the factorability of the correlation matrix (KMO = 0.904, Barlet's $p = 0.00$). The items on the scale were determined to have factor loading values ranging between 0.606-0.860, with the scale explaining 67% of the overall variance. The standard regression coefficients for the items on the scale have values varying between 0.56-0.86, with the scale showing acceptable goodness of fit (*CMIN / df* = 2.824, *AGFI* = 0.905, *GFI* = 0.928, *NFI* = 0.923, *CFI* = 0.949, *IFI* = 0.949, *TLI* = 0.939, *RMSEA* = 0.055).

Cronbach's alpha of internal consistency was used to test the reliability of the scale and calculated as 0.895. In addition, the item-total correlations for the items on the scale were determined to have values ranging between 0.353-0.626, with the internal consistency coefficient not increasing when deleting any single item. As a result of all the analyses, the Organized Industrial Zones Perception Scale consisting of 21 items under five factors (i.e., Green Economy and Environment, Economic Growth, Development of Social Life, Industrialization, and Clustering) is revealed to be a reliable and valid measurement tool.

Meanwhile, the research is seen to have certain limitations. The field application part of the research was conducted between January 1-March 1, 2023, in the Arsin, Akçaabat, and Beşikdüzü districts of Trabzon where organized industrial zones are located. When evaluated in this framework, the research is seen to be subject to historical and geographical limitations. Another limitation is related to the method of the research. Using the interview method in conjunction with the questionnaire would have been more beneficial for future studies based on the experience gained from a field study. The reluctance of the participants in the research constitutes another limitation in terms of the research. In this sense, although a large number of people were contacted, only a total of 600 people were able to be surveyed. While 600 people are sufficient in terms of the minimum sample number ($n = 383$) of people required to participate in the research, reaching more participants would have been more useful in terms of future studies.

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ORCID :

Sedat MURAT 0000-0001-9062-4121
Ahmet Cem ESENLİKCİ 0000-0002-4900-3398

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Appendix

Table 12. Organized Industrial Zones Perception Scale

No	Items	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1	Organized industrial zones ensure the discipline of industry.					
2	Organized industrial zones contribute to the planned settlement of industry.					
3	Organized industrial zones play a vital role in increasing workers' incomes.					
4	Organized industrial zones play a vital role in improving the living standards of workers.					
5	Organized industrial zones increase infrastructure investments in the regions where they are established.					
6	Organized industrial zones enable enterprises to produce in harmony with each other.					
7	Organized industrial zones bring together enterprises engaged in similar or complementary businesses.					
8	Organized industrial zones increase employment in the regions where they are established.					
9	Organized industrial zones play an important role in attracting private sector investors to the region.					
10	Organized industrial zones contribute to enterprises benefiting more easily from public incentives.					
11	Organized industrial zones increase exports in the regions where they are established.					
12	Organized industrial zones ensure the development of SMEs.					
13	The establishment of organized industrial zones prevents the opening of fertile agricultural land to industry.					
14	Organized industrial zones play an important role in ensuring environmental sustainability.					
15	Organized industrial zones pioneer the use of renewable energy sources.					
16	Organized industrial zones set an example for other industrial organizations and enterprises by implementing policies to encourage waste-free production (zero waste).					
17	Organized industrial zones establish a link between economic and environmental efficiency.					
18	Organized industrial zones ensure green efficiency in production.					
19	Organized industrial zones establish policies to identify environmental risks in advance and take measures in this regard.					
20	Organized industrial zones encourage the use and support of energy-saving products and technologies.					
21	Organized industrial zones contribute to an environmentally friendly regional development approach.					

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Research Article

Is COVID-19 an Advantage to Disadvantaged Groups? Evidence from Administrative Data on Working Hours in Turkey

Gökhan ÖZKUBAT[1], Şenay ÜÇDOĞRUK BİRECİKLİ[2], Sibel SELİM[3]

[1]Research Assistant, Manisa Celal Bayar University, Faculty of Economics and Administrative Sciences, Department of Econometrics, Manisa, Turkiye
[2]Prof. Dr., Dokuz Eylül Universiy, Faculty of Economics and Administrative Sciences, Department of Econometrics, İzmir, Turkiye
[2]Prof. Dr., Manisa Celal Bayar University, Faculty of Economics and Administrative Sciences, Department of Econometrics, Manisa, Turkiye

Corresponding author : Gökhan ÖZKUBAT
E-mail : gokhan.ozkubat@cbu.edu.tr

ABSTRACT

This paper examines the effects of COVID-19, which caused a recession in many fields in 2020, on the working hours of workers. Using the quarterly microdata set of the TurkStat Household Labour Force Surveys and the Oxford COVID-19 Government Response Tracker (OxCGRT) database, we found that the greatest work loss occurred in the second quarter of 2020 when the first shock of the pandemic was experienced. We also show that the stringency of the restrictions affects work loss. We present evidence that women, youth, informal, and temporary workers, who are classified as disadvantaged groups in the Turkish labor market, lost fewer working hours in the first period of the pandemic. Our quantitative analysis suggests that workers between the ages of 15 and 24 lost at least 2 hours less in the second quarter of 2020. Compared to the pre-pandemic period, working-hour gaps between formal and informal workers and permanent and temporary workers closed by about 1.5 hours in the same quarter. In addition, it is predicted that as the stringency of the restrictions increases by 10 points, working-hour gaps between the genders will be lessened by about 0.1 hours. The elderly, university graduates and those working in small businesses are the groups most affected by the pandemic. We also find that the balance between hourly wages and working hours has been disrupted at the beginning of the pandemic.

Keywords: COVID-19, working hours, lockdown, Turkish labor market, disadvantaged groups

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1. INTRODUCTION

The COVID-19 virus, which emerged in the city of Wuhan, China, in late 2019 and spread rapidly across the world, has caused great changes in the lives of people. To resist the pandemic and hinder the spread of the virus, many countries have taken unprecedented precautions. With the number of cases reaching millions, precautions such as social distancing rules, city lockdowns, and travel restrictions have resulted in severe economic downturns. It has been estimated that the COVID-19 pandemic has been the greatest crisis in modern times after the Great Depression and World War II (Ji et al., 2022; Alon et al., 2020; Ando et al., 2022). The effect of the pandemic on labor markets is reported to be more devastating compared to recent crises (Montenovo et al., 2020; Bui et al., 2020; Groshen, 2020; Dasgupta et al., 2021; Verick et al., 2022).

The effects of COVID-19 have raised considerable interest among researchers and numerous articles have been published in a short time (Brodeur et al., 2021). Many studies have been conducted to investigate the impact of COVID-19 on the labor market in various countries. All the studies that use administrative microdata, surveys, and macroeconomic indicators conclude that COVID-19 has caused a labor market recession. Lockdowns and social distancing rules are regarded as important causes of the decline in labor markets. According to Galasso and Foucault (2020), one of the causes of variation in loss of employment during the first waves of the pandemic was a difference in the strictness of the level of precautions in various countries. Gupta et al. (2022) determined that social distancing policies were the reason for 60 percent of the 12-point decrease in the employment rate in the US. Juranek et al. (2021) documented that in Scandinavian countries where COVID-19 has a similar spread, the labor market of Sweden, which applied softer restrictive policies than others, has been less affected by the pandemic. Verick et al. (2022) claimed that the root cause of the decrease in the labor market of middle- and high-income countries is the lockdowns, while Aum et al. (2021) argued that the root cause is COVID-19 itself in South Korea, where lockdowns have not been applied.

In papers examining the impact of COVID-19 on the labor market, the effect of the pandemic on existing inequalities among demographic groups is elaborated on. Gender, age, education, and race have been the most compared groups, while employment, unemployment, earnings, and working hours have been frequently used as labor force indicators. Some papers in the related literature are summarised in Appendix Table A1. While most studies point out that women are more affected by the pandemic than men, some studies demonstrate men are more affected, or that the pandemic affects both genders equally. Studies that document women being more affected have shown that the burden of housework and childcare, which increased during lockdowns, falls more heavily on women, and that is why female workers have lost more in employment and working hours (Adams-Prassl et al., 2020; Alon et al., 2020; Collins et al., 2021; Farré et al., 2020). Although there is some variation among countries, there is a large body of literature that documents workers in the accommodation and food sectors, and youth, the less educated, non-whites, or minorities have been in a more vulnerable position due to the pandemic. Furthermore, jobs are classified as essential or non-essential, and those requiring a high degree of contact or those that can be done from home, with limitations due to the pandemic and social distancing rules. It has been noted that non-essential jobs, those that cannot be done from home, and those requiring contact have been disproportionately affected by the pandemic (see Appendix Table A1).

Labor market losses have been associated with employment losses and working-hour losses. Unlike recent crises, lockdowns, and restrictions are also effective in labor losses caused by COVID-19. The number of working hours is a suitable indicator to measure labor losses, as it represents both the decrease in employment and the reduction in working hours of workers who are still employed (Dasgupta et al., 2021; Verick et al., 2022). Across the world, working hours decreased by 8.8 percent (equivalent to 255 million full-time jobs assuming a 48-hour working week) in 2020 compared to the last quarter of 2019 (ILO, 2021). Asfaw (2022) estimated the cost of lost working hours from March 2020 to February 2021 due to the pandemic at 138 billion dollars in the US. On the other hand, a labor plan based on a reduction in working hours may be a good policy to control the virus and boost employment, according to Aldieri et al. (2022).

Of papers that examine the effects of COVID-19 on the labor market in Turkey, to the best of our knowledge, only Aldan et al. (2021) used periodical administrative microdata. We note that their study primarily focused on the effect of the pandemic on demographic groups, but not on working hours and job characteristics groups (see Appendix Table A1). In the other studies about Turkey, on the other hand, less comprehensive survey data and macroeconomic indicators are utilized (Aygün et al., 2022; Noyan Yalman et al., 2021; Şahbaz Kılınç, 2021; Kul Parlak and Çiftçi, 2022; Bulut and Pınar, 2020). We seek answers to questions such as "How has the pandemic affected disadvantaged groups[1] in the Turkish labor market?" and "How much is the working-hour loss in these groups?" Finding answers

[1] A disadvantaged or vulnerable group is defined as a group that has difficulties gaining access to the labor market and finding a job and, after entering the labor market, has difficulty

to the questions was difficult at first because the household labor survey provides annual data in Turkey and no other administrative survey about the pandemic has been made. However, we were able to scrutinize this further by obtaining the quarterly microdata. In our analyses, labor losses are examined by using the working hour indicator to capture the effect of both the demographic characteristics of workers and the characteristics of their jobs. Most of the research in the literature focuses on the pandemic's initial short-term consequences. The point that makes this study different from previous studies in the literature is that it focuses on the variations among the periods of the pandemic and considers the stringency[2] of the restrictions applied during the pandemic. In that way, we do not limit analyses to short-term effects but also cover the effects of periods after the initial shock and estimate the impact of the level of lockdowns. Therefore, in the analyses of the study, we include demographic and job characteristics of workers representing the whole population of the country and the stringency of the restrictions and cover all quarters of 2020. Examining this broad perspective reveals the important contribution of our study. In summary, the results of this study are as follows:

i) The Turkish labor market suffered the greatest loss during the pandemic's initial shock in the second quarter of 2020. However, there has been an improvement in working hours in the third and fourth quarters, approaching pre-pandemic levels.

ii) It has been observed that the severity of policies against the pandemic affects working hours. As the stringency of lockdowns and restrictions increases, working hours decrease.

iii) It is found that the working hours of disadvantaged groups have been affected less by the pandemic. Women and youth have experienced less loss during all periods of the pandemic, but for informal and temporary workers, this is only true in the second quarter of 2020.

iv) The working hours of the elderly, university graduates, and those working in small businesses have reduced more under pandemic conditions. Moreover, it was observed that the working hours of these groups decreased more as the closures and restrictions increased.

v) The balance between hourly wages and working hours was broken in the second quarter of 2020.

Some of the findings of this study are compatible with previous studies. However, there has been no evidence in previous studies that COVID-19 gives disadvantaged groups an advantage in terms of working hours. Therefore, we bring a different result to the literature. The remainder of this paper is organized as follows: The second section discusses the Turkish labor market before and during the pandemic. The third section provides the data. In the fourth section, we present the method and findings. The last section concludes the paper.

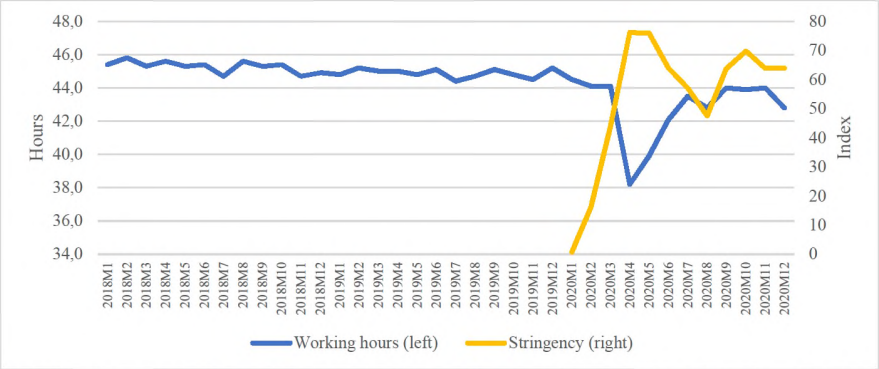
2. The Turkish Labor Market Before and During the Pandemic

The first COVID-19 case in Turkey was announced on March 11, 2020, and soon after, as in most countries, the first restrictions began to be implemented. Many precautions were put in place to combat the virus, such as closing cafés, restaurants, cinemas, and gyms; suspending formal education; imposing a curfew and travel ban; and making the use of masks mandatory (Güner et al., 2020; Sülkü et al., 2021). However, the severity of the precautions varied across periods. The Oxford COVID-19 Government Response Tracker (OxCGRT) database, which covers government policies on closure and containment, health, and economic policy for more than 180 countries as of 1 January 2020, is used to capture the effects of the stringency of restrictions on the labor market. The stringency index, which consists of nine ordinal indicators including precautions such as school closures, workplace closures, the cancellation of public events, and travel restrictions, takes a value between 0 and 100 depending on their severity (Hale et al., 2021). Figure 1 shows the seasonally and calendar-adjusted average actual weekly working hours and the stringency index for Turkey.

The average actual weekly working hours fluctuated around 45 hours in 2018 and 2019. However, with the onset of the pandemic, the average actual working hours decreased to 38 hours in April 2020. It is observed that the stringency index reached its highest value at that time. After this sharp reduction, there were some improvements in the next three months. The negative correlation between working hours and stringency appeared in the second quarter of 2020 but not in the third and fourth quarters. To examine the changes in the basic labor force indicators before and during the pandemic, employment, unemployment, and labor force participation rates covering the second, third, and fourth quarters of 2020 (2020Q2–2020Q4) and the same periods of the year before the pandemic (2019Q2–2019Q4) are shown in Table 1.

finding a well-paid, non-exploitative job with decent working conditions or employment guarantee (Anker, 1995). Generally, women, youth, and less educated individuals are represented as disadvantaged in the labor market (OECD, 2021; Monastiriotis and Laliotis, 2019). Moreover, as far as employment conditions are concerned, low-wage workers, informal, and temporary workers can be classified as disadvantaged groups.

[2] According to The Oxford COVID-19 Government Response Tracker (OxCGRT) database.



Note: The lines present the monthly averages. Source: Working Hours: TurkStat, Labour Force Statistics; Stringency Index: Hale et al. (2021).

Figure 1. Seasonally and calendar-adjusted average actual weekly working hours and the stringency index

According to the basic labor force indicators, employment, and labor force participation rates of women, those in the 15–24 and 55–64 age groups, and those with lower education levels, are quite low. However, there was a decrease in both rates in all demographic groups during the pandemic. It was also observed that the unemployment rate decreased between the two periods. Accordingly, employment losses in 2020 led to inactivity rather than unemployment (ILO, 2021). Measures taken to contain the spread of the virus contributed to the contraction of the labor market. Moreover, quarantines and other containment measures caused transitions from employment and unemployment to inactivity, since they hindered labor demand and discouraged the will to search for a job (Ando et al., 2022; Şahbaz Kılınç, 2021).

Table 1. Labor force indicators before and during the pandemic (weighted)

	Employment Rate (%)		Unemployment Rate (%)		Labor Force Participation Rate (%)	
	2019Q2-2019Q4	2020Q2-2020Q4	2019Q2-2019Q4	2020Q2-2020Q4	2019Q2-2019Q4	2020Q2-2020Q4
Total	50.6	47.5	13.7	**13.3**	58.7	54.7
Gender						
Male	68.8	65.1	12.2	12.4	78.4	74.3
Female	32.4	29.7	16.7	15.1	38.9	34.9
Age groups						
15-24	**33.6**	29.1	25.2	25.6	44.9	39.1
25-34	60.1	56.7	15.1	14.9	70.8	66.6
35-44	63.9	61.6	10.3	9.9	71.2	68.3
45-54	55.5	53.1	9.7	9.3	61.4	58.9
55-64	33.9	31.2	7.6	6.8	36.7	**33.5**
Education levels						
Not completed	29	25.1	12.1	13.1	**33**	28.9
Primary school	49.8	45.8	10.9	10.2	55.9	51
Lower sec. school	44	40.4	16.1	15.7	52.5	47.9
Upper sec. school	51.3	48.1	15.5	14.8	60.8	56.5
University degree	69.2	65.7	14.5	14.1	80.9	76.5
Postgraduate degree	84.1	82.2	6.6	6.5	90.1	87.9

Note: The sample includes individuals aged 15-64. Source: Authors' calculations based on TurkStat Household Labour Force Surveys.

3. Data

In this study, we used the administrative quarterly microdata covering 2018, 2019, and 2020 of the Household Labour Force Survey prepared by TurkStat. We restricted our sample to respondents aged 15 to 64 years. In all calculations based on the data set, the sample weights provided in each survey's microdata samples were used to generate estimates at the national level.

In the Household Labour Force Survey by TurkStat,[3] which covers all settlements in Turkey and 52 weeks of the year as the reference period, samples consisted of 374,162 individuals (in 2018), 366,551 individuals (in 2019), and 469,087 individuals (in 2020). Various demographic and job characteristic variables were used in the research, as far as the data set allows.[4]

[3] The Household Labour Force Survey quarterly microdata set is only accessible at Data Research Centers, which exist in TurkStat Presidency building and some Regional Offices, after the data request is approved and the protocol containing the confidentiality rules is signed.

[4] It has been reported that some of the variables present in the annual data set are not available in the quarterly data set because they are not suitable for producing reliable estimates in quarterly periods.

However, we were unable to use some variables that may affect working hours, such as the number of children or union membership, because the data set did not include this information about individuals. In addition, the surveys presented only cross-sectional data. For this reason, changes in the information of individuals over time cannot be observed. To conduct analyses, we pooled quarterly data sets covering the 12 quarters between the first quarter of 2018 and the fourth quarter of 2020.

Figure 2 depicts the average actual weekly working hours for the demographic and job characteristics groups across the quarters to obtain preliminary information before proceeding to the analyses.

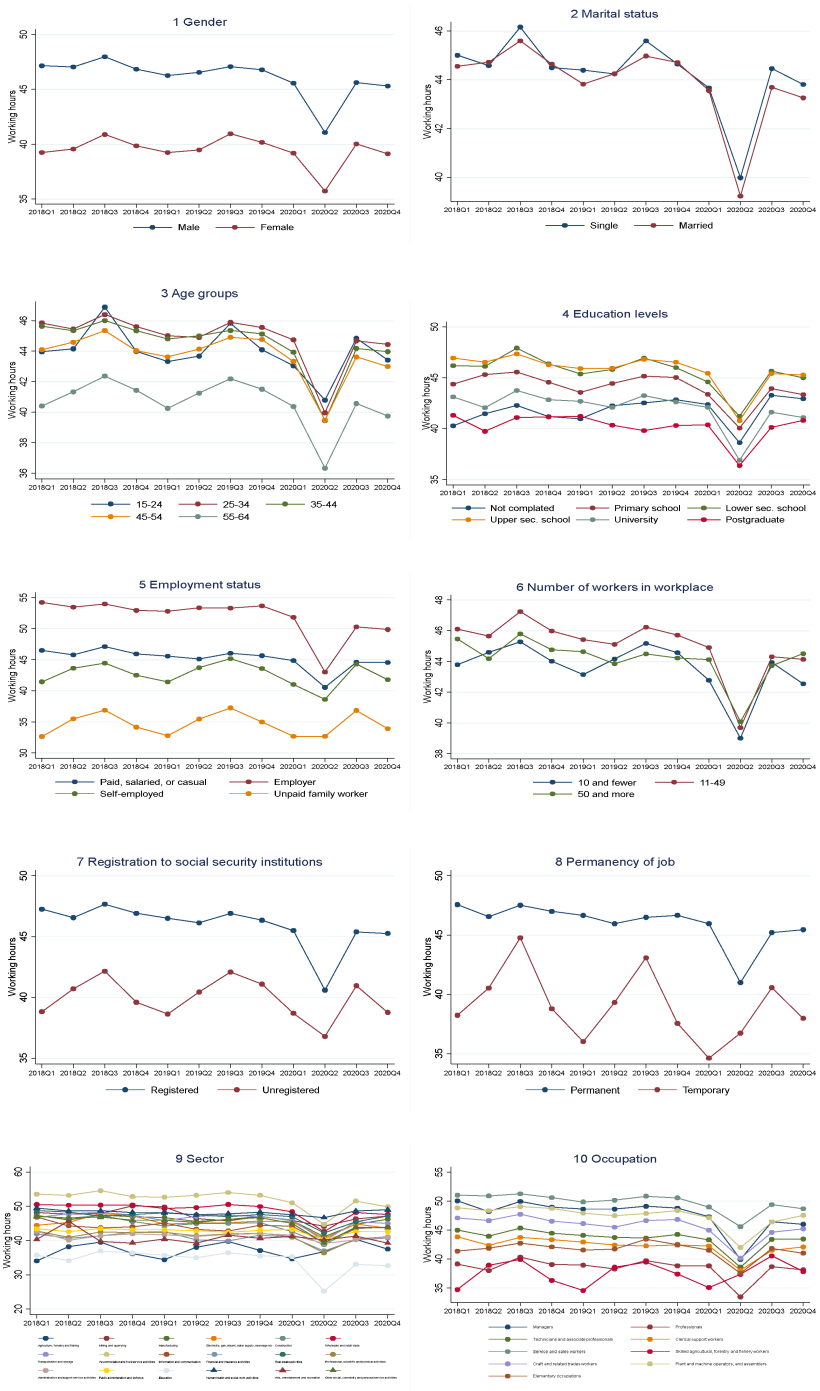


Figure 2. Average actual weekly working hours of demographic and job characteristics groups (weighted)

Notes: The lines present the quarterly averages. The sample includes workers aged 15–64. Permanency of job (2.8) is only available for paid, salaried, or casual workers. Source: Authors' calculations based on TurkStat Household Labour Force Surveys.

The greatest impact of the pandemic on working hours was observed in the second quarter of 2020 (Figure 2.1-10). There have been reductions in all groups except skilled agricultural, forestry, and fishery workers (Figure 2.10), those working in the agriculture, forestry, and fisheries sectors (Figure 2.9), and temporary workers (Figure 2.8), whose working hours increase seasonally in the second and third quarters of the year. Women (Figure 2.1), those in the age group of 55–64 (Figure 2.3), unpaid family workers (Figure 2.5), informal workers (Figure 2.7), and temporary workers (Figure 2.8) have fewer working hours in each quarter than others.

4. Methodology and Findings

In this paper, we investigated how COVID-19 affects working hours, whether there is any variation among periods during the pandemic, the impact of stringency of the restrictions applied against the virus on working hours, and how the working hours of demographic and job characteristic groups are affected by the pandemic. For that purpose, three different regression models were applied to two panels. Panel 1 covers all workers (paid, salaried, or casual; employer; self-employed; unpaid family worker), while Panel 2 represents only paid, salaried, or casual workers. In this way, we check estimations results to be consistent with the subset of the sample. We are also able to utilize 'permanency of job' and 'hourly wage' variables, which are only available for paid, salaried, or casual workers.

In regression models, we used individual variables and time periods or the stringency index. To investigate the impact of the pandemic on the working hours of different demographic and job characteristic groups, we also added interactions of individual variables and time periods or the stringency index to the models. The regression models are named A, B, and C as given below:

$$Y = X\beta_1 + Q\alpha_1 + (X^*Q)\gamma_1 + \varepsilon \qquad (A)$$

$$Y = X\beta_2 + P\alpha_2 + (X^*P)\gamma_2 + \varepsilon \qquad (B)$$

$$Y = X\beta_3 + S\alpha_3 + (X^*S)\gamma_3 + \varepsilon \qquad (C)$$

where Y denotes actual weekly working hours in the reference week; X is a matrix of individual independent variables; Q represents quarters (2018Q1, 2018Q2, . . . , 2020Q4); P represents the pre-pandemic period and quarters in the pandemic (2018Q1-2020Q1, 2020Q2, 2020Q3, 2020Q4); S is the stringency index; and ε is the error term. X accounts for demographic and job characteristic variables. Demographic variables include gender (male; female), age groups (15-24; 25-34; 35-44; 45-54; 55-64), education levels (not completed any educational institution; primary school; lower secondary school; upper secondary school; university degree; postgraduate degree) and marital status (single; married). Job characteristics consist of employment status (paid, salaried, or casual; employer; self-employed; unpaid family workers), sector (18 main activity classes), the number of workers in the workplace (10 and fewer; 11-49; 50 and more), occupation (one-digit ISCO-08 codes), registration to social security institutions (registered; unregistered), permanency of job (permanent; temporary), and hourly wage[5]. Hourly wage and permanency of job variables are not available for employers, self employed, and unpaid family workers. Therefore, these two variables are included only in the Panel 2 models. β is the coefficient of the individual independent variables; α is the coefficient of the quartiles and the stringency index; γ is the coefficient of the interaction of the individual independent variables and the quartiles or the stringency index.

Model A includes all 12 quarters, from the first quarter of 2018 to the fourth quarter of 2020. In this model, while quarters during the pandemic were investigated, the effects of pre-pandemic quarters were controlled. In Model B, we combined the pre-pandemic quarters (2018Q1–2020Q1) into a single period. In that way, it is supposed that the quarters before the pandemic are homogeneous, and the periodic effects before the pandemic are not considered. As a result, using Models A and B, we investigated the effects of quarters during the pandemic on working hours in two ways. In addition, differences among pandemic periods can be observed. We focused on the coefficients of the second, third, and fourth quarters of 2020 in Models A and B. In Model C, unlike Models A and B, we utilized the average stringency index of the quarters instead of the periods[6]. We investigated the effects of the stringency of lockdown and restriction

[5] The hourly wage variable does not exist in the dataset. For this reason, the hourly wage variable was generated as follows: First, using the 2003 base consumer price index (CPI) for all quarters, we created a real variable from individuals' monthly earnings. Second, this variable was multiplied by 7/30 to calculate the real weekly wage. Finally, the real weekly wage was divided by the actual weekly working hours.

[6] The stringency index value was zero for 2018 and 2019.

measures on working hours with Model C. Using the stringency index, which takes a continuous value instead of a quarter dummy, we were able to predict working hours at any stringency quantity. For example, a 10-point increase in the stringency index reduced working hours by 0.6 hours for Panel 1 and by 0.2 hours for Panel 2 (see Appendix Table A2).

In this study, we were mostly interested in disadvantaged groups. For this reason, we concentrated on the variables of gender, age groups, education levels, registration to social security institutions, permanency of the job, and hourly wage. Sector and occupation were treated as control variables. To reduce the space used, we did not give the estimation results, which include all coefficients, in this section.[7] By the purpose of our study, we interpreted the γ interaction coefficients of the second, third, and fourth quarters of 2020 and the stringency index, which show the effects of the pandemic on the groups. The estimation results for the groups are presented in Tables 2 and 3, in two separate parts as demographic and job characteristic groups, respectively.

Table 2 displays the COVID-19 effect on working hours by demographic groups, and Table 3 displays the COVID-19 effect on working hours by job characteristic groups. Looking at both tables, the coefficient signs and statistical significance of all three models are mostly like each other. Accordingly, it can be determined that the three approaches used to comprehend the role of the pandemic in reducing working time are compatible. In addition, there were no large differences between the coefficients of Panel 1 and Panel 2. As a result, we conclude that the estimation results are consistent with the sample subset.

In Table 2, the female coefficients are positive and statistically significant, implying that the working-hour gaps between the genders narrowed during the pandemic. Furthermore, a 10-point increase in the stringency index reduces the difference in working hours by about 0.1 hours. Our findings are consistent with Hupkau and Petrongolo (2020) for the UK and Harman (2021) for Slovakia, but inconsistent with Alon et al. (2020) for the US, which found women are disproportionately affected, and Meekes et al. (2020) for the Netherlands, which found women and men equally affected.

The interaction coefficients of age groups in Table 2 are negative and statistically significant, suggesting that, particularly in the first quarter of the pandemic, the working-hour loss of individuals between the ages of 15 and 24 is at least two hours less than that of the other age groups. Our study found that youth are the age group least affected by the pandemic, unlike previous papers that documented that youth are affected more. However, findings for the elderly are in line with Bui et al. (2020) for the US, and Aldan et al. (2021) for Turkey.

There are some differences among the models for the effect of the pandemic on groups with various educational levels. The coefficients also vary across panels and quarters. In the first period of the pandemic, it is observed that while the working hours of those with higher education decreased more in Panel 2, there was no significant change in Panel 1. However, the interaction coefficients of the third and fourth quarters of 2020 and the stringency index were negative in all models. Contrary to our findings, Farré et al. (2020) for Spain and Bell and Blanchflower (2020) for the US point out that the less-educated workers are affected more by the pandemic. Our results suggest that university-educated individuals are the education group who lost the most working hours during the pandemic in the Turkish labor market.

In Table 3, the coefficients of employment status are available for Panel 1. Zimpelmann et al. (2021) for the Netherlands and Aygün et al. (2022) for Turkey found that the self-employed were severely affected by the pandemic. However, our results showed that the working hours of unpaid family workers and employers fell more.

According to Aum et al. (2021), small establishments accounted for most employment losses in South Korea because of the COVID-19 shock. Our findings, in parallel, showed that workers in larger workplaces were less affected by the pandemic. While the coefficient values rose in the second and fourth quarters of 2020, when the restrictions were more severe, they fell in the third quarter, when the restrictions were somewhat loosened.

In Table 3, it is seen that registration to social security institutions and the permanency of jobs are factors that affected working hours in the first period of the pandemic. In the related literature, informal workers (Beccaria et al. (2022) for Latin American countries, Dasgupta et al. (2021) for middle-income countries) and temporary workers (Adams-Prassl et al. (2020) for the UK, the US, and Germany, and Ando et al. (2022) for European countries) were hit hardest by the pandemic crisis. In our research, it was determined that working-hour gaps between formal and informal workers, as well as permanent and temporary workers, closed in the second quarter of 2020. However, in the third and fourth quarters, the coefficients of these variables became smaller and insignificant. Similarly, while the coefficients of the hourly wage variable were positive and statistically significant in the first quarter of the pandemic, their magnitudes decreased and even became negative in subsequent quarters. For these variables, it can be deduced that the short-term

[7] Estimation results with all coefficients are presented in Appendix Table A2.

Table 2. COVID-19 effect on working hours by demographic groups (weighted)

	PANEL 1 (ALL WORKERS)							PANEL 2 (PAID, SALARIED, OR CASUAL WORKERS)						
Working hours	**2020Q2**		**2020Q3**		**2020Q4**		**Stringency**	**2020Q2**		**2020Q3**		**2020Q4**		**Stringency**
	1A	1B	1A	1B	1A	1B	1C	2A	2B	2A	2B	2A	2B	2C
γ														
Gender														
Female	1.4114***	0.9290***	1.1755***	0.6932***	1.0289***	0.5466***	0.0117***	1.0034***	0.5665**	0.8791***	0.4422**	0.5341*	0.0972	0.0075***
	(0.3134)	(0.2525)	(0.2848)	(0.2161)	(0.2759)	(0.2042)	(0.0022)	(0.3235)	(0.2640)	(0.2840)	(0.2138)	(0.2745)	(0.2011)	(0.0022)
Age groups														
25–34	-3.0259***	-2.1075***	-2.2260***	-1.3076***	-1.1532***	-0.2348	-0.0192***	-3.1544***	-2.4557***	-2.5908***	-1.8921***	-1.4891***	-0.7904**	-0.0275***
	(0.5046)	(0.4143)	(0.4495)	(0.3451)	(0.4421)	(0.3354)	(0.0036)	(0.5104)	(0.4318)	(0.4370)	(0.3421)	(0.4237)	(0.3250)	(0.0036)
35–44	-3.4445***	-2.2265***	-2.7218***	-1.5038***	-1.5559***	-0.3379	-0.0219***	-3.8245***	-3.1159***	-2.8323***	-2.1237***	-1.3059***	-0.5973	-0.0333***
	(0.5464)	(0.4453)	(0.4939)	(0.3790)	(0.4860)	(0.3686)	(0.0039)	(0.5721)	(0.4658)	(0.5061)	(0.3818)	(0.4922)	(0.3633)	(0.0039)
45–54	-2.9979***	-1.9974***	-2.8538***	-1.8533***	-1.8242***	-0.8237**	-0.0245***	-3.1448***	-2.5319***	-2.6757***	-2.0628***	-1.0026*	-0.3897	-0.0293***
	(0.5872)	(0.4763)	(0.5343)	(0.4093)	(0.5267)	(0.3994)	(0.0042)	(0.6447)	(0.5085)	(0.5815)	(0.4256)	(0.5698)	(0.4096)	(0.0044)
55–64	-4.1231***	-3.0301***	-4.1727***	-3.0797***	-2.2981***	-1.2051**	-0.0373***	-3.9623***	-3.3507***	-3.0539***	-2.4422***	-1.5043*	-0.8926	-0.0378***
	(0.7064)	(0.5574)	(0.6552)	(0.4910)	(0.6416)	(0.4727)	(0.0050)	(0.8734)	(0.6782)	(0.7962)	(0.5756)	(0.7776)	(0.5495)	(0.0059)
Education														
Primary school	0.3451	0.6474	-1.1726*	-0.8703	-1.6205**	-1.3182**	-0.0109**	-0.6284	-0.4530	-1.2834	-1.1080	-1.5363*	-1.3608*	-0.0163**
	(0.7202)	(0.5743)	(0.6939)	(0.5410)	(0.6878)	(0.5332)	(0.0054)	(1.0509)	(0.8827)	(0.9230)	(0.7260)	(0.9051)	(0.7031)	(0.0075)
Lower sec. school	-0.0637	0.3192	-1.0613	-0.6785	-1.8858***	-1.5029***	-0.0140**	-0.8606	-0.8525	-0.9940	-0.9859	-1.2814	-1.2734*	-0.0206***
	(0.7674)	(0.6168)	(0.7270)	(0.5658)	(0.7190)	(0.5555)	(0.0057)	(1.0549)	(0.8908)	(0.9215)	(0.7282)	(0.9013)	(0.7025)	(0.0075)
Upper sec. school	-0.8237	-0.3598	-1.4111*	-0.9472*	-1.9336***	-1.4697***	-0.0173***	-1.8141*	-1.6664*	-1.6237*	-1.4760**	-1.5077*	-1.3600*	-0.0268***
	(0.7625)	(0.6102)	(0.7249)	(0.5627)	(0.7181)	(0.5538)	(0.0056)	(1.0459)	(0.8777)	(0.9206)	(0.7240)	(0.9037)	(0.7025)	(0.0075)
University	-0.9219	-0.6817	-2.1776***	-1.9373***	-2.4889***	-2.2487***	-0.0288***	-2.2401**	-2.1518**	-2.5029**	-2.4146***	-1.9900**	-1.9017***	-0.0412***
	(0.8113)	(0.6471)	(0.7683)	(0.5923)	(0.7612)	(0.5831)	(0.0059)	(1.1296)	(0.9093)	(1.0212)	(0.7707)	(0.9957)	(0.7366)	(0.0078)
Postgraduate	1.5525	1.5958*	-1.0256	-0.9824	-0.5475	-0.5043	-0.0029	-2.4458	-2.3785**	-2.4264	-2.3591**	-0.1330	-0.0656	-0.0428***
	(1.0160)	(0.8151)	(0.9353)	(0.7120)	(0.9302)	(0.7054)	(0.0073)	(1.6308)	(1.0700)	(1.5979)	(1.0192)	(1.5509)	(0.9440)	(0.0097)
Marital status														
Married	-0.5043	-0.5081*	-0.4030	-0.4068*	-0.4106	-0.4144*	-0.0073***	-0.4415	-0.2060	-0.5730*	-0.3375	-0.6153**	-0.3798	-0.0068***
	(0.3447)	(0.2767)	(0.3205)	(0.2459)	(0.3135)	(0.2368)	(0.0025)	(0.3520)	(0.2810)	(0.3280)	(0.2503)	(0.3135)	(0.2311)	(0.0025)
Observations				471,776							308,529			
R-squared	0.1836	0.1782	0.1836	0.1782	0.1836	0.1782	0.1746	0.2482	0.2374	0.2482	0.2374	0.2482	0.2374	0.2332

The dependent variable is the actual weekly working hours in the reference week. γ is the coefficient of the interaction terms. Statistical significance level: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors are in parentheses. Reference categories are male, 15–24, not completed any educational institution, and single, respectively. Reference periods are the first quarter of 2018 (2018Q1) for Model A and the pre-pandemic period (2018Q1-2020Q1) for Model B. All regressions control sector and occupation and use sample weights. The sample includes workers aged 15–64.

Table 3. COVID-19 effect on working hours by job characteristics groups (weighted)

	PANEL 1 (ALL WORKERS)							PANEL 2 (PAID, SALARIED, OR CASUAL WORKERS)						
Working hours	**2020Q2**		**2020Q3**		**2020Q4**		**Stringency**	**2020Q2**		**2020Q3**		**2020Q4**		**Stringency**
	1A	1B	1A	1B	1A	1B	1C	2A	2B	2A	2B	2A	2B	2C
γ														
Employment status														
Paid, salaried, or casual	2.3830***	2.1665***	0.1365	-0.0800	0.9417	0.7252	0.0149***							
	(0.7603)	(0.5867)	(0.7086)	(0.5180)	(0.7339)	(0.5521)	(0.0055)							
Employer	0.5938	-0.3434	1.1375	0.2004	1.2950	0.3579	0.0022							
	(0.9856)	(0.7847)	(0.8957)	(0.6684)	(0.9234)	(0.7050)	(0.0071)							
Self-employed	2.2976***	1.0139*	3.2734***	1.9897***	2.3598***	1.0761**	0.0198***							
	(0.6903)	(0.5241)	(0.6651)	(0.4905)	(0.6863)	(0.5189)	(0.0051)							
Number of workers in the workplace														
11–49	1.3193***	1.1652***	0.4680	0.3140	1.6962***	1.5422***	0.0174***	1.5571***	1.2946***	0.2874	0.0249	1.5304***	1.2679***	0.0125***
	(0.4097)	(0.3454)	(0.3554)	(0.2789)	(0.3472)	(0.2684)	(0.0029)	(0.4122)	(0.3428)	(0.3638)	(0.2827)	(0.3488)	(0.2632)	(0.0029)
50 and more	1.9801***	2.2754***	0.6828**	0.9781***	2.1917***	2.4870***	0.0314***	1.5862***	1.7667***	0.4139	0.5944**	1.9678***	2.1482***	0.0208***
	(0.3949)	(0.3286)	(0.3479)	(0.2703)	(0.3430)	(0.2640)	(0.0028)	(0.4345)	(0.3319)	(0.3988)	(0.2835)	(0.3946)	(0.2776)	(0.0029)
Registration to SSI														
Unregistered	2.1966***	1.4024***	1.2945***	0.5003	0.4925	-0.3017	0.0097***	2.5262***	1.6869***	0.9895*	0.1502	0.7504	-0.0889	0.0125***
	(0.4563)	(0.3707)	(0.4098)	(0.3117)	(0.4174)	(0.3217)	(0.0033)	(0.5992)	(0.4990)	(0.5175)	(0.3975)	(0.5114)	(0.3895)	(0.0041)
Permanency of job														
Temporary								2.5639***	1.3731**	1.8964***	0.7055	0.2433	-0.9475**	0.0016
								(0.7643)	(0.5591)	(0.7091)	(0.4809)	(0.6809)	(0.4384)	(0.0047)
Hourly wage								0.4656*	0.4145***	0.2421	0.1909	-0.1592	-0.2104*	0.0057***
								(0.2579)	(0.0893)	(0.2788)	(0.1385)	(0.2703)	(0.1205)	(0.0010)
Observations				471,776							308,529			
R-squared	0.1836	0.1782	0.1836	0.1782	0.1836	0.1782	0.1746	0.2482	0.2374	0.2482	0.2374	0.2482	0.2374	0.2332

The dependent variable is the actual weekly working hours in the reference week. γ is the coefficient of the interaction terms. Statistical significance level: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors are in parentheses. Reference categories are unpaid family workers, 10 and fewer, registered, and permanent, respectively. Reference periods are the first quarter of 2018 (2018Q1) for Model A and the pre-pandemic period (2018Q1-2020Q1) for Model B. All regressions control sector and occupation and use sample weights. The sample includes workers aged 15–64.

effects at the beginning of the pandemic were considerable, but after the initial shock wore off, they returned to the pre-pandemic period.

The β coefficient of the hourly wage variable shows that as hourly wages rise, the working hours decrease (see Appendix Table A2). According to standard labor supply theory, the income effect is more dominant (Anxo and Karlsson, 2019). However, the degree of the income effect has been quite lessened in the second quarter of 2020. This situation is also evident in Figure 3, where the average hourly wages are shown throughout the quarters. This can be explained by the fact that despite losses in working hours, incomes remained stable, or the employment losses of low-paid workers were higher (Cortes and Forsythe, 2020; Lemieux et al., 2020) during the initial phase of COVID-19.

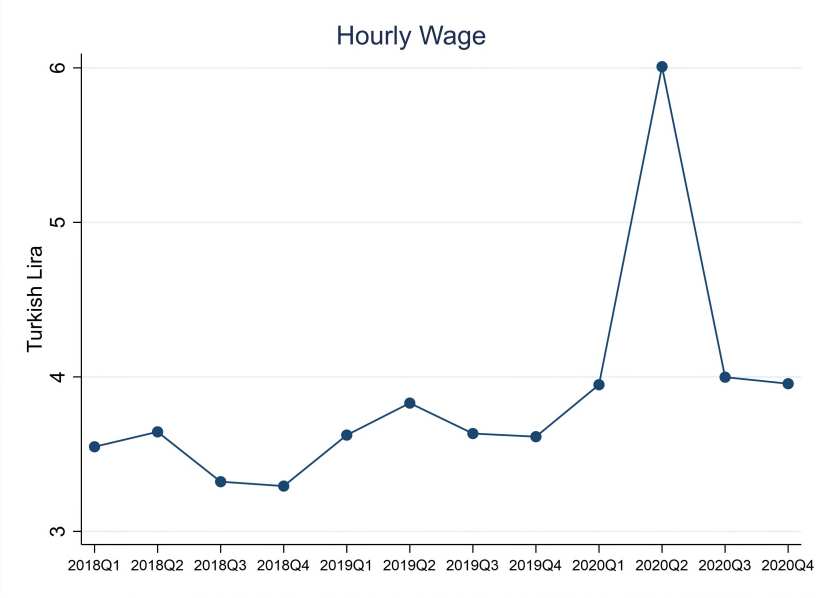


Figure 3. Average hourly wages (weighted)

Notes: The lines present the quarterly averages adjusted by 2003 prices. The sample includes workers aged 15–64. Hourly wage is only available for paid, salaried, or casual workers. Source: Authors' calculations based on TurkStat Household Labour Force Surveys.

5. Conclusion

COVID-19, which emerged as a health crisis, has caused an unprecedented economic recession worldwide in recent years. Furthermore, with the increasing number of cases and containment measures, there has been a sharp drop in labor markets. In many studies examining the effects of the pandemic on labor markets, it has been stated that the pandemic has exacerbated the inequalities that already exist in the labor markets. The effects of the pandemic have been more devastating for disadvantaged or vulnerable groups (Bell and Blanchflower, 2020; OECD, 2021; Krafft et al., 2021; Soares and Berg, 2022). Several studies document that the closure and restriction measures implemented by governments to prevent the spread of the virus were effective in labor markets.

In our study, we examined the effect of COVID-19 on the Turkish labor market in terms of working hours. We specifically investigated how the pandemic affects the working hours of disadvantaged groups. For this purpose, we utilized the quarterly microdata set of the TurkStat Household Labour Force Surveys, covering 12 quarters from the first quarter of 2018 to the fourth quarter of 2020. Additionally, the Oxford COVID-19 Government Response Tracker (OxCGRT) database was used to examine the impact of the stringency of closures and restrictions.

Our findings indicate that the initial shock of COVID-19, which occurred in the second quarter of 2020, resulted in the greatest loss of working hours. However, the losses were largely offset in subsequent quarters. During this period, the easing of closures and restrictions may have triggered a recovery in working hours (Casarico and Lattanzio, 2022). Our results also suggest that the severity of the measures applied affected working hours. Consistent with previous studies, we found that working hours decreased as the stringency of restrictions increased.

Our study, contrary to the literature, concluded that disadvantaged groups were not affected more during the pandemic, and even working-hour gaps among groups were narrowed. We observed a reduction in the gender gap in working hours during the pandemic, supported by positive and statistically significant coefficients for females. This contrasts with numerous studies conducted in the UK, the US, Spain, and the Netherlands, which suggested that women were more severely impacted. Similarly, our findings regarding age groups diverge from previous research that suggested youth were more affected by the pandemic in European countries, Canada, and the US. Instead, our results indicated that youth experienced fewer reductions in working hours during the initial quarter of the pandemic. Although our findings indicated variations in the impact of the pandemic on educational groups, it was concluded that university-educated individuals in Turkey lost the most working hours during the pandemic. This differs from studies in Turkey, Spain, and the US, which suggested that less-educated workers were more affected. Furthermore, our study revealed that unpaid family workers and employers experienced more significant decreases in working hours, contrary to earlier

research in the Netherlands and Turkey, which emphasized the impact on the self-employed. Larger workplaces were also less affected, like the findings in South Korea. We found that working-hour gaps between formal and informal workers, as well as permanent and temporary workers, closed in the second quarter of 2020, unlike studies in Latin American and European countries. While women and youth suffered less loss throughout the pandemic, informal and temporary workers experienced it only in the first quarter of the pandemic. Similarly, our study revealed that the balance between working hours and hourly wages was disrupted by the beginning of the pandemic. However, the changes in the second quarter of 2020 were compensated for in the following periods. It can be deduced that during the first shock of COVID-19, in which the income effect decreased according to the labor supply theory and the average hourly wage rose, workers tried to protect their incomes, or low-wage workers experienced more layoffs.

The conflicting results with the literature may be due to various reasons. First, the employment and labor force participation rates of women, youth, and less educated individuals have been low for a long time in Turkey. Furthermore, the average working hours of women, informal, and temporary workers are considerably lower than those of men, formal, and permanent workers. Therefore, the impact of an external shock on groups that already have a small proportion of employment and fewer working hours may be smaller in absolute terms. Second, it should be highlighted that the results apply only to individuals in employment; unemployed and inactive persons are not included in the analysis. Individuals in disadvantaged groups who had low working hours before COVID-19 were likely to experience more employment losses during the pandemic. Additionally, the continued employment of individuals who have higher working hours in these groups may increase the average working hours of disadvantaged groups throughout the pandemic. Finally, we cannot compare the working outputs of the same individuals before and during pandemic periods because the data set is not arranged by longitudinal surveys. For more precise results, a panel dataset containing the working information of individuals before and during the pandemic can be used.

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ORCID :

Gökhan ÖZKUBAT 0000-0001-8845-8072
Şenay ÜÇDOĞRUK BİRECİKLİ 0000-0002-5842-4012
Sibel SELİM 0000-0002-8464-588X

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Appendix

Table 4. Appendix A1: The impact of COVID-19 on groups in labor markets

Author(s)	Country	Groups	Labor Force Indicators	Methodology and Findings
Acheampong (2021)	Hungary	Gender, sector	Employment and unemployment rates	t-test. Women are more affected by the pandemic. Women lost more jobs in accommodation and food services, while men lost more jobs in the transportation and storage sector.
Adams-Prassl et al. (2020)	The UK, US, and Germany	Gender, education, age, occupation, industry, work arrangement, and tasks can be done from home	Job loss, earnings loss, furloughing and short-time work, hours worked.	Linear probability models. Employees in Germany are less affected by the pandemic than those in the US and UK. Women and less-educated workers are more affected by the crisis. Workers who can do fewer tasks from home are more likely to experience job loss and a drop in earnings. Temporary workers are more likely to lose their jobs.
Aldan et al. (2021)	Turkey	Gender, age, education, parenthood	Participation, employment, unemployment	Linear probability models. Women, especially mothers, are more adversely affected by the pandemic. The impact of the pandemic is hardest on the young (15–24) and the elderly (55+). The effect decreases as the level of education increases.
Alon et al. (2020)	The US	Gender, marital status, children	Employment, unemployment, hours worked, wage	Macroeconomic model. Women are disproportionally affected by the pandemic.
Ando et al. (2022)	European countries	Age, gender, education, type of contract, sector	Hours worked, employment and unemployment rates	The youth, temporary and part-time workers, and those with lower education levels are more affected by the pandemic. In addition, contact-intensive activities register substantial drops in output and hours worked. There is a high degree of heterogeneity among countries, although there are no large gender differences.
Aum et al. (2021)	South Korea	Occupation, education, age, gender, employment type, industry, establishment size	Unemployment, non-participation, employment	Difference-in-differences. Employment losses are mostly concentrated in small businesses and the accommodation/food, education, real estate, and transportation industries. The lower-educated, youth, low-wage, temporary workers, and the self-employed are more affected by COVID-19.
Aygün et al. (2022)	Turkey	Gender, education, children, formality, sector, age, marital status	Income loss, decrease in work hours, employed, unemployed, inactive	Linear probability model, multinomial logit model. Women, less educated individuals, and those with children are more affected by the pandemic. Self-employment and informal employment are other factors that contribute to vulnerability.
Beccaria et al. (2022)	Latin American countries	Gender, employment status	Activity, employment, and unemployment rates, working hours	Women and informal wage employment are more affected by the pandemic.
Bui et al. (2020)	The US	Gender, age	Employment, unemployment, and labor force participation rates	Those near retirement ages, especially women, are hit hardest by COVID-19.
Collins et al. (2021)	The US	Gender, children's age	Working hours	Fixed effects regression models. Working hours of mothers with young children are reduced by four to five times more than fathers during the period from February through April 2020. The gender gap in working hours increased by 20-50 per cent.
Cortes and Forsythe (2020)	The US	Occupations, industries, gender, education, age, race, and ethnicity	Employment rate, transition out of employment	Regression models. Workers in low-wage occupations and sectors, youth, women, lower-educated, and Hispanics are more affected by the pandemic.
Dasgupta et al. (2021)	Middle-income countries	Sector, gender, age, informality	Employment, working hours	Transport, accommodation, tourism and hospitality sectors, women, youth, immigrants, and informal workers are more affected by the crisis.
Farré et al. (2020)	Spain	Gender, education, age, children	Employment rates, employment status	Regression models. The hospitality and retail sectors are hit hardest. Those with low education and women are more affected by the pandemic.

Table 4. Contunied

Author(s)	Country	Groups	Labor Force Indicators	Methodology and Findings
Galasso and Foucault (2020)	Australia, Austria, Brazil, Canada, France, Germany, Italy, New Zealand, Poland, Sweden, the UK, and the US	Education, family income group, occupational type, employment status, age, gender, geographical location, life satisfaction	Working in the regular workplace, working from home, and stopping working	There are big differences among countries. Stopping working rates are high in Italy and France, while they are low in Australia and the US. College graduates and white-collar workers mostly worked from home. Blue-collar workers, individuals with low education, and low-income workers are more likely to stop working.
Groshen (2020)	The US	Sector, sex, race	Unemployment rate, the change in payroll jobs	Leisure and hospitality, retail trade sectors are strongly affected during the shutdown. The jobs of Hispanic, African American, and women workers are more disrupted.
Harman (2021)	Slovakia	Gender, region, education, age	Employment, unemployment	While men are more affected by the pandemic, especially highly educated women are more resilient to crisis.
Hupkau and Petrongolo (2020)	The UK	Gender, age, children, education, ethnicity, region, industry, income, work from home	Job loss, furloughing, working hours loss, earning loss.	Linear probability models. Women and men are almost equally affected in terms of job loss and furloughing. However, women's working hours and earnings are less affected by the pandemic compared to men's.
Lemieux et al. (2020)	Canada	Gender, age, children, province, occupation, hourly-salaried, union status, class of worker, earning	Hours worked, employment	Difference-in-differences. Workers in the lowest earnings quartile accounted for almost half of the job losses between February 2020 and April 2020. Accommodation and food services sectors, youth, hourly-paid, and non-union workers are more affected by the pandemic.
Meekes et al. (2020)	Netherlands	Gender, age, household composition, type of contract, type of job, full/part-time status	Employment, working hours, hourly wages	Differences-in-differences. Non-essential workers are more affected by COVID-19. On average, men and women are equally affected. Single-parent essential workers are more adversely affected.
Milovanska-Farrington (2021)	The US	Gender, ethnicity, age, marital status, household size, number of children, age of the youngest child, education, employment status	Hours worked, employment, unemployment duration, earnings	OLS, Probit regression models. Aside from the increase in the gap in the duration of unemployment between women and men with children, no worsening of gender differences is observed during the pandemic. Hispanics are the most adversely affected by COVID-19.
Montenovo et al. (2020)	The US	Gender, race, ethnicity, age, children, education, occupation, industry, state	Unemployment, absence from work	Regression models. Those working in occupations that require contact and cannot be performed remotely, women, Hispanics, youth, and high school educated, are more affected by the pandemic.
Noyan Yalman et al. (2021)	Turkey, Middle Anatolia cities	Gender, age, sector	Change in working hours	Chi-square test. While private sector workers are more affected, there is no significant difference between gender and age groups.
Verick et al. (2022)	More than 50 counties	Sector, gender, age	Employment	In the accommodation and food services sectors, women and youth are more affected by the pandemic.
Zimpelmann et al. (2021)	Netherlands	Gender, education, income, age, sector, work doable from home, work status	Employment, working hours, household income,	Regression models. Working hours of lower-educated or low-income workers drop almost twice as much as others. During the early stages of the pandemic, women and self-employed workers are disproportionately affected.

Table 5. Appendix A2: Estimation results (weighted)

	PANEL 1 (ALL WORKERS)			PANEL 2 (PAID, SALARIED, OR CASUAL WORKERS)		
Working hours	(1A)	(1B)	(1C)	(2A)	(2B)	(2C)
Quarter/Period(α)						
2018Q2	-1.3322			-1.1105		
	(1.2265)			(1.2943)		
2018Q3	-1.4994			-0.9971		
	(1.2484)			(1.2887)		
2018Q4	0.0471			-1.5592		
	(1.2512)			(1.2925)		
2019Q1	1.0937			-0.3458		
	(1.2695)			(1.2997)		
2019Q2	-0.3453			-1.8439		
	(1.2839)			(1.2980)		
2019Q3	0.0516			-1.2089		
	(1.3230)			(1.4242)		
2019Q4	-0.7494			-0.3649		
	(1.2775)			(1.2780)		
2020Q1	-0.0505			-0.6313		
	(1.2928)			(1.3691)		
2020Q2	-8.6011***	-8.2187***		-4.6894***	-3.6746***	
	(1.3929)	(1.1065)		(1.5132)	(1.2178)	
2020Q3	-1.6266	-1.2441		-0.7015	0.3133	
	(1.2920)	(0.9765)		(1.3300)	(0.9813)	
2020Q4	-2.6645**	-2.2821**		-0.4216	0.5932	
	(1.2804)	(0.9610)		(1.2970)	(0.9361)	
Stringency(α)			-0.0564***			-0.0155
			(0.0099)			(0.0102)
Gender(β)						
Female	-5.2466***	-4.7642***	-4.7897***	-3.3876***	-2.9507***	-2.9931***
	(0.1972)	(0.0670)	(0.0692)	(0.2009)	(0.0739)	(0.0723)
Gender(γ)						
2018Q2x(Female)	0.0695			0.0391		
	(0.2823)			(0.2862)		
2018Q3x(Female)	0.4849*			0.3753		
	(0.2880)			(0.2892)		
2018Q4x(Female)	0.6586**			0.5029*		
	(0.2765)			(0.2745)		
2019Q1x(Female)	0.3767			0.4507		
	(0.2759)			(0.2762)		
2019Q2x(Female)	0.3189			0.3461		
	(0.2836)			(0.2800)		
2019Q3x(Female)	1.0664***			0.6553**		
	(0.2945)			(0.3063)		
2019Q4x(Female)	0.8449***			0.5264**		
	(0.2741)			(0.2666)		
2020Q1x(Female)	0.6013**			0.7223***		
	(0.2738)			(0.2751)		
2020Q2x(Female)	1.4114***	0.9290***		1.0034***	0.5665**	
	(0.3134)	(0.2525)		(0.3235)	(0.2640)	
2020Q3x(Female)	1.1755***	0.6932***		0.8791***	0.4422**	
	(0.2848)	(0.2161)		(0.2840)	(0.2138)	
2020Q4x(Female)	1.0289***	0.5466***		0.5341*	0.0972	
	(0.2759)	(0.2042)		(0.2745)	(0.2011)	
Stringencyx(Female)			0.0117***			0.0075***
			(0.0022)			(0.0022)
Age Groups(β)						
25–34	1.9983***	1.0800***	1.1054***	0.9636***	0.2649***	0.3203***
	(0.3064)	(0.1050)	(0.1082)	(0.2902)	(0.1021)	(0.1052)
35–44	1.4236***	0.2056*	0.2561**	0.4948	-0.2139*	-0.1089
	(0.3363)	(0.1137)	(0.1173)	(0.3540)	(0.1229)	(0.1233)
45–54	0.7803**	-0.2202*	-0.1727	-0.1475	-0.7603***	-0.6583***
	(0.3647)	(0.1233)	(0.1271)	(0.4216)	(0.1447)	(0.1432)
55–65	-0.3041	-1.3971***	-1.3412***	-0.9394	-1.5511***	-1.4436***
	(0.4587)	(0.1496)	(0.1542)	(0.5796)	(0.1831)	(0.1891)
Age Groups(γ)						
2018Q2x(25-34)	-0.4551			-0.4654		
	(0.4320)			(0.4167)		
2018Q2x(35-44)	-0.6999			-0.5916		
	(0.4733)			(0.4994)		
2018Q2x(45-54)	-0.4453			-0.6635		
	(0.5138)			(0.5832)		

Table 5. Contunied

	PANEL 1 (ALL WORKERS)			PANEL 2 (PAID, SALARIED, OR CASUAL WORKERS)		
Working hours	(1A)	(1B)	(1C)	(2A)	(2B)	(2C)
2018Q2x(55-64)	-1.1397*			-0.5480		
	(0.6374)			(0.8039)		
2018Q3x(25-34)	-2.7428***			-2.2810***		
	(0.4387)			(0.4266)		
2018Q3x(35-44)	-3.1106***			-2.1252***		
	(0.4804)			(0.4987)		
2018Q3x(45-54)	-2.8875***			-2.1731***		
	(0.5245)			(0.5759)		
2018Q3x(55-64)	-3.3140***			-2.2433***		
	(0.6421)			(0.8030)		
2018Q4x(25-34)	-0.6420			-0.1216		
	(0.4307)			(0.4064)		
2018Q4x(35-44)	-0.8160*			-0.0198		
	(0.4663)			(0.4762)		
2018Q4x(45-54)	-1.0626**			0.1458		
	(0.5068)			(0.5589)		
2018Q4x(55-64)	-0.1299			0.4229		
	(0.6268)			(0.7647)		
2019Q1x(25-34)	-0.3256			-0.2447		
	(0.4386)			(0.4187)		
2019Q1x(35-44)	-0.2227			0.0346		
	(0.4739)			(0.4817)		
2019Q1x(45-54)	-0.0557			0.2678		
	(0.5142)			(0.5591)		
2019Q1x(55-64)	0.2418			0.3263		
	(0.6457)			(0.7823)		
2019Q2x(25-34)	-0.6280			-0.0463		
	(0.4482)			(0.4296)		
2019Q2x(35-44)	-0.7157			0.1999		
	(0.4861)			(0.4942)		
2019Q2x(45-54)	-0.5301			0.5881		
	(0.5224)			(0.5649)		
2019Q2x(55-64)	-0.8714			0.6305		
	(0.6463)			(0.7943)		
2019Q3x(25-34)	-2.0079***			-1.6088***		
	(0.4501)			(0.4433)		
2019Q3x(35-44)	-2.7592***			-1.6495***		
	(0.4953)			(0.5196)		
2019Q3x(45-54)	-2.3251***			-1.6663***		
	(0.5356)			(0.5988)		
2019Q3x(55-64)	-2.4539***			-1.5534*		
	(0.6500)			(0.8261)		
2019Q4x(25-34)	-0.0753			-0.0148		
	(0.4359)			(0.4070)		
2019Q4x(35-44)	-0.6111			-0.0477		
	(0.4786)			(0.4797)		
2019Q4x(45-54)	-0.0487			0.2295		
	(0.5176)			(0.5536)		
2019Q4x(55-64)	-0.5281			-0.1473		
	(0.6336)			(0.7537)		
2020Q1x(25-34)	-0.5781			-0.7148*		
	(0.4366)			(0.4154)		
2020Q1x(35-44)	-1.1568**			-0.9551**		
	(0.4705)			(0.4798)		
2020Q1x(45-54)	-0.7559			-0.7104		
	(0.5110)			(0.5582)		
2020Q1x(55-64)	-0.7095			-0.8131		
	(0.6332)			(0.7577)		
2020Q2x(25-34)	-3.0259***	-2.1075***		-3.1544***	-2.4557***	
	(0.5046)	(0.4143)		(0.5104)	(0.4318)	
2020Q2x(35-44)	-3.4445***	-2.2265***		-3.8245***	-3.1159***	
	(0.5464)	(0.4453)		(0.5721)	(0.4658)	
2020Q2x(45-54)	-2.9979***	-1.9974***		-3.1448***	-2.5319***	
	(0.5872)	(0.4763)		(0.6447)	(0.5085)	
2020Q2x(55-64)	-4.1231***	-3.0301***		-3.9623***	-3.3507***	
	(0.7064)	(0.5574)		(0.8734)	(0.6782)	
2020Q3x(25-34)	-2.2260***	-1.3076***		-2.5908***	-1.8921***	
	(0.4495)	(0.3451)		(0.4370)	(0.3421)	
2020Q3x(35-44)	-2.7218***	-1.5038***		-2.8323***	-2.1237***	
	(0.4939)	(0.3790)		(0.5061)	(0.3818)	
2020Q3x(45-54)	-2.8538***	-1.8533***		-2.6757***	-2.0628***	
	(0.5343)	(0.4093)		(0.5815)	(0.4256)	

Table 5. Contunied

	PANEL 1 (ALL WORKERS)			PANEL 2 (PAID, SALARIED, OR CASUAL WORKERS)		
Working hours						
	(1A)	(1B)	(1C)	(2A)	(2B)	(2C)
2020Q3x(55-64)	-4.1727***	-3.0797***		-3.0539***	-2.4422***	
	(0.6552)	(0.4910)		(0.7962)	(0.5756)	
2020Q4x(25-34)	-1.1532***	-0.2348		-1.4891***	-0.7904**	
	(0.4421)	(0.3354)		(0.4237)	(0.3250)	
2020Q4x(35-44)	-1.5559***	-0.3379		-1.3059***	-0.5973	
	(0.4860)	(0.3686)		(0.4922)	(0.3633)	
2020Q4x(45-54)	-1.8242***	-0.8237**		-1.0026*	-0.3897	
	(0.5267)	(0.3994)		(0.5698)	(0.4096)	
2020Q4x(55-64)	-2.2981***	-1.2051**		-1.5043*	-0.8926	
	(0.6416)	(0.4727)		(0.7776)	(0.5495)	
Stringencyx(25-34)			-0.0192***			-0.0275***
			(0.0036)			(0.0036)
Stringencyx(35-44)			-0.0219***			-0.0333***
			(0.0039)			(0.0039)
Stringencyx(45-54)			-0.0245***			-0.0293***
			(0.0042)			(0.0044)
Stringencyx(55-65)			-0.0373***			-0.0378***
			(0.0050)			(0.0059)
Education(β)						
Primary school	-0.9856**	-1.2880***	-1.2431***	-2.5963***	-2.7718***	-2.7361***
	(0.4609)	(0.1544)	(0.1583)	(0.6079)	(0.2123)	(0.2171)
Lower secondary school	-1.6959***	-2.0788***	-1.9888***	-3.1901***	-3.1981***	-3.0968***
	(0.4848)	(0.1637)	(0.1678)	(0.6028)	(0.2122)	(0.2169)
Upper secondary school	-2.4680***	-2.9319***	-2.8480***	-3.9954***	-4.1431***	-4.0401***
	(0.4851)	(0.1632)	(0.1673)	(0.6067)	(0.2130)	(0.2174)
University	-3.5884***	-3.8286***	-3.7180***	-4.1444***	-4.2327***	-4.0391***
	(0.5189)	(0.1734)	(0.1780)	(0.7149)	(0.2505)	(0.2461)
Postgraduate	-4.9152***	-4.9584***	-4.9094***	-2.7348**	-2.8021***	-2.4339***
	(0.6424)	(0.2128)	(0.2198)	(1.3059)	(0.4381)	(0.4026)
Education(γ)						
2018Q2x(Primary school)	0.5242			0.2208		
	(0.6308)			(0.8608)		
2018Q2x(Lower secondry school)	0.0577			0.0947		
	(0.6679)			(0.8550)		
2018Q2x(Upper secondary school)	0.1946			-0.1519		
	(0.6709)			(0.8613)		
2018Q2x(University)	0.5598			0.2038		
	(0.7184)			(0.9768)		
2018Q2x(Postgraduate)	0.6569			-0.0666		
	(0.8926)			(1.6500)		
2018Q3x(Primary school)	0.3427			0.5278		
	(0.6477)			(0.8770)		
2018Q3x(Lower secondry school)	0.8964			1.4133		
	(0.6875)			(0.8756)		
2018Q3x(Upper secondary school)	0.1315			0.3381		
	(0.6861)			(0.8750)		
2018Q3x(University)	-0.1675			0.4279		
	(0.7393)			(0.9792)		
2018Q3x(Postgraduate)	-0.3477			0.8494		
	(0.9233)			(1.5741)		
2018Q4x(Primary school)	-0.5641			0.3028		
	(0.6442)			(0.8643)		
2018Q4x(Lower secondry school)	-0.5826			0.6075		
	(0.6795)			(0.8588)		
2018Q4x(Upper secondary school)	-1.1547*			0.2357		
	(0.6785)			(0.8624)		
2018Q4x(University)	-0.6539			0.6316		
	(0.7224)			(0.9696)		
2018Q4x(Postgraduate)	-0.1774			0.9541		
	(0.8880)			(1.5943)		
2019Q1x(Primary school)	-1.1256*			-0.6141		
	(0.6429)			(0.8777)		
2019Q1x(Lower secondry school)	-0.9305			-0.5219		
	(0.6814)			(0.8756)		
2019Q1x(Upper secondary school)	-1.2286*			-0.4846		
	(0.6765)			(0.8721)		
2019Q1x(University)	-0.4033			0.0240		
	(0.7236)			(0.9838)		
2019Q1x(Postgraduate)	-0.2040			0.3393		
	(0.8891)			(1.5666)		
2019Q2x(Primary school)	-0.7454			-0.5721		

Table 5. Contunied

	PANEL 1 (ALL WORKERS)			PANEL 2 (PAID, SALARIED, OR CASUAL WORKERS)		
Working hours	(1A)	(1B)	(1C)	(2A)	(2B)	(2C)
	(0.6454)			(0.8360)		
2019Q2x(Lower secondry school)	-0.6959			0.0133		
	(0.6827)			(0.8332)		
2019Q2x(Upper secondary school)	-1.0325			-0.3995		
	(0.6799)			(0.8330)		
2019Q2x(University)	-0.6062			0.1319		
	(0.7250)			(0.9403)		
2019Q2x(Postgraduate)	-0.1737			0.8509		
	(0.9226)			(1.5543)		
2019Q3x(Primary school)	0.1928			-0.2346		
	(0.6630)			(0.9125)		
2019Q3x(Lower secondry school)	0.3829			0.5884		
	(0.6993)			(0.9044)		
2019Q3x(Upper secondary school)	0.3788			0.5259		
	(0.7001)			(0.9066)		
2019Q3x(University)	0.3984			0.5832		
	(0.7474)			(1.0074)		
2019Q3x(Postgraduate)	-0.2489			1.4940		
	(0.9476)			(1.6636)		
2019Q4x(Primary school)	-0.4456			-0.4961		
	(0.6642)			(0.8641)		
2019Q4x(Lower secondry school)	-1.0237			-0.5427		
	(0.6968)			(0.8559)		
2019Q4x(Upper secondary school)	-0.5664			-0.2285		
	(0.6974)			(0.8599)		
2019Q4x(University)	-0.3214			-0.0117		
	(0.7353)			(0.9507)		
2019Q4x(Postgraduate)	-0.0584			1.3749		
	(0.8899)			(1.4953)		
2020Q1x(Primary school)	-1.7707**			-1.2315		
	(0.6879)			(0.9348)		
2020Q1x(Lower secondry school)	-2.3977***			-1.6188*		
	(0.7259)			(0.9341)		
2020Q1x(Upper secondary school)	-1.9351***			-1.3631		
	(0.7211)			(0.9325)		
2020Q1x(University)	-1.8548**			-2.0014*		
	(0.7611)			(1.0316)		
2020Q1x(Postgraduate)	-1.1483			-2.9539*		
	(0.9028)			(1.5818)		
2020Q2x(Primary school)	0.3451	0.6474		-0.6284	-0.4530	
	(0.7202)	(0.5743)		(1.0509)	(0.8827)	
2020Q2x(Lower secondry school)	-0.0637	0.3192		-0.8606	-0.8525	
	(0.7674)	(0.6168)		(1.0549)	(0.8908)	
2020Q2x(Upper secondary school)	-0.8237	-0.3598		-1.8141*	-1.6664*	
	(0.7625)	(0.6102)		(1.0459)	(0.8777)	
2020Q2x(University)	-0.9219	-0.6817		-2.2401**	-2.1518**	
	(0.8113)	(0.6471)		(1.1296)	(0.9093)	
2020Q2x(Postgraduate)	1.5525	1.5958*		-2.4458	-2.3785**	
	(1.0160)	(0.8151)		(1.6308)	(1.0700)	
2020Q3x(Primary school)	-1.1726*	-0.8703		-1.2834	-1.1080	
	(0.6939)	(0.5410)		(0.9230)	(0.7260)	
2020Q3x(Lower secondry school)	-1.0613	-0.6785		-0.9940	-0.9859	
	(0.7270)	(0.5658)		(0.9215)	(0.7282)	
2020Q3x(Upper secondary school)	-1.4111*	-0.9472*		-1.6237*	-1.4760**	
	(0.7249)	(0.5627)		(0.9206)	(0.7240)	
2020Q3x(University)	-2.1776***	-1.9373***		-2.5029**	-2.4146***	
	(0.7683)	(0.5923)		(1.0212)	(0.7707)	
2020Q3x(Postgraduate)	-1.0256	-0.9824		-2.4264	-2.3591**	
	(0.9353)	(0.7120)		(1.5979)	(1.0192)	
2020Q4x(Primary school)	-1.6205**	-1.3182**		-1.5363*	-1.3608*	
	(0.6878)	(0.5332)		(0.9051)	(0.7031)	
2020Q4x(Lower secondry school)	-1.8858***	-1.5029***		-1.2814	-1.2734*	
	(0.7190)	(0.5555)		(0.9013)	(0.7025)	
2020Q4x(Upper secondary school)	-1.9336***	-1.4697***		-1.5077*	-1.3600*	
	(0.7181)	(0.5538)		(0.9037)	(0.7025)	
2020Q4x(University)	-2.4889***	-2.2487***		-1.9900**	-1.9017***	
	(0.7612)	(0.5831)		(0.9957)	(0.7366)	
2020Q4x(Postgraduate)	-0.5475	-0.5043		-0.1330	-0.0656	
	(0.9302)	(0.7054)		(1.5509)	(0.9440)	
Stringencyx(Primary school)			-0.0109**			-0.0163**
			(0.0054)			(0.0075)
Stringencyx(Lower secondry school)			-0.0140**			-0.0206***

Table 5. Contunied

	PANEL 1 (ALL WORKERS)			PANEL 2 (PAID, SALARIED, OR CASUAL WORKERS)		
Working hours	(1A)	(1B)	(1C)	(2A)	(2B)	(2C)
			(0.0057)			(0.0075)
Stringencyx(Upper secondary school)			-0.0173***			-0.0268***
			(0.0056)			(0.0075)
Stringencyx(University)			-0.0288***			-0.0412***
			(0.0059)			(0.0078)
Stringencyx(Postgraduate)			-0.0029			-0.0428***
			(0.0073)			(0.0097)
Marital Status(β)						
Married	-0.2434	-0.2395***	-0.2314***	0.3190	0.0835	0.1215
	(0.2183)	(0.0740)	(0.0765)	(0.2273)	(0.0826)	(0.0803)
Marital Status(γ)						
2018Q2x(Married)	0.1243			-0.0819		
	(0.3110)			(0.3223)		
2018Q3x(Married)	0.4110			-0.1592		
	(0.3223)			(0.3238)		
2018Q4x(Married)	0.2619			-0.0931		
	(0.3028)			(0.3039)		
2019Q1x(Married)	-0.4280			-0.5653*		
	(0.3050)			(0.3088)		
2019Q2x(Married)	-0.0495			-0.3797		
	(0.3154)			(0.3163)		
2019Q3x(Married)	-0.1072			-0.0196		
	(0.3259)			(0.3322)		
2019Q4x(Married)	-0.0439			0.1238		
	(0.3048)			(0.3038)		
2020Q1x(Married)	-0.0121			-0.5818*		
	(0.3015)			(0.3073)		
2020Q2x(Married)	-0.5043	-0.5081*		-0.4415	-0.2060	
	(0.3447)	(0.2767)		(0.3520)	(0.2810)	
2020Q3x(Married)	-0.4030	-0.4068*		-0.5730*	-0.3375	
	(0.3205)	(0.2459)		(0.3280)	(0.2503)	
2020Q4x(Married)	-0.4106	-0.4144*		-0.6153**	-0.3798	
	(0.3135)	(0.2368)		(0.3135)	(0.2311)	
Stringencyx(Married)			-0.0073***			-0.0068***
			(0.0025)			(0.0025)
Employment status(β)						
Paid, salaried, or casual	5.3828***	5.5993***	5.5705***			
	(0.5130)	(0.1721)	(0.1768)			
Employer	9.0967***	10.0339***	10.0298***			
	(0.6340)	(0.2162)	(0.2225)			
Self-employed	2.3520***	3.6357***	3.6333***			
	(0.4764)	(0.1593)	(0.1637)			
Employment status(γ)						
2018Q2x(Paid, salaried, or casual)	0.7641					
	(0.7111)					
2018Q2x(Employer)	1.1208					
	(0.8912)					
2018Q2x(Self-employed)	1.4202**					
	(0.6609)					
2018Q3x(Paid, salaried, or casual)	1.3011*					
	(0.7106)					
2018Q3x(Employer)	1.6463*					
	(0.9131)					
2018Q3x(Self-employed)	1.9571***					
	(0.6612)					
2018Q4x(Paid, salaried, or casual)	0.0173					
	(0.7301)					
2018Q4x(Employer)	0.0979					
	(0.8906)					
2018Q4x(Self-employed)	0.8423					
	(0.6792)					
2019Q1x(Paid, salaried, or casual)	-0.2680					
	(0.7487)					
2019Q1x(Employer)	0.0595					
	(0.9189)					
2019Q1x(Self-employed)	0.5252					
	(0.6822)					
2019Q2x(Paid, salaried, or casual)	-0.4455					
	(0.7296)					
2019Q2x(Employer)	1.0521					

Table 5. Contunied

	PANEL 1 (ALL WORKERS)			PANEL 2 (PAID, SALARIED, OR CASUAL WORKERS)		
Working hours	(1A)	(1B)	(1C)	(2A)	(2B)	(2C)
	(0.9225)					
2019Q2x(Self-employed)	1.3701**					
	(0.6781)					
2019Q3x(Paid, salaried, or casual)	-0.2003					
	(0.7149)					
2019Q3x(Employer)	1.0701					
	(0.9136)					
2019Q3x(Self-employed)	2.6077***					
	(0.6664)					
2019Q4x(Paid, salaried, or casual)	-0.1118					
	(0.7233)					
2019Q4x(Employer)	1.4450					
	(0.8924)					
2019Q4x(Self-employed)	1.5222**					
	(0.6727)					
2020Q1x(Paid, salaried, or casual)	0.1119					
	(0.7290)					
2020Q1x(Employer)	1.1529					
	(0.9062)					
2020Q1x(Self-employed)	0.9909					
	(0.6766)					
2020Q2x(Paid, salaried, or casual)	2.3830***	2.1665***				
	(0.7603)	(0.5867)				
2020Q2x(Employer)	0.5938	-0.3434				
	(0.9856)	(0.7847)				
2020Q2x(Self-employed)	2.2976***	1.0139*				
	(0.6903)	(0.5241)				
2020Q3x(Paid, salaried, or casual)	0.1365	-0.0800				
	(0.7086)	(0.5180)				
2020Q3x(Employer)	1.1375	0.2004				
	(0.8957)	(0.6684)				
2020Q3x(Self-employed)	3.2734***	1.9897***				
	(0.6651)	(0.4905)				
2020Q4x(Paid, salaried, or casual)	0.9417	0.7252				
	(0.7339)	(0.5521)				
2020Q4x(Employer)	1.2950	0.3579				
	(0.9234)	(0.7050)				
2020Q4x(Self-employed)	2.3598***	1.0761**				
	(0.6863)	(0.5189)				
Stringencyx(Paid, salaried, or casual)			0.0149***			
			(0.0055)			
Stringencyx(Employer)			0.0022			
			(0.0071)			
Stringencyx(Self-employed)			0.0198***			
			(0.0051)			
Number of workers in workplace(β)						
11–49	-0.9465***	-0.7924***	-0.8633***	-0.6404***	-0.3779***	-0.4045***
	(0.2360)	(0.0850)	(0.0874)	(0.2463)	(0.0915)	(0.0908)
50 and more	-1.3869***	-1.6822***	-1.7803***	-0.7191**	-0.8995***	-0.9130***
	(0.2342)	(0.0833)	(0.0859)	(0.3027)	(0.1143)	(0.1061)
Number of workers in workplace(γ)						
2018Q2x(11-49)	-0.0314			0.2519		
	(0.3439)			(0.3521)		
2018Q2x(50 and more)	-0.7799**			-0.4614		
	(0.3423)			(0.4029)		
2018Q3x(11-49)	-0.1449			0.4953		
	(0.3565)			(0.3618)		
2018Q3x(50 and more)	-0.1108			0.5900		
	(0.3458)			(0.3951)		
2018Q4x(11-49)	-0.0307			-0.0222		
	(0.3383)			(0.3450)		
2018Q4x(50 and more)	-0.6676**			-0.6419		
	(0.3334)			(0.3979)		
2019Q1x(11-49)	0.0346			0.1368		
	(0.3401)			(0.3438)		
2019Q1x(50 and more)	-0.2352			-0.1885		
	(0.3426)			(0.3952)		
2019Q2x(11-49)	0.1399			0.4107		
	(0.3540)			(0.3558)		
2019Q2x(50 and more)	-0.6961**			-0.2299		
	(0.3520)			(0.4027)		

Table 5. Contunied

	PANEL 1 (ALL WORKERS)			PANEL 2 (PAID, SALARIED, OR CASUAL WORKERS)		
Working hours						
	(1A)	(1B)	(1C)	(2A)	(2B)	(2C)
2019Q3x(11-49)	0.0361			0.4900		
	(0.3652)			(0.3673)		
2019Q3x(50 and more)	-0.3543			0.3396		
	(0.3598)			(0.4218)		
2019Q4x(11-49)	0.4036			0.4822		
	(0.3402)			(0.3408)		
2019Q4x(50 and more)	-0.3690			0.0130		
	(0.3353)			(0.3816)		
2020Q1x(11-49)	0.8976**			0.3236		
	(0.3512)			(0.3478)		
2020Q1x(50 and more)	0.5949*			-0.2274		
	(0.3367)			(0.3997)		
2020Q2x(11-49)	1.3193***	1.1652***		1.5571***	1.2946***	
	(0.4097)	(0.3454)		(0.4122)	(0.3428)	
2020Q2x(50 and more)	1.9801***	2.2754***		1.5862***	1.7667***	
	(0.3949)	(0.3286)		(0.4345)	(0.3319)	
2020Q3x(11-49)	0.4680	0.3140		0.2874	0.0249	
	(0.3554)	(0.2789)		(0.3638)	(0.2827)	
2020Q3x(50 and more)	0.6828**	0.9781***		0.4139	0.5944**	
	(0.3479)	(0.2703)		(0.3988)	(0.2835)	
2020Q4x(11-49)	1.6962***	1.5422***		1.5304***	1.2679***	
	(0.3472)	(0.2684)		(0.3488)	(0.2632)	
2020Q4x(50 and more)	2.1917***	2.4870***		1.9678***	2.1482***	
	(0.3430)	(0.2640)		(0.3946)	(0.2776)	
Stringencyx(11-49)			0.0174***			0.0125***
			(0.0029)			(0.0029)
Stringencyx(50 and more)			0.0314***			0.0208***
			(0.0028)			(0.0029)
Registration to SSI(β)						
Unregistered	-6.1891***	-5.3949***	-5.4286***	-3.6793***	-2.8400***	-2.9256***
	(0.2829)	(0.0967)	(0.0995)	(0.3527)	(0.1212)	(0.1232)
Registration to SSI(γ)						
2018Q2x(Unregistered)	0.8148**			1.1221**		
	(0.3956)			(0.4963)		
2018Q3x(Unregistered)	2.0520***			1.4835***		
	(0.3972)			(0.4887)		
2018Q4x(Unregistered)	-0.3960			-0.3989		
	(0.4027)			(0.4872)		
2019Q1x(Unregistered)	-0.3708			0.1141		
	(0.4125)			(0.4981)		
2019Q2x(Unregistered)	0.5404			0.5470		
	(0.4110)			(0.4958)		
2019Q3x(Unregistered)	1.4087***			1.3053**		
	(0.4127)			(0.5145)		
2019Q4x(Unregistered)	1.6215***			1.0328**		
	(0.4036)			(0.4926)		
2020Q1x(Unregistered)	0.8194**			1.4034***		
	(0.4073)			(0.5020)		
2020Q2x(Unregistered)	2.1966***	1.4024***		2.5262***	1.6869***	
	(0.4563)	(0.3707)		(0.5992)	(0.4990)	
2020Q3x(Unregistered)	1.2945***	0.5003		0.9895*	0.1502	
	(0.4098)	(0.3117)		(0.5175)	(0.3975)	
2020Q4x(Unregistered)	0.4925	-0.3017		0.7504	-0.0889	
	(0.4174)	(0.3217)		(0.5114)	(0.3895)	
Stringencyx(Unregistered)			0.0097***			0.0125***
			(0.0033)			(0.0041)
Permanency of job(β)						
Temporary				-10.7824***	-9.5915***	-9.5414***
				(0.5445)	(0.1587)	(0.1570)
Permanency of job(γ)						
2018Q2x(Temporary)				1.9575***		
				(0.6804)		
2018Q3x(Temporary)				4.9219***		
				(0.6726)		
2018Q4x(Temporary)				0.6323		
				(0.6723)		
2019Q1x(Temporary)				-1.1090		
				(0.6963)		
2019Q2x(Temporary)				1.6377**		

Table 5. Contunied

	PANEL 1 (ALL WORKERS)			PANEL 2 (PAID, SALARIED, OR CASUAL WORKERS)		
Working hours	(1A)	(1B)	(1C)	(2A)	(2B)	(2C)
				(0.6753)		
2019Q3x(Temporary)				3.4506***		
				(0.6999)		
2019Q4x(Temporary)				-1.4513**		
				(0.6744)		
2020Q1x(Temporary)				-2.2079***		
				(0.6963)		
2020Q2x(Temporary)				2.5639***	1.3731**	
				(0.7643)	(0.5591)	
2020Q3x(Temporary)				1.8964***	0.7055	
				(0.7091)	(0.4809)	
2020Q4x(Temporary)				0.2433	-0.9475**	
				(0.6809)	(0.4384)	
Stringencyx(Temporary)						0.0016
						(0.0047)
Hourly wage(β)				-0.8220***	-0.7708***	-0.8363***
				(0.2565)	(0.0852)	(0.0737)
Hourly wage(γ)						
2018Q2x(Hourly wage)				0.1352		
				(0.3018)		
2018Q3x(Hourly wage)				-0.0680		
				(0.2764)		
2018Q4x(Hourly wage)				-0.1122		
				(0.3014)		
2019Q1x(Hourly wage)				-0.0914		
				(0.2819)		
2019Q2x(Hourly wage)				-0.1712		
				(0.2761)		
2019Q3x(Hourly wage)				-0.2736		
				(0.2932)		
2019Q4x(Hourly wage)				-0.3917		
				(0.2646)		
2020Q1x(Hourly wage)				0.4490		
				(0.2806)		
2020Q2x(Hourly wage)				0.4656*	0.4145***	
				(0.2579)	(0.0893)	
2020Q3x(Hourly wage)				0.2421	0.1909	
				(0.2788)	(0.1385)	
2020Q4x(Hourly wage)				-0.1592	-0.2104*	
				(0.2703)	(0.1205)	
Stringencyx(Hourly wage)						0.0057***
						(0.0010)
Constant	45.8038***	45.4214***	45.5260***	53.1635***	52.1487***	52.2467***
	(0.8977)	(0.3012)	(0.3096)	(0.9530)	(0.3210)	(0.3226)
Observations	471,776	471,776	471,776	308,529	308,529	308,529
R-squared	0.1836	0.1782	0.1746	0.2482	0.2374	0.2332

The dependent variable is the actual weekly working hours in the reference week. α is the coefficient of the quartiles and the stringency index; β is the coefficient of the individual independent variables; γ is the coefficient of the interaction terms. Statistical significance level: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors are in parentheses. Reference categories are male, 15–24, not completed any educational institution, single, unpaid family worker, 10 and fewer, registered, and permanent, respectively. Reference periods are the first quarter of 2018 (2018Q1) for Model A and the pre-pandemic period (2018Q1-2020Q1) for Model B. All regressions control sector and occupation and use sample weights. The sample includes workers aged 15–64.

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Research Article

COVID-19 and Emergency Migration to Remote Teaching in a Public University in the Maldives: Challenges, Solutions, and Lessons Learned

Visama Hassan[1], Dheeba Moosa[2]

[1]Ms, Islamic University of Maldives, Kulliyah of Education, Male City, Maldives
[2]Dr, Islamic University of Maldives, Kulliyah of Education, Male City, Maldives

Corresponding author : Visama Hassan
E-mail : visama.hassan@ium.edu.mv

ABSTRACT

Institutions of higher education worldwide were forced to implement emergency remote teaching (ERT) during the COVID-19 pandemic. This scenario presented several issues for university lecturers and students. This study examines the challenges, experiences, and lessons learned by lecturers at a public university in the Maldives when forced to conduct ERT during the pandemic using an exploratory sequential mixed-method. The respondents most frequently cited unreliable internet connection (83.9%) and internet cost (76.8%), while 75% reported difficulty in motivating students and meeting their varied needs (64.3%). Access to technology (66.1%) and performance assessment (62.5%) were also mentioned. Challenges included internet, technology, student support, learning, and evaluation. The lecturers learned new skills during the pandemic, which was a positive outcome. Lastly, they stressed training, assistance, and the crisis readiness of the university.

Keywords: COVID-19 pandemic, Emergency Remote Teaching, Challenges, Maldives, Higher Education Institution

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Introduction

COVID-19 struck China in November 2019 and spread quickly worldwide, such that the WHO declared it a pandemic on January 30, 2020 (The WHO Just Declared Coronavirus COVID-19 a pandemic, 2020), which brought many affected countries to a standstill. The impact of the pandemic was felt globally in every sector of the country, including education and higher education (Mohmmed et al., 2020).

1. Context

In early March, the pandemic reached the Maldives, a small country composed of 1,192 low-lying islands divided into 26 atolls out of which 200 islands are inhabited. The pandemic forced the country to implement nationwide lockdown due to the announcement of the first community transmission of the disease in Malé, the capital city of Maldives. For this reason, all sectors, including higher education, was forced to momentarily cease operations. This pause included teaching and learning, which have mostly been conducted face-to-face until then. However, Islamic University of Maldives (IUM), one of the two public universities, predicted the lockdown one week before its announcement and began making plans to switch to remote methods. Thus, the school opted to offer 15 undergraduate courses and 14 graduate courses for a total of 29 courses online.

The senior management of the IUM prepared a detailed contingency plan to ease the emergency migration to remote teaching. The plan was then shared with lecturers as they prepared to teach using remote methods. Prior to the lockdown, the lecturers underwent a one day in-person training program for familiarization with online platforms such as Zoom. However, the program was insufficient for preparing the lecturers to switch to remote teaching, because the context was new, unfamiliar, and untested. In addition, migrating the face-to-face courses to online ones within a brief period is a major disruptive change. To shift from the face-to-face to remote teaching mode, detailed lesson notes, trained lecturers, teaching materials, and a technology support team are necessary (Rapanta et al., 2020). It also requires certain pedagogical knowledge related to the design and organization of lessons using technology (Rapanta et al., 2020). The greatest challenge faced by the IUM lecturers was that the majority were unaware or unfamiliar with the technology required for online teaching. In addition, a number of lecturers were reluctant to recognize the importance of detailed lesson notes along with the appropriate use of modern tools to facilitate remote teaching. Therefore, many issues and significant resistance from lecturers and students were reported only a few weeks after the transition to remote teaching.

The literature on emergency remote migration during the pandemic exists. The majority of research focuses on education systems from countries with an established technology-enabled learning environment. The literature from remote less developed countries continues to emerge. The present study attempts to add to the emerging literature, because elucidating the challenges faced by university teachers due to the sudden need to teach synchronously online and from home in isolation is important. The result could assist the university in providing better support and a conducive teaching environment for the lecturers, especially in future crisis situations. People in similar situations worldwide who are struggling to provide good education amid a health crisis may also learn from the IUM experience.

This study intends to identify the problems experienced by lecturers in the IUM, when they need to shift to remote teaching due to the pandemic and to recommend strategies for addressing them. The following research questions guide this study:

1. What are the challenges faced by the lecturers in switching to remote teaching?
2. What are the potential measures for addressing these challenges due to the sudden shift to remote teaching?

Literature Review

1. Online Versus Remote Emergency Teaching (ERT)

Online teaching is a familiar term, but emergency remote teaching (ERT), which emerged during the pandemic, is new to nearly all lecturers in the IUM. Online teaching is defined as learning that occurs through the internet (Rapanta et al., 2020) and involves well-planned teaching and learning (Hodges et al., 2020). Online learning enables students and teachers get to become familiar with one another and allows students to engage with materials through real-world practice, spaced repetition, and real-life scenarios (Schlesselman, 2020).

The systematic planning of online education takes approximately 6–9 months, and it has been previously considered an informal method of teaching and learning. However, it has now taken on a formal role in education and has transformed teaching methods from traditional to modern ones. ERT is a sudden shift in delivery mode due to a crisis (Hodges et al., 2020; Mishra et al., 2020; Thurab-Nkhosi et al., 2021). Furthermore, Hodges et al. (2020) elaborated by stating that "ERT is a temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances" (p.

17). Similar to many universities across the globe that responded to the disruption to teaching and learning due to the pandemic, the IUM also needed to resort to ERT, which was a chaotic, temporary shift to online teaching.

2. Challenges to Remote Teaching

The challenges related to remote teaching, which are not necessarily limited to crisis situations, are mainly classified into faculty time management and teaching style. For example, Khalil et al. (2020) explored the perspectives of medical students in Saudi Arabia about the shift to ERT and identified the roles of instructors and instructional strategies in content development, the integration of multimedia into content, and considerations for content development. Similarly, the authors emphasized educational impacts, such as content understanding and perception as a negative perspective, whereas time management was identified as a dominant perspective. Lastly, the students reported other challenges such as methodical ones.

Studies in other countries report similar experiences. For instance, a few of the most important challenges faced by lecturers is the lack of internet connectivity, limited access to computers, students with limited computer literacy, and frequent electricity blackouts (Ferri et al., 2020; Mohmmed et al., 2020; Mutisya & Makokha, 2016). In addition, students with access to personal computers were few, while others were dependent on cybercafes and telephones. Another challenge is teaching students from remote areas without internet connections (Stelitano et al., 2020).

The readiness of the staff is another important issue that requires resolution when shifting to remote teaching. The majority of university staff lack the skills to teach using electronic gadgets and lack electronic contents for use in online teaching due to their limited exposure to online teaching (Pokhrel & Chhetri, 2021). For this reason, lecturers face difficulty in evaluating the activities of students and verifying progress and harbor doubt about the integrity of the assignments and exams (Jelińska & Paradowski, 2021). Furthermore, Ferri et al. (2020) mentioned social challenges such as "human interactions between teachers and students, lack of physical space at home, and lack of parental support who are frequently working in the same space" (p. 1) . Although many modern universities in the 21st century own facilities that provide ICT-integrated lessons, the majority of the staff remain unfamiliar with ICT-integrated pedagogy. Against this background, delivering classes from their homes has become a great challenge for lecturers (Hodges et al., 2020). Furthermore, lecturers may be familiar with various online learning platforms, such as Google Meet, Zoom, and Google Classroom. However, this aspect leads to difficulty for students, because lecturers use different platforms for teaching (Turner, 2020). Moreover, pedagogical content knowledge for online lesson delivery is a major challenge for teachers (Rapanta et al., 2020).

3. Measures for Overcoming Challenges to ERT

The literature on ERT is emerging, but studies that propose methods for overcoming the challenges related to ERT are scarce. According to the literature, one of the challenges of lecturers is the lack of ability to integrate the curriculum with technology. Thus, these studies recommend the provision of infrastructure and facilities for digital learning operations, such as access to e-learning resources and education programs (Huang et al., 2020), in addition to training and time as a means for mitigating these challenges.

Kee and Adamu (2020) conducted a case study at Peking University, China, and identified six instructional strategies, which are crucial for the migration to online teaching, namely, preparation for potential emergency problems during online classes, method of content delivery to students, use of voice, having teaching assistants, promotion of active learning, and clearly enunciated speech. The reason for the last strategy is that students only hear the voice of teachers in ERT compared with the face-to-face delivery, which poses advantages such as the use of facial expression and body language. Another strategy refers to the need to involve students using platforms, such as Facebook, with which they may be more familiar, to upload videos for peer discussion and comment. To offer better support, lecturers could provide online advisory sessions and opportunities for students to share their feelings instead of launching into a lesson immediately after going online. Hence, prioritizing communication and dialogue for learning instead of merely transmitting content via the internet is vital (Mohmmed et al., 2020).

Methodology

1. Study Design

This study adopted an exploratory, sequential mixed-method approach conducted in two phases. Phase 1 involved the administration of a close-ended questionnaire that lists the potential challenges faced by lecturers in shifting to ERT. In Phase 2, interviews with selected staff from all faculties and centers were conducted to obtain an improved

understanding of these challenges and their potential solutions, such that remote teaching and learning are effective and a worthwhile experience for lecturers and students.

1.1. Phase 1: Data collection

Phase 1 is the quantitative aspect of the research; data were collected using a close-ended questionnaire prepared using Google Form and administered by sending a link to the participants. Prior to the preparation of the questionnaire, the study conducted a review of the relevant literature with the objective of identifying the common challenges of remote teaching. Out of the challenges identified, the study selected those deemed most relevant to the context of the Maldives. The variables identified in the literature were then used to develop the questionnaire, which was translated with reference to the forward–backward translation protocol in which the English version was first translated into Dhivehi. Afterward, the Dhivehi version was back-translated into English, and the study compared between the original and back-translated English versions to verify if discrepancies occurred in understanding, which were then accordingly amended. To ensure the validity and reliability of the instrument, the questionnaire underwent pilot testing prior to use in the study to avoid confusion in translation and comprehension.

1.2. Phase 2: Data collection

The second phase began once the data collection and analysis for Phase 1 was completed. Based on data derived from the questionnaire, the researchers prepared an interview guide.

1.3. Selection of Respondents

IUM has 40 full-time lecturers and 110 part-time lecturers at various levels, from foundation to PhD across seven faculties and three centers as of June 2020. These include the Vice-Chancellor, Deputy Vice-Chancellors, Deans, and heads of other sections involved in teaching. All full-time lecturers, Deans, and Chancellors of IUM and all part-time lecturers were requested to complete the questionnaire at Phase 1. In our quantitative study at the IUM, we endeavored to survey the entire staff with the intention of utilizing a complete census method for sampling. Nonetheless, only 56 faculty members (37%) responded to the survey. This approach was deemed most practical under the unique challenges posed by the COVID-19 pandemic. Given the relatively small population in Maldives, we assert that this extensive sample is adequate for a comprehensive understanding of the educational experiences that occurred during these extraordinary times.

In Phase 2, the study used purposive sampling to select lecturers for the interview on the basis of the following criteria:

1. continuously taught remotely for at least 14 weeks; and
2. taking a full load (12 h per week).

One lecturer from each faculty and center who met the abovementioned criteria was selected to participate at Phase 2. A total of seven lecturers from the faculties were interviewed. On average, the faculties employ two to three staff. Therefore, one lecturer among them was chosen.

1.4. Data analysis

The study analyzed data from Phase 1 (questionnaire) using Excel. Moreover, data from the seven interviews (Phase 2) were transcribed and coded individually first, then collectively, to determine common themes. Intercoder reliability (ICR) was developed to improve the systematicity, communication, and openness of the coding procedure. To establish ICR, the researchers compared the data to identify overlaps and divergences in the coding frame. Data collected from Phase 1 were compared with those from the interviews in Phase 2.

Findings

1. Quantitative Data

To analyses the dataset, the study generated descriptive statistics for the survey. The data yielded useful insights into the experiences of the lecturers, which could be helpful for the university in assisting and supporting them as they continue to teach in ERT mode. A total of 56 lecturers responded to the survey; the proportions of female and male lecturers were 55% and 45%, respectively.

In terms of prior experience, the data revealed that 53.6% of lecturers had prior experience in online teaching, while 46.4% cited that they had never taught online before.

When asked about the platforms they used for remote teaching, the results revealed that the lecturers use various platforms, but the majority (58.9%) used Moodle followed by Zoom (55.4%) and Google Meet (46.4%). Small percentages used Google Hangout (8.90%), Microsoft Teams (9%), and Viber (10.70%).

Table 1. *Platforms used by the lecturers*

Platform	**Percentage**
Moodle	58.9%
Zoom	55.4%
Google Meet	46.4%
Viber	10.7%
Microsoft Teams	8.9%
Google Hangout	8.9%

To learn more about the issues faced by the lecturers in the remote delivery of instruction, they were given 19 options from which they needed to select the seven most difficult challenges. The most frequently mentioned challenge is related to the internet and technology in which 83.9% mentioned unreliable internet connection closely followed by the cost of the internet (76.8%). Other technological challenges include limited access to technology by students (66.1%) and lecturers (10.7%), issues with modern technology (37.5%), insufficient skills and knowledge of technological devices (26.8%), limited access to digital libraries (28.60%), and lack of awareness of the limitations of online teaching platforms (5.4%).

Table 2. *Challenges faced by lecturers in the remote delivery of instructions*

Challenges	**Percentage**
Unable to address the diverse needs of students	64.3%
Insufficient skills and knowledge of technological devices	26.8%
Unreliable internet connection	83.9%
Internet is costly	76.8%
Parents and children using one laptop at the same time	25.0%
Limited access to digital libraries	28.6%
Motivation and involvement of students	75.0%
Structure of lessons for distance learning	26.8%
Assessment of student performance	62.5%
Distractions at home	48.2%
Heavy workload	33.9%
Formulation of timetables and work schedules	12.5%
Limited access to technology by students	66.1%
Limited access to technology by teachers	10.7%
Lack of support from the management of the university	8.9%
Problems related to modern technology	37.5%
Lack of support from peers	1.8%
Lack of awareness and limitations of teaching platforms	5.4%
Students taking work too lightly	5.4%

In terms of teaching challenges, 75% of the lecturers reported that motivating and involving all students in lessons were difficult, while 64.3% expressed that meeting the diverse needs of students is difficult. The lecturers also highlighted

the structure of lessons for distance learning (26.80%), assessment of student performance (62.50%), and increased workload (33.9%) as significant challenges.

In terms of social challenges related to the need to work from home include distraction in the home of lecturers (48.2%) along with the fact that they needed to share devices with others (their children) at home (25%). Small percentages of teachers cited lack of support from university management (8.90%) and from peers (1.80%) and students taking work too lightly (6.40%).

The final research question focused on potential solutions to these challenges. The lecturers selected five statements from a list of ten; 82.1% emphasized the importance of providing training to transition from face-to-face learning to remote learning, while 73.2% mentioned providing training to develop digital learning. Meanwhile, 74% cited assisting students in developing remote learning skills and providing information on how to best support distance education students. Lastly, 66.1% stressed the importance of successfully completing online digital lessons for students.

Table 3. *Solutions highlighted by the lecturers*

Solutions	**Percentage**
To provide information on best methods to support distance education students	71.4%
Successfully reach online digital lessons (students)	66.1%
To choose the best method to learn from home	48.2%
Provide support to achieve skills for remote learning	71.4%
Provide training in the transition from face-to- face learning to remote learning	82.1%
Provide support to the structure of the current lessons in the remote learning environment	44.6%
Provide training to develop digital learning	73.2%
Provide assistance from IT staff	17.9%
Provide better/cheaper internet access to students	23.2%
Always being prepared	1.8%

2. Qualitative Findings

2.1. Challenges faced by lecturers

The interview participants highlighted several challenges they encountered after being required to switch to ERT due to the COVID-19 pandemic. A number of challenges identified were related to the internet and technology, while others focused on student engagement, the environment, and assessment.

Internet connectivity and cost
At the beginning, students were facing a lot of problems. So they separately message me saying that they are having difficulty in getting the facility and the cost of it and the internet connection. (Lecturer D) The next thing is the slow internet. Actually, in Zoom, you need good internet connection. (Lecturer C) We were told to conduct the class using the Big Blue Button. However, it is difficult to take the class using the Big Blue Button as it is very slow and it is difficult in sharing the screen and even share the slide. Students will always complain of not being able to see the screen and the slide. (Lecturer A)

Technical knowledge of teachers
students and even lecturers need help … and some are not so familiar with the technology. (Lecturer A) The training program was not enough. It was only for one day. It was taken in a very short time. The people who are not familiar will face difficulty. (Lecturer D)

Pedagogy
Student participation and engagement Very difficult to get the participation of the students. They do not respond. Only 2 or 3 from each class respond to the questions. It looks like two students have to respond for each question. Even when you call also most of the time they do not respond. (Lecturer E) I tried my best to keep the students interested in the lessons but it is sad that we are unable to identify if the lessons are interesting or not. (Lecturer C)
Practical Actually this module cannot be taught online [because it requires students to go to the site for practical experience]. (Lecturer F)

Contextual challenges
Home Environment Another experience is the noise around. The noise from outside is a very big problem … here it is like a garage. (Lecturer C) People don't feel we are working at home so no one will be helping in looking after the babies. But if we go to university there will be people to look after the babies. So looking after the babies and doing the work at the same time is very difficult. (Lecturer E) The other thing is, at home, we have to attend to the children... (Lecturer C)
Psychological Impact of COVID-19 In the beginning, students were facing a lot of problems. So they separately message me... at the beginning of this pandemic all were psychologically affected so it became very difficult for them to concentrate on their studies. So at the beginning lot of students complained. (Lecturer B)

2.2. Lessons Learned and Solutions

Although the lecturers identified several difficulties related to the sudden switch to remote mode without adequate preparation, many of them positively perceived this experience. They felt that the pandemic forced them to think in new ways, which they considered was good. They also perceived that the shift was a great opportunity to become acquainted with modern methods of teaching and to familiarize themselves with technology.

> Actually, from experience, my view on online teaching has changed. Before, I didn't believe that this was something that we could do. But now it has changed. Now I will say this is also a good approach to teaching. (Lecturer F)

The pandemic became a lesson for the university and the lecturers on the importance of preparation and devices, which they expressed could enhance teaching and learning.

However, to fully utilize the power of technology, the lecturers mentioned that finding solutions to internet issues and providing training are important initiatives. A few of them requested that the university collaborate with the government and internet providers to reduce internet costs.

> So if university can do something like to make it (data) free at least during the time of the class when using the Big Blue Button may be using a device, if that can be done, it will be very useful to the lecturers and the students. (Lecturer A)

Alternatively, the interviewees mentioned the university can assist in providing data to assist students; particularly; provide data for students. (Lecturer E)

Discussion

The study aimed to identify the challenges encountered by lecturers and their recommended solutions to mitigate these challenges during ERT. According to the quantitative and qualitative data, the most significant challenge was technology and the internet. The literature extensively reports on these challenges in remote teaching during the pandemic (Aboagye et al., 2021; Mutisya & Makokha, 2016; Nyerere, 2020) and online teaching in general prior to the pandemic (Ezra et al., 2021). Many studies discussed access to devices and the internet as key challenges (Bad News

To Dhiraagu And Ooredoo, 2021). Kamal and Illiyan (2021) conducted a study in India to determine the perception of teachers toward online teaching and found that technical obstacles, difficulty in online exams, and assessment are major challenges in online teaching. The key issues, as identified by the current study, however, are the cost and speed of the internet instead of accessibility. In terms of access to technology, the Maldives is far ahead compared with many developing countries and countries in the South Asia region. Nearly everyone, including children, can access mobile devices such as tablets, iPads, and mobile phones.

As disclosed by the participants, the internet cost in the Maldives is among the highest in the South Asia region, such that a general concern emerges from the public regarding this issue (Bad News To Dhiraagu And Ooredoo. Starlink Sharing Could Lower internet Prices, 2021). The main reason for this is the monopoly on telecom services held by only two companies (i.e., Ooredoo and Dhiraagu) in the Maldives. The internet issue (cost and speed) is mainly raised in connection with student complaints instead of lecturers. As such, the lecturers highlighted that they were forced to halt lessons due to the students of students in connecting to the internet. Özüdoğru (2021) also highlighted this issue based on problems faced in relation to distance education during the COVID-19 pandemic. A study conducted by Erwin et al. (2020) in the Philippines also revealed that the cost of the internet is a problem faced by students in universities in the Philippines.

The second key challenge that was most frequently mentioned in the survey and supported by interviews is the lack of familiarity of the lecturers with technology. Kamal and Illiyan (2021) have reported this issue after conducting a study in India to determine the perception of the teachers, which indicates that the majority were not tech-savvy. The gap between the curriculum and practice has become increasingly evident after the COVID-19 lockdown. Lecturers were forced to use technology to teach due to lockdown as schools and universities, which shifted to remote teaching. The findings illustrate that the lecturers were struggling, because they were unfamiliar with technology, although the Maldives National Curriculum Framework, which was introduced in 2015, prioritized the use of ICT in teaching and learning as an important competency that should be applied to the classroom. Other studies on remote teaching also reported the lack of familiarity with technology as a challenge (Erwin et al., 2020; Dev, 2020.; Nyerere, 2020; Turugare Rudhumbu, 2020).

Meanwhile, Kamal and Illiyan (2021) found that interacting with students in online teaching is difficult and that several difficulties exist in student retention. The lecturers in the current study also faced these challenges. The study also identified the lack of knowledge and skills to engage students in a virtual environment in the survey and interviews. The findings of the qualitative interview also revealed that the lecturers struggled to engage students with the lesson, because they were more concerned with whether or not they made the lesson interesting for students. In fact, Hebebci et al. (2020) aimed to ascertain the perspectives of teachers and students on distance education and revealed that interacting with the students was challenging, which was worsened by the difficulty of conducting followup on them. This aspect is related to the fact that the lecturers had to suddenly make the switch without preparation. The lecturers lacked training in the preparation of lesson plans and teaching materials for online learning. Hence, they found the silence and lack of engagement from students extremely frustrating. This scenario was even more challenging for lecturers taking more practical-oriented modules such as Preparations for Funeral and Burial. Notably, the literature has identified various challenges, such as internet connection, the process of online learning; the lack of technology for the design of interesting online learning activities, communicative ability, and interaction; and fostering an effective online learning climate (Rosalina et al., 2020a).

The lecturers also cited contextual challenges. The concerns they raised were unique to the living conditions in Malé, the capital of the Maldives. Malé is one of the most congested cities in the world, and construction is always in progress, such that escaping the noise at home or in the university is impossible. Several lecturers highlighted this aspect, especially in the interviews. In addition, many people in Malé live with extended families that share small spaces, which results in distraction and interference during teaching. This issue was exacerbated by COVID-19, which forced lecturers to work from home due to the lockdown. Only a few studies investigated this challenge in relation to the COVID-19 pandemic (Rosalina et al., 2020).

With the community spread of COVID-19 increasing at the time of the study, many families of the participants had members who needed to be isolated, quarantined, or admitted to the hospital. Not only the lecturers but also the students experienced this scenario. The psychological impact of the need to cope with the illness of family members was identified as a significant challenge that influenced teaching and learning, while Kamal and Illiyan (2021) also identified a great impact on psychological wellbeing due to isolation and quarantine. Thus, becoming tech-savvy is crucial for the lecturers to boost their confidence in remote teaching.

1. Conclusions, Recommendations, and Future Research

This article aimed to elucidate the experiences and issues faced by lecturers in the IUM during the sudden and forced shift to remote teaching during the pandemic.

Many studies, especially those conducted during the pandemic, discussed challenges faced by students and lecturers regarding the internet and technology in which the majority, especially those from the context of developing countries, highlighted the issue of internet access. The present study reveals that instead of access, the major challenges were the speed and cost of the internet. The lecturers highlighted this aspect as a bigger challenge for the students . Moreover, they also pointed to being unable to address the diverse needs of the students and to assess academic performance. The latter is related to the fact that lecturers were unfamiliar with technology and unprepared for the drastic change due to the pandemic. Only a few studies identified living conditions as a challenge. The study flagged the issue of living conditions as a major challenge due to the congested conditions in Malé. Despite the many challenges, the lecturers regarded their experiences in remote teaching in positive terms, that is, they became an opportunity for exploring alternative ways of teaching and learning. However, the lecturers felt that as the COVID-19 situation continues, finding solutions to the internet issue and providing ongoing training for the staff to familiarize them with technology are important initiatives for the university.

The study recommends that efforts be exerted to develop the digital competency of lecturers. University policies can incorporate this aspect as a requirement, such that lecturers are mandated to complete digital upskilling programs as part of professional development. The need also exists to have a long-term strategy in place to ensure that universities can mitigate the impacts of similar situations in the future.

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ORCID :

Visama Hassan 0000-0002-7103-4596
Dheeba Moosa 0000-0002-9670-7769

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Research Article

A Novel Operationalization Approach in Generation Phenomenon: Insights and Implications from Turkey's Generational Dynamics

Umut ÇİL[1], Osman ÇEVİK[2]

[1]Dr. Lecturer Member, Karamanoğlu Mehmetbey University, Faculty of Economics and Administrative Sciences, Department of Business Administration, Karaman, Türkiye
[2]Prof. Dr., Selçuk University, Faculty of Economics and Administrative Sciences, Department of Business Administration, Konya, Türkiye

Corresponding author : Umut ÇİL
E-mail : umutcil@kmu.edu.tr

ABSTRACT

As scholarly interest in generational studies grows, so too does the scrutiny surrounding the phenomenon's validity. This study addresses both the burgeoning interest and skepticism by proposing an innovative operationalization of generations within the context of Turkey, aiming to introduce new concepts and methodologies to the field. While generational phenomena have often been approached with global or broadly applicable classifications, this research advocates for the consideration of national contexts as pivotal for accurate analysis. Using Turkey as a case study—identified through generations such as the Founders, Republican Generation, First Democrats, Military Coup Generation, First Neoliberals, and Social Media Generation—this study illustrates the application of the proposed operationalization. Conducted through a qualitative inquiry and informed by a multidisciplinary approach involving participants from various social sciences, this research not only names and defines these six generations but also elucidates their defining the initiator, finisher and internal turning points, the spheres of influence, the successor and predecessor members. Such analysis not only addresses existing criticisms but also enriches the discourse on generational dynamics in Turkey. The study emphasizes the critical need to refine operationalization strategies, thereby enhancing generational analysis's effectiveness.

Keywords: *Generational Classifications, Generations of Turkey, Turning Points, Spheres of Influence, Successor and Predecessor Members*

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1. Introduction

The discourse surrounding the generation phenomenon and its classification is not a recent development, dating back to Mannheim's seminal article "*Das Problem der Generationen*" in 1928. During this period, generation studies have been explored across various contexts, yet academic circles have increasingly scrutinized its validity since the early 2000s. For instance, there is considerable debate as to whether the generational phenomenon should be approached from a national or global perspective. Some scholars even question whether its academic merit, dismissing it is a mere "popular culture/ management fashion" rather than a legitimate academic inquiry (Costanza et al. 2012; Parry and Urwin 2011). Consequently, questions have been raised as to the existence and necessity of the generational phenomenon, as well as the practical utility of generational classification in theory and practice (Costanza, Ravid, and Slaughter 2021; Parry and Urwin 2021; Rudolph, Rauvola, and Zacher 2018). Conversely, those studies acknowledging it as an academic issue have toward enhancing its applicability (Boyle, Matthews, and Saklofske 2008). Various methodological issues have been raised in this regard, such as the proposal to replace global generation classification with culturally nuanced sub-generations (Gürbüz 2015), the critique against reducing generational boundaries solely to birth years (Parry & Urwin, 2011; Schewe & Meredith, 2004), and advocating for longitudinal study designs over cross-sectional ones (Aydın 2020; Costanza, Ravid, and Slaughter 2021). These discussions predominantly focus on the challenges associated with operationalizing the generation phenomenon rather than questioning its existence. Essentially, research in this domain can be categorized into two branches: a) studies investigating the existence and necessity of the generational phenomenon/ classification (Costanza & Finkelstein, 2015; Kowske et al., 2010; Macky et al., 2008; Parry & Urwin, 2011), and b) studies focusing on enhancing the functionality of the generation phenomenon/classification (Boyle et al., 2008; Caspi & Roberts, 2001; Costanza et al., 2021; Gürbüz, 2015; Noble & Schewe, 2003; Parry & Urwin, 2021). Moreover, a holistic analysis of the relevant studies reveals that the common challenges in both groups, notably the reductionist approach to birth dates which overlook factors such as national context, gender, and the cross-sectional study designs.

This study, which initially set out to delineate the generational landscape in Turkey, aims to provide a new model applicable to all generational inquiries by refining the operationalization process. Recognizing that understanding the origins of the phenomenon is key to addressing associated challenges, the inquiry begins with Mannheim's (1952) assertion that generations are not merely defined by birth dates, but by shared temporal contexts and collective consciousness shaped by important historical events. Turner and colleagues (Eyerman and Turner 1998; Turner 1998) further reemphasized the significance of consciousness by adding the dimension of resource struggles. Building on Mannheim's foundational premises, this study re-contextualizes the discourse by examining study designs that explore critical historical events shaping collective consciousness and their impacts on generational dynamics (e.g., Schuman & Scott, 1989), while also considering variables beyond age (e.g., Schewe & Meredith, 2004).

To this end, a national classification was initially prioritized because, as various studies have highlighted (i.e., Aydın, 2020; Campbell et al., 2015; Gürbüz, 2015; Schewe & Meredith, 2004), global generation classifications are problematic since they overlook socio–cultural variations and their distinct influences on societies and individuals within them. Furthermore, the study conceptualizes missing elements within the literature to refine the operationalization of generational phenomena. Diverging from field-based studies, the study's design adopts a multidisciplinary approach, drawing upon insights from various social sciences disciplines, including sociology, in line with Parry & Urwin's (2011: 79) assertion that the generation concept is deeply rooted in sociological theory.

The findings reveal six generations in Turkey, offering a new perspective on the generational phenomenon by introducing the concepts of initiator, finisher, and internal turning points, predecessor/successor members, and sphere of influence. By showing that some of the main criticisms of generation studies stem from the absence of these concepts, these criticisms are eliminated.. For example, overlooking internal turning points leads to discrepancies in findings across studies focusing on different time frames, neglecting underlying dynamics. Similarly, due to the lack of a sphere of influence concept, the presence of members exhibiting generation traits outside the generation period is cited as a contradiction to the generation phenomenon, particularly in studies focused on age or period. Longitudinal studies that consider internal turning points, successor/predecessor members, and spheres of influence not only mitigate skepticism toward generation studies but also strengthen the understanding that the generational phenomenon embodies a distinct collective consciousness transcending age or period considerations.

This article provides conceptual and empirical foundations to aid practitioners in leveraging generational insights in research and practice. Emphasizing that many individual differences, particularly nationality, have decisive effects on the application of generation studies, we advocate for the abandonment of global-based approaches in favor of national classifications. Specifically, we propose studies utilizing locally meaningful concepts over globally standardized

nomenclatures such as Generation X and Y, designed with longitudinal perspectives. Such studies stand to benefit greatly from multidisciplinary perspectives. Lastly, we suggest that policymakers consider clear markers of change, such as internal turning points, in their analyses of causality and adaptation to change.

2. Background

An analysis of relevant literature reveals a lack of consensus regarding the definitions and timelines of generations (Brink & Zondag, 2021; Dencker et al., 2008). However, despite the diversity, all relevant studies converge on defining a generation as a group of individuals born within similar time frames, who share similar life experiences, thereby being shaped by the distinctive events and trends of their era.

Mannheim (1928), hailed as the pioneer in employing the generation concept in scholarly research (Mücevher & Erdem, 2018), conceptualizes generation as a "sociological phenomenon," defining it as a group of individuals with shared habits, culture, and values. According to Mannheim, a generation comprises people of similar age who have undergone shared historical experiences (As cited by Aydın, 2020: 20). Mannheim (1952) underscores the importance of generations in understanding social structures and ideologies, positing that membership in the same generation impacts individuals' thoughts, attitudes, and experiences, demanding a shared position in the social and historical process. Furthermore, the author regards comprehension of class status, established through economic and power dynamics within society, is imperative for grasping generational dynamics. Mannheim's conception of the generation concept revolves around two fundamental components: a common position shared over a period of time and a separate consciousness shaped by important events in that period (Aydın, 2020: 19; Joshi et al., 2011: 180).

Similarly, Strauss & Howe, (1997: 14-15) assert that individuals within generations often exhibit similar views, values, attitudes, and beliefs because they share common experiences encompassing social, political, and economic events during critical periods of personality development (17–24 years). Lissitsa & Laor (2021: 2) affirm that childhood and adolescence are commonly considered periods in which lifelong communication habits are established and the entire generation's personality traits can be influenced through popular media. Consequently, these shared values, beliefs, behaviors, and expectations contribute to the formation of a generational identity perceived to endure over the years, as extensively reported in the literature (i.e., Arli & Pekerti, 2016; Inglehart, 1977, 1997; Pekerti & Arli, 2017). Moreover, a considerable number of studies emphasize the importance of clarifying what generations encompass, emphasizing that the concept transcends mere birth dates, familial lineage, or age, embodying a distinct collective identity (e.g., Aydın, 2020; France & Roberts, 2015; Parry & Urwin, 2011). Parry & Urwin (2011: 81) further stress Mannheim's viewpoint, highlighting that mere birth year alignment among individuals is insufficient, emphasizing the need to share a bond formed by shared experiences.

In the context of generational classification, multiple studies observed discrepancies in the commencement and culminating years of generations (e.g., Costanza et al., 2012: 378). These differences are attributed to the social delineation of turning points marking the end of one generation and the beginning of another (Adıgüzel et al., 2014: 170; Gürbüz, 2015: 41). Noble & Schewe (2003) posit those generational distinctions primarily stem from the impact of historical and cultural events on individuals during formative developmental stages. These experiences foster collective memories and personality traits that influence individuals in that generation (Boyle et al., 2008; Caspi & Roberts, 2001). Strauss & Howe, (1991), for example, built a life cycle based on turning points in American history between 1584 and 2069, asserting that groups corresponding to distinct historical periods would share common feelings, attitudes, and behaviors. Consequently, given the varying turning points across different societies, it is natural for classifications tailored to the U.S.A. to differ in other societal contexts.

Studies rooted in cultural relativism highlight the inconsistency of applying uniform categorization across different societies (Hofstede, 1980; House, Hanges, Javidan, Dorfman & Gupta, 2004; Triandis, 1995 as cited in Gürbüz, 2015). The profound influence of social, historical, economic and political events on the generational results in varied experiences and turning points within each country. While certain events like world wars and the COVID-19 pandemic have global ramifications, the effects of events such as the military coups of 1960 and 1980, identified as the turning point in the Turkish context, may not reverberate uniformly across other societies. Furthermore, differing effects may be observed in societies that emerged victorious from world wars compared to those that suffered defeat. Therefore, this study contends that a classification of generations originating from the U.S. cannot adequately represent other societies, including Turkey (i.e., Bayhan, 2019; Gürbüz, 2015; Nacak, 2019). Additionally, within the same society, classifications may diverge due to varying perspectives among academics from different disciplines regarding the consequences of turning points, warranting separate consideration of this issue.

Despite indications of its intellectual origins dating back to Ancient Egypt (Riggio & Saggi, 2015: 340), interest in

the topic of generations seems to have surged following the translation of Mannheim's 1928 article into English in 1952 (Gürbüz, 2015:41). Generations have become a very popular discourse, especially with the increasing interest of the popular press and gurus, and this popularity has permeated daily discourse. However, the perception that generational differences are primarily a product of "popular culture" has sparked criticism within academic circles (Costanza & Finkelstein, 2015; Giancola, 2006; Kowske et al., 2010; Parry & Urwin, 2011). Numerous critiques have surfaced, ranging from insufficient empirical data on generational differences (Costanza et al., 2012; Rudolph et al., 2021), to the absence of a compelling rationale for the existence of these differences (Elder Jr, 1994, 1998; Meyer et al., 2002; Ng & Feldman, 2010; Roberts et al., 2006), to the absence of a compelling rationale for the existence of such differences (Parry & Urwin, 2011). Additionally, concerns have been raised regarding the effectiveness of studies designed to address such differences (Costanza & Finkelstein, 2015), the reliance on anecdotal evidence and observations (Macky et al., 2008; Sullivan et al., 2009), and the inconsistency of findings in empirical studies on generational differences (Benson & Brown, 2011).

Some of these criticisms have been reassessed or refuted by researchers who initially raised them. For example, Costanza (Costanza et al., 2012; Costanza & Finkelstein, 2015), who previously claimed that generational differences were a byproduct of popular culture lacking academic interest, later revised his stance, acknowledging that "*the concept of generations has been broadly written about in the popular press and management books and has been widely studied by academic researchers*" (Costanza et al., 2021:1). Conversely, after the publication of Costanza & Finkelstein (2015) findings, numerous studies in the relevant academic discourse deliberated on and countered some their critiques (Beier & Kanfer, 2015; Brink et al., 2015; Cadiz et al., 2015; Campbell et al., 2015; Cox & Coulton, 2015; Gibson, 2015; Lyons et al., 2015; Nakai, 2015; Perry et al., 2015; Riggio & Saggi, 2015; Rudolph, 2015; Steel & Kammeyer-Mueller, 2015; Wang & Peng, 2015; Zacher, 2015). For example, Campbell et al. (2015) argue that neglecting cultural in generational studies can undermine their validity and caution against generalizing findings from US-based research, which constitutes the majority of generational studies, to other countries. Emphasizing that generations, like many social science topics, are abstract social structures, they affirm the existence of generational differences and advocate for their measurement using appropriate data. While acknowledging the challenges inherent in generational studies, many scholars underscore the primary issue lies in the operationalization and measurement of generational differences, proposing various alternatives to address these concerns (see Campbell et al., 2015; Nakai, 2015; Wang & Peng, 2015; Zacher, 2015). Aydın (2020) underscores the need for a critical approach to generational studies, cautioning against reductionist tendencies observed in the field and advocating for the increased use of longitudinal study designs, given the limitations of cross-sectional studies.

Research in the Turkish context mirrors critiques found in international literature, but with differences such as a dearth of interrogative studies (Aydın, 2020), a lack of interdisciplinary approaches (Öztürk Aykaç, 2019), and a tendency to focus on generational differences rather than critically examining the generation phenomenon itself (Nacak, 2019). For example, studies edited by Hicret Özkoç and Bayrakdaroğlu, such as "*An Interdisciplinary Perspective on the Concept of Generation [Kuşak Kavramına Disiplinler Arası Bakış]*" (Özkoç & Bayrakdaroğlu, 2017) and "An Interdisciplinary Perspective on the Concept of Generation 2" (Özkoç & Bayrakdaroğlu, 2018), are often cited as interdisciplinary endeavors. However, upon closer examination, these studies appear more as collections of separate investigations conducted by researchers from various disciplines who analyze the phenomenon solely from their respective perspectives. Consequently, as Öztürk Aykaç (2019: 274) emphasizes, rather than achieving true interdisciplinary integration, these studies could be characterized as multidisciplinary endeavors where contributions from different fields converge.

Interrogative studies are also notably scarce. The majority of such studies primarily question the appropriateness of US and European-based generational characteristics for the Turkish context. For instance, Yüksekbilgili (2013: 353) investigated whether the characteristics attributed to Generation Y, particularly in studies originating from the US and Europe, hold true for Generation Y in Turkey. Consequently, it is argued that studies on Generation Y will yield better results if they identify the distinct characteristics of the Turkish type of Generation Y and adapt their practices to account for the characteristics, rather than directly importing widely used studies from other countries. Similarly, Gürbüz (2015: 53-54) examined the existence of generational differences and discovered that out of the 18 hypotheses tested, only three were supported. The author emphasizes that the most important reason for this is that the US-based classification of generations does not fit well in the Turkish context and emphasizes the need for a generational study specific to Turkey. Finally, Aydın (2020), who conducted the most comprehensive interrogative local study on this issue, assessed the controversial issues related to generations by analyzing both Turkish and international literature. The author substantiates the aforementioned critical challenges and underscores the necessity for localized categorizations and longitudinal research methodologies (p. 29).

3. Method

This qualitative study used a form with two independent sections and interviews were conducted based on the initial data obtained from the questionnaire. The first section of the form consisted of questions on demographic information, while the second section entailed open-ended interpretation questions.

Answers to open-ended questions (henceforth OEQs) offer vital insights into respondents' potential need for clarification and can enhance survey data difficult or impossible to obtain with closed-ended questions, as noted by Neuert et al., (2021). Gillespie et al. (2021) affirm that OEQs enrich survey data by allowing respondents to provide unrestricted responses, enabling them to elaborate, qualify, and clarify their answers without constraints or potentially biased prompts (He & Schonlau, 2021; Neuert et al., 2021; Schonlau et al., 2021). While data coding approaches are commonly employed in the analysis of OEQs and interviews (Popping, 2015), in recent years, there has been an increasing interest in (semi-)automatic coding, which involves transforming qualitative data into quantitative data (Roberts et al., 2014; Schonlau et al., 2021; Senderovich & Maysuradze, 2015). In this study, OEQs were employed to give the participants more leeway and the rich data obtained were analyzed through coding.

It is known that researchers most often avoid the use of OEQs due to the challenges associated with analyzing large and complex data (Kuckartz & Rädiker, 2019: 2). However, with the development of qualitative analysis software, these challenges have become more manageable. One of the most frequently used software is MAXQDA, which offers a wide range of applications and can be categorized as both a methodology and a methodological toolbox (Kuckartz & Rädiker, 2019). Therefore, in this study, demographic data are presented solely as frequency distributions, while data obtained from OEQs and interviews were analyzed using manual coding procedures with the MAXQDA 2022 program.

In the data collection phase, invitations to participate in our study were initially disseminated via email to academics in the departments of sociology, anthropology, communication, education, business administration, history, and psychology across 146 universities in Turkey. These areas were selected based on a review of the relevant literature, encompassing all fields engaged in generational studies. According to Mailtrack software, 11388 emails were read, and 1427 people responded in the first stage. However, only one participant continued to work. A second email was then sent and 179 more academics agreed to participate, but only 11 academics completed the study, bringing the total number of participants to 12. Through snowball sampling, an additional 59 academics were interviewed, yielding nine additional participants. Therefore, devoid of any sample selection process, all individuals who agreed to participate in the study were included.

Qualitative studies necessitate identifying samples aligned with research objectives that can provide more in-depth data than larger groups, as participants may reiterate themselves to a certain extent (Baltacı, 2018; Marshall & Rossman, 2016; Neuman & Robson, 2014; Teddlie & Yu, 2007). Accordingly, the study was completed with 21 participants, whose demographic data are presented in Table 1, following the principle of selecting purposive samples that will yield rich data.

Table 1. Participants' Demographic Data (Number of Participants)

Department	Tenure	Gender	Age Group	Hometown		Education Level
Anthropology (1)	4-5 Years (1)	Male (12)	26 – 35 (2)	Adana	İzmir	Master's Degree (1)
Education (3)	5-10 Years (4)	Female (9)	36 – 45 (12)	Ankara	K. Maraş	PhD (20)
Economics (1)	10-15 Years (9)		46-55 (4)	Antalya	Karaman	
Communication (2)	Over 15 Years (7)		56 and above (3)	Aydın	Kars	
Business (6)				Bolu	Konya	
Psychology (1)				Bursa	Mardin	
Sociology (4)				Elâzığ	Mersin	
History (3)				Eskişehir	Sivas	
				Gaziantep (2)	Tokat	
				İstanbul	Trabzon	

Prospective participants were provided with detailed explanations of the study requirements before they consented to participate. Participants who consented to participate received a five-page Excel-formatted study file via email: The text on the first page reiterates the study requirements and extends gratitude to the participants. The second page addresses demographic inquiries, while on the third page, fundamental considerations such as criteria for feature selection and examples drawn from the American context are explained. The fourth page presents a chronological list of all prime ministers, presidents, periods in power, and significant events in the history of the Republic of Turkey. The final page presents the basic data collection form consisting of two stages: The first stage consists of only one question: "According to you, how many generations are there in Turkey from past to present? (When answering this

question, please consider all explanations provided during our interview. If you determine how many generations there are, do not forget to give each one a name and add detailed explanations about its characteristics and why it is a unique generation!)". In the second stage, the participants were prompted to respond to 15 different topics such as birth years, Social Signifiers/Significant Events, Popular Culture for each generation (internal breakpoints are also included here after the first interview).

In analyzing the data obtained, a first draft was prepared and shared with the participants for their review. Subsequently, a second draft was formulated based on online interviews. Participants were re-interviewed after the second draft, which was created according to the date ranges and names finalized. Necessary were made based on the final feedback received, thereby concluding the study.

4. Findings

According to the data obtained, the following turning points[1] have significantly influenced the delineation of generations in Turkey. The establishment of the Turkish Republic on October 29, 1923, marked the first turning point. The first generation, termed *Founders*, encompasses individuals born before 1923, with some participants tracing birth dates as far back as 1860. The second generation, referred to as the *Republican Generation*, spans from 1924 to 1949, with the third generation, titled the *First Democrats*, spans from 1950 to 1960, with the May 27, 1960 military coup serving as its conclusion. Subsequently, the Military Coup Generation, beginning with the May 27 coup and ending with the coup of September 12, 1980, was named, though it was extended to include the period until the general elections of November 6, 1983, signifying the end of military tutelage. The fifth generation, individuals born between 1984 and 2002, is termed the *First Neoliberals*, With the conclusion marked by the onset of the Justice and Development Party (henceforth AK Party). Lastly, the ongoing generation, termed the *Social Media* Generation is acknowledged to have commenced, but its conclusion remains undetermined, rendering it a work in progress. Consequently, Turkey is considered to have six generations (Table 2).

Table 2. Key Findings on Turkey's Generations

	Years of Birth *(Sphere of Influence)*	**Initiator & Finisher Turning Points** *(Internal Turning Point)*	**Adopted Generation Name** [Turkish Version] *(The Generation does it correspond to in the literature?)*
1	**1923 & Before** *(1860s-1929)*	**1877-78 Ottoman Russian War & Establishment of the Republic -1923** *(Tripoli War - 1911)*	**Founders** [Kurucular] *(Silent Generation)*
2	**1924-1949** *(1919-1954)*	**Establishment of the Republic -1923 & Democrat Party Rule - 1950** *(Beginning of World War II - 1939)*	**Republican Generation** [Cumhuriyet Kuşağı] *(Silent Generation)*
3	**1950-1960** *(1946-1965)*	**Democrat Party Rule – 1950 & May 27, 1960 Coup** *(2nd Democratic Party Rule - 1954)*	**First Democrats** [İlk Demokratlar] *(Baby Boomers)*
4	**1961-1983** *(1954-1984)*	**May 27, 1960 Coup & September 12, 1980 Coup Period** *(March 12 Memorandum)*	**Military Coup Generation** [İhtilal/Darbe Kuşağı] *(Generation X)*
5	**1984-2002** *(1973-2008)*	**September 12, 1980 Coup Period & November 3, 2002 General Election** *(Turgut Özal's Death)*	**First Neoliberals** [İlk Neoliberaller] *(Generation Y)*
6	**2003 & After** *(1997-present)*	**November 3, 2002 General Election & Continues**	**Social Media Generation** [Sosyal Medya Kuşağı] *(Generation Z)*

As outlined in the methods section, this study began with the participants receiving a form containing open-ended questions following an interview, which they filled out. After assessing the data in this first form (Table 3), participants were interviewed again, and a second draft was developed (Table 4 - Phase 2). At this stage, the total number of generations and their corresponding year intervals were determined by majority decision. The final iteration encompassed analyses derived from the second draft and the final meeting (Table 4 - Phase 3). Tables 3 and 4 serve to elucidate the progression of participant identifications and naming contributions at each stage. While the

[1] **Turning Point:** A sociocultural event/situation that causes one generation to end and another to begin.

determinations from the last column in Phase 3 were adopted as the final decision, uncertainties regarding the naming of the last two generations persisted due to hesitations expressed by two participants.

Table 3. Participants' generation names and numbers (Phase 1) [2]

	Participant Code	Generation 1	Generation 2	Generation 3	Generation 4	Generation 5	Generation 6	Generation 7
Phase 1	P1	***Founders***	Cultural Founders	Enlightenment - Organization	Chaos Gen.	Gen. of Prohibitions	Technology	***Social Media Gen***
	P2	***Founders***	Children of the Founders	***Democrats***	Children of the Coup	***Neoliberals***	***Social Media Gen.***	
	P3[2]	***Gen C (Republic)***		Gen D (Democracy)	Gen E (Oppressed)	Gen X (Blurred)	Gen T (Technology)	
	P4	Founders	Gen. of Revolution	Democrat Party	***Coups Era***	City/Urban Gen.	***Social Media Gen.***	
	P5	One-Man Generation		Revolution & Change Conflict Gen.	***Military Coup Gen.***	***Neoliberals***	Gen. of Political Islam	
	P6	***Founders***	Gen. of change	Gen. of return to original identity	Idealist Gen.	Globalization Gen.	Techno Gen.	
	P7	First Gen.	Gen. of change	First Liberal Gen.	Silenced Gen.	Televole[3] Gen.	Gen. of Political Islam	
	P8	***Founders***	***Republican Gen.***	***First Democrats***	***Military Coup Gen.***	***First Neoliberals***	AK Party Gen.	
	P9	Gen. of Struggle	Revolution Gen.	Gen. Change	Idealist Gen.	Blurred Gen.	Technology Gen.	
	P10	Warriors of Liberation	Gen. of Children of the Republic	Children of Democracy	***Military Coup Gen.***	Unfortunate Gen.	***Social Media Gen.***	
	P11	***Founders***	***Republican Gen.***	Democrat Party Gen.	***Military Coup Gen.***	Technology Gen.	Web Gen.	
	P12	***Founders***		The First Americanists	Oppressed	Gen. of Prohibitions	AK Party Gen.	
	P13	Silent Gen.	***Founders***	Baby Boomers	Gen. X	Gen. Y	Gen. Z	
	P14	***Founders***	Revolution Gen.	Little America/ Americanization Gen.	***Military Coup Gen.***	Globalization Gen.	Internet generation	
	P15	***Founders***	***Republican Gen.***	***Democrats***	***Military Coup Gen.***	***First Neoliberals***	AK Party generation	
	P16	***Founders***	***Republican Gen.***	***First Democrats***	***Military Coup Gen.***	***Neoliberals***	Gen. of Pretended [Mış Gibi]	
	P17	***Republican Gen.***		***Democrats***	***Military Coup Gen.***	Lost Gen.	***Social Media Gen.***	
	P18	***Founders***	Social Realists	Silenced Gen.	Individualists	Virtual realists		
	P19	***Founders***	***Republican Gen.***	The Gen. who discovered politics	Post-memorandum Gen.	Gen. away from politics	***Social Media Gen.***	
	P20	Gen. of the Establishment Period of the Republic		Gen. Change	Military Coup Gen.	Technology Gen.	Millennials	
	P21	Gen. of Grandparents		Fathers-mothers Gen.	Unfortunate Gen.	Mature-Adolescent Gen.	Gen. of Babies	

Table 4. Participants' generation names and numbers (Phase 2 &3)

	Participant Code	Generation 1	Generation 2	Generation 3	Generation 4	Generation 5	Generation 6
Phase 2	P3	***Founders***	***Republican Gen.***	Gen D (Democracy)	***Military Coup Gen.***	Blurred Generation	Technology Generation
	P6	***Founders***	***Republican Gen.***	***First Democrats***	Idealist Gen.	***First Neoliberals***	***Social Media Gen.***
	P7	***Founders***	***Republican Gen.***	First Liberal Generation	Silenced Gen.	***First Neoliberals***	Gen. of Political Islam
	All other participants	***Founders***	***Republican Gen.***	***First Democrats***	***Military Coup Gen.***	***First Neoliberals***	***Social Media Gen.***
	Participant Code	**Generation 1**	**Generation 2**	**Generation 3**	**Generation 4**	**Generation 5**	**Generation 6**
Phase 3	P3	***Founders***	***Republican Gen.***	***First Democrats***	***Military Coup Gen.***	Blurred Gen.	Technology Gen.
	P7	***Founders***	***Republican Gen.***	***First Democrats***	***Military Coup Gen.***	***First Neoliberals***	Gen. of Political Islam
	All other participants	***Founders***	***Republican Gen.***	***First Democrats***	***Military Coup Gen.***	***First Neoliberals***	***Social Media Gen.***

The categorization of generations provides a framework through which we observe and analyze the socio–political dynamics of a nation. In the Turkish context, generational labels offer a distinct narrative reflecting the country's historical, political, and cultural evolution. Each generation's designation in this context is meticulously selected in light of historical events, political transformations, and sociological shifts, in alignment with the perspectives of the

[2] Here, the first letter of the Turkish versions of the words was taken as the basis by the participant: C-Cumhuriyet, D-Demokrasi, E-Ezilenler & T-Teknoloji

[2] Televole is a magazine program that aired on TV between 1994 and 2005.

participants. This is because the commencement and conclusion of generations in Turkey have consistently evolved in response to such shifts.

However, significant findings have emerged, proposing a novel approach by incorporating the concepts of sphere of influence, successor and predecessor members, and internal turning point phenomena of generations into the literature. While controversies have arisen regarding the data processing procedures, much of the debate has centered on the identification of turning points and associated dates for each generation. Notably, the phenomenon of generations' spheres of influence has gained prominence. In essence, a generation's sphere of influence refers to the entire period during which its defining characteristics manifest, including the pioneering effect observed before the initiator turning points and the successor effect observed after the finisher turning point (see Figure 1).

The date ranges attributed to generations are imprecise. They only refer to turning points where a change is inevitable. However, the dynamics that trigger these turning points have predecessor and successor effects; these dynamics have immediate effects on some groups, which become precursors, while effects on others are delayed, making them successors. Similarly, some are not affected at all and do not exhibit generational characteristics although they are in the relevant generational period. A turning point, which concludes one generation and initiates the next, is therefore only the most prominent and obvious factor. To clearly illustrate this, scholars acknowledge the Truman Doctrine of March 12, 1947 as the starting date of the Cold War (i.e., Edwards, 1988; Frazier, 1984; Gaddis, 1974; Merrill, 2006; Spalding, 2017). However, this is not to suggest that there were no Cold War influences or individuals impacted by it in the earlier period, does it imply that everyone in every nation experienced the impact of the Cold War immediately and uniformly on March 13, 1947. Therefore, while turning points are the most prominent circumstances or events, predecessor and successor group members[3], can be impacted by the relevant situation/event in preceding or succeeding eras and exhibit the characteristics of the relevant generation.

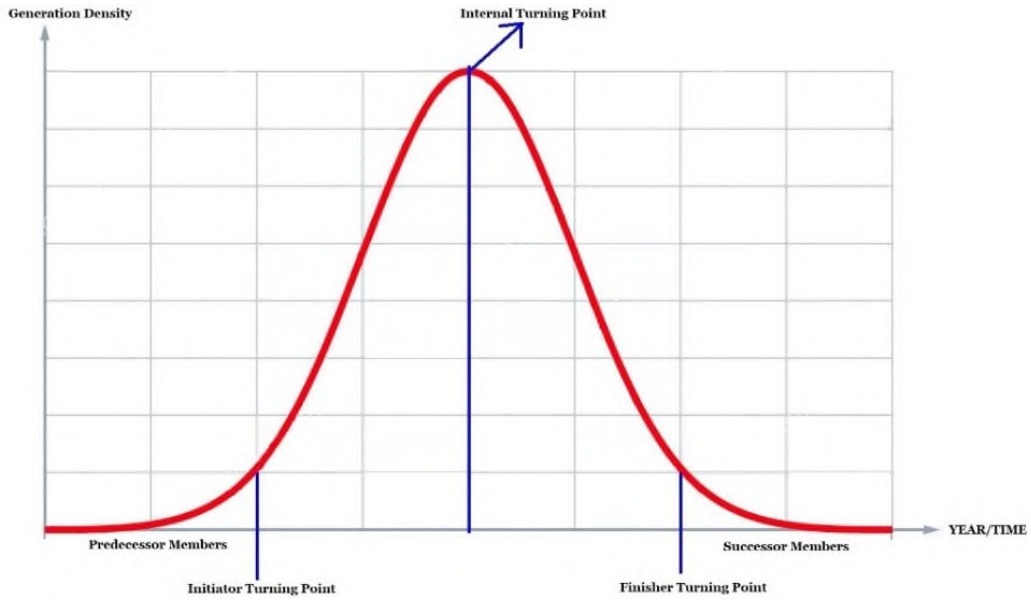

Figure 1. [4]Sphere of Influence and Turning Points of Generations

The final issue concerns the internal turning point, a pivotal event or situation occurring in all generations, which serves the precursor to the finisher turning point, or rather initiates the series of events leading to its realization. This internal turning point effectively divides each generation into two halves. The initial is marked by predominantly positive developments in terms of generational characteristics, while the second phase typically witnessed a succession of negative developments that accumulated over time, eventually leading to a culmination.

[3] **Predecessor and Successor Member Periods:** Periods found by subtracting the generational period from the Sphere of Influence.

[4] In Figure 1, these two phases appear to represent equal date ranges, but there is no evidence to support this and the length of the periods varies as seen in Table 2.

4.1. Founders

P12: *If the period preceding 1923 is considered, this group ought to be referred to as the founders. Although significant disparities exist between the general populace and the select group that established a new state in terms of personal attributes, educational attainment, and sociocultural heritage, these individuals collectively constructed this nation.*

The first generation, encompassing those born before 1923, can trace its roots back to the 1860s, offering the broadest date range among participants. The onset of the 1877 Ottoman–Russian War marked the beginning of the decline of the Ottoman Empire, with events during Abdülhamid II's 33-year reign shaping this new generation. Many individuals of this generation, including Turkey's founding figures and social strata integral to the nation's establishment, perished in conflicts. Beginning with the Tripoli War in 1911, the trend persisted through the Balkan Wars, World War I, and the War of Independence Wars until 1923. Consequently, the defeat in the Tripoli War emerged as a pivotal internal turning point. Conversely, due to consistent rebellions and conflicts within the Ottoman Empire between 1897 and 1911, some participants argued that the 30-Day War in 1897 should serve as the internal turning point. However, prevailing consensus leaned toward regarding the Ottoman victory in the 30-Day War as a temporary delay rather than a definitive turning point. Regarding spheres of influence, this period begins with the intensification of the "Young/New Ottoman" Westernization movement in the 1860s, culminating in the establishment of a constitutional monarchy. It concludes with the reforms implemented by the New Republic in 1928–29 (the adoption of the Latin alphabet, secularism, the right of women to vote and stand for election, etc.). Notably, the telegraph emerged as the predominant media tool of this generation.

Disputes over the nomenclature of this generation have been minimal. In Phase 1, some participants excluded the period prior to 1923, while others extended it from 1900 to 1945. However, upon reflection, consensus emerged that the pre-1923 era should constitute a distinct generation, unequivocally known as the founders. The primary bone of contention lies in determining the precise starting point, as highlighted in the preceding discussion.

4.2. Republican Generation

P14: *In this context, I agree that our second generation should be the Republican generation. After all, it is undeniable that the most significant difference from the previous generation or generations is the new regime.*

The second generation consists of those born between 1923 and 1949. While the initiator turning point of the generation remains undisputed, participants identified several events as potential finisher turning points, including Atatürk's death (November 10, 1938, the onset (September 1, 1939) and conclusion (September 2, 1945) of World War II (WW II), and Turkey's first multiparty election (July 21, 1946). Particularly contentious were the dates of Atatürk's death and the end of WW II, which are typically considered as turning points in most of the generational classifications in literature. Ultimately, despite evident most debated ones. In conclusion, while there were clear signs of turmoil and transformation in the 1940s, with the pioneering effects of the Cold War becoming apparent, consensus holds that the true impact was felt after Atatürk's death, particularly during İnönü's leadership, marking the establishment of the Democrat Party Government as the decisive turning point. Similarly, although the impact of WW II on Turkey is undeniable, it has been concluded that Turkey was not as affected as the countries that participated in the war and that this did not cause a turning point in Turkish society. However, all evidence points to the outbreak of WW II as the generation's internal turning point. The policies implemented by the governments and the public's reaction to these policies due to the outbreak of the war led to the decisive break, as Turner and colleagues emphasize in the necessary struggle for consciousness (Eyerman & Turner, 1998; Turner, 1998). The period between Atatürk's launching of the liberation movement in 1919 and the elections of 1954, when the policies of the Democratic Party government began to change, emerges as the sphere of influence. While the telegraph remains the most widespread media tool, radio and cinema have also become influential among this generation.

No dissenting opinions were observed in the naming of this generation, and based on the table after phase 1, all participants adopted the name Republican Generation.

4.3. First Democrats

The initiator turning point of First Democrats, born between 1950 and 1960, is the 1950 elections, while the finisher turning point is the May 27, 1960 coup. This generation, which covers a very short period of time, has also brought with it debates about whether such a short period of time can be considered a generation. Participants agreed that this is a distinct generation, albeit brief, characterized by its unique characteristics that distinguish it from the generations that came before and after it. The internal turning point was identified as the 1954 electoral victory that ushered in the second period of the Democrat Party in power, in which it began to implement practices contrary to its founding

rhetoric. The period from 1945, the conclusion of WW II marking the beginning of the bipolar world, and 1965 when the polarization between the Republican People's Party and the Democrat Party turned into a polarization between the right and the left, constitutes the generation's sphere of influence. While radio remains the predominant media tool, the spread of American influence in the cities is also evident through the pronounced impact of cinema.

Various nomenclatures emerged during the first phase of this era (refer to Table 3). However, our study found it appropriate to adopt the nomenclature of the First Democrats, placing emphasis on the appellation of the Democrat Party. Subsequently, during the second phase, all participants, except two, agreed on the designation of the first democrats. The central tenet of this consensus was that the chosen name not only symbolized the rise of the Democrat Party, representative of the era, but also marked the establishment of a new democratic identity. This catalyzed a profound societal division, delineating the dichotomy of the "[Republican] People's Party vs. Democrat Party.": During this period, the significance of political ideology escalated to the extent that the society, which was sharply divided between "[Republican] People's party vs Democrat Party," did not even frequent the same coffeehouse in the tiniest settlements. The significant strides in the economy and living standards, particularly in rural regions where a substantial portion of the populace initially resided, coupled with religious convictions resonating with these predominantly conservative rural communities, led to a strong allegiance to the democratic party. Conversely, the implementation of stringent policies, targeting opposition factions and the media, as well as certain policies affecting communities, religion, education, system, and economics, gave rise to a dissident faction. The resulting polarization has perpetuated division in Turkish democracy. In the ensuing years, this division endured various situations, including the schism between right-wing and left-wing ideologies, and the dichotomy between secular and conservative perspectives .[5]

Two participants who dissented from this nomenclature articulated their primary rationale for their opposition. Amidst discussions surrounding the first two generations, these participants, who changed their stance in the final stage and ultimately acquiesced to the appellation, emphasized themes highlighting that these two generations were governed under a singular authoritarian regime, subjecting the populace to homogenization. They transcended mere critique by advancing arguments characterizing the period as one marked by the struggle for survival and the assertion of existence against the state. According to their assertions, this era witnessed discord between Western Revolutions and Islamic principles, resulting in contradictions and instigating conflicts and psychosocial traumas in every domain. The masses, victimized by the nascent regime, struggled to assert their existence, testing the state. Consequently, they argued that this emerging generation, liberated from the oppression and persecution of the initial two periods, should be labeled the First Liberal Generation and Democracy (or Children of Democracy). While these perspectives were duly considered, the counterarguments presented by other participants and insights gleaned from final consultation interviews were categorized as critiques, dismissing the validity of these arguments for the present generation and disregarding the contextual conditions. Ultimately, both dissenting participants agreed that the designation "First Democrats" would be more fitting.

4.4. Military Coup Generation

P21: I mean, to be honest, at first, I made a classification based only on age, but after the first stage, when I saw the answers of other participants, I realized that I had to look at the issue from a different angle. Therefore, we should look at what should be the most accurate here, rather than my opinion coming to the fore. I think this is the most ideal name for a generation that started and ended with a military coup and whose internal rupture we all agree was a military memorandum. [*referring the military coup*]

This generation began with the 1960 coup and ended with the 1983 elections that overturned the 1980 coup regime; hence, earning the name *Military Coup Generation*. In addition to the two coups, the March 12 Memorandum, which forced the government to resign in 1970 and caused an internal turning point, also took place during this period. Regarding internal turning points, participants experienced challenges choosing between the March 12 Memorandum and the 1973 oil crisis. The collapse of the Bretton Woods monetary system and the 1973 oil crisis, which brought about the end of the planned mixed economy, have been considered at least as much as the memorandum, since they were the trigger starting the process leading to neoliberal policies and the January 24 decisions. However, the March 12 memorandum was found to be more critical as an internal turning point due to its socio–cultural implications that

[5] The following sources are recommended by the participants for those who want to read in detail about this period:
Ahmad, F., (2020). *Demokrasi Sürecinde Türkiye 1945-1980*. (5th Ed.) Hil Yayınları.
Ağaoğlu, S. (1972). Demokrat Partinin Doğuş ve Yükseliş Sebepleri: Bir Soru. Baha Matbaa.
Apuhan, Ş. (1997). *Öteki Menderes*, İstanbul: Timaş
Özer, İ. (2015). *Demokrat Parti Dönemi Siyasi ve Sosyal Hayat.* İstanbul: İskenderiye.
Toprak, Z. (2013). *Lozan'dan Cumhuriyet'e İsmet İnönü,* Ankara: İnönü Vakfı.

directly targeted this generation, in addition to its economic implications. The first effects of the sphere of influence began in 1954 during the Second Democratic Party period and lasted until early 1984 when normalization began after the September 12 coup. Although radio is still the most widespread media tool of the period, cinema, television and telephones are also influential. Moreover, for the first time, music, which was not a media tool, was used to convey messages to the masses in this period.

Several names were proposed for this generation (Table 3) and at the third phase, all participants agreed that the term Military Coup Generation was more fitting.

4.5. First Neoliberals

P18: Of course, in the first stage, I made a conceptualization based on personal characteristics, and apoliticalization was my main touchstone for this generation.... I mean, I would agree that Özal was the most critical actor in this period, but frankly I was quite distant from issues like the Bretton Woods monetary system or the 1974 oil crisis that brought the planned mixed economy to an end. But now, as a result, it is clear that the big picture for this generation is being neoliberal. I especially love the characterization of "the first", very well captured by the participants, congratulations, because that first is a very good characterization of the whole period that followed.

This generation began with the 1983 general elections that ended the three-year rule of the September 12 coup plotters, and ended with another general election in 2002. With the January 24th decisions, Özal took the helm of the economy and was appointed Deputy Prime Minister in charge of the economy in Bülend Ulusu's military government to continue his economic policies. After serving for 22 months, Özal resigned on July 14, 1982, and began working on establishing his party. He was victorious in the 1983 elections, in which important actors such as Demirel, Ecevit and Erbakan were still banned and failed to enter, and ended the period of military tutelage. He thus put an end to nearly 24 years of chaos and became the most important political actor of the time, serving as Prime Minister between 1983 and 1989 and President from 1989 until his death in 1993. The name "First Neoliberals" was selected because this generation refers to an era characterized by the ascendancy of the market economy. This shift, which commenced following the oil crisis of 73 and was official endorsed through the January 24th, 1980 decisions, reflects the reality of neoliberalization along with its associated political economy factors. In terms of the generation's sphere of influence, the year 1973, marking the initiation of the transition to the neoliberal policies, serves as the starting point. Conversely, the year 2008, marked by a significant upheaval in neoliberal policies due to the financial crisis, serves as the endpoint. The most important actor of this period was undoubtedly Turgut Özal, and his death was the internal turning point. All governments after Özal's death, except for the 137-day Ecevit transitional election government (11.01-28.05.1999), were coalitions of two or three. Television was the most widespread media tool of this generation and television series and shows were popular and influential.

4.6. Social Media Generation

P7: I am not denying the influence of social media or technology, but I still think that the main characteristic of this generation is the phenomenon of political Islam in the axis of AKP vs. AKP opposition. After all, this is a generation born and raised under a lot of critical policies and factors shaped by a very powerful government. .... So, it is not possible for me to disagree with the arguments of the other participants. Since the majority is in this direction, the name social media is considered reasonable.

The AK Party governments and the advent of social media dominate discussions about this generation. While the 2002 elections that brought the AK Party to power are accepted as the initiator turning point of this generation, the participants struggled between the widespread use of the internet in Turkey, which led to the emergence and widespread use of social media, and the significance of this election. However, because social media's impact results from cumulative effects rather than a singular event, and considering the influence of government policies, the 2002 election was deemed the turning point. Consequently, the name "social media generation" was adopted, acknowledging the mutual social effects of social media and the increasing cultural convergence facilitated by communication technologies, despite the AK Party's ascension to power serving as the turning point. One of the two participants who disagreed with the name of this generation stated that it should be technology because technology is the primary cause, while the other stated that the main determinant of this generation in Turkey should be political Islam because it revolves around political Islam and its opposition. However, with a majority decision, the name social media was accepted.

Regarding the finisher turning point, while some argued for events such as the COVID-19 pandemic, economic issues in 2021–2022, or the emergence of web 3.0, the consensus held that this generation persists. Two scenarios emerged regarding sphere of influence: in the first scenario, the web, developed and launched by Tim Berners-Lee in 1989, marks the beginning of this generation's sphere of influence. In the second scenario, despite being referred to as the social media generation (referring to Web 2.0), domestic political issues in Turkey emerged as the main influencing factor, owing to some necessities brought about by dynamics specific to Turkey, such as the state's restrictive power

and role in Internet use, the necessity to follow technology one step behind, and the continuing influence of popular culture-oriented policies implemented after the September 12 coup. In the second scenario, the February 28, 1997 memorandum is regarded as the beginning of this generation's sphere of influence. Both scenarios recognize the sphere of influence is still active. We accept the assumption that February 28 is more significant because it was the beginning of the dynamics that brought the AK Party to power.

Regarding the internal turning point, the following events stood out: a) the third AK Party government (2011), b) 2012, when smartphones and application markets such as iOS/Google Play began to gain traction in Turkey, c) the emergence of Web 3.0 and metaverse technology, which includes advanced technology such as blockchain, artificial intelligence, machine learning, Internet of Things (IoT), virtual reality, peer-to-peer (P2P), d) the Gezi Park events (2013), and e) the two elections in 2015. In our study, since smartphones which maximize the effects of the opportunities offered by web 2.0 technology locally, are the most important factor shaping this generation and are the main mechanism in the spread of social media, 2012, when the Android market application, which is the beginning of this, started to operate in Turkey, is considered to be the internal turning point. Since the generation is still ongoing, the final decisions on all these issues will only be made when the final turning point takes place. While the recent Kahramanmaraş earthquakes of February 6, 2023, may signal the finisher turning point, the full impact is yet to be determined. It is undeniable that social media remains the most popular and powerful media tool of this generation.

5. Discussion and Conclusion

While the academic community's interest in generation studies is growing, it is also met with a range of criticisms within the academic circle. This study did not engage in debates concerning the necessity and validity of generational studies but rather addressed critiques by striving for more effective methodologies. Specifically, it seeks to develop a generational classification specific to Turkey, demonstrating how effective operationalization can be achieved. This endeavor demonstrated how and why Turkey-specific generational classification should be modeled in the micro context, as well as how and why other generational classifications should benefit from this modeling in the macro context. To achieve this, the study initially addressed relevant literature to contextualize why the global generation classification differs across societies (e.g., Campbell et al., 2015; Schewe & Meredith, 2004). Subsequently, a generation classification for Turkey was developed with the participation of 21 social scientists from various regions within Turkey, considering cultural influences and diverse perspectives of researchers across various fields. In conclusion, the study identifies six different generations in Turkey: the founders, the republican generation, the first democrats, the military coup generation, the first neoliberals and the social media generation. These generations are shaped by sociopolitical conditions prevalent in Turkey. It is important to emphasize that the entire phenomenon of generational identification in Turkey, from naming to categorization, is intricately influenced by the prevailing sociopolitical landscape.

Furthermore, the findings indicate that the commonly used global generation classification in literature inadequately represents Turkey's generations. While global events such as the Great Depression of 1929, WW II, Generation 68 events, the significant change in the labor force created by women in Generation X, and the invention of the Internet, all stand out as pivotal turning points in the global generation classification, they hold secondary significance in Turkey compared to nation-specific political events like governmental changes and military coups. This supports the studies that claim that social and cultural differences affect generational classification (e.g., Aydın, 2020; Campbell et al., 2015; Gürbüz, 2015). Therefore, it is essential to stress once again that the current sociopolitical climate in Turkey profoundly shapes the whole phenomenon of generational identity, including the act of identifying and categorizing. The turning points in the worldwide generation categorization post-WWII were mostly determined by technological advancements. However, these advancements remained secondary factors as their effectiveness in Turkey depended on their impact reaching a specific degree in other nations. However, the emergence of social media and influencer phenomena have been concurrently prevalent in various regions of the globe. This also implies that the characteristics of future generations will exhibit greater uniformity worldwide, particularly facilitated by web 3.0 technologies. Thus, in other words, this study supports Nacak's (2019:25) and Bayhan's (2019:44) argument that generational similarity has evolved from a period when it could be comprehended within a certain social limitation to a period in which generational features are comparable on a worldwide scale.

Bringing together social scientists from various disciplines to identify Turkey's generations facilitated a comprehensive understanding of viewing similar events from different perspectives. Following the first draft, all participants interviewed expressed a need to re-examine their own perspectives and acknowledged that many of the issues raised in other fields should have been considered but were overlooked. This multidisciplinary approach has yielded critical and unique contributions to generation studies. These contributions include a) naming and making

more concrete *the initiator and finisher turning points*, b) demonstrating the existence of an *internal turning point* and that it occurs in all generations, c) understanding that the internal turning point is the key mechanism initiating the process leading to the finisher turning point, d) demonstrating that all turning points may exhibit individual differences in the meaning attributed to them by individuals based on their experiences. Moreover, these turning points are directly related to specific events, and some generational members may take serve as *predecessors or successors* in periods outside the generational period, and e) recognizing that each generational period and its antecedent/successor periods constitute the generational *sphere of influence*. In summary, in addition to initiator and finisher turning points, this study has introduced the *internal turning point, spheres of influence*, and *successor/predecessor members* of the generations to the literature.

One of the most common criticisms of generation studies is the perception of it as a "popular culture" subject. Given the ample evidence of academic curiosity (e.g., Costanza et al., 2021), further discussion on this issue is unnecessary. Another critique relates to the lack of an adequate explanation for the existence of generational differences. This study contributes to the literature by asserting that generational differences stem from distinct experiences between generations, shaping generational specificity through generational media tools. These findings are consistent with the role of media in influencing personalities, especially during their formative years, as Lissitsa & Laor (2021) noted. It is important to note that the generational differences are influenced by different factors, and not all members of a generation in the same manner. Taken together with the critique that suggests the relevant differences are also explicable by alternative approaches, both critiques are seen as rooted in the positivist approach. More precisely, different social science fields have highly different perspectives on how any social structure differs based on income, educational attainment, or gender, and thousands of researchers analyze these variances as variables. However, this does not mean that the issue under scrutiny can only be explained by the relevant variables. Therefore, the fact that it can be explained by alternative approaches should not indicate that any particular approach is untenable.

Moreover, the criticism regarding inconsistent empirical studies on generational differences can be attributed to several factors. Disparities in study results are primarily rooted in the plethora of social markers across different cultures, leading to varied generation dates. Additionally, the diverse perspectives that comes from pursuing different disciplines in the same society contribute to these inconsistencies. This study reveals that members of the generation before and after the internal turning points are impacted by distinct dynamics, with some individuals existing outside the norm as successor/ predecessor members. Disregarding these complexities often leads to findings in generational studies being perceived as contradictions or inconsistencies. The generational phenomena cannot be reduced to mere dates. Its variability does not add a negative result to the issue. Because certain generational characteristics are concentrated in certain date intervals, there is a date range that expresses the beginning and end of generations; however, these are not precise lines, as these characteristics may manifest outside of these dates, as demonstrated by successor/predecessor members. Just as dates range among cultures due to socio–cultural influences, it is typical for certain dominant influences to manifest later or not at all in other groups, or to exert effects at different levels and times. Similarly, just as observing the effects of the Cold War in a specific area and community before its official onset date of March 12, 1947, does not contradict the Cold War's recognized beginning, noting generation characteristics preceding the attributed onset date does not contradict the generation phenomenon. Therefore, the variation in research outcomes across societies, as well as differences observed within the same society due to the different degrees of exposure to relevant generational characteristics, does not contradict the concept of generational differences. Addressing this requires the operationalization of multidisciplinary longitudinal studies incorporating the phenomena presented in this study, which also serves as a solution to another criticism of the subject – the lack of effectiveness in addressing such differences. Therefore, this study supports the view that the relevant criticisms stem from cross-sectional studies, which may lead to errors in the operationalization and measurement of generational studies.

Despite time and participation constraints, this study proposed a generational classification specific to Turkey based on the perspectives of participants from various disciplines and enriched the literature by providing phenomena critical to the operationalization of generational classification studies. Future research should examine the proposed findings and operationalizations of this study and consider ways of making the generative phenomenon more functional.

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ORCID :

Umut ÇİL 0000-0002-6292-2890
Osman ÇEVİK 0000-0002-2217-8876

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Research Article

Analysis of Liquid Migration as a Manifestation of Migration-based Lifestyle in the Third Millennium Using a Qualitative Approach

Mohammad ABBASZADEH[1], Hacı DURAN[2] Tavakkol Aghayari HIR[3] and Ebrahim MOHAMMADPOUR[4]

[1]Professor of Sociology, Department of Social Sciences, Faculty of Law and Social Sciences, University of Tabriz, East Azerbaijan Province, Iran
[2]Professor Doctor of Sociology. Head of Department of Sociology, Istanbul Aydin University Istanbul, Türkiye
[3]Associate Professor of Professor of Demography, Department of Social Sciences, Faculty of Law and Social Sciences, University of Tabriz, East Azerbaijan Province, Iran
[4]Ph.Doktor in Sociology, Department of Social Sciences, Faculty of Law and Social Sciences, University of Tabriz, East Azerbaijan Province, Iran

Corresponding author : Hacı Duran
E-mail : haciduran@aydin.edu. tr, duranhaci@gmail.com

ABSTRACT

Immigration, as a social phenomenon, has always held a significant place in the sociology literature. The migration phenomenon has been extensively studied within the scope of industrialization, urbanization, wars, and global development challenges. However, contemporary consumer society values, globalization, and ongoing social crises have added new dimensions to migration. Hyperreality images, fluid society values, advancements in communication technologies, and evolving work environments have transformed migration into a way of life. Recent research has increasingly focused on these aspects. This study operates under the assumption that migration engenders a unique lifestyle. In this study, liquid migration is explored as a manifestation of the migration-based lifestyle of the third millennium. This study employed a mixed methodological approach. For the quantitative component, 116 students from Tabriz University were selected by random sampling. Drawing from previous studies, six factors (economic, social, educational, environmental, political, and demographic) were assessed. The quantitative results indicated that according to Tabriz University students, economic and educational motives rank highest among the factors influencing the desire to migrate. Moreover, a significant and positive correlation was observed among the six migration-influencing factors. This study contributes to the growing body of literature on migration by shedding light on the evolving nature of migration as a lifestyle choice, particularly in the contemporary context of fluid societal values and global interconnectedness.

Keywords: Immigration, Liquid migration, Lifestyle, Economic reasons, Educational motivation, Ravenstein's hypothesis, Migration

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Introduction

1. Problem Statement

Migration, as a rational consequence of population distribution and movement within geographical locations, stands as a crucial aspect of societal evolution throughout history (Raheshkho et al, 2012). Economic, political, social, demographic, and environmental factors have been considered as its primary causes (Black et al., 2011). Notably, economic disparities between developed and developing countries, population imbalances, the rapid expansion of science and technology, and enhanced global communication infrastructure have emerged as fundamental drivers of contemporary migration trends. According to UN statistics, more than 212 million individuals currently reside outside their birthplace, accounting for over 2% of the global population (Isazadeh & Mehranfar, 2015).

Migration has consistently been a fundamental aspect of social life throughout history, prompting social scientists to develop theories to explain its complexities since the mid-19th century. For example, during the formulation of Ravenstein's theory on immigration laws, he encountered criticism from William Farr, who argued against the notion that immigration could be governed by fixed law (Corbet, 2005). However, Ravenstein countered this criticism by proposing that immigration adhered to certain laws shaped by the socioeconomic conditions of 19th-century England. Ravenstein's hypothesis, known as migration laws, posited that migration unfolded gradually, predominantly from rural to urban areas, covering relatively short distances (Grigg, 2004).

The migration phenomenon, which poses significant challenges for developing countries, is rooted in diverse social, psychological, economic, cultural, and political factors, manifesting in several forms with multifaceted implications. In Iran, migration, particularly emigration, has emerged as a pressing concern, drawing attention from researchers and authorities alike.

According to investigations, a consistent trend is observed in which young people migrate to Asian and European countries, influenced by a variety of social, cultural, and economic factors. These include the lack of favorable educational opportunities and income prospects, pervasive advertisements, religious, fashion trends, and personal beliefs (Rahshekho et al., 2012). Conversely, opponents of immigration control argue that migration is predominantly propelled by economic and political structural factors, such as labor market demands, income disparities, and conflicts in the countries of origin (De Haas et al., 2019). They contend that unregulated and unplanned migration leads to detrimental consequences, including high rates of urban unemployment, overcrowded houses, inadequate water and electricity infrastructure, poor sanitation facilities, limited transportation options, heightened pollution levels, traffic congestion, increased crime rates, and an overall decline in urban quality of life, all stemming from the migration phenomenon.

Conversely, some scholars hold an optimistic perspective on immigration, positing that impoverished nations can experience rapid economic development and modernization through policies that facilitate large capital transfers and industrialization (Vosoughi & Hojjati, 2012). By using labor migration to developed countries, these countries can propel their national development forward. Additionally, they argue against viewing migration solely as an attempt to escape from economic, social, and cultural challenges. Instead, they advocate considering migration as a deliberate lifestyle choice for some individuals. Indeed, migration can be considered a means to achieve personal or familial aspirations, such as accessing higher income, education, and improving living standards (De Haas, 2021). Given the abovementioned challenges, this study provides a comprehensive understanding of contemporary immigration trends in the third millennium, specifically seeking to answer the following questions: What are the reasons driving immigration today, and what goals do individuals accomplish through immigration?

The concept of liquid migration emerged as a framework for understanding the dynamics of intra-EU mobility, particularly following the EU enlargements of 2004 and 2007 (Engbersen & Snel, 2013). Liquid migration represents a departure from traditional sociological theories and discussions surrounding migration, introducing new dimensions to the discourse. Notably, it has challenged conventional notions related to citizenship, integration, ghettoization, and ethnic discrimination. While initially a Europe-centered sociological concept, we hypothesize that the phenomenon of liquid migration may manifest in the Iranian migration context over time. This expectation arises from the pervasive influence of globalization, advancements in communication technologies, evolving work patterns, shifting consumption habits, and changing settlement preferences. These factors are likely to contribute to the diffusion of liquid migration tendencies among Iranian migrants.

2. Conceptual and Empirical Framework

In the field of immigration studies, various theoretical frameworks have been proposed, each offering unique perspectives on the phenomenon. One such theory is the pull and push theory, which attracted the attention of

scientific circles at the end of the 19th century and the beginning of the 20th century. This theory examines migration dynamics through two main factors: a) Push factors that compel individuals to leave their residences. b) Pull factors that compel individuals to leave their place of origin and attract them to destination countries. Push factors typically include unfavorable economic, social, and physical conditions, whereas pull factors include better opportunities and living conditions elsewhere (Haj Hosseini, 2006). Functionalist migration theory underscores the role of government policies in shaping migration patterns, recognizing the effectiveness of push and pull models in explaining migration dynamics. It posits that societal changes, including migration, aim to restore equilibrium, often resulting in the movement of individuals from low-income to high-income areas and facilitating capital flow. Among functionalist economic theories, neoclassical economics theory is particularly renowned (Mottaghi, 2015).

At the microlevel, neoclassical economics aligns with rational choice theory, emphasizing the individual's perception of utility as a buyer. At the macro level, it examines wage rate disparities across countries and their impact on the labor market (Massey et al., 2009). However, structuralist theorists challenge neoclassical ideas, rejecting the notion that immigration decisions are solely driven by rational considerations of cost-benefit analysis.

New economists, who approach migration through the lens of labor force dynamics, posit that migration often occurs in conditions of poverty and high risk, viewing it as a response to market failures. This perspective explains migration in contexts in which wage differentials are not the primary drivers. According to this theory, income inequality, relative deprivations, and inadequate social security provisions within societies serve as primary causes of migration (Mottaghi, 2015). Additionally, the new economics of migration posits that migration decisions are not solely individual choices but rather strategic actions aimed at minimizing family income risks and maximizing expected income for the household unit (Massey et al., 2009).

Alternatively, modernization theorists, operating within the realm of development sociology, argue that the diffusion of values from developed to developing countries fosters new aspirations among the populace. To fulfill these aspirations, individuals migrate to urban centers or other countries. They contend that population movement, in the form of migration, contributes to the economic development of countries by facilitating social transformation that creates local mobility, subsequently leading to economic growth (Vosoughi & Hojjati, 2012).

The Dual Labor Market Theory posits that international migrations are not merely individual decisions but are instead influenced by the demands of modern industrial societies (Massey et al., 2009). Wallerstein's World Systems Theory further delves into the origins of international migration and the movement of specialists, linking them to the structure of the global market that has evolved since the 16th century (Saroukhani & Jahani, 2009). This theory suggests that the spread of capitalist economic relations into peripheral and non-capitalist societies plays a significant role in shaping migration patterns and population mobility (Massey et al., 2009). Conflict theorists argue that migration is closely tied to inequality in development.

Migration is viewed both due to unequal development and as a catalyst for the expansion and exacerbation of such inequalities. Advocates of the nationalist model liken the analysis of the benefits and drawbacks of international migration of skilled individuals to that of international trade. They emphasize the importance of understanding the methods of production, relations of production, and theories related to the development of the capitalist system and imperialism in examining the exogenous factors driving skilled migration from developing countries (Saroukhani & Jahani Daulatabadi, 2009).

Indeed, among the various theories explaining migration, network theory stands out as a socially oriented perspective. While many migration theories primarily emphasize instrumental or economic dimensions, network theory focuses on the role of social capital in migration dynamics. This theory underscores the importance of interpersonal relationships, such as kinship and friendship, in facilitating migration processes. By using social connections, individuals can reduce costs and minimize risks associated with migration (Massey et al, 2009).

The conceptual framework provides valuable theoretical insight into migration in other countries, which can be empirically examined based on previous research findings. Some studies validating the content of the conceptual framework are discussed below. (Kennan and Walker, 2011) found that the primary motivation for immigration among individuals is to earn higher wages and increase their income. Similarly, Chowdhury et al. (2012) concluded that immigration leads to improvements in the socioeconomic status of immigrants, including higher household income, savings, living expenses, housing quality, access to water, healthcare services, and social participation. Notably, the poverty status of immigrants tends to improve compared with their premigration condition.

The findings of Farah et al. (2012) underscore the significance of "pull factors" in influencing the migration behavior of respondents, with individuals migrating in pursuit of a "better lifestyle." Similarly, Ortega and Peri (2013) concluded that international migration flows are influenced by per capita income levels and immigration acceptance laws in destination countries. Joseph and Wodon (2013) highlighted the predominance of socioeconomic factors, such as employment and

education, over weather conditions in shaping the migration patterns of Yemeni individuals. Moreover, the research conducted by Zanabazar et al. (2021) revealed that Mongolian migration to South Korea is primarily driven by factors such as higher wages, welfare opportunities, the potential for savings, and social aspects, including access to quality education and exposure to the culture environment. These empirical findings complement the theoretical framework presented earlier, providing further insights into the motivations and determinants of migration behavior. By integrating these empirical backgrounds with the theoretical concepts discussed previously, the researcher can effectively address the research questions at hand.

Furthermore, lifestyle migration has emerged as a significant concept in migration literature in recent years, yielding compelling and thought-provoking findings. Studies in this area suggest that individuals do not migrate solely for traditional reasons such as employment, urban attraction, education, industrial opportunities, or social security contributions. Instead, factors such as increased leisure time resulting in prosperity, interest in tourism, early retirement, and flexible work arrangements have played crucial roles in driving mass migration. These shifts in lifestyle preferences have not only fueled migration but have also transformed into a way of life for many (O'Reilly, 1995).

3. Methodology and Sample

The methodology employed is a mixed method that integrates qualitative phenomenological inquiry and quantitative survey methodology. In the qualitative section, interviews were conducted with women who had migrated to America and possessed essential insights related to the research subject. The selection of participants was guided by principles such as theoretical saturation and triangulation techniques to ensure comprehensive coverage of the research topic (Padash, 2022).

Purposive and theoretical sampling were employed to select the data. Purposeful research involves defining target groups of informants based on the subject, problem, and research context. The theoretical nature of the sample ensures that it possesses the requisite sufficiency to achieve the desired level of theoretical abstraction (Farastkhah, 2016: 135). Data analysis was conducted using the seven-step method outlined by Colaizzi and Dickelman, which is rooted in Husserl's perspective and adheres to the Epoché principle. This involves setting aside prior information or intentions and employing a triangulation approach for validation.

To ensure reliability, triangulation techniques were employed, including confirming references, researchers, and multiple methods during data collection and analysis. Additionally, detailed parallel information, such as presenting data analysis and results to experts and using the member control technique by providing data analysis and results to respondents, was used (Abbaszadeh, 2012: 23-24). Furthermore, to simultaneously address the validity and reliability of the findings, the Rigor technique was considered (Abbaszadeh & Shamsi, 2020).

In the quantitative section, 116 students at Tabriz University (43.8% men and 56.2% women) from all academic fields were selected for the study by random sampling. To measure the reasons for the desire to migrate, six factors economic (4 items), social and cultural (6 items), educational (2 items), demographic (2 items), environmental (3 items), and political (3 items), were identified as influencing people's desire to migrate abroad (all in the form of a scale from 1 to 10, where 1 indicates very little importance and 10 indicates very high importance). Data were collected using questionnaires and analyzed using SPSS version 22 and LISREL software. Cronbach's alpha statistic was employed to evaluate the questionnaire's reliability, yielding favorable results among the items of the six components of the desire to migrate. Confirmatory factor analysis was used to evaluate the questionnaire's validity.

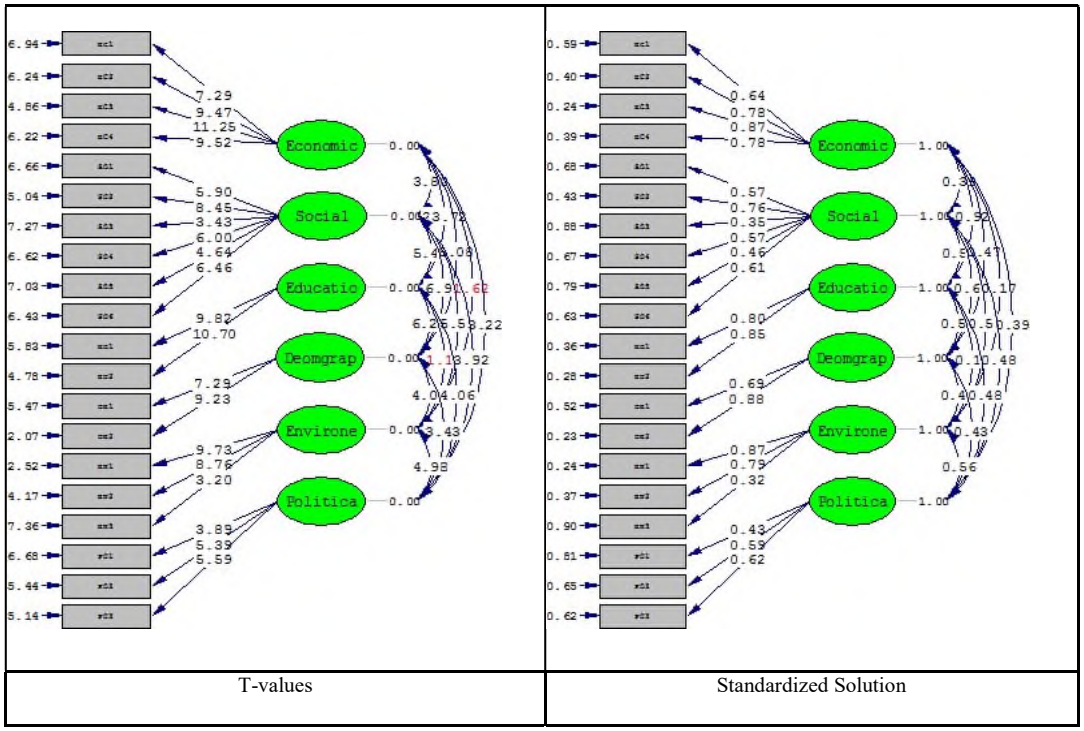
To ensure the homogeneity of the scale components regarding content and underlying dimensions, six-factor confirmatory factor analysis was conducted. The results indicated a good fit of the data, with all items demonstrating a suitable factor load above 0.3. Additionally, all six latent factors exhibited eigenvalues higher than one. This suggests that the scale effectively measures the reasons for the desire to migrate, confirming the validity and reliability of the measurement instrument.

4. Findings

The findings of the qualitative research highlight traditional views on marriage as a perceptual constraint on individual freedoms, leading some individuals to consider migration as a reaction. Traditional marriage norms, deeply ingrained in cultural traditions, often dictate that individuals must marry against their inner desires, potentially leading to discontent. Consequently, some individuals opt to migrate to countries with different cultural norms to escape this traditional pressure. In explaining this phenomenon, it is evident that the modernization process brings about changes and evolutions, with marriage being no exception.

These transformations include shifts in attitudes toward family formation and its functions, criteria for an ideal

Table 1. Confirmatory factor analysis of reasons for the desire to migrate.



spouse, and the preferred age of marriage. Changes in marriage age, for instance, reflect changes in the values and attitudes of young people influenced by modernism. As a result, young men and women may choose to migrate to a country whose culture aligns with their preferences, thereby circumventing the need to conform to traditional marriage expectations. By migrating to such a destination, individuals can pursue lifestyles that resonate with their aspirations, free from the constraints of traditional marital norms.

Furthermore, this situation fosters a growing tendency to establish a living environment aligned with the newly adopted modern culture, thus initiating the processes of lifestyle migration and liquid migration. In other words, the desire to distance oneself from traditional institutions and customs catalyzes participation in fluid migration.

Another significant aspect of the research findings pertains to the influence of socioeconomic factors on migration decisions. Access to new job opportunities and higher income prospects in destination countries are key drivers of migration. Indeed, securing employment with satisfactory payment is a primary concern for many individuals considering work migration. This notion finds support in functionalist perspectives, which posit that migration typically occurs from low-income to high-income areas, with economic disparities serving as the primary catalyst. Structuralists underscore income inequality, relative deprivations, and lack of social security as prominent drivers of migration, whereas development theorists highlight development indicators as key migration determinants.

Moreover, the theory of relative deprivation posits that individuals' perceptions of lacking desirable values and resources, under specific circumstances, can precipitate migration. According to this theory, when a society fails to meet the needs of its members, the likelihood of collective action, such as migration, increases. Migration, in this context, represents a form of collective response to address the perceived deprivation of material and spiritual amenities.

According to the interviewees, the sense of discrimination in social and cultural fields within the country of origin stands out as a primary driver of migration. The perception of unequal resource distribution fosters feelings of discrimination within society, prompting some individuals to opt for migration as a response. This finding can be examined by recognizing that discrimination and inequality across various economic, political, and societal realms hinder equitable access to resources and opportunities. Disparities in access to essential amenities, such as employment, education, healthcare, and other essential services, contribute to the perpetuation of inequality. While social and economic well-being is widely regarded as a fundamental entitlement, instances of discrimination and inequality effectively exclude individuals from realizing this inherent right.

Indeed, a society's level of social equality plays a crucial role, as increasing inequality and discrimination can breed disillusionment and ultimately spur migration, particularly among elites and young individuals, toward other countries. In addition, individuals interested in immigration often perceive a lower standard of living in their home country

(Padash, 2022) compared with potential destinations, prompting them to seek alternatives that better align with their preferences. Migration, therefore, represents a quest for a lifestyle that mirrors the social identity they felt and lost in their home countries. Applying Amartya Sen's capabilities approach to migration, it becomes evident that migration can serve as a potential means to enhance well-being and empower individuals. Despite potential incentives to remain in their home country, people opt for migration to improve their living standards freely (De Haas, 2021).

In line with the findings of the quantitative section, the prioritization of the six components of reasons for the desire to migrate, as perceived by Tabriz University students, revealed that economic and educational motivations ranked highest. This indicates that students are more inclined to migrate for economic and educational opportunities. Meanwhile, political, social, demographic, and environmental factors are categorized as secondary considerations.

Table 2. Prioritization of reasons for the desire to migrate

Causes of migration	Mean
Economic	8.71
Education	8.7
Political	7.47
Social	6.52
Demographic	6.32
Environmental	5.41

The correlation matrix (Table 3) of the causes of the tendency to migrate shows that, except for the correlation between economic and educational motivations and environmental factors, all other relationships exhibit statistical significance. Furthermore, the direction of these correlations is positive, suggesting that these factors co-occur in driving migration decisions. Notably, the correlation between economic and educational motivations emerges as the strongest among all relationships.

Table 3. Correlation matrix of reasons for the desire to migrate

	Social	Economic	Education	Demographic	Environmental	Political
Social	1					
Economic	0.39*	1				
Education	0.52*	0.92*	1			
Demographic	0.62*	0.47*	0.57*	1		
Environmental	0.52*	0.17	0.13	0.41*	1	
Political	0.48*	0.39*	0.48*	0.43*	0.56*	1

*. Correlation is significant at the 0.01 level

5. Discussion

The qualitative findings underscored the significance of access to suitable job opportunities, education, and favorable economic conditions as crucial drivers of immigration. Similarly, the quantitative analysis revealed that economic and educational factors ranked highest among students' motivations to migrate. These findings are consistent with existing research. For instance, Libanova (2019) observed that Ukrainian immigrants primarily migrate for economic reasons, whereas Bernzen et al. (2019) identified better job prospects and education as key motivations for migration in Bangladesh. Sarkar (2020) also noted that economic factors, such as employment opportunities, predominantly drive migration in certain regions. Urbański's (2022) study in Romania and Poland further corroborates these findings, highlighting economic considerations as primary influencers of migration decisions. Thus, the outcomes of this study align with previous research, emphasizing the centrality of economic and educational factors in migration dynamics. Migration research requires a multidimensional approach. Early migration theories, such as Lee's Migration Theory, Mabogunje's Migration Systems Theory (1970), Zelinsky's Mobility Transition Theory (1971), and Ravenstein's theory of immigration laws, provided foundational frameworks for understanding migration phenomena. Additionally, theories like migration transitions proposed by Skeldon (1990) and the Neoclassical Migration Theory developed by Harris and Todaro (1970) have contributed to the evolving discourse on migration dynamics. The Dual Labor-Market Theory proposed by Piore (1979), the New Economics of Labor Migration advanced by Stark (1978, 1991), and the Cumulative Causation Theory articulated by Massey (1990) have significantly contributed to our understanding of migration. While these theories have significantly advanced our understanding of migration, there has been a lack of systematic theorizing beyond the models and assumptions of the 19th century.

The meaningful interpretation of social realities concerning migration processes, particularly ethnic and gender groups, is increasingly rejecting hyperrealities in postmodern literature. Recent works by anthropologists and sociologists, along with conceptualizations on multicultural issues, underscore this shift.

Migration and immigration have been enduring processes throughout human history, with theories evolving in response to industrialization, urbanization, modernization, and nationalism. However, this study hypothesizes that these traditional migration theories have underscored transformation. The advent of globalization, the pursuit of welfare, and shifting consumption habits are shaping a new form of migration. The ongoing flux of migration and displacement is reshaping social structures toward a more liquid social order.

Liquid immigration transcends individual desires to relocate. Postmodern phenomena such as digitalization, global corporations, tourism, consumption habits, financial instruments, and smart technologies have reshaped lifestyles, blurring the lines between immigrant and non-immigrant experiences. Nomadic tribes historically embody migration as a lifestyle prevalent in regions like the Sahara, Central Asia, Iran, Anatolia, and the Middle East until the 20th century. Comparing this contemporary "liquid immigration" to pre-modern migration forms offers valuable insights into societal shifts and human mobility patterns.

Macro-functionalism, neoclassical, and positivist approaches in migration studies have been criticized for their reductionist tendencies. Similarly, interpretive approaches, while focusing on micronarratives, have sometimes overlooked structural factors, favoring individual experiences. Recent trends in migration studies continue to exhibit reductionism by prioritizing macro perspectives. However, a balanced approach that integrates both micro and macro narratives, as advocated in postmodern ideas, is essential. Moreover, traditional quantitative and qualitative methods have failed to fully grasp the influence of structural factors such as inequality and government policies on migration dynamics. Recognizing the nonlinear relationship between societal development, individual aspirations, and migration experiences is crucial for a comprehensive understanding of migration phenomena.

Political decisions regarding international migration have gained significance in the context of increasingly diverse and multi-ethnic societies worldwide. Sociologists and demographers must consider these factors in their analyses of migration dynamics (Massey et al., 2009).

In the analysis of international migration, it becomes imperative to prioritize non-hegemonic sociology within the framework of Post-Western sociology. Post-Western sociology emerges from the decentralization and renewal of global discourse, stemming from both the Eastern and Western spheres. Post-Western sociology embodies a relational, dialogue-driven, and multi-situational relationship. Within the realm of Post-Western sociology, a keen awareness of hegemony reveals transnational knowledge spaces where the diversity of existing knowledge and shared understanding are prominently featured. The overarching goal is to broaden perspectives by embracing multiple self-directed narratives originating from communities worldwide, thereby offering insights into the interplay between the "East" and "West." It is within this context that both "Western" and "non-Western" sociology contribute to a richer understanding of the underlying subject (Roulleau-Berger, 2021).

Furthermore, in addressing the feminization of migrations, it is crucial to expand migration approaches beyond a predominantly male-centric lens. There exists a pressing need to integrate gender perspectives into migration studies (Beck & Edgar, 2010).

The theories of structuralism and functionalism depict most individuals as passive agents, assuming their preferences to be predictable and predetermined. However, it is crucial to acknowledge the agency of individuals in freely choosing their destinations and aspirations within the context of the migration phenomenon (De Haas, 2021).

During industrialization, migration movements were intertwined with familial, communal, and tribal identities. Migration entailed encounters with various social identities, and fostering group consciousness. Immigrants and residents often coexisted, maintaining parallel identities.

In the classical era of industrialization and the establishment of modern nation-states, migration predominantly occurred within the confines of national borders, often in mass migration waves. This era witnessed the demining presence of local identities as parallel community identities within immigrant settlements and urban centers. Immigrants swiftly urbanized and assimilated into the societal norms propagated by national institutions such as schools and newspapers. Consequently, they became aligned with the national community identity, leading to the erosion of local social identities through migration.

In the era of modernization, migration has become almost completely restricted by citizenship regulations and the delineation of geographical boundaries tied to citizenship. In pre-modern times, national borders and identities did not impose stringent restrictions on immigration.

In the modern age, the enforcement of citizenship laws, which govern migration between continents and nations, has proven highly effective, nearly halting immigration altogether. However, in times of conflict and war, mass migration can still occur despite these barriers.

Migrations sanctioned by contemporary national identities and legal frameworks typically occur for purposes such as employment, education, tourism, and healthcare. Conversely, the status of refugees grants immigration rights to individuals fleeing extraordinary circumstances, particularly political conflicts, as stipulated by UN conventions. Notably, unrestricted immigration is not recognized as a fundamental right.

The challenge inherent in traditional lifestyles concerning contemporary social and cultural dynamics, along with the proliferation of hyper-realities and realities in today's society shaping ideals within health and job domains, constitutes a compelling issue. Inspired by Amartya Sen's theoretical framework, the authors advocate a nuanced analysis of migration, one that transcends simplistic push-and-pull factors to embrace the concept of a lifestyle oriented toward freedom. In other words, in the analysis of immigration, both elites and nonelites challenge existing theories. They introduce post-Western immigration theories, dismissing the dichotomy inherent in European and American perspectives. Instead, they consider the importance of Eastern theories and present a nuanced portrayal of the positive and negative aspects of immigration in our diverse world. Termed "liquid migration in the third millennium," this concept describes migration regardless of time, place, and homeland. In this fluid migration paradigm, individuals seek opportunities aligned with their interests and aspirations. If they perceive a promising opportunity that aligns with their goals and dreams, they embark on the migration journey.

The slogan "everywhere is our homeland" signals a shift away from entrenched biases and fixed attachment to a particular place of residence. Globalization, driven by cultural assimilation, has fostered uniformity among people globally and diminished borders, evoking various hopes and fears. In essence, a crucial solution to address the challenge of migration abroad lies in the interaction between structure and agency. This entails the elimination or reduction of social discrimination while paying attention to individual desires and interests. Additionally, the endurance and coherence of social capital play a crucial role. Social capital can act as a driving force for migration abroad, particularly in contexts where national social capital is lacking. Conversely, it can serve as a compelling factor for individuals to remain in their homeland when national social capital is present.

Ethical Considerations

In this study, adherence to ethical research codes was prioritized. Interviews were conducted with an appointment and with the consent of the subjects. Throughout the data collection process, emphasis was placed on the voluntary and conscious participation of each subject. Additionally, audio recordings were used only after obtaining permission from the participants.

Ethics Committee Approval: Ethics committee approval was received from Tabriz University for the study. Date: 27.08.2023. Number: 1R. T ABRIZU.REC.1402.065.

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ORCID :

Mohammad ABBASZADEH 0000-0003-4837-0329
Hacı DURAN 0000-0002-2843-7496
Tavakkol Aghayari HIR 0000-0002-0904-7409
Ebrahim MOHAMMADPOUR 0000-0002-5315-9846

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Review Article

Artificial Intelligence Bias and the Amplification of Inequalities in the Labor Market

Mahmut Özer[1], Matjaz Perc[2,3,4,5,6], H. Eren Suna[7]

[1]Prof. Dr., Turkish Grand National Assembly National Education, Culture, Youth and Sports Commission, Ankara, Türkiye
[2]Prof. Dr, Faculty of Natural Sciences and Mathematics, University of Maribor, 2000 Maribor, Slovenia
[3]Complexity Science Hub Vienna, 1080 Vienna, Austria
[4]Department of Medical Research, China Medical University Hospital, China Medical University, Taichung 404, Taiwan
[5]Alma Mater Europaea, Slovenska ulica 17, 2000 Maribor, Slovenia
[6]Department of Physics, Kyung Hee University, 26 Kyungheedae-ro, Dongdaemun-gu, Seoul, Republic of Korea
[7]Dr., Ministry of National Education, Paris Education Attaché, Paris, France

Corresponding author : H. Eren Suna
E-mail : herensuna@gmail.com

ABSTRACT

Artificial intelligence (AI) is now present in nearly every aspect of our daily lives. Furthermore, while this AI augmentation is generally beneficial, or at worst, nonproblematic, some instances warrant attention. In this study, we argue that AI bias resulting from training data sets in the labor market can significantly amplify minor inequalities, which later in life manifest as permanently lost opportunities and social status and wealth segregation. The Matthew effect is responsible for this phenomenon, except that the focus is not on the rich getting richer, but on the poor becoming even poorer. We demonstrate how frequently changing expectations for skills, competencies, and knowledge lead to AI failing to make impartial hiring decisions. Specifically, the bias in the training data sets used by AI affects the results, causing the disadvantaged to be overlooked while the privileged are frequently chosen. This simple AI bias contributes to growing social inequalities by reinforcing the Matthew effect, and it does so at much faster rates than previously. We assess these threats by studying data from various labor fields, including justice, security, healthcare, human resource management, and education.

Keywords: artificial intelligence; bias; Matthew effect; social inequality; misinformation

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1. INTRODUCTION

Currently, there are serious attempts to digitize every aspect of our lives. In light of these efforts, measurement and assessment capacity has expanded in most fields, and processes are now managed using common and quantitative metrics. To put it another way, digitization studies enable the tracking of all processes using data-driven indicators and the analysis of intervention effects. This digitization process is being implemented in all areas, and substantial investments are being made to process and evaluate the continuously generated data. A variety of data mining, artificial intelligence (AI) algorithms, and machine learning (ML) techniques are commonly used to analyze data, generate specific information, and make accurate predictions (Perc, Özer & Hojnik, 2019).

As a result of advances in AI and ML, machines can now perform a variety of human behavioral and decision-making processes (Bozkurt & Gursoy, 2023; Castellucia & Le Metayer, 2019; Mahmut et al.,2022). Due to their superior calculation abilities, machines that learn from data recorded in various fields are becoming increasingly important in decision-making processes. It is practically impossible to discuss a field that does not involve some degree of AI or ML. It has become evident that AI has gone beyond being a support mechanism and has affected many aspects of society (Makridakis, 2017; Stefan, 2019). AI and automation have transformed the labor market, resulting in new jobs as skills and competencies are updated (Acemoğlu & Restrepo, 2018; Bozkurt & Gursoy, 2023; Harar, 2017).

Before delving into AI algorithm bias, we must first understand the algorithm's logic. The primary goal of these algorithms is to make predictions using numerical parameters determined in various subjects (Silberg & Manyika, 2019). In addition to the parameters in question, the algorithm requires a data set (*training set, training data*) for model development. In summary, AI makes predictions using a predetermined set of parameters based on current data. In this context, a key feature of AI is its goal of developing the most predictive models based on training data and parameters.

It is important to note that the quality of the training data is critical (Vicente & Matute, 2023). In fact, these data provide the raw material required for the algorithm to achieve its highest prediction accuracy. However, a significant problem area begins here. Because predictive power is the primary success factor for AI algorithms, many other important indicators remain in the shadows. In general, the nature of data sets and the groups they represent, among other factors, influence the outcome of AI algorithms. Despite this, the system can make highly accurate predictions without considering several important indicators, such as the output's potential results, group comparability, or ethical values and social norms (Silberg & Manyika, 2019). In light of this, even though AI algorithms have impressive computational and predictive power, there have been insufficient discussions about their logic and outputs.

The representativeness of the training data used by the AI algorithm is critical for producing high-quality results. Any deficiencies and negative aspects of the data, particularly in terms of quality, will harm the algorithms developed based on it (Aldoseri, Al-Khalifa, & Hamouda, 2023). It is important to note that if the data set used to train the AI algorithm contains an unequal number of races, ages, or genders, significant issues arise in the algorithm and the predictions made with this data set (Aquino, 2023). Furthermore, AI algorithms appear to perpetuate and replicate social biases due to their scale effect. This results in permanent and even deepening inequalities within a society.

Thus, the first step in the review should be to determine the training data set's bias and representativeness. To increase the representativeness of training data sets, it is important to use data from various sources. Using data from multiple sources, such as training data, can help to reduce the risks associated with data protection. According to Rajpurkar et al. (2022), a federated model that focuses on training data and collects data from multiple points has a high potential for risk mitigation. Therefore, using data from different institutions in different geographical regions and hierarchical levels as much as possible will increase the quality of the training data and reduce biases by increasing the representativeness of the training data (Nazer et al., 2023; Zhang and Zhang, 2023). Robert Merton (1968), who developed the Matthew effect to explain social inequality based on the Biblical verse "*to everyone who has, more will be given*" in Matthew's Gospel, claims that the Matthew effect provides a powerful insight into social inequalities. The Matthew effect causes small differences to grow, so that an advantage leads to a greater advantage and a disadvantage leads to a greater disadvantage. When no interventions are made to balance the process, advantages and disadvantages accumulate on opposing sides, resulting in a further rift between the groups (Zuckerman, 1989).

The Matthew effect is increasing inequalities in various areas, including education, health, technology, and science (Rigney, 2010). For example, Zuckerman (1977) showed that more than half of Nobel laureates worked with previous Nobel laureates. A well-known scientist will most likely receive more citations than a lesser-known scientist (Perc, 2014). According to recent studies, citations for joint publications have increased significantly, as have citations for other publications by well-known scientists and those with whom they have previously collaborated (Li et al., 2019). Young scientists want to work with well-known scientists to increase their publications and citations to capitalize on the Matthew effect. The Matthew effect allows well-known scientists to easily collaborate with young scientists worldwide,

resulting in increased recognition, publications, and citations. The Matthew effect is characterized by a self-reinforcing positive feedback cycle in which more citations and publications lead to even more citations and publications, and more recognition leads to even more reputation.

By attracting well-known academicians, talented students, and scientific research funds, well-known scientific institutions position themselves at the center of the scientific community, contributing to a wider gap between scientific institutions. The Matthew effect, which is related to economic activity, allows advantageous centers to attract more earnings, talents, raw materials, and other resources to their centers while also widening the gap between the centers and the periphery (Rigney, 2010).

Hence, the Matthew effect strongly correlates with the results of the bias problem in AI algorithms. Because of the bias inherent in AI algorithms, the privileged are in a more advantageous position, whereas the disadvantaged are in a more detrimental position. Thus, this study addresses the bias problem caused by the data set used to train AI algorithms in various fields, including justice and security, health, human resource management, and education. The bias problem in AI algorithms is emphasized as a platform for the Matthew effect, perpetuating and exacerbating inequalities.

2. BIAS IN ARTIFICIAL INTELLIGENCE

Developing AI prediction systems typically involves three stages: measurement, training, and prediction (Kizilcec & Lee, 2022). The measurement phase generates numerical data on the area under consideration, whereas the training phase teaches the system using data. Finally, during the prediction phase, the system responds to new circumstances. Thus, the AI algorithm must train on high-quality data.

It directly impacts data quality in terms of representability whether algorithms produce biased results. During the training phase, a broad area must be represented and sampled using limited indicators (Kizilcec & Lee, 2022). Most data sets have low representation and comparability, increasing bias even more. Bias in AI algorithms is highly likely, given that it is directly related to the quality of the data set. Among the data sets commonly used today, only very few can adequately represent vulnerable and disadvantaged groups while allowing for a balanced distribution of comparisons between groups.

Because data sets represent real-world situations, their biases and deviations can differ depending on race, gender, and socioeconomic status. Accordingly, the data set from which an algorithm learns and operates determines its quality (Barocas & Selbst, 2016). Without control over AI algorithms, the data set's bias is transferred to the AI algorithms, resulting in biased decisions (Aquino, 2023; Notoutsi et al., 2020). A biased data set is used in AI algorithm training, replicating the bias learned from the data (Lum & Isaac, 2016). Biases in AI algorithms are thus more than technical errors; they reflect power structures, social, economic, and political systems within society (Ulnicane & Aden, 2023).

Bias caused by low data representation in AI algorithms can result in both observable and unobservable risks (Varsha, 2023). As previously stated, bias is a natural consequence of insufficient data-quality and representation. Furthermore, because AI strives to improve its predictive power by employing a diverse set of parameters, it may result in indirect biases due to the interaction of deficiencies in various parameters. It is possible to detect observable risks when inadequate aspects of the data and parameters are available; however, it is nearly impossible to detect bias when it is part of a big-data process with an interaction of a large number of parameters and no prior knowledge of inadequate aspects of the data.

A decision may be made against groups that are less represented in the data set when data sets representing more specific groups than the entire population are used, that is, when the representativeness of the data set decreases (Nazer et al., 2023). Furthermore, differences in measurement sensitivity in the health field can lead to bias (Babic et al., 2021; Charpignon et al., 2023). In the fields of security and justice, groups with a higher representation in the data set are disadvantaged, particularly blacks, minorities, and those with low socioeconomic status (Lum & Isaac, 2016). Again, algorithms may be biased toward the more advantaged, whites, and those with higher socioeconomic status in education and human resource management. Thus, it is critical to continuously assess whether the algorithm has unintended consequences for a specific group in society based on the hypotheses or data set used in training (Nazer et al., 2023).

Because of their structural nature, AI-based algorithms can produce data-based biases. A couple of factors should be highlighted: the rapid change in competencies/skills required in the labor market because of technological advances (European Parliament, 2020; Napierala & Kvetan, 2023), and the emergence of AI-based decision-making approaches (Agrawal, Gans, & Goldfarb, 2019; OECD, 2023). As labor market demands shift, collecting reliable and representative data on these new expectations is critical. The current situation necessitates updating long-standing data sets that serve as the foundation for AI algorithms. The second issue is that algorithms may produce results that contradict the European

Pillar of Social Right principles and the United Nations' Sustainable Development Goals (European Commission, 2022). In this context, the examples we will see in various sectors in the next stage of this study will shed light on the biases caused by AI.

2.1. BIAS IN JUSTICE AND SECURITY

Risk assessment algorithms are widely used in criminal justice systems because they help determine whether punishments, bail, and parole are effective in deterring future reoffending (Bagaric, Hunter, & Stobbs, 2019). The issue of social inequality is also relevant in this context. It is well-known that recidivism prediction algorithms are unbalanced and discriminatory toward black people (Angwin et al., 2016). Even if a criminal does not reoffend, blacks are roughly twice as likely as white criminals to be incorrectly evaluated. Furthermore, this bias causes the software to classify white offenders as having a lower likelihood of reoffending, even if they do.

The fact that there are more African-American inmates than white Americans makes the risk assessment unfair to them (Bagaric, 2016). Blacks dominate the data set used to train the algorithm. Dressel and Farid (2018) found that the predictions made by software commonly used in American courts for risk assessment are no more accurate or fair than those made by people with no experience in criminal justice. Thus, it does not appear reasonable to expect AI algorithms to provide more accurate, objective, and equitable results in every situation and context than human evaluations.

AI algorithms in security software are common in the United States and Europe, particularly for identifying potential crime areas and criminals (Lum & Isaac, 2016). However, it has long been known that these software are primarily trained using criminal data from police stations, and therefore, discrimination in the data, particularly in terms of race, ethnicity, and socioeconomic status (SES), is directly reflected in the software's results. Lum and Isaac (2016) used a widely used software tool to identify areas where drug use was prevalent in a state. They concluded that, despite the high rate of drug use in that state, the software identified areas populated primarily by nonwhite residents and people with low SES backgrounds.

As a result, these regions account for the majority of drug-related arrests. Thus, by intensifying patrols in these areas, the likelihood of apprehending criminals increases, and the software can then direct police patrols back to the same area as a result of the new data. As a result, the data set is constantly growing, feeding the aforementioned bias. In this case, the subsequent training data used to update the algorithm will be biased, reinforcing the bias (O'Neil, 2016). The above-mentioned positive feedback loop works by finding a segment of society guilty in a biased and discriminatory manner (Lum & Isaac, 2016). As a result, while a segment of society that commits the same crime will not be adequately punished, research into the already disadvantaged and discriminated segments of society increases the likelihood of crime detection in this region, reinforcing social bias.

As we learn more about the biases of AI in this field, we are experimenting with different approaches to make more objective predictions. Researchers, for example, are developing algorithms in training data that focus on decision-making processes rather than group differences and historical records (Srinivas, 2023). By using additional algorithm systems calculating the extent of risk involved in each decision taken (Bagaric et al., 2022),we can take additional steps to determine how erroneous/biased the inferences made by artificial intelligence.

2.2. BIAS IN EDUCATION

The use of AI algorithms is also widespread in education. It is commonly used in education to identify potential failures and take preventative measures in advance (Holmes, Bialik, & Fadel, 2023). The COVID-19 pandemic has significantly increased the use of digital technologies in general, and AI algorithms in particular, in educational systems (Renz & Hilbig, 2023). In recent years, AI systems have been widely used to provide personalized solutions to students who have lost learning time due to the pandemic. Furthermore, approximately 40% of higher education institutions use predictive algorithms to identify students who are likely to drop out of classes or courses, and the use of such early warning systems increased during the Covid-19 pandemic (Bird, Castleman & Song, 2023). If such widely used algorithms make decisions favoring one group, educational inequalities could increase significantly. Extensive research has demonstrated the profound impact of educational inequalities in other fields (Bourdieu & Passeron, 2000; Coleman et al., 1966; Özer & Perc, 2022; Özer, 2023; Suna et al., 2020).

In education, AI applications can potentially mitigate the negative effects of the projected global short- and long-term teacher shortage. With its personalized learning capabilities, AI is regarded as one of the most important tools for meeting students' learning needs in areas where teachers are in short supply (Edwards & Cheok, 2018). Instead of replacing teachers, the goal here is for AI algorithms to assist students in learning in personalized digital environments.

AI algorithms can provide personalized suggestions to students throughout the learning process while closely monitoring their progress. While measures are being discussed, digital technologies have become even more important in assisting students in mitigating the impact of massive teacher shortages predicted in the United States, the European Union, and African countries (UNESCO, 2023).

Recent studies have examined how AI algorithms can increase educational inequalities (Kizilcec & Lee, 2022; UNESCO, 2023). Biases produced by algorithms are typically due to the inadequacy of the features used to represent the field and other quality issues in the training data set. For example, suppose academic potential is an indicator of admission to an educational institution, and SAT or ACT scores are used to represent academic potential. In that case, the algorithm's predictions will inevitably prioritize the applicants' SES, because these scores are highly correlated with SES (Sackett et al., 2009). As SES increases, students are more likely to succeed on high-stakes tests like the SAT or ACT. In this way, educational institutions are more likely to accept students with higher SES. Accordingly, the Matthew effect will be at work, as advantage will lead to more advantage and disadvantage will lead to more disadvantage, sharpening existing inequalities (Merton, 1968; Özer & Perc, 2022; Özer, 2023).

During the COVID-19 pandemic, the UK discovered that the grading algorithm used produced grades that favored private school students and, therefore, students with privileged SES levels, increasing the disadvantages of disadvantaged students and rearranging the grades in response to complaints (Smith, 2020). Conversely, under- or over-representing a group in data sets used in the learning phase can result in estimation errors in education and other fields (Chawla et al., 2002). As Baker and Hawn (2021) point out, if black students are punished more than white students in the same incident of in-school violence, how will an algorithm trained on this training set treat both groups fairly?

Research shows that an algorithm that uses training data to predict student dropout potential favors men while making fewer accurate predictions for women (Ocumpaugh et al., 2014). Evidence shows that school dropout risk estimates are less accurate for underrepresented minority groups (Bird, Castleman, & Song, 2023). These types of estimation errors cause misallocation of resources to reduce underachievement and the risk of school dropout, resulting in a decrease in the effectiveness of these critical interventions. As a result, those who are most vulnerable receive less support (Bird, Castleman, & Song, 2023).

Four sections discuss the four steps required to prevent biased predictions produced by AI in education and achieve more objective results (Baker & Hawn, 2021). Some of the most notable are as follows (Baker & Hawn, 2021): the collection and enrichment of comprehensive data regarding gender, age, ethnicity, and national origin. Continuously monitoring the balance of demographic characteristics within the entire data set by collecting data on demographic characteristics, using bias metrics to review AI predictions, maintaining access to the data sets on which the algorithm is based, and incorporating disadvantaged and vulnerable groups into the algorithm development process.

2.3. BIAS IN HEALTHCARE

The possibility of biased AI algorithms in the healthcare sector increases and deepens existing inequalities (King, 2022; Mittermaier, Raza, Kvedar, 2023). It is common for the problem to arise when an algorithm trained on data from one hospital in one region is applied to another with significantly different characteristics (Aquino, 2023). The same phenomenon occurs across races (Obermayer et al., 2019). In particular, health inequalities tend to perpetuate inequalities by reducing the number of representations in the data set during the AI algorithm's learning process (Seyyed-Kalantari et al., 2021).

Recent studies show that those who benefit the most from healthcare and spend the most receive better care (Bates et al., 2014; Obermayer et al., 2019). In this case, the algorithm ignores the needs of those who receive less service to a greater extent, reducing follow-up screening and thus increasing the number of cancer patients who go undiagnosed or untreated (Mittermaier, Raza, & Kvedar, 2023). In their study, Obermeyer et al. (2019) demonstrated that when health expenditures are used as an indicator, whites benefit significantly more from high-risk care programs. Correcting this issue would increase the healthcare service's additional assistance to black patients from 17.7% to 46.5%.

Based on a training set of images of dermatological lesions primarily taken from white patients, an AI algorithm used to identify dermatological lesions during the learning phase performs 50% less accurately in patients with darker skin colors than the claimed accuracy level (Kamulegeya et al., 2019). As previously noted in healthcare, if the learning set is primarily targeted at one gender, performance has been shown to decrease significantly when the other gender is used in the testing phase (Larrazabal et al., 2020). Furthermore, the precision of algorithms that predict skin cancer based on patients' skin images decreases due to sun exposure, particularly during the summer (Babic et al., 2021).

Celi et al. (2022) reviewed medical and surgical studies published on AI algorithms in the PubMed database in 2019. A key finding of this study is that data sets from China and the United States dominate AI algorithm training,

particularly in fields such as radiology, pathology, and ophthalmology, where imaging is commonly used in diagnosis. Therefore, AI has a large amount of data from these countries in relevant medical fields. As a result, AI algorithms can predict more accurately for patients from these countries while being less accurate for patients from other countries.

Examining the steps used to reduce the bias of AI applications in the health field reveals that the emphasis is primarily on enriching the data on which AI predictions are based. Overall, these steps include involving representatives from various social groups (particularly vulnerable groups) in algorithm development and evaluation, refraining from making predictions when the data is insufficiently diverse to make objective predictions, or using statistical methods (such as synthetic data) to provide unbiased predictions, and assessing the algorithm's results. Furthermore, it is critical to continuously evaluate algorithm outcomes and their coherence with the Translational Evaluation of Healthcare AI (TEHAI), DECIDE-AI, the Consolidated Standards for Reporting Trials-Artificial Intelligence (CONSORT-AI), and the predictive model risk of bias assessment tool developed to reduce the possibility of bias in the algorithm (Nazer et al., 2023). Furthermore, the World Health Organization's (2021) guidance on the ethics and governance of AI in healthcare has become a highly relevant source of information.

2.4. BIAS IN HUMAN RESOURCES MANAGEMENT

One of the most common applications of AI algorithms today is human resource management (HRM). AI algorithms determine which candidates are best suited for each job by analyzing the match between the skills required by the job and the skills possessed by the candidates (ILO, 2023; Köchling & Wehner, 2020). Furthermore, AI algorithms are used in this field to select the best candidates from a talent pool for advancement opportunities (Franca, 2023; Köchling & Wehner, 2020). AI algorithms are widely used to identify the best candidates for promotions within a company.

With the widespread use of AI algorithms, their applications have expanded beyond assisting HRM managers to evaluating a candidate's fit for a position and tracking their performance. According to Oracle's 2019 "Future Workplace AI at Work Global Study," approximately 50% of employers use at least one AI-based application, a significant increase from 32% the previous year (Oracle, 2019). AI algorithms are regarded as the most substantial advantage in HRM because they are free of many biases that people encounter during the evaluation process, such as the halo effect, bias, gender bias, and others in most categories of unconscious bias (Storm et al., 2023). Contrary to popular belief, training AI algorithms with large amounts of recruitment and promotion data can bias them.

According to the findings in the literature, AI and ML algorithms can produce less biased results if the data is sufficiently represented, but they are not completely free of bias. In 1988, the UK Commission for Racial Equality penalized a medical school in the UK for using software that discriminated against women and candidates with non-European names (Silberg & Manyika, 2019). Several studies have shown that AI algorithms are susceptible to the aforementioned biases if the groups represented in the data set are unbalanced and the data do not adequately reflect the population (European Network Against Racism, 2020; Köchling & Wehner, 2020; Tuffaha, 2023).

The proposed steps to prevent biases in HRM aim to train experts in the field and improve the quality of the data that forms the basis of the algorithm (Franca et al., 2023; IFOW, 2020). As a result, all HRM professionals should receive training on bias in prediction. A group of experts should assess AI's predictions in recruitment and talent management across all fields. The patterns observed in AI predictions based on demographic characteristics should be investigated, and the results should be evaluated. It is advised to assess compliance with the Age Discrimination in Employment Act and the Equal Employment Opportunity Commission frameworks.

3. DISCUSSION AND CONCLUSIONS

Using AI, ML, and deep learning (DL) is now prevalent in every aspect of life. In particular, the generation of digital data due to measurements in every field has resulted in a massive data collection, and the ability to process and analyze this massive amount of data has become a significant opportunity. At this point, AI and related algorithms are emerging, potentially significantly benefiting society. As a result, AI algorithms provide powerful support mechanisms for almost every aspect of life, from education to health, economics, and security, by making predictions based on big data as constantly learning systems.

Many companies are investing heavily in AI, ML, and DL systems, which have enormously increasing predictive power. Despite the widespread assumption that technology will be neutral toward humans, evidence suggests that smart algorithms reproduce societal inequalities, perpetuating or even increasing them. The bias problem in AI algorithms essentially benefits one society group while increasing the disadvantage for others (Mehrabi et al., 2021). As a result, the increasing number of examples has piqued the interest of both experts in the field and the general public.

AI systems can generate inequalities in various ways, including the training data set, modeling approaches, biases imposed by variables used, and the system's reaction to data that differs from the training data set when used in practice. To reduce the inequalities caused by these systems, continuous monitoring must begin at the design stage and continue through implementation and beyond. In this study, we discuss and demonstrate the risks of bias in AI algorithms using examples from various fields such as health, education, justice, and security. Prediction systems typically consist of three stages: measurement, training, and prediction. Although bias can occur at any of these stages through various mechanisms, the data sets used in the training phase remain the primary source of bias. Because the training data are based on real-world measurements, it directly reflects inequalities in all social areas, including education, health, justice, human resource management, and security. Because AI algorithms learn from this data, which includes current inequalities, their predictions about future situations will reflect these inequalities. These decisions exacerbate the disadvantages of previously disadvantaged groups. As a result of AI algorithms' bias, advantages in social spheres lead to more advantages, while disadvantages lead to more disadvantages. This results in a continuation and deepening of inequalities.

It is critical to demonstrate similar sensitivity during the modeling stage and assumptions and weighting factors that do not increase inequalities (Erdi, 2020; Nazer et al., 2023). For example, in the context of modeling the system for determining patients who require advanced health care based solely on their health expenditures, inequalities naturally arise in access to health services. Therefore, in health expenditures, and in this case, those who already have disadvantages in accessing health services cannot benefit from advanced care services due to modeling bias. As a result, disadvantages increase and inequalities persist (Obermeyer et al., 2019). The most effective way to reduce inequalities caused and exacerbated by AI systems is to ensure that models are not biased and to use higher quality training data sets (Baker and Hawn, 2021).AI algorithms appear to have found a powerful channel for influencing the Matthew effect, which exacerbates inequalities. As a result, because these algorithms provide extremely fast mechanisms, they may contribute to further increasing social inequality. An algorithm prediction, for example, will increase monitoring of a previously identified criminal group. As monitoring intensifies in these groups, the likelihood of detecting crime increases, providing the algorithm with current knowledge against this group and even increasing this group's disadvantage, resulting in a vicious cycle.

The same holds true for students whose socioeconomic status negatively affects their academic performance. If the algorithm's features are sensitive to SES, those with a socioeconomic advantage will continue to increase their advantage. Because of the bias in these algorithms, the increase in inequalities affects not only education, but all other fields as well. The inequalities created by AI algorithms greatly accelerate the accumulation of advantage or disadvantage, which Zuckerman (1977) identifies as the Matthew effect's main characteristic. As a result, society risks experiencing greater and deeper inequalities than before these smart technologies were implemented.

Therefore, the results produced by AI algorithms require far more attention. Transparency and openness in information sharing are critical components of AI algorithm development and data use (Erdi, 2020). However, resolving the bias issue is difficult because most companies are hesitant in this regard, particularly for security reasons (Lum & Isaac, 2016). Using non-biased key variables and collecting data sets of higher quality are the most effective ways to mitigate the effects of bias problems caused by representation and measurement (Baker & Hawn, 2021).

The recommendations offered in various fields to reduce bias in AI results are very similar (Bagaric et al., 2022; Baker & Hawn, 2021; IFOW, 2020). For AI to provide more objective inferences, the outputs should be integrated into human decisions as part of the current situation. Statistical methods should be used to monitor the algorithm output to detect possible biases. All social groups, particularly vulnerable groups, should be involved in algorithm development and revision processes, feedback should be solicited continuously, and inferences should not be drawn from incomplete data. The careful implementation of these precautions is critical for reducing existing biases and raising awareness when biased results are discovered.

Conversely, given the irresistible opportunities that AI systems will provide in the future, as well as the fact that they are impossible to control, slow down, or stop, there has been an increasing discussion of the risks and threats that AI systems may pose to humanity, as well as their achievements (Suleyman, 2023). Meanwhile, because smart systems are likely to cause more complex problems than bias, especially as their cognitive abilities increase in the coming years, it is critical to understand their impact on our lives and societies.

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ORCID :

Mahmut Özer 0000-0001-8722-8670
Matjaz Perc 0000-0002-3087-541X
H. Eren Suna 0000-0002-6874-7472

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Mucchielli, A. (1991). *Zihniyetler* [Mindsets] (A. Kotil, Trans.). İstanbul, Turkiye: İletişim Yayınları.
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Ören, T., Üney, T., & Çölkesen, R. (Eds.). (2006). *Türkiye bilişim ansiklopedisi* [Turkish Encyclopedia of Informatics]. İstanbul, Turkiye: Papatya Yayıncılık.
d) Turkish Book with Multiple Authors
Tonta, Y., Bitirim, Y., & Sever, H. (2002). *Türkçe arama motorlarında performans değerlendirme* [Performance evaluation in Turkish search engines]. Ankara, Turkiye: Total Bilişim.

e) Book in English

Kamien R., & Kamien A. (2014). *Music: An appreciation*. New York, NY: McGraw-Hill Education.

f) Chapter in an Edited Book

Bassett, C. (2006). Cultural studies and new media. In G. Hall & C. Birchall (Eds.), *New cultural studies: Adventures in theory* (pp. 220–237). Edinburgh, UK: Edinburgh University Press.

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Erkmen, T. (2012). Örgüt kültürü: Fonksiyonları, öğeleri, işletme yönetimi ve liderlikteki önemi [Organization culture: Its functions, elements and importance in leadership and business management]. In M. Zencirkıran (Ed.), *Örgüt sosyolojisi* [Organization sociology] (pp. 233–263). Bursa, Turkiye: Dora Basım Yayın.

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American Psychological Association. (2009). *Publication manual of the American psychological association* (6*th* ed.). Washington, DC: Author.

Article

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Mutlu, B., & Savaşer, S. (2007). Çocuğu ameliyat sonrası yoğun bakımda olan ebeveynlerde stres nedenleri ve azaltma girişimleri [Source and intervention reduction of stress for parents whose children are in intensive care unit after surgery]. *Istanbul University Florence Nightingale Journal of Nursing, 15*(60), 179–182.

b) English Article

de Cillia, R., Reisigl, M., & Wodak, R. (1999). The discursive construction of national identity. *Discourse and Society, 10*(2), 149–173. http://dx.doi.org/10.1177/0957926599010002002

c) Journal Article with DOI and More Than Seven Authors

Lal, H., Cunningham, A. L., Godeaux, O., Chlibek, R., Diez-Domingo, J., Hwang, S.-J. ... Heineman, T. C. (2015). Efficacy of an adjuvanted herpes zoster subunit vaccine in older adults. *New England Journal of Medicine, 372*, 2087–2096. http://dx.doi.org/10.1056/NEJMoa1501184

d) Journal Article from Web, without DOI

Sidani, S. (2003). Enhancing the evaluation of nursing care effectiveness. *Canadian Journal of Nursing Research, 35*(3), 26–38. Retrieved from http://cjnr.mcgill.ca

e) Journal Article wih DOI

Turner, S. J. (2010). Website statistics 2.0: Using Google Analytics to measure library website effectiveness. *Technical Services Quarterly, 27*, 261–278. http://dx.doi.org/10.1080/07317131003765910

f) Advance Online Publication

Smith, J. A. (2010). Citing advance online publication: A review. *Journal of Psychology*. Advance online publication. http://dx.doi.org/10.1037/a45d7867

g) Article in a Magazine

Henry, W. A., III. (1990, April 9). Making the grade in today's schools. *Time, 135*, 28–31.

Doctoral Dissertation, Master's Thesis, Presentation, Proceeding

a) Dissertation/Thesis from a Commercial Database

Van Brunt, D. (1997). *Networked consumer health information systems* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 9943436)

b) Dissertation/Thesis from an Institutional Database

Yaylalı-Yıldız, B. (2014). *University campuses as places of potential publicness: Exploring the politicals, social and cultural practices in Ege University* (Doctoral dissertation). Retrieved from Retrieved from: http://library.iyte.edu.tr/tr/hizli-erisim/iyte-tez-portali

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Tonta, Y. A. (1992). *An analysis of search failures in online library catalogs* (Doctoral dissertation, University of California, Berkeley). Retrieved from http://yunus.hacettepe.edu.tr/ tonta/yayinlar /phd/ickapak.html

d) Dissertation/Thesis abstracted in Dissertations Abstracts International

Appelbaum, L. G. (2005). Three studies of human information processing: Texture amplification, motion representa-

tion, and figure-ground segregation. *Dissertation Abstracts International: Section B. Sciences and Engineering, 65*(10), 5428.

e) Symposium Contribution

Krinsky-McHale, S. J., Zigman, W. B., & Silverman, W. (2012, August). Are neuropsychiatric symptoms markers of prodromal Alzheimer's disease in adults with Down syndrome? In W. B. Zigman (Chair), *Predictors of mild cognitive impairment, dementia, and mortality in adults with Down syndrome*. Symposium conducted at the meeting of the American Psychological Association, Orlando, FL.

f) Conference Paper Abstract Retrieved Online

Liu, S. (2005, May). *Defending against business crises with the help of intelligent agent based early warning solutions*. Paper presented at the Seventh International Conference on Enterprise Information Systems, Miami, FL. Abstract retrieved from http://www.iceis.org/iceis2005/abstracts_2005.htm

g) Conference Paper - In Regularly Published Proceedings and Retrieved Online

Herculano-Houzel, S., Collins, C. E., Wong, P., Kaas, J. H., & Lent, R. (2008). The basic nonuniformity of the cerebral cortex. Proceedings of the National Academy of Sciences, 105, 12593–12598. http://dx.doi.org/10.1073/pnas.0805417105

h) Proceeding in Book Form

Parsons, O. A., Pryzwansky, W. B., Weinstein, D. J., & Wiens, A. N. (1995). Taxonomy for psychology. In J. N. Reich, H. Sands, & A. N. Wiens (Eds.), *Education and training beyond the doctoral degree: Proceedings of the American Psychological Association National Conference on Postdoctoral Education and Training in Psychology* (pp. 45–50). Washington, DC: American Psychological Association.

i) Paper Presentation

Nguyen, C. A. (2012, August). *Humor and deception in advertising: When laughter may not be the best medicine*. Paper presented at the meeting of the American Psychological Association, Orlando, FL.

Other Sources

a) Newspaper Article

Browne, R. (2010, March 21). This brainless patient is no dummy. *Sydney Morning Herald, 45*.

b) Newspaper Article with no Author

New drug appears to sharply cut risk of death from heart failure. (1993, July 15). *The Washington Post*, p.A12.

c) Web Page/Blog Post

Bordwell, D. (2013, June 18). David Koepp: Making the world movie-sized [Web log post]. Retrieved from http://www.davidbordwell.net/blog/page/27/

d) Online Encyclopedia/Dictionary

Ignition. (1989). In *Oxford English online dictionary* (2nd ed.). Retrieved from http://dictionary.oed.com

Marcoux, A. (2008). Business ethics. In E. N. Zalta (Ed.). *The Stanford encyclopedia of philosophy*. Retrieved from http://plato.stanford.edu/entries/ethics-business/

e) Podcast

Dunning, B. (Producer). (2011, January 12). *in Fact: Conspiracy theories* [Video podcast]. Retrieved from http://itunes.apple.com/

f) Single Episode in a Television Series

Egan, D. (Writer), & Alexander, J. (Director). (2005). Failure to communicate. [Television series episode]. In D. Shore (Executive producer), *House*; New York, NY: Fox Broadcasting.

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Fuchs, G. (2004). Light the menorah. On *Eight nights of Hanukkah* [CD]. Brick, NJ: Kid Kosher.

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