

EGE AKADEMİK BAKIŞ

EGE ACADEMIC REVIEW

Ekonomi, İşletme, Uluslararası İlişkiler
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Enhancing Meaningful Work Through Meaning in Life: Mediating Effect of Prosocial Organizational and Individual Behaviors

Faruk Kerem ŞENTÜRK¹ , Dilara ALTUNOK² ,

ABSTRACT

The main aim of this study is to investigate the effect of meaning in life (MIL) on meaningful work (MW) and to examine the mediating role of prosocial organizational behavior (POB) and prosocial individual behavior (PIB). Data were obtained from employees (600) working in different sectors in Düzce city center. A mediation model was designed and tested employing bootstrapping technique. The results showed that MIL had significant effects on MW, POB, and PIB. The findings also demonstrated significant effects of POB and PIB on MW. Besides, the mediating roles of POB and PIB were confirmed. The current study highlights meaning in life, prosocial organizational and individual behaviors as key factors in understanding how employees' find their work meaningful. However, it should be noted that POB has a stronger mediating effect than PIB. Meaningful work, which is an antecedent of positive organizational outcomes, can be reinforced within the organization through prosocial behaviors.

Keywords: Meaningful work, meaning in life, prosocial organizational behavior.

JEL Classification Codes: D23, M10

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INTRODUCTION

The concept of work as a social activity that ensures the continuity of life has been one of the most central activities of life since the existence of humanity (Kapız, 2001). With the Industrial Revolution, work ceased to be an activity done at home and has become one of the basic elements of the modern workforce that provide mass production in factories (Kamber, 2014). Because most of us spend most of our time at work or doing work-related activities, it is difficult to separate work from other areas of life. The most important reason for this is that living and earning a living are closely linked (Örgeç & Günalan: 2011).

Frankl (2009) defined the meaning of life as "a fundamental power inherent in human nature, an effort to make life meaningful or to find meaning". The meaningfulness of a person's life indicates that he has something he values and believes (Battista & Almond, 1973). People want to take part in jobs that satisfy them and add meaning to their lives (Ashmos & Duchon, 2000), and more and more people focus on the idea

that work can be meaningful and fulfilling (Dandona, 2013). In this respect, meaningful work means that the employee feels a purpose beyond his basic needs and materiality in his work and assigns a role to the work in terms of internal development (Göçen & Terzi, 2019). The presence of meaning in life transforms the individual into an employee with high self-efficacy in his career journey while reducing depression (Steger & Dik, 2009). According to a study, those who become incapable of working after an illness have also lost their identity because they see work as a part of their identity. Those who became able to work returned to a healthy life with the support of the social relations they established in the workplace (Rasmussen & Elverdam, 2008). While people can have a purposeless existential meaning without working, work itself provides the individual with short and long-term goals that can result in deep satisfaction (Frankl, 2009; Glaw et al, 2017). Therefore, work is an element that should be included in the process of making sense of life, rather than just a means of making a living. One of the main aims of this research is to understand the interaction between the meaning in life and the meaningful work.

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We make our lives meaningful through active participation in activities dedicated to achieving the good beyond ourselves (Levy, 2005). Voluntary helping another is related to having a great sense of purpose and meaning in life (Klein, 2017). Prosocial behaviors exhibited voluntarily to help others without expecting an external reward can be characterized by a tendency to protect, share and help others (Flouri & Sarmadi, 2016). Behaviors such as helping, comforting, sharing, and cooperating that connect individuals in society are described as the source of prosocial behaviors (Altıntaş & Bıçakçı, 2017). From a holistic perspective, work is an important element in defining a meaningful life. However, it is important to identify mediating variables in order to better understand this relationship. The mediating role of prosocial behaviors in the relationship between meaning in life and meaningful work has been examined, based on the importance of the individual acting by thinking of others in the meaning process.

The results obtained primarily make significant contributions to the “meaningful work” literature. However, there are also results supporting the contribution of prosocial behavior to positive organizational outcomes in the business world.

THEORETICAL BACKGROUND AND HYPOTHESES

MIL – MW

Questions like, “Who am I?”, “What is the meaning of life?”, “What am I living for”, “Why am I here?” are perhaps the most ancient questions in human history. There is no clear answer to such questions and there is a strong belief that a life isolated from these questions should be questioned (Balci & Ağ, 2019). Although the concept of the meaning of life is associated with Frankl, it has become one of the main topics of existential psychology.

Adler argued that the true meaning of life is to do useful work for others. He noted that the others who think only of themselves and never benefit society, simply say what can I do for my life and leave without a trace (Adler, 2003). Steger et al. (2008) studied the differences in the meaning of life in different cultures. As a result, he concluded that the meaning attributed to life by each culture differs, but the meaning of life is also important for the welfare of society.

Three basic theories of meaning of life can be mentioned: Becker’s theory of terror management, which addresses the issue sociologically, Synder’s

theory of meaning as control, and Frankl’s logotherapy, an existential humanistic psychologist. The theoretical background of the meaning in life variable used in the study is logotherapy. Logotherapy’s mission is to help individuals find meaning in their lives. Frankl’s (2009) logotherapy is an analytical process that helps people become aware of their hidden logos (meaning) in their existence, and the search for meaning is inevitable for a natural, productive, and healthy life. Frankl (2009) asserts three main criteria that are inevitable and essential for logotherapy:

1. a person should create meaning for his life by doing a work or creating a work, that is, he should succeed.
2. people should do something to give meaning and purpose to their lives.
3. Even if a person experiences unavoidable pain throughout his life, he should strive to make his life meaningful.

While people are chasing a gain with which they can continue their lives, on the other hand, they need to give meaning to their lives to satisfy their inner world and live in accordance with that meaning (Örgev & Günalan, 2011). It is wrong to interpret meaningful work as what it means or says to the individuals (Steger, 2012). Meaningful work involves seeking an answer to questions such as “Why am I doing this job, why am I in this job?” (Göçen & Terzi, 2019). Many people (70%) continue to search for the meaning of their work intensively (Holbeche & Springett, 2009). Working for people is perceived as having a purpose, gaining a sense of achievement, and expressing oneself, while not working can leave people aimless and deprived of opportunities to contribute (Morse & Weiss (1955). People who find meaning in their lives also find meaning in their work (Steger & Dik, 2009) and see their work as one of the instruments that will enable them to realize their life’s purpose (Balci & Ağ, 2019).

MIL – POB & MIL – PIB

Humans are creatures with unlimited needs in terms of their characteristics. Finding meaning in life is a personal need. Exhibiting positive social behavior and the expectation of seeing positive social behavior from other people around us is a social need. Personality and values play an important role in prosocial behavior. These behaviors are not limited to a particular social environment. The individual can exhibit prosocial behaviors without expecting anything in return in his business life, where he spends a significant part of his time (Öcal & Sarnıç, 2017). POB is the behavior of an

organization member to enhance the well-being of a person, group, or organization as part of his or her job (Lee, 2001).

İşbaşı (2000) stated that prosocial behaviors are divided into two categories: with organizational functionality and without organizational functionality. Prosocial behaviors with organizational functionality can be characterized as the behavior of employees to constantly improve the organization in which they work, to work with their colleagues as a whole, and be aware of their responsibilities within the organization. Prosocial behaviors with organizational functionality are also divided into two areas, namely defined-role behaviors and extra-role behaviors. İşbaşı (2000) explains defined-role behavior as exhibiting behaviors that are included in the role definition, while extra-role behaviors are not included in the role definition.

The defined-role behavior relates to the core tasks such as duties, responsibilities, and activities that the individual performs in the organization (Zhu, 2013). Defined-role behaviors refer to expected behaviors related to job performance that is defined by the individual in the work environment (Katz, 1964). Extra-role behaviors are defined as "behaviors exhibited by employees according to their desires that have positive or negative effects on the organization in various ways" (Çetin & Fıkrkoca, 2010). It is important for organizational efficiency that employees help their colleagues and exhibit similar extra-role behaviors (Moorman et al., 1993). Extra-role behaviors have a more positive effect than defined role behaviors. Defined-role behaviors depend on the individual's primary roles, whereas extra-role behaviors are behaviors that the individual performs voluntarily and without coercion. Extra-role behaviors have three main characteristics. 1-Roles are not predetermined. 2-Reward systems are not predetermined. 3- There is no penalty for not doing it (Van Dyne & LePine, 1998).

People who engage in prosocial behaviors such as spending money to help others and volunteering, experience more meaning in their lives (Klein, 2017). Helping others can increase self-worth because prosocial behavior is generally valued and appreciated (Klein et al., 2015). Establishing social relationships with others is an important predictor of individuals perceptions of meaningfulness (Stavrova & Luhmann, 2016). Having a purpose in life is associated with positive social behaviors (Shek et al., 1994). Chang et al. (2021) point out that there are positive relationships between the search for meaning in life and experienced meaning and prosocial behaviors. Studies have found that maintaining attention

to the needs of others or reducing self-importance is beneficial for promoting prosocial behaviors (Dambrun and Ricard, 2011; Dou et al., 2018). Grant (2012) also supports the idea that employees who are empowered by meaning also perceive a significant prosocial effect.

POB - MW

Work is one of the ways adults make a living for themselves and others (Dirkx, 1995). Schaefer and Darling (1996) describe work as a way to serve others. Meaning at work implies a relationship between the person and the organization or workplace, in terms of commitment, loyalty, and dedication (Chalofsky, 2003). Fulfilling the need to do a meaningful work is related to the individual's goal of contributing to society (Jaeger, 1994). People who indicate their work is meaningful and serves a greater social or common good are psychologically better adjusted and also have desirable characteristics for organizations (Arnold et al., 2007). In this sense, work serves to create and sustain value and meaning beyond economic productivity (Yeoman, 2014).

Prosocial behaviors cover such elements as empathy, sympathy, compassion, interest, consolation, mutual aid, sharing, cooperation, volunteering, and donating (Trommsdorff et al., 2007). Expressing a problem in the workplace is based on the employee's thinking of the organization or colleagues rather than himself (Goldman & Fordyce, 1983). Employees who tend to exhibit prosocial organizational behavior tend to use their time, energy, and other personal resources for the good of the organization in ways that may sacrifice some of their interests (Brief & Motowidlo, 1986). On the other hand, prosocial individual behaviors also increase among people who show increased concern for others and empathy skills (Mcneely & Meglino, 1994). Prosocial altruistic behavior in the organization contributes to employees finding their work more meaningful and motivated (Vural et al., 2021). In this context, prosocial behaviors that benefit the organization appear to be a variable that affects employee's efforts to make work meaningful.

MIL – POB & PIB – MW

People search for meaning throughout their lives is considered an important factor in their development and well-being (Seligman et al., 2005). In addition, an individual's effort to find meaning in life positively affects pleasure and life satisfaction at work (Steger et al., 2006). Allan et al. (2016) mention a negative relationship between job stress and the existence of meaning in life

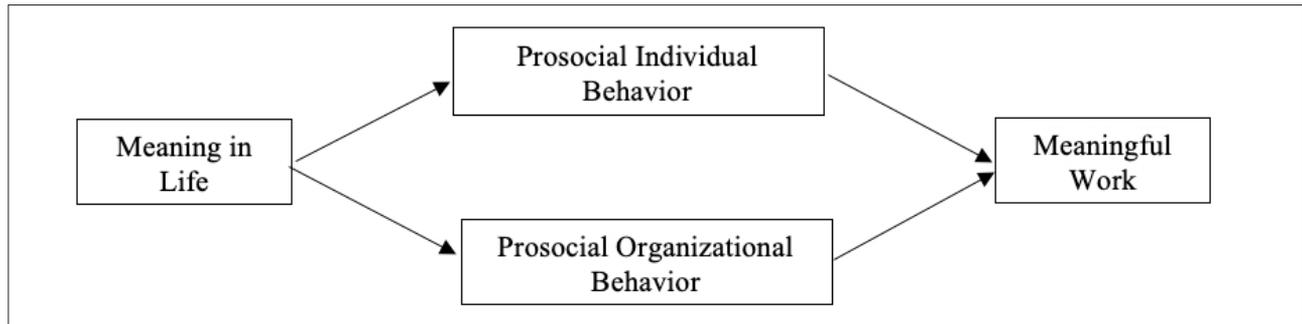


Figure 1. Conceptual Model

while noting that this relationship is positive for those who are searching for meaning. Steger et al. (2009) argue that the two dimensions they propose for meaningful work also apply to the general meaning of life. These are purpose (highly motivating, long-term goals that people are committed to and passionate about) and understanding (the ability to find pattern, consistency, and importance in many events and experiences in their lives). Fully meaningful work includes both components and relies on satisfying relationships within the workplace and a clearly understood sense of identity (Steger & Dik, 2010).

According to a widely held view, altruistic and prosocial behaviors result from positive experiences and processes, whereas antisocial behaviors are often based on negative conditions and life experiences (Vollhardt, 2009). In this context, prosocial behaviors appear as desirable behaviors in both social and business lives. Although prosocial behavior seems to have a short-term cost to the individual, it can be beneficial to both the individual and the organization in the long run (Joireman et al., 2006). Prosocial behavior in the workplace occurs voluntarily and optionally because it is not disclosed based on an employment contract (Borman & Motowidlow, 1993). People may engage in prosocial behavior simply because it serves their interests and/or they feel morally obligated to do so, or because they sincerely care about potential beneficiaries (De Dreu & Nauta, 2009).

Although previous studies (Steger & Dik, 2009; Balci & Ađ, 2019) have shown that meaning in life positively affects perceptions of meaningful work, the nature of the relationship between ML and MW remains to be explored. To better understand the relationship between these two variables, an attempt was made to examine the mediating effect of POB and PIB. As a result, the two hypotheses are expressed as follows:

H1: The effect of meaning in life on meaningful work is positively mediated by prosocial organizational behavior.

H2: The effect of meaning in life on meaningful work is positively mediated by prosocial individual behavior.

RESEARCH METHODOLOGY

Data collection and Participants' Characteristics

Data were obtained from employees working in Düzce city center. Since the variables cover all employees, no specific sector was specified. The number of samples (n=600) representing the population was reached and the data was obtained using the convenience sampling method. The data that support the findings of this study are available from the corresponding author, upon reasonable request. Necessary permissions were obtained from Düzce University Scientific Research and Publication Ethics Committee on 04.06.2020 for the study. All data were obtained on a voluntary basis from the participants.

The survey instrument was pre-tested in a pilot study with 100 employees from different sectors. The scale items were evaluated by the participants in terms of clarity and necessary adjustments were made based on their feedback.

Data was collected via online survey links sent to participants. A total of 648 questionnaires were collected, 600 questionnaires were included in the analysis by subtracting 48 of the questionnaires for different reasons (such as studying in a city other than the sample or being retired etc.).

73% of the employees participating in the survey are male and 55.8% single. Looking at educational level of the participants, the majority (52%) have a bachelor's degree. Participants from many different occupational groups, including engineers, salespeople, accountants, teachers and civil servants were included in the survey.

Measures

A 37-item questionnaire was used to measure the constructs of meaning in life, meaningful work, and prosocial organizational behavior. The five-point scale was used to rate agreement or disagreement with the items in the questionnaire on a scale of 1-strongly disagree to 5-strongly agree.

Meaning in life (ML) was measured with a five-item scale adapted from the instrument developed by Steger et al. (2006). The scale was translated from English to Turkish by Boyraz, Lightsey, and Can (2013). The original scale consists of two sub-dimensions: Existence and search for meaning in life. In this study, existence of meaning in life dimension was used ($\alpha = 0.82$).

Meaningful work (MW) was measured with a five-item scale adapted from the instrument developed by Göçen & Terzi (2019). The original scale consists of six sub-dimensions: meaningful work, search for meaning, work relations, humility, transcendence, and meaning leadership at work. In this study, the meaningful work dimension was used ($\alpha = 0.84$).

Prosocial behaviors (POB & PIB) were measured with an eleven-item scale adapted from the instrument developed by McNeely & Meglino (1994). The scale was translated from English to Turkish by Şentürk and Altunok (2023). The scale was adapted to the Turkish language by complying all processes (Seçer, 2018) in the scale adaptation phase. The original scale consists of three sub-dimensions: role-prescribed prosocial behavior, prosocial organizational behavior, and prosocial individual behavior. In this study, the prosocial organizational and prosocial individual behaviors dimensions were used ($\alpha = .90, .85$).

CONSTRUCT VALIDITY

Structural Equation Modeling (SEM) is used in more than one discipline, especially in social sciences, health sciences, economics, marketing, behavioral sciences, and educational sciences (Raykov & Marcoulides, 2006). It is a multivariate statistical method based on the

identification of observable and unobservable variables in a specific theoretical causal relationship model (Byrne, 2010).

A data control process was followed to convert the data into the appropriate format. First of all, the missing data was checked and it was confirmed that there was no missing data. Then, the normal distribution condition was evaluated over the kurtosis and skewness values. Since the Shapiro-Wilk and Kolmogorov-Smirnov tests were not suitable for a sample of 600 people, kurtosis and skewness values were used (Kim, 2013). For the analysis of kurtosis and skewness values, Curran et al.'s (1996) threshold values (Skewness ± 3 , Kurtosis ± 7) were taken into account. It was determined that the values of all items were within the threshold value range. Therefore, the normal distribution condition is satisfied.

Construct validity was tested via confirmatory factor analysis (CFA). The fit indices of the CFA model ($[\chi^2/df] = 3.560$, $[GFI] = .908$, $[CFI] = .937$, $[TLI] = .927$, $[RMSEA] = .065$) demonstrated a good fit. The factor loading values (between .65 and .92) were above the accepted threshold (.60) and this result verifies the convergent validity (Yang et al., 2012; Wang et al., 2022).

The discriminant validity was confirmed by comparing the value with the correlations. According to the results of the analysis, the value was significantly larger than the correlations between the construct pairs and accordingly the discriminant validity criterion proposed by Fornell and Larcker (1981) was satisfied.

The convergent validity was examined by calculating CR and AVE. According to Fornell and Larcker (1981) AVE value must be greater than 0.5 and CR value must be greater than 0.70, and the condition $CR > AVE$ must be met to ensure convergent validity. AVE and CR values were above the recommended thresholds (Yang et al., 2012; Wang et al., 2022).

Common method bias (CMB) is a situation encountered when survey participants are asked to fill in surveys on dependent and independent variables. Harman's single-

Table 1. Means, standard deviations, and intercorrelations between the constructs and \sqrt{AVE}

	Mean	SD	ML	POB	MW	PIB
1. Meaning in Life	3.87	.92	.802			
2. Prosocial Organizational Behavior	4.18	.76	.432**	.781		
3. Meaningful Work	3.78	.88	.384**	.582**	.716	
4. Prosocial Individual Behavior	3.98	.91	.271**	.565**	.373**	.781

Note. ** $p < 0.01$. The \sqrt{AVE} for the construct is presented in bold.

Table 2. Validity and Reliability Analysis

Variable	Loadings	CR	AVE	α
Meaning in life	.883	.877	.644	.885
	.871			
	.752			
	.687			
Prosocial Organizational Behavior	.844	.904	.611	.900
	.834			
	.826			
	.761			
	.744			
Meaningful Work	.667	.880	.513	.872
	.792			
	.750			
	.736			
	.706			
	.693			
Prosocial Individual Behavior	.677	.860	.611	.853
	.651			
	.620			
	.697			
	.848			
	.925			

factor approach was used to examine CMB (Podsakoff & Organ, 1986). In this technique, researchers include all scale items in the exploratory factor analysis and examine the unrotated factor solution to obtain the number of factors with eigenvalues greater than 1 that explain the total variance. The assumption here is that a single component will explain more than 50% of the covariance between items and criterion constructs if CMB is present (Podsakoff et al., 2003; Rodríguez-Ardura & Meseguer-Artola, 2020). An unrotated factor analysis using the eigenvalue-greater-than-one criterion revealed three different factors that accounted for 59 percent of the variance. The first factor captured 41 percent of the variance in the data. Since a single factor did not emerge and the first factor did not account for %50 of the variance, CMB does not appear to be a problem.

RESULTS

Baron and Kenny (1986) state that some conditions to talk about the mediation effect. These conditions include relations between dependent, independent and mediator variables. The model developed by Baron and Kenny (1986) for mediation analysis has been subject

to criticism recently (Preacher & Hayes, 2004; Fritz & MacKinnon, 2007; Gürbüz, 2019; Hayes & Rockwood, 2017; Hayes, 2018). Gürbüz (2019, 57-58) deals with the first three steps of Baron and Kenny (1986) in analysis of mediation, but emphasizes that the insignificance of these steps does not eliminate the mediation effect.

The mediation effect was tested with the bootstrap technique. In the bootstrap technique, a new observation set different from each other is created by renewing the observations in the original data set, and statistical calculations are made with this new data set. In this method, more reliable results are obtained by correcting the bias and skewness related to the distribution. This technique was used because of reporting bias-corrected and accelerated confidence interval values (Gürbüz, 2019:56-57).

The findings support the prerequisites stated by Baron and Kenny (1986). In this context, the meaning in life in the ML-POB-MW equation has a significant effect on meaningful work ($\beta = .366$, 95%CI [.295, .437], $t = 10.168$, $p < .01$) and prosocial organizational behavior ($\beta = .357$, 95%CI [.297, .417], $t = 11.698$, $p < .01$). Besides prosocial

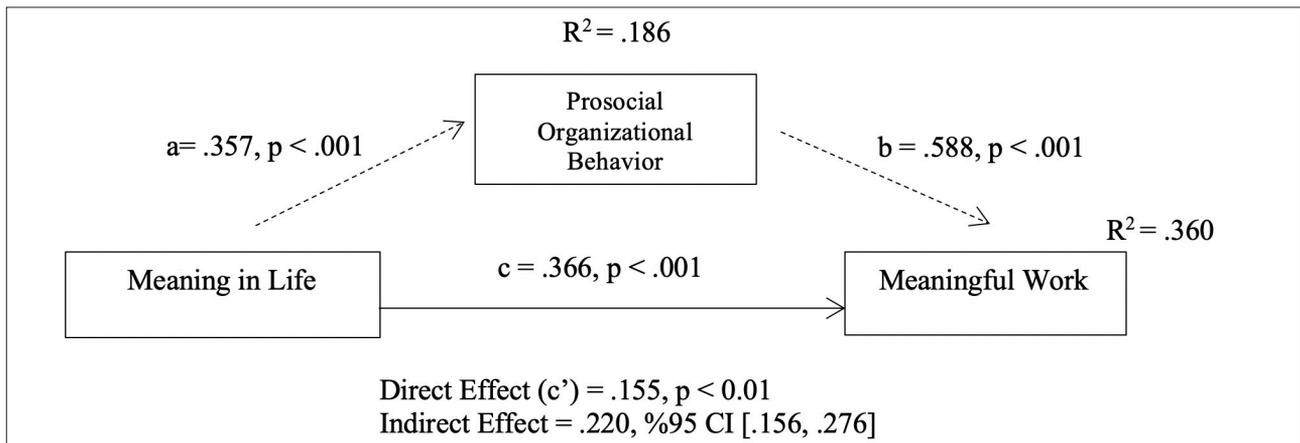


Figure 2. Mediation regression analysis (ML-POB-MW)

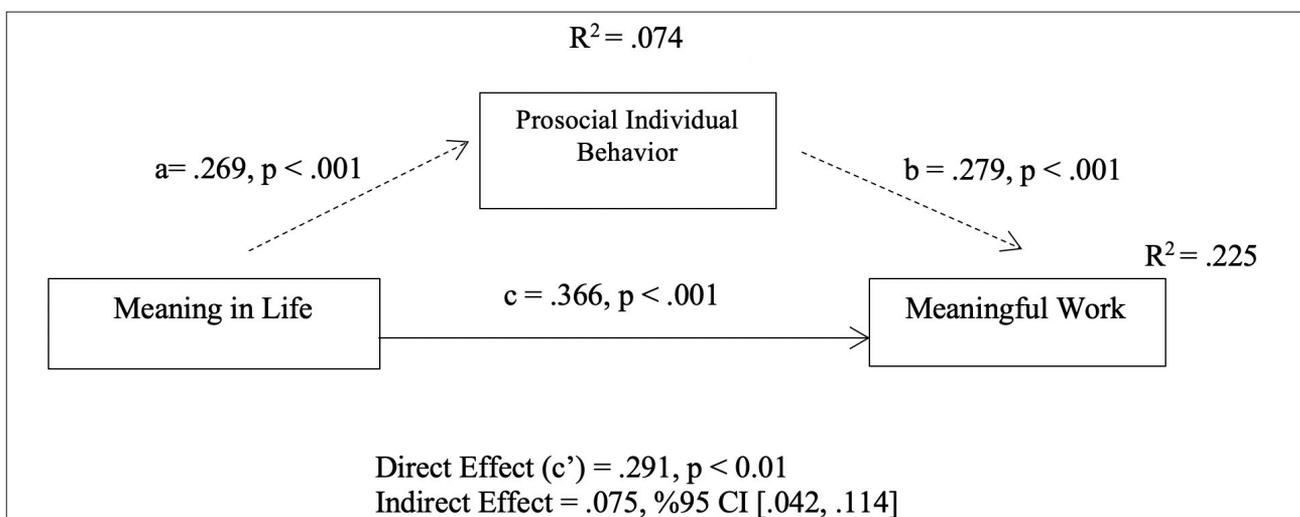


Figure 3. Mediation regression analysis (ML-PIB-MW)

organizational behavior has a significant effect on meaningful work ($\beta = .588$, 95%CI [.506, .670], $t = 14.087$, $p < .01$).

In the ML-PIB-MW equation, the meaning in life has a significant effect on prosocial individual behavior ($\beta = .269$, 95%CI [.192, .346], $t = 6.896$, $p < .01$). Besides, prosocial individual behavior has a significant effect on meaningful work ($\beta = .279$, 95%CI [.208, .349], $t = 7.755$, $p < .01$). Although the Baron and Kenny (1986) steps are not based on the mediating effect, it has been determined that the steps are provided.

According to the results of the mediation analysis, prosocial organizational behavior ($\beta = .220$, %95CI [.156, .276]) and prosocial individual behavior ($\beta = .075$, %95CI [.042, .114]) mediate the effect of meaning in life on meaningful work. Since the lower and upper confidence intervals (CI) values obtained by using the percentile bootstrap confidence intervals do not include 0, it can be stated that the mediation effects are significant.

DISCUSSION

This research examines the impact of the meaning of life on meaningful work and the mediating role of prosocial organizational and individual behaviors in this interaction from the perspective of employees.

The search for meaning and the alternative answers to this search can affect the whole life. The search for meaning does not progress alone but also triggers the search for purpose. Therefore, having a meaning and purpose in life is important for individual development and well-being (Seligman et al., 2005). The aforementioned quest is related to the individual's uniqueness. In this context, Socrates finds the meaning of life in living it wisely, having self-awareness and self-knowledge (Socrates, 2014). To understand is to grasp the essence of something in its entirety, to find something of ourselves in it, and to discover our awareness outside of ourselves (Kartopu, 2006). At this point, it is understood that meaning affects the whole life, and the need to investigate the concept

of meaning in work, which covers an important part of life, felt more clearly. The meaning given to work, which covers an important part of life, is fed from many sources. Rosso et al. (2010) while pointing out the self, other persons, the work context, and spiritual life as the source of meaning at work, highlighted the mechanisms that will make work meaningful as authenticity, self-efficacy, self-esteem, purpose, belongingness, transcendence, cultural and interpersonal sensemaking.

Findings from the research confirm the interaction between meaning obtained in life and meaning obtained at work. The research findings obtained are consistent with the studies in the literature (Steger & Dik, 2009; Balcı & Ağ, 2019). Morse and Weiss (1955) state that not working can leave people aimless and deprived of opportunities to contribute to work and society. This interaction reveals that the choice of job is to be made much more carefully and is an important decision that affects the whole life. Even if today's world defines work from a materialistic point of view, it is much more valuable in terms of the time it covers in human life. It is important to make sense of the work in terms of acquiring an existential purpose and maintaining life on this plane. Therefore, work is a process that needs to be handled with a holistic perspective for people.

It has been confirmed that the relationship between meaning in life and work is enhanced through prosocial organizational and individual behaviors. As everything is known with its opposite, the value of meaning will be clearer when it is considered over meaninglessness. Gürses and Kuruçay (2018) list the problems caused by meaninglessness as alienation, suicide, hopelessness, insecurity, addiction, unhappiness, conflict, and corruption of values. Amabile and Kramer (2012) state that top managers routinely undermine creativity, productivity, and commitment if they do not take into account the meaning that employees give to their jobs. Accordingly, behaviors that will strengthen and support the meaning attributed to their work by the employees will primarily eliminate the negative consequences for the organization. Afterward, it will enable the employees to realize their strengths and reflect them to the work. It is understood that prosocial organizational and individual behaviors are important tools that support the meaning of life in gaining meaning in the workplace. The findings support the idea that prosocial organizational behavior is a more powerful mediator than prosocial individual behavior. In this direction, the need to address the work-life meaningfulness balance with a more holistic perspective arises. Rather than individual approaches,

practices reinforcing prosocial behaviors that will encompass the whole of the organization and become a part of the culture gain importance.

Managerial Implications

This study has valuable implications. All stakeholders in the organization have important contributions to the meaning-making processes. The process of gaining meaning also includes work, which covers an important part of the individual's living space. Providing support to the meaning-making processes is important for the interests of the organization, and it should not only be under the responsibility of the managers but also the support of the employees to each other should be emphasized in the organizational policies. It is an attitude that every organization desires that its employees prioritize the organization before themselves. Creating the organizational culture and climate that will enable this to happen can be achieved by the managers highlighting and valuing the prosocial behaviors within the organization. With this awareness, managers should empower employees to give innovative ideas for the organization, act protectively, and support their colleagues. Besides, ensuring the participation of all employees institutionally in the internal and external charitable support processes of the organization is important for the acceptance and prevalence of prosocial behaviors within the organization.

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The Effects of Emotional Labor and Core-Self Assessments on Constructive Deviant Behavior in Hotel Businesses: The Mediating Role of Staff Empowerment

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ABSTRACT

The main purpose of the research is to examine the effects of emotional labor, core-self, constructive deviant behavior and the mediating effect of staff empowerment. The sample of the study is hotel businesses that are located in Ankara and Muğla, Turkey. The data were collected from the staff in the hotel enterprises by interview form and survey technique. The data obtained from 538 questionnaires collected from the hotel employees were analyzed. In the light of the data obtained from the employees, "factor analysis" was used for sizing and validating the scales. Correlation analysis was used to determine the relationship between the scales. For the validation of the research model, "Structural Equation Modeling" was preferred in measuring the interaction of the independent variables with the dependent variable and determining the mediating role in the LISREL package program. The results of the research showed that staff empowerment has a partial mediating role in the effect of collective emotional labor on constructive deviant behavior. On the other hand, it has been revealed that staff empowerment is a full mediator in the effect of core-self on constructive deviant behavior.

Keywords: Hotel Management, Emotional Labor, Core-Self Evaluations, Constructive Deviant Behavior, Staff Empowerment, Organizational Behavior, Turkey.

JEL Classification Codes: O15, Z30, M12

Referencing Style: APA 7

INTRODUCTION

The competitive environment of businesses including consumers, competitors, vendors, unions, and financial institutions determines the position of businesses. When the macro and micro balances in competitive are evaluated, the reasons such as rapid development of information technologies and the fact that the changes for the future cannot be predicted clearly have led to the emergence of a new competitive environment in the new market structure (Akpan et al., 2020; Arica et al., 2021; Arica et al., 2023). One of the vital components for businesses in keeping up with this new competitive environment is qualified employees (Frolova et al., 2020; Rakmatov, 2020). As in hotel businesses and other sectors, one of the most significant factors in adapting to development and change is considered to be employees (Şeyhanlioğlu and Kingir, 2021; Wong et al., 2021; Cheng et al., 2022). Hotel businesses, which offer a labor-intensive service, consider the emotional nature of the employees as social capital (Gera et al., 2022; Bayrakçı, 2022). Emotions are one of the key factors that direct the

behavior of employees. The effect of emotional labor on the behavior of employee is of great importance. Because different behaviors are expected to be exhibited in accordance with certain emotional patterns within each department in hotel businesses (Knežević et al., 2021).

The core-self (ego) phenomenon is an internal state related to how employees evaluate themselves. This phenomenon is also related to where individuals position themselves in their business life. The aforementioned evaluations and positioning of individuals are closely related to their success in business life (Keegan and Den Hartog, 2019; Dong et al., 2020). If there is service orientation and teamwork in hotel businesses, businesses will be successful and they will want to keep qualified individuals and even qualify them as managers. At this point, the core-self becomes one of the important criteria (Dai et al., 2019; Dalgıç and Akgündüz, 2022). The core self of hotel employees can turn into constructive deviant behavior with the instinct of protection. Violation of the rules, policies and norms of the organization in order to make positive contributions to the organization

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This study was produced from Hasan Önal Şeyhanlioğlu's thesis "The effect of emotional labor and core-self assessments on constructively deviated behavior in hotel businesses: The mediating effect of staff empowerment".

and employees or both, is known as the phenomenon of constructive deviant behavior (Chung and Moon, 2011; Tekmen and Kaptanligil, 2022). In this context, two aspects should be considered. The first aspect provides an overall benefit and contribution to the business. The second aspect includes intentional breaches of ethics or rules (Gatzweiler et al., 2017).

In hotel businesses, it is necessary to take the initiative in order for the employee to manage their work well. This is possible with staff empowerment. The phenomenon of empowerment is known as the initiative and responsibility of the employees in order to provide service to customers in hotel businesses (Batman and Mesci, 2010; Thomsen et al., 2022). This phenomenon is an external process provided to the employees from the outer ring. With the empowerment, it is possible that the managerial power and initiative status of the employees operating in the hotel businesses will improve (Koç, 2019). However, the increase in the authority and responsibility given to the personnel ensures the protection of the enterprise. Because the staff will be strengthened. The results of the research, the place of the mental states of the employees in business life and their reflections on the customer are important for the starting point of the study. Behavioral results are prioritized, especially in business roles that are always face-to-face with customers (Nyanjom and Wilkins, 2021).

In the literature, there are studies on the effect of self-concept on constructive deviant behavior and the mediating role of staff empowerment in the academic review conducted at the focus of the research. However, few researchers have examined the mediation of staff empowerment between these phenomena (Tsaour et al., 2019). In addition, there is little information about the perspectives of tourism professionals at this point (Dar and Rahman, 2022; Li and Chen, 2022). In this context, it is thought that the study will contribute to the tourism literature and shed light on future studies. For this reason, situations related to the model and purpose of the study are included.

THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

In the section where the theoretical framework and hypothesis development will be discussed; constructive deviant behavior, core self, staff empowerment, emotional labor. In addition, hypotheses will be given on the basis of theoretical background.

Constructive deviant behavior is defined as behaviors that are consciously performed outside of a certain reference group in an organization and that are seen to be virtuous in line with the interests of the organization (Spreitzer and Sonenshein, 2004). Even if the employees who violate the business norms for the welfare and future of the organization exhibit negative behaviors in the business paradigm, they will ultimately have taken positive steps for the future of the business (Garg and Saxena, 2020). Constructive deviant behaviors are expressed as voluntary behaviors that occupy important organizational norms but contribute to the well-being of an organization and/or its members. In this context, it can be said that constructive deviant behaviors are unauthorized, but useful actions that can facilitate the achievement of organizational goals (Galperin and Burke, 2006).

According to Hochschild (1983), emotional labor is the display of observable facial and bodily behavior for a fee. It has a monetary value. According to Grandey (2000), emotional labor is considered to be the process of regulating emotions and behaviors to serve organizational purposes. Emotional labor also plays a key role in exhibiting behaviors in organizational and managerial contexts. Especially in the service sector, the communication skills, human relations and emotional efforts of the employees are very crucial and serious conditions in terms of the survival and profitability of the institutions / businesses and organizations. For this reason, some businesses aim to make it easier for them to reach their organizational goals by revealing the showing rules they expect from their employees from the beginning (Diefendorff and Richard, 2008; Nyanjom and Wilkins, 2021).

Core self-assessment is a broad concept because of the individual's belief in his/her abilities (control over his/her life), current competences, ideas that the return of life will be positive for him/her (Gabbred and Romanelli, 2021; Stephenson et al., 2022). Core self-evaluations refer to the concept of a latent locus of control, self-esteem, core competence, and a high level of emotional stability (or low neuroticism) (Işiker, 2019). According to Judge et al. (1997), people subconsciously evaluate themselves, other people and the world or reality. For instance, individuals may view themselves as fundamentally weak or view others as unreliable. Other individuals may think that life is exhausted or regard the world as a dangerous place. This situation affects people's evaluations of themselves, nature and society (Lee and Ok, 2015).

Staff empowerment is the transfer of responsibility and authority by a senior manager to employees at lower level/levels. It should also be noted that the application of only an individual at the upper level to the transfer of authority is not sufficient for the employees at the lower level (Appelbaum, 2014, p. 380). The empowerments made within the enterprise are phenomena that increase the trust between the employee and the enterprise. Empowered employees in tourism businesses are known to have good communication with customers (Guzel et al., 2008; Çelik et al., 2015; Dolezal and Novelli, 2020; Chen, 2022). In order to understand the power of the employees in staff empowerment and the scope of their success within the organization, the staff turnover rate and the employee's stay in the organization and the time spent in the organization are very important (Dwesini, 2019). Because the desire of the empowered employee to stay in the organization will increase. Thus, employees who feel like they are a part of the business are expected to be honored to serve the business (Berridge et al., 2018).

Emotional labor in hotel management is expected during encounters where service workers are expected to show understanding of guests' emotions and to respond with appropriate, empathetic emotional expressions (Lee and Ok, 2015; Lam et al., 2022). Emotional labor influences the formation of rule violations that are constructive to protect business interests by providing a sense of ownership of employees operating in enterprises. Thanks to the internal harmony, the employee who adopts the enterprise can resort to deviant behaviors that are positive (Chung and Moon, 2011). In order to protect the position of the employees in managerial positions or to get promoted, they may prefer to violate the rules by suppressing their emotions and prioritizing the interests of the enterprise (Chi et al., 2018). Thus, both the tourism business and the employee's interests will be embraced. In order for this situation to occur, the employee is expected to exert emotional labor instead of individual feelings.

Unethical violations for individuals to exhibit constructive deviant behavior may be self-sufficient. Martin et al. (2009) in their research on individuals with individual differences, they discussed that the violation of the code of ethics was caused by their self-identity status. In addition, the strong self-esteem of the employees in the enterprises enables them to exhibit constructive deviant behavior (Bonus, 2016).

The suitability of emotional patterns within the enterprise is important for both the enterprise and the employee to achieve their goals with its effect on staff

empowerment. Empowered employees help to elicit positive emotions. In addition, in another study on hotel businesses (Kim et al., 2012; Lee and Ok, 2012; Li et al., 2021) it is discussed that emotional labor strategies are effective in the development of staff empowerment practices. It has been taken into account that the empowerment of the internally directed employee with emotional job adaptation is effective in order to make the right decision in hotel operations (Li et al., 2021). The basic self affects the participation of employees in decisions. In this way, it is envisaged that the internal self-structure is effective in the empowerment practices of the staff (Giderler, 2015). Pioneering study (Karatepe and Demir, 2014; Su et al., 2022) in hypothesizing development highlighted that the basic self-status of the employees affects the staff empowerment status. Because the self-structure or personality states of individuals affect the situations of their behaviors in strengthening (Laschinger et al., 2007).

The phenomenon of staff empowerment, which gives significant authority and responsibility to the employee, leads to the formation of constructive rule violations for the protection of organizational interests through the formation of initiative. Therefore, the phenomenon of staff empowerment affects the phenomenon of constructive deviant behavior (Malik and Lenka, 2019a). Therefore, the hypotheses are proposed in the following sections.

H1: Emotional labor has a significant and positive effect on constructive deviant behavior in hotel businesses.

H2: In hotel businesses, the core self-perception has a significant and positive effect on constructive deviant behavior.

H3: Emotional labor perception has a significant and positive effect on staff empowerment in hotel businesses.

H4: In hotel businesses, core self-perception has a significant and positive effect on staff empowerment.

H5: Staff empowerment has a significant and positive effect on constructive deviant behavior in hotel businesses.

The basic self directs the status of the employees in life. Thus, the employee who is directed within the enterprise can resort to constructive rule violations with the perspective provided internally. For this reason, employees who are guided by the self can violate the rules for the benefit of the enterprise (Alias et al., 2013).

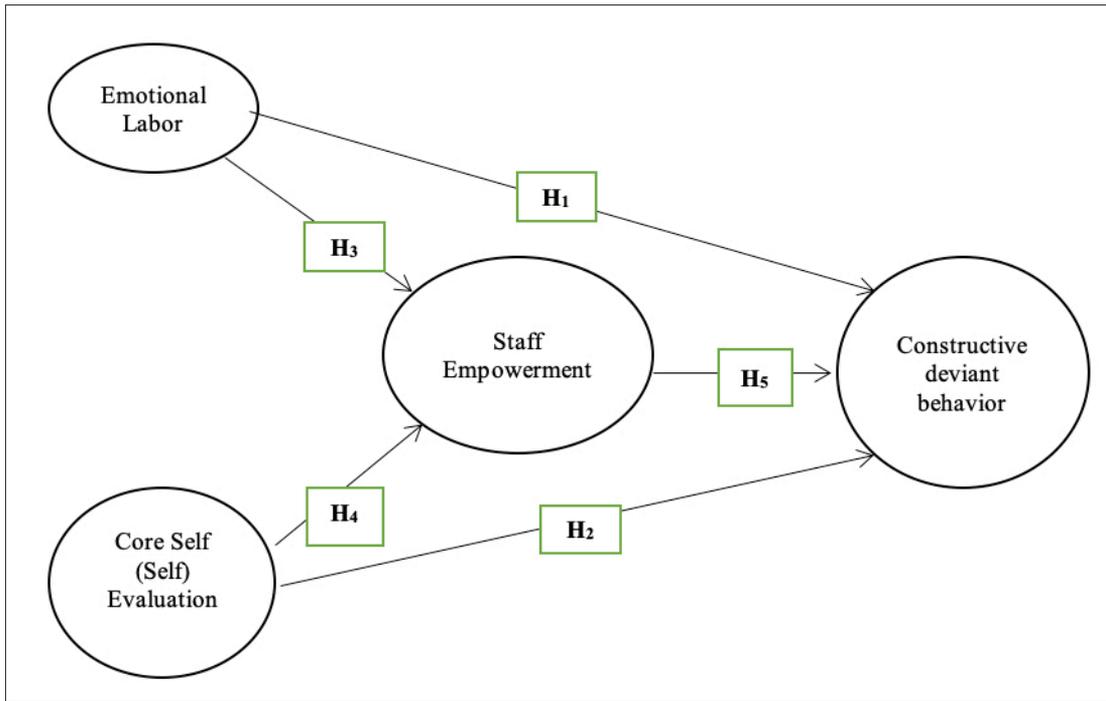


Fig. 1: Research Model

Table 1. Number of hotels in the study universe (Ministry of Tourism, 2021)

	4 stars	5 stars
Ankara	58	29
Muğla	94	83

Since the empowered employees in these violations have high authority, their internal situations lead to this type of behavior. Employees who are emotional tend to break the rules. While exhibiting this behavior, they use their authority by being empowered as a basis (Kim and Beehr, 2017). Hypotheses regarding mediation are proposed in the following sections. In this section, the variables that are mediators on the model can be seen.

H6: In hotel operations, staff empowerment has a mediating role in the effect of emotional labor on constructive deviant behavior.

H7: In hotel operation, staff empowerment has a mediating role in the effect of core self on constructive deviant behavior.

In the light of the developed hypotheses, the research model was formed as follows. The structural model of the research is given below (see Figure 1).

RESEARCH METHODOLOGY

Research Sampling and Data Collection

The population of the study consists of employees and managers working in hotels with various structural

features (coastal and city hotels, national independent, national chain and international chain hotels, 4 and 5 star hotels) in the Republic of Türkiye. The sample of the research consists of staff and managers working in hotels with various structural features (coastal and city hotels, national independent, national chain and international chain hotels, 4 and 5 star hotels) operating in the cities of Ankara and Muğla. The most important reason for this is that Ankara stands out in city hotel management and, being the capital city, has a high customer portfolio suitable for this. In addition, the perspectives of the employees serving this portfolio are important. The fact that the city of Muğla has come to the fore in coastal hotel management and has a high number of tourists. Additionally, these two cities are rich in terms of 4 and 5 star hotels. The sample was made with 538 hotel employees included in the research.

In the research, it is not possible to know the boundaries of the universe, since it is difficult to determine the number of employees and managers operating in the hotels in Ankara and Muğla. For this reason, convenience sampling method was used in order to determine the employees, to apply the questionnaires and to obtain a large amount of data. For the convenience sampling

Table 2. Demographic Information

Characteristics		n	%	Total Percentage
Gender	Woman	244	45,4	45,4
	Male	294	54,6	100
	Total	538	100	
Age	18-25	205	38,1	38,1
	26-35	255	47,4	85,5
	36-45	62	11,5	97,0
	46-55	10	1,9	98,9
	56 and above	6	1,1	100
	Total	538	100	
Marital status	Married	152	28,3	28,3
	Single	386	71,7	100
	Total	538	100	
Educational Status	Primary school	3	0,6	0,6
	Middle School	16	3	3,6
	High school	95	17,7	21,2
	University	424	78,8	100
	Total	538	100	
Income statue	Minimum wage	218	40,5	40,5
	Minimum Wage-4000 TL	170	31,6	72,1
	Between 4001-5000 TL	72	13,4	85,5
	Between 5001- 6000 TL	46	8,6	90,9
	Between 6001-7000 TL	32	5,9	100
	Total	538	100	
Status of Receiving Tourism Education	Yes	353	65,6	65,6
	No	185	34,4	100
	Total	538	100	
Type of Tourism Education	Tourism Certificate	48	14,4	14,4
	Tourism High School	44	13,3	27,7
	Tourism University Education	261	72,3	100
	Total	353	100	

TL: Turkish Lira

method, it is the collection of data on behalf of the research without considering the concept of a certain place or time, and trying to reach all the people who exist in the space and time period (Baştürk and Taştepe, 2013; Zhang et al., 2021). The research data obtained by the survey application were collected from the sample of the study between 10.01.2021 and 15.05.2021.

Socio-Demographic Characteristics

As seen in Table 2 below, the respondents were male (54.6%), aged 26-35 (47.4%), and single (71.7%). A significant portion of the respondents (40.5%) have a monthly average household income of the minimum

wage. The education level of the respondents is high and the rate of university graduates is 78.8%. While the majority of the participants (65.6%) received tourism education, a vast majority of the participants (72.3%) received tourism university education.

Research of the Questionnaire

The questionnaire consisted of four scales for the research. The statements in the questionnaire were asked as "strongly disagree", "disagree", "moderately agree", "agree" and "strongly agree" according to the sampling 5-point Likert scale. The 16-item "Constructive Deviant

Table 3. CFA Goodness of Fit Values of Scales

Variables	χ^2 /sd	GFI	TLI/NNFI	CFI	RMSEA
Constructive Deviant Behavior	3,623	0,93	0,99	0,99	0,70
Emotional Labor	3,547	0,94	0,99	0,99	0,67
Core Self-Assessments	3,944	0,92	0,99	0,99	0,79
Staff Empowerment	3,034	0,96	0,99	0,99	0,62
Good Fit*	$\chi^2 /sd \leq 5$	$0.90 \leq GFI \leq 0.95$	$0.90 \leq NNFI/TLI \leq 0.95$	$0.90 \leq CFI \leq 0.95$	$0,05 \leq RMSEA \leq 0,08$

Source: Hooper et al., 2008, p. 53-60; Hu and Bentler, 1999: 1-55; 181-185; Schermelleh-Engel and Moosbrugger, 2003, pp.23-74.

Workplace Behaviors" scale, developed by Galperin (2002) and translated into Turkish by Yıldız (2015), was used to determine the constructive deviant workplace behavior tendencies of the employees. There are 5 statements on the scale aimed at identifying innovative and interpersonal constructive deviant behaviors and 6 expressions aimed at identifying compulsive, deviant constructive behaviors. The scale is 3-dimensional. In order to be suitable for the organizational culture in Türkiye and to guide the tourism employees, 4 more expressions were added to the scale. With this adjustment, there are 4 dimensions in total. Internal consistency coefficients (α) calculated as .96

The accommodation sector emotional labor scale developed by Chu and Murmann (2006) was adapted to Turkish by Avcı and Boylu (2010) in order to determine the tendency of employees to exhibit emotional labor behaviors, and its validity and reliability were also evaluated. The scale was applied to Turkish tourism professionals and 10 expressions were found on the scale. Although the scale is two-dimensional, the first 7 items are emotional conflict and the other 3 items are emotional efforts. Internal consistency coefficients of the scale (α) were calculated as .96

The scale of core-self, which was developed by Judge (2003) and was adapted to Turkish by Kisbu and Bayazıt (2006), to measure the one-dimensional core self-assessment of employees, was carried out by Erol-Korkmaz (2010). The scale consists of 12 statements. The internal consistency coefficients of the scale (α) were calculated as .98. The scale developed by Spreitzer (1995) and adapted into Turkish by Sürgevil et al. (2013) was used to measure staff empowerment perceptions of employees. This scale consists of meaning, competence, autonomy and impact dimensions. There are a total of twelve articles, three expressions of each dimension. The

scale consists of 12 statements. The internal consistency coefficients of the scale (α) were calculated as .92.

Analysis of Research Data

In order to determine the structural validity of the research, the analyzes were also performed in SPSS package program and LISREL package program (Nam et al., 2018). Structural equation modeling analyzes and confirmatory factor analysis were performed on 538 data items. Explanatory factor analysis was used in the constructive deviant scale. This is because a dimension has been added to the scale. While examining the scale of perception of constructive deviant behavior of the employees, the results of item analysis, reliability levels and explanatory factor analyzes of the scale were conducted for the pilot sample of 250 people and its validity was ensured. The kurtosis and skewness values of all scale items are between -2 and +2, supporting the assumption of normal distribution (Kline, 2011). -2 and +2 indicating scalar rather than an absolute range.

CFA (Confirmatory Factor Analysis) and reliability analysis (α) cronbach alpha coefficients were calculated for the measurement of perception regarding the research variables. The ratio of Chi-square statistics to degrees of freedom (χ^2/df), Goodness of Fit Index (GFI), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI/NNFI), Root Mean Squared Errors of Approximation (RMSEA) as validation criteria in the interpretation of CFA results values were calculated.

When the structural equation model was tested, the Chi-square value of the model was found to be significant at the level of $\chi^2 = 551.69$, $sd = 197$, $p = .000$. When the ratio of the chi-square value to the degrees of freedom is analyzed ($\chi^2/sd = 2.820$), a value below 3 indicates an acceptable fit. When the goodness of fit indices of the structural model were examined, it was found that

RMSEA = .058, RMR = .050, SRMR = .046, GFI = .95, AGFI = .93 and CFI = .99, NFI = .99 and NNFI = .99. These values show that the established structural model has a perfect fit.

RESULTS

The results of the model of the research and the conclusion suggestions in the study are given. It is also explained in theoretical and practical implications.

Conclusions on the Structural Model

The convergent validity of the constructs was evaluated using the mean variance subtracted (AVE) and factor. Since the CR values are determined to be above the threshold value of 0.70 and the AVE value is above the threshold value of 0.50, it is stated that the reliability and convergence validity of the measurement model are ensured. The factor loads of all substances were statistically significant and were above the threshold of 0.5 (Hair et al., 2010). Construct validity was confirmed with AVE values greater than 0.5 for all structures. The AVE and CR values are given in the table (see Table 4).

The results supported all seven hypotheses tested in the model. H1 were supported, since emotional labor has a significant and positive effect on constructive deviant behavior in hotel businesses. ($\beta = 0.62, t = 1.019, p < 0.001$). As core self-levels had a significant effect on

constructive deviant behavior ($\beta=0.17, t=2.240, p < 0.05$). Thus H2 was supported. Since emotional labor levels had a significant affect on staff empowerment ($\beta=0.42, t=5.150, p<0.001$), H3 was supported. As baseline self-levels had a significant effect on staff empowerment ($\beta=0.24, t=5.150, p<0.001$), H4 was supported. Since staff empowerment levels had a significant effect on constructive deviant behavior ($\beta=0.49, t=9.160, p<0.05$), H5 was supported. The mediating role of staff empowerment levels has a significant effect on the effect of emotional labor levels on constructive deviant behavior ($\beta = 0.57, t = 9.240, p < 0.001$), which partially mediated and supported H6. The mediating role of staff empowerment levels had an impact on the effect of core self-levels on constructive deviant behavior ($\beta=0.02, t=0.063, p < 0.001$), it was fully mediated and supported H7.

CONCLUSION AND RECOMMENDATIONS

Considering the increasing competition and limited resources, the key to success in the tourism industry is qualified employees. Employees are required to have a number of virtues depending on certain conditions, which are the competencies such as having knowledge and technology, producing flexible solutions against the problems encountered, transferring ideas to the enterprise, being compatible with teamwork, being effective in foreign languages, and organizational competencies that will bring the business to the fore. In

Table 4. AVE and CR values of the scales

Scales	AVE	CR
Constructive deviant behavior	0,71	0,91
Emotional labor	0,74	0,93
Basic self-assessments	0,81	0,98
Staff Empowerment	0,79	0,91

Table 5. Hypothesis Acceptance Status

Hypotheses	β	p	Hypothesis Acceptance Status	
			Accept	Reject
H1	0,62	< 0.001	X	
H2	0,17	< 0.05	X	
H3	0,42	<0.001	X	
H4	0,24	<0.001	X	
H5	0,49	< 0.05	X	
H6	0,57	<0.001	X	
H7	0,02	<0.001	X	

this context, along with the characteristics specified in this framework, the employees' self-status, compliance with emotional patterns, and the ability to take steps that benefit the business can be the key to success.

Trainings are provided for the employees to have positive reflections on the internal situations of the business. Moreover, some hotel businesses train their employees at a younger age by opening educational institutions to prepare employees for certain behavioral patterns and technical parts of the profession. For this reason, it is important in terms of ease of control of internal situations and keeping customer satisfaction in the foreground.

THEORETICAL IMPLICATIONS

This research helps to clarify how the internal states of the hotel employees affect the constructive deviant behavior, which is the external impulse. One of the contributions of the research to the theoretical field is the adoption of the effect of hotel employees on external behaviors while exhibiting their internal behaviors in the light of a model. In the research in which the behaviors of the employees in hotel enterprises were evaluated, inter-variable evaluations were made. The fact that there are different perspectives in the evaluation between variables pointed out that it is necessary to make holistic evaluations in order to understand and generalize the workplace behavior experiences of the employees. This research will provide business managers and business owners with information about the factors in their internal and external behavior.

The research classified the behavior of employees in hotel businesses into two categories. These are the internal behaviors and the behaviors with the affected external influence. It was concluded that the emotional labor and self-status of hotel employees shaped their constructive deviant behavior. At this point, the studies have concluded that the internal behaviors of hotel employees affect the behaviors given by external influence (Chi et al., 2018; Malik and Lenka, 2019b). Tao et al., (2019) sabotages related to the service structure occur in businesses with food and beverage units. It was supported that the source of their negative behavior towards customers was emotional. If a employee wants to communicate well with the customers, he/she must manage his/her emotions well. Especially when businesses are busy, they may be inclined to deviant behavior when they do not improve their emotional state in service. Tekmen and Kaptangil (2022) examined the effect of perceived supervisory support and intrinsic

motivation on the constructive deviation behavior of hotel employees. While constructive deviation behavior is observed in hotel employees, it is emphasized that internal motivation has a positive effect and managerial supervision is essential. Accordingly, the results of the current research support the literature.

It was concluded that internal situations affected external effects in the behaviors of the hotel employees and that the staff empowerment mediated in this model. Staff empowerment is also an external authority provided by the manager. This conclusion has been supported by several studies (Wong and Laschinger, 2013; Alagarsamy et al., 2020). The findings of this research are that the starting point of the powers and outputs given to more directing the hotel staff is the internal states. Two arguments can be considered in this context. First, responsibility should be given by considering the behavioral conditions of the employee. Second, the emotional motivation of the employees should be ensured in order to avoid a situation that is a direct factor with the customer, such as constructive rule violations.

PRACTICAL IMPLICATIONS

The study aimed to measure the effect of emotional labor, the effect of self on constructive deviant behavior and the mediating role of staff empowerment in hotel businesses. According to the results of the research, it was found that emotional labor in hotel enterprises affects the constructive deviant behavior of the self and staff empowerment mediates these effects. The role of external staff empowerment is to ensure that the internal states of employees tend to address rule violations, even if it is beneficial for core self and emotional labor to produce an output (Zhou et al., 2021).

The emotional labor perceptions of the employees operating in the hotel enterprises positively affected the phenomenon of constructive deviant behavior. In other words, while the employees behave in accordance with the emotional patterns for the enterprise, they also resort to the violations of the rules that result in positive results for the enterprise. Although violations of this rule result in a positive outcome, it will be a reminder for the employee that the human resources department organizes ethics-related information programs periodically during the season or throughout the year, since it is a negative behavior in essence (Gonzales et al., 2020; Abdiyev and Alimardonov, 2022). In this way, it is expected that ethical violations will decrease.

Self-states of employees in the hotel enterprises have positively affected the constructive deviant behavior. Even if the self-perceptions of the employees are positive, it affects the violation of the rules. At this point, the self and personality groups of the top managers of the hotel businesses and the individuals of the human resources unit should be determined and it should be revealed which types of employees are inclined to constructive deviant behavior. Then, professional support should be obtained from individuals who are experts in the field of psychology for this situation (Al-Qassem, 2022).

It was discussed that emotional labor and self-awareness, which are among the internal situations, positively affect staff empowerment. The individual empowerment of the employees bring to the fore which individual will be strengthened. In this context, the status of the social environment of an individual and his/her work-related harmony are important. After an individual is hired, organizational plans such as excursions, activities and fishing within the enterprise should be brought to the fore in order to manage the individual's feelings towards the enterprise positively and to improve the approach as a personality (Gürsoy et al., 2011; Ružić, 2015; Dedeoglu et al., 2016; Florido et al., 2019; Nazir and Islam, 2020). Thus, it is expected that the employee will be motivated towards the hotel business and his/her emotional harmony will increase.

Staff empowerment positively affected constructive deviant behavior. It is addressed that there are the violations of rules that result positively with the empowerment of the employees within the enterprise. In this case, top and middle level managers have great responsibilities. Before the empowered employee is given this authority, a situation assessment should be made that the employee is worthy of it and that he/she will not resort to ethical violations even if it is for the benefit of the business (Kruja et al., 2016; Shrestha, 2020; Ravichandran et al., 2022). In fact, a detailed evaluation can be made about each strengthened employee.

LIMITATIONS AND FUTURE RESEARCH

In this research, the internal and external behavior of hotel employees was evaluated in a model. In order to develop a more holistic perspective, future studies should be measured with different internal and external behavioral variables, and then these results will need to be evaluated. This will be important for the emergence of different employee perspectives. Considering that the data of this research were collected in Turkey, it is essential to collect more data to make comparisons

between different countries, different tourism business lines, as well as more comprehensive sampling in terms of cultural contexts and different employee types to improve the current generalization ability of the results.

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Readings as a Helping Tools for Economics Education: Animal Farm

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ABSTRACT

Economic events have many social and political causes and consequences. Unfortunately, it becomes meaningless to explain these events using only mathematical methods as time goes by. In addition, the teaching methods of this comprehensive science to young generations have begun to be questioned. While the learning skills of generations change, there is no drastic change in methods in economics education. This study aims to analyze the advantages of using literary works in economics education in the sample of Animal Farm as in using different training methods. Firstly, the study examined the interactions between literature and economics briefly. Then, the plots of Animal Farm were revealed from the allegory of historical events using defamiliarization. Finally, the benefits of using Animal Farm in economics education were discussed. Using literary works like Animal Farm in economics education assists in raising future economists who can prick the bubble in the events, understand the effects, and create unique systems for societies more easily.

Keywords: Literature, Economics Education, Animal Farm, Allegory.

JEL Classification Codes: A12, B24, I28, P32, P41

Referencing Style: APA 7

"We are against creating a theory of the "Fuehrer".

We are against making a "Fuehrer". We are against the Secretariat, which has in practice combined both policy and organization, standing over the political organ ...

I have come to the conviction that Comrade Stalin cannot fulfill the role of unifier of the Bolshevik staff.

We are against the theory of one-man rule."

"Kamenev, Speech to the Fourteenth Congress of the All-Union Communist Party, Stenographic Report, Moscow, 1926, pp. 274"

INTRODUCTION

Teaching economics to the young generations has always been complex. The reason might be that the students and economics instructors have different perspectives and interaction practices. In addition, the Millennial generation and economics instructors have incompatible learning/teaching methods due to differences in families, social environments, and skills (Lienberger, 2015). While the instructional approach is still the same, some new techniques have been suggested

to adjust the incompatible for discovering economics in daily life. One is using literature in economics education (Picaut, 2019).

The use of literature in economics education allows the concepts to be comprehended more memorable and understandable. Economics students find themselves in a theater and become part of active reading, so they are willing to understand the purpose of the economic theme (Watts, 2004). Because the subject is limited with the theme, to focus real-life's economic background is easier. Additionally, when the students realize the similarities between work and life, they can elude the economists' criticisms of being mechanics who only teach calculation methods (Watts, 2004) and understand the importance and seriousness of modeling economic policies.

The study aims to reveal traces of economic terms in a literary work, Animal Farm, and represent literature as an education tool for economics. First, in line with these purposes, the relationship between literature and economics and the reason for choosing the sample book, Animal Farm, are examined. Then, the general view of Animal Farm analyzes for historical background. Finally, the book's economic aspects and the role of economics education demonstrate.

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INTERACTION OF LITERATURE AND ECONOMICS

Economics is close to the positive sciences due to the deductive method and mathematical approaches, but it investigates human behavior and economic pattern as a social science due to its definition (Kazgan, 2018, s.32). Watts and Smith (1988) argue that it is absurd to argue that, with the use of mathematics after the marginal revolution, literature was of no use to the development of the political economy. Instead, he claims that literature shapes public opinion and standards on economic issues. Because economics assumes that complicated human behaviors are rational, those research methods become appropriate for modeling. However, all sciences that use mathematical analysis, including economics, need to understand the essence of philosophy (Lowry, p.19-CH2, 2013). Otherwise, overemphasis on mathematics engenders to development of ununderstandable models for economic conditions (Sedlacek, 2017). So trying to illuminate the economic problems, it should not be forgotten that it is a science that lives through the human variable (Bronk, 2010).

Economics interacts with other social sciences such as politics, history, and sociology due to the root of humanity. The long-standing relationship between economics and sociology can be traced back to Karl Marx, Max Weber, and Emile Durkheim, which have existed since the time of classical sociologists (Kalleberg, 1995). Even if inequality, race, gender, marriage, government functioning, and income distribution are sociological variables, they are used in much economic research. Besides, economics and history also have long-term relationships.

Economics has interactions with other fields directly or indirectly. Literature is one of them and has the tightest connection with economics. Because rather than experiencing a social process, literature summarizes the entire history of the period involved in that process (Wellek and Waren, 2011). In this case, it can be said that literature is essential in observing the effects of the literary work on people's lives in the background. (Sedlacek, 2017).

Kish-Goodling (1998) used Shakespeare's *The Merchant of Venice* to teach monetary economics. In this context, it went down to the origins of the theme of usury and, starting from the scholastic arguments about paying interest to use money, reached modern interest theories. Watts (2002) reviewed how economists have used passages, plots, characters, themes, and ideas from literature and drama in their professional writings.

Cowen (2005), highlighting the relevance of fiction for social science investigation, argued that novels could help make some economic approaches more plausible. Watts (2003) used literature and images from them to explain economic concepts such as utility maximization, cost-benefit analysis, property rights and incentives, specialization, and division of labor. Becker et al. (2006) opined that integrating the creative arts into economics courses does not mean abandoning artistic rigor or critical thinking but promoting a deeper understanding of concepts. Miller and Watts (2011) provide a list of economic concepts and issues covered in all the children's books published by Theodor Geisel. Keane (2014) stated that traditional economic models are quite abstract; they need pragmatic constructs. In this sense, literature is more realistic and practical as it represents economic reality intertwined with other aspects and dimensions of human society. Morson and Schapiro (2017) demonstrate the benefit of freewheeling dialogue between economics and humanities by addressing various issues from "household economics" to "economics of development". Meet and Narayan (2015) brought a different dimension to the relationship between literature and economy. He emphasizes that literature, especially novels, conveys information to people who read little. Underlining that technical knowledge is insufficient to understand economic realities, he claims that through storytelling and narratives, literature will give people insight and power to change the world. Through literature, readers become emotionally connected to people's experiences of commodities, markets, class divisions, and their roles as consumers, workers, and producers.

In this study, "Animal Farm" will be analyzed under the previously mentioned purposes. There are three reasons to choose "Animal Farm". Firstly, the technique used by George Orwell is defamiliarization, which expounds on well-known characters or events in unfamiliar ways (Adhikar, 2014). Orwell gathers Soviet Russia's crucial people, such as Lenin, Trotsky, and Stalin, to a farm and makes them the subject of a fable. Moreover, the events are explained to the reader using metaphors. Readers may pay more attention to the storyline when history turns into a fable. It helps them apprehend indirect information and concentrate on events that might repeat in the future. The same reason might prevail for economics students. Fairytales might be more attractive than textbooks for students. Secondly, even if "Animal Farm" is comprehended essentially as the relationship between history and literature, it also has economics. "Animal Farm" might restore the ties between social sciences. Finally, "Animal Farm" underlines the

importance of education. The lack of education is the main reason for the situations that happen to the farm animal community. With this emphasis, students might understand the importance of education from a social perspective.

GENERAL VIEW ON ANIMAL FARM

Animal Farm is a novel about post-revolutionary Soviet Russia and what led Stalin to establish a totalitarian regime. It can easily be determined that the metaphors used in the book represent the political figures of that period. The display of political figures with different characters is called as “defamiliarization” technique. The defamiliarization technique provides a familiar idea of work by determining unfamiliar ways (Adhikari, 2014). The defamiliarization technique of the political figures in Animal Farm also makes the book easy to read and causes the book to be perceived as a children’s book. This misperception also results from George Orwell’s Animal Farm as A Fairy Tale subtitle.

The basic ideology inspired in Animal Farm is Marxism. The socioeconomic situation was heavily criticized in the Communist Manifesto, which forms the basis of Marxist theory. A classless society is encouraged based on common property principles (Barry, 2009). It focuses on the importance of a classless society for the equal distribution of labor and resources, emphasizing the role of industrialization in creating the bourgeoisie that dominates the working class (Saunders, 2006). Indeed, Marxists believe that all human efforts, including philosophy, education, religion, art, science, and more, are subject to acquiring and maintaining economic power (Kreeft, 2003). Animal Farm has many obvious echoes of this.

Different schools discuss the transition from the capitalist social structure to the communist social system. Democratic socialism, put forward by Marx and Engels, is considered a perfect transition to a socialist society. This version of Marxism will be enough for change that large masses realize enough resources to meet their needs. (Huberman and Sweezy, 1980) In the revolutionary socialism proposed by Lenin, he emphasizes that system change can only occur with a revolution that will overthrow the ruling classes. According to Lenin, the proletariat will have a hard time making the right decisions as it lacks the intellectual resources necessary to build and manage the communist society. In addition, the ruling classes will not want to give up their power. For these reasons, democratic socialism is nothing more than an ideal dream. The revolution will come with

revolutionary socialism¹.

Ideas of the Revolution make ground on Animal Farm, and right after the Old Major’s death, the leadership issue immediately begins to emerge. The pigs have undertaken the task of pioneering the farm animals after the death of the Old Major. In this process, the power struggle begins between the two young pigs, Snowball³ and Napoleon. This leadership and power war was the first event stage that led to the establishment of a totalitarian society.

Napoleon, who built his own military power, wins the leadership war and expels Snowball from the farm. After this incident, the transition to the totalitarian regime gained momentum. All farm animals, allegedly traitors, are killed one by one by the Napoleon-led pig government. However, farm animals still could not understand the seriousness of their situation. Their lack of education is the main reason the farm animals cannot understand how dangerous their situation is. Training farm animals other than pigs is challenging, and the lack of adequate training of other animals has exposed them to pigs’ manipulation. Fear-powered manipulation⁴ is a typical mechanism used in totalitarian regimes to prevent large masses from rebelling and criticism against the ruling class. Fear and manipulation are the most effective ways pigs keep other farm animals under control. Fear and manipulation are the most effective method because farm animals do not receive an adequate education. It will not be possible to manage, subjugate, manipulate and scare farm animals without a lack of education.

Two critical issues in the last part of the book should be particularly emphasized. The first issue concerns the feelings of farm animals when they see pigs walking on their hind legs. In this scene, they suddenly realized that the difference between pigs and humans was not as significant as they had previously believed. Indeed, the tyrant has changed only its shape, not its nature. The second issue is that farm animals cannot determine who is who while playing cards with pigs and humans. This

¹ Lenin claimed that the “communist state” was the higher state of socialism. (Inch, 2016). In Lenin’s “communist state”, the working class had to be in line and indoctrinated in order for democracy and a free society to prevail. This way of thinking, which is tried to be justified with the logic of “if you are not with us, then you are with them”, is based on the idea of false dilemma. Of course, the “with us” in this proposition represents the ideology that all good citizens should be gathered around.

² Old Major represents Lenin.

³ Snowball is standing for Leon Tortsy when Napoleon is used for representing Joseph Stalin.

⁴ The Animal Farm was written in the context of a concept that Orwell called as the “gramophone mind”. Gramophone mind is a state of passivity created by the one-dimensional thought and culture industry that allows subclasses to be ruled by upper classes.

situation led to the realization of cold facts, even if it was late. Even if animals rebel, there will always be a person or animal that wants power, and that person will not give up anything to get it.

When Orwell's novel is analyzed, it is impossible to realize an egalitarian society utopia because of "the betrayal of liberty in the name of equality" and "false fraternity of collectivism". Such utopias often evolve into totalitarian regimes in which the minority - the pigs in this novel - impose their oppressive rule over large masses of people, using fear-supported manipulation (White, 2008). In addition, the definition of freedom is seriously distorted. All of this leads to establishing a totalitarian regime ruled by a privileged and educated pig-minority. In this situation, farm animals were utterly helpless and had to obey what happened. The Animal Farm story stands as a helpful guide before us as a reflection of totalitarian regimes in the past, present, or future, including our own society.

Even if Animal Farm is a valuable guide to understanding the Russian Revolution's essence and how a utopia can evolve from a dream to a nightmare, it does not overlap with the Russian Revolution exactly and chronologically. Instead, the characters and events are allegorical to explain the ideas of influential leaders and uneducated masses.

Animal Farm is a political fable that used to see the Russian Revolution's essence and totalitarian regimes. Furthermore, it could be a practical example to invalidate the interpretation and understanding of subtext deficiency in economic education. Defamiliarized historical events in the Animal Revolution will be enlightened through all sections. The first section, From Revolution and to Testament, explains the main idea of Animal Revolution and the similarities between Marx's Communist Manifesto. Section two, Collective Leadership, regards establishing animal's constitution, sharing Snowball and Napoleon's collective leadership until Napoleon pricks the bubble, and analyzing Trotsky and Stalin's relationship. Then Prick the Bubble, the third section, concentrates on Napoleon's semi-totalitarian regime after Snowball's escape. After Napoleon starts to communicate, trade, and alliance with humankind, the revolution road with the passion for animal freedom leads them to an even more cruel regime. In the new regime, some animals are "more equal than others", as mentioned in Section Four, Second Revolution. In the last part, the research concludes with how economics education could use the book and its effects on economics education.

From Revolution and to Testament

As the true owner of the idea of an equal society, Old Major is the most respected animal on the farm as a wise, philanthropic, and majestic pig. All the animals agreed to sleep less to hear what he said. One day, Old Major states that he wants to share his dream with all animals. In his dream, he says that he sees a society in which animals are relatively freer and happier in this society, where the primary motive in life is not to pursue money or power. This noble, hopeful, and incredibly inspiring dream is similar to Marx's Communist Manifesto (Vaninskaya, 2003).

In this speech, Old Major told passionately that no animal in the UK is free. The reason for this is the Man, and hunger and overwork cannot be eliminated forever without getting rid of the Man. He underlined the idea that freedom means to be free from the rule of Man. Only then, the oppressed animals could enjoy the revolution and independence. The Man was the only creature that consumed without producing. However, incidents soon show that Old Major's naive revolutionary thoughts will not be valid (Letemendia, 1994).

In his speech, Old Major describes the new society he imagined for Manor Farm animals as follows:

"Whatever goes upon two legs is an enemy. Whatever goes upon four legs, or has wings, is a friend. And remember also that in fighting against Man, we must not come to resemble him. Even when you have conquered him, do not adopt his vices. No animal must ever live in a house, or sleep in a bed, or wear clothes, or drink alcohol, or smoke tobacco, or touch money, or engage in trade. All the habits of Man are evil. And above all, no animal must ever tyrannize over his own kind (...) no animal must ever kill any other animal. All animals are equal (Orwell, 2017, p.26-27)."

He ended his inspiring and glorious speech with the Beasts of England, which gives animals power and morale even in the most challenging times. Although Old Major died soon after in his sleep, the idea of an equal society was still continuing, but the leaders who would lead this idea were changing.

The pigs managed to organize other farm animals and carry out the revolt. Their hard work paid off, and the harvest was even more than they had hoped for. They enjoyed equality and freedom in a fair society. The animals are proud of what they have done so far and

have constantly improved themselves. Of course, there also are some exceptions in this system. For example, the cat was only involved in the jobs it wanted, and the raven preferred to preach the issues related to the other world. The most critical group, pigs, took over managing the farm instead of working in jobs that demanded muscle strength. They were pleased within the society in which the Marxist motto, "From each according to his ability, to each according to his needs (Marx, 1875)" seems to have been realized. However, they did not know for now that the biggest enemies of the equalitarian society were closer than they had expected - their fellow comrades and faithful leaders - the pigs. Before referring to the pigs' competition, remembering the background of the Bolshevik Revolution pointed out by Orwell in the section will help understand the allegory.

Lenin, the father of the Bolshevik revolution, the undisputed leader of the Russian Communist Party, and the Chairman of the People's Commissars Council suffered a stroke (brain hemorrhage) at the age of fifty-two on May 26, 1922. Thus, a dramatic period for the new regime established four and a half years ago began suddenly. During the eight years that followed this critical event, the state and party presidency struggle was witnessed.

The revolution was accomplished in 1922, and the Communist Party defended the new regime at all costs, despite the civil war. The institution of the New Economic Policy was established to support revolutionary stability. Although future policies have not been finalized, overall stability has been achieved. Furthermore, the peace within the Party was provided by organizational tightening and severe punishment of factional activities. This administrative tightening process was the beginning of the inevitable rise of the less-known communist leaders - J. V. Dzhugashvili - Stalin - within the Party. Stalin was appointed a newly created position General Secretary of the Party in April 1922 for his outstanding efforts in this process. Theoretically, the party leadership was collectively run by Politburo. With the newly added position, the Politburo consisted of 6 people. Trotsky, Commissioner for War; Zinoviev, the head of the Communist International; Kamenev, vice president of the Council of People's Commissars; Stalin, The Party's Secretary-General; Rykov, Chairman of the High Economic Council and Tomsky, the head of the Unions Central Council⁵.

In the ensuing years, some of the events within the circle of these top leaders remain uncertain. Still, the first reaction begins with a secret coalition built by other leaders of the Politburo to control the aspirations of Lenin's leading subordinate, Trotsky. Meanwhile, Lenin suffered a second stroke on December 16, 1922. Although he could speak and write, he could not get out of bed. In anticipation of the apparent and inevitable death, he wrote the note known as "The Testament" on December 25, 1922. The "testament" is worth quoting here for proof of what he thought of Lenin's successor and his successors:

"I have in mind stability as a guarantee against a split in the near future, and I intend to examine here a series of considerations of a purely personal character. I think that the fundamental factor in the matter of stability is such members of the Central Committee as Stalin and Trotsky. The relation between them constitutes, in my opinion, a big half the danger of that split, which might be avoided. Comrade Stalin, having become General Secretary, has concentrated enormous power in his hands; and I am not sure that he always knows how use that power with sufficient caution. On the other hand, Comrade Trotsky is distinguished not only by his exceptional ability (personally, is, to be sure, the most able Man in the present Central Committee) but by his too far-reaching self-confidence and a disposition to be far too attracted by the purely administrative side of affairs. These two qualities of the two most able leaders of the present Central Committee might, quite innocently, lead to a split, and if our Party does take measures to prevent it, a split might arise."

Collective leadership is something Lenin wanted most and hoped for in the new regime. Besides, the most disturbing things are Stalin and Trotsky's personalities with extraordinary features. Soon after, he added a postscript to the Testament. In this postscript, he made it clear that the greatest danger against collective leadership would come from one of his two primary subordinates.

"Postscript: Stalin is too rude, and this fault, entirely supportable in relations among us Communists, becomes insupportable in the office of General Secretary. Therefore, I propose to the comrades to find a way to remove Stalin from that position and appoint another man who in all respects differs from Stalin only in superiority-

⁵ It was written in order of priority in the protocol in 1922.

namely, more patient, more loyal, more polite and more attentive to comrades, less capricious, etc. This circumstance may seem an insignificant trifle, but I think that from the point of view of the relation between Stalin and Trotsky which I discussed above, it is not a trifle, or it is such a trifle as may acquire a decisive significance."

Shortly afterward, on March 9, 1923, Lenin suffered his third stroke, with paralysis and loss of speech, and was permanently removed from the political scene⁶.

Collective Leadership

When the revolution against humanity was won after Old Major's death, work on the farm went well. The animals were happy with their freedom and renamed Manor Farm as Animal Farm. Then Old Major's commandments were slightly edited and written on the wall of the barn:

The Seven Commandments

1. Whatever goes upon two legs is an enemy.
2. Whatever goes upon four legs, or has wings, is a friend.
3. No animal shall wear clothes.
4. No animal shall sleep in a bed.
5. No animal shall drink alcohol.
6. No animal shall kill any other animal.
7. All animals are equal.

Napoleon is a giant, tough-looking, non-talkative Berkshire pig that prefers to do things in its own way. It can be easily said that it represents Stalin. The other young pig, Snowball, is a faster, more creative, but not character-deep pig. With these features, Snowball represents Trotsky. Among two young leaders who cannot get along with these character traits, Napoleon symbolizes power and ambition, while Snowball symbolizes education.

During Napoleon and Snowball's collective leadership, three problems occur. The first problem arises when one of the leaders, Snowball, wants to start training other farm animals. Was this idea of training animals a pure goal, or was it part of another hidden agenda?

⁶ Despite his withdrawal from the political scene after the third stroke, Lenin died on January 21, 1924. The party and government have been running state affairs for more than a year without its existence. therefore there was no direct effect on the organization. in fact, Lenin's death effect was generally a psychological effect. Lenin was a father figure for his colleagues, and his death led them to a deep and dark anxiety.

Unfortunately, there is no answer to this question in the novel. In the book, farm animals representing the working class, despite all the pressure and harassment, are glorified for their hard work, never blessed for their intelligence or leadership. (Pearce, 2005) In fact, the reaction of animals to education opens the way to divide the animal community into classes very precisely.

The second problem is the onset of fear-supported manipulations to keep farm animals under control. Manipulations begin with the disappearance of milk and apples first. After milk and apples have disappeared, it is the first manipulative discourse to say that milk is not very important and that there are more important things to do. Napoleon warns the farm animals not to be distracted by other issues with this discourse. It will then turn out that the milk and apples that disappeared were used only for the benefit of the pigs. However, the farm animals hoped that all resources would be shared equally because they were comrades and equal, except for pigs. Squealer, a brilliant speaker, was given the task of manipulating farm animals. While discussing a problematic issue, Squealer used all his persuasion by constantly jumping and shaking his tail. In this respect, it is similar to the propaganda section of the Lenin government. As a spokesperson for the regime, he explained the uneven distribution of resources among the farm animals. He said that pigs are working day and night to increase the welfare of the farm and animals, so they need additional nutrients such as milk and apples. Do you know what will happen if the pigs fail their duties? Jones' would come back.

The threat of "Jones comeback" will constantly increase, making the third problem more visible - fear. Essentially, this is the fear of the old regime. Fear plays a crucial role when individuals encounter choices under uncertainties involving catastrophic events and in situations where the results are associated with a significant disutility (Chanel and Chichilnisky, 2009). In this case, animals that do not want Jones to come back have nothing much to say. Therefore, the importance of keeping pigs healthy is evident.

The event that caused the first order to break was related to the power struggle between Snowball and Napoleon. Character differences between the two leaders could be easily seen. Napoleon was a strong character, while Snowball was more educated. However, none of the controversies between the two leaders was as shocking as the debate on the windmill. Snowball began

⁷ Jones (or Mr. Jones) stands for Czar Nicholas II in the book.

to construct a windmill that would supply electricity to the farm and help animals live in better conditions. After the windmill was finished, the animals would only work three days a week.

On the other hand, Napoleon said that building a windmill would result in a loss of production and that their greatest need now is to increase output before winter comes. He claimed they would all starve if they lost time working on the windmill. The first order would be broken in a meeting held under this tension. At the meeting where it was decided whether to make a windmill, most farm animals supported Snowball. Napoleon, who did not want to accept such a defeat, showed his real face for the first time. Nine large dogs⁸ raised to obey Napoleon unconditionally exile Snowball from the farm. Power was used for the first time on the farm after the management of people. The owner of this power is none other than Napoleon.

Exiling Snowball from the farm causes great fear among the animals. They were also terrified when they saw the dogs that Napoleon had taken away from their mother and reared privately. Undoubtedly, these dogs represent the secret police used to eliminate the party leader's rivals and terrorize the masses. This shows that Napoleon used his time to centralize power, creating his own law enforcement agency. After declaring Snowball an enemy of the farm (state), he sets up a committee to run the farm under his own auspices. Even if the young pigs try to raise their voices against what is happening, they have been silenced by the chorus of sheep, trained to suppress opposing views. After that, this method will be used more frequently to control animals.

In fact, Squealer explained to the animals that Napoleon was never against the windmill, but on the contrary, the idea of the windmill entirely belonged to Napoleon. Of course, this unrealistic explanation could not deceive even uneducated animals, but Squealer was so convincing, and dogs were so ferocious that animals accepted that explanation as to the truth. Finally, Squealer, pointing out that the days of Napoleon have begun, emphasizes that Napoleon's orders must be listened to as the only leader, and his speech is ended with "Surely, comrades, you do not want Jones back?"

Napoleon and Snowball's leadership challenges have familiarization with Russian Revolution's dark knights Stalin and Trotsky without chronological order. In the fall of 1923, Trotsky finally decided to go into opposition.

Potential support for the opposition movement already existed. The political and ideological division in the Party had pre-revolutionary roots. In April 1923, there were significant differences in thought on various topics at the Party Congress; In the fall, they crystallized into two clearly defined faction positions. The differences between them included both the current political situation and the course of future policy. In fact, these protests are clear indications that Stalin is starting to take all the powers in the country's administration one by one. On the one hand, collecting power is a great danger for collective leadership. However, there is no such thing as collective leadership when the power is collected on one hand.

Leadership was still collective. Trotsky posed an individual challenge to highlight his succession by taking his supporters back. His struggle was definitely on principles rather than personalities. On the other hand, for Stalin, who argued that the outbreak of faction discussions damaged the Party's organizational mechanism, everything attacked him and his personality. According to Stalin, the secretarial apparatus was passing a critical test. To pass this test; unity, monolithic solidarity, and iron discipline should be constantly shouted louder as in a choir that never silences. During Lenin's funeral, Stalin ended his speech in which "maintaining the unity of the party" and "strengthening the dictatorship of the proletariat" were frequently underlined with his famous oath. "We swear to thee, Comrade Lenin, that we will fulfill with honor this thy command" It is clear that this speech will make Lenin stand out among other politburo members.

However, Party leadership was viewed in theory and practice as collective and managed through the Politburo. Collective leadership theory was still preserved, but Stalin secretly accumulated the superiority of organizational power behind the scenes. Still, he did not yet try to impose his will on his colleagues until December 1927. All leaders were still equal, but Stalin was "more equal" than others. / Citation) Dismissing other opposing leaders from the Politburo and the Party was the last step in the struggle for party leadership. In December 1927, opposition leaders were expelled from the Party. Many were kept under police surveillance until they were expelled and deported in 1929.

The Politburo, wholly cleared of opposition leaders, had become part of Stalin's Party machine. By 1930, former politburo members were expelled from the politburo one by one. No one was left in the Politburo not affiliated with Stalin. The country's administration was left to

⁸ The dogs refer to KGB Secret Police of Lenin's Power in Animal Farm.

Stalin, the only supreme one. The process was completed in 1930. After that, the Soviet Union and the Communist Party were governed by the will of the supreme one. The power of the Secretariat has been proven, as the last of the opposition's activities were suppressed.

Second Revolution and Prick the Buble

The Animalism⁹ regime changes shape just after collective leadership collapses, and Napoleon becomes the only supreme. Making decisions about Animal Farm belongs to a special committee of pigs and presides by Napoleon. The necessary conditions are prepared to protect authoritarianism on the farm to remember the ideas behind the revolution and identify a common public enemy. The skull of Old Major is set up at the flagstaff, which is a part of those conditions. Moreover, the other rumor is that Snowball is still outside and awaits to spoil Animal Farm's plans. Whenever the farm has difficulty coming up, the culprit is Snowball. In one of those Sunday Meetings, some of the animals are murdered by Napoleon's dog, the secret police of the farm, because they confess that they have been secret agents of Snowball.

Although some changes occurred in the application of Napoleon's Animalism, the animals feel there seems to be a disagreement between the Seven Commandments, and the application is the fourth commandment. When an animal remembers it and takes Muriel with him to make him read because all animals cannot read, he hears that he misremembered it. There is detail as "sheets".

"4. No animal shall sleep in a bed." (Orwell, 2017, p.41).

"New 4. No animal shall sleep in a bed **with sheets**." (Orwell, 2017, p.81).

The animals think Napoleon breaks the commandments but notice that they misremember many commandments. Following details make the commandments unbroken. After some events, the original Seven Commandments became the new Seven Commandments, strictly less than seven.

1. *Whatever goes upon two legs is an enemy.*
2. *No animal shall sleep in a bed **with sheets**.*
3. *No animal shall drink alcohol **to excess**.*
4. *No animal shall kill any other animal **without cause**.*
5. *Animals are equal.*

The Seven Commandments also have symbols in the Old Major's expression: two-legs symbolize laborless stance (free lunch); four-legs, labor, and equity; home, ownership; clothing, status; alcohol, luxury consumer goods; trade, capitalism; killing one of the animals, illegality; march, unity, and solidarity. However, Napoleon changes some details of the Seven Commandments, making them useless and turning the revolution into a u-turn to the starting point. Pricking the bubble of Napoleon is almost done.

Napoleon communicates with other farms when they need paraffin oil, nails, string, dog biscuits, and iron. He hires a lawyer, Mr. Whymper, to contact other neighbor farms. Soon after, Napoleon is engaged in negotiations with neighbor farms. Napoleon's allegiance to neighboring farms symbolizes Stalin's alliance with Britain and France. Stalin always welcomed the British and French and had an open secret door to the Germans (Deutscher, 1959; Adhikari, 2014).

When Frederick's banknotes are forgeries, Napoleon has the death sentence on Frederick. The following day, the attack of Frederick starts, which will be known as the Battle of the Windmill. Animals win the battle without Napoleon's help, but he has conferred upon himself first. Animals know their lives are harsh, but they believe they are free. In reality, their freedom is not the same as in the old days. There are many mouths to feed, so they have to work more than usual, and a new rule occurs when a pig and any other animal met on the path, the other animal must stand aside. Pigs create a new state in the old equality frame. Boxer¹⁰, symbolizing ideal labor status, gets sick and is also old enough to be retired. He is sold to the knackers two days later, but the animals do not know the truth until Benjamin¹¹ shouts at them. However, Squealer rejects the claim and says that Comrade Napoleon never let it happen. The animals' new dream becomes a familiar old nightmare. All animals go to the wall of rules, and Benjamin reads the wall, which is not any rule except one:

ALL ANIMALS ARE EQUAL, BUT SOME ANIMALS ARE MORE EQUAL THAN OTHERS.

The next day, seeing the pigs with trotters or clothes does not seem strange. Animals and human beings were meeting at the same table. Napoleon announces the rename of Animal Farm to Manor Farm. All the animals outside the house looked inside at pigs and humans; there was no difference between them.

⁹ Animalism represents communism in Animal Farm.

¹⁰ Boxer refers to dedicated but tricked communist supporters in the book

¹¹ Benjamin stands for skeptical people in Russia and outside Russia.

As we mentioned before, treating Animal Farm events as literal history is absurd. Animal Farm is a fable, and correspondence between fable and reality involves metaphorical transformation (Grofman, 1990). Moreover, it is impossible to match all the charters and events with their historical equivalents. Nevertheless, we can claim that the three important Russian political events comprehensively allegorize within this part: the forced collectivization of Stalin (1929-33), the great purges (1936-38) and the rupture of diplomatic relations between Germany and Russia, and the invasion of Hitler (1941).

By 1930, the succession process was complete. The Soviet Union and the Party came under the will of the undisputed superior Stalin. However, Stalin's style of rule was profoundly different from Lenin's. First, Stalin ruled by instilling fear in his supreme commander-in-chief, which included military hierarchy. Second, Stalin ended the collective leadership, making himself boss of the Party and all other institutions in the country. The purges continued after 1930. Even the numerous Stalinists who had remained loyal until now but were critical of the difficulties of the new regime were purged in the process. During this period, the efforts to rewrite the history of the Party in order to glorify Stalin were also progressing rapidly. By 1941, Stalin had surpassed anything known even in the days of the Tsars in the praise and power he wielded.

The windmill's destruction represents the failure of Stalin's first five-year plan. After declaring the rebuilding of the windmill as the top priority, Napoleon orders the sale of the haystack, part of the crop, and the chickens' eggs as more money is needed. The chickens protest Napoleon's decision by throwing their eggs over the rafters. This style of protest is similar to the protests that went down in history as the Ukrainian famine of 1933, which opposed forced collectivization by slaughtering their cattle and burning their crops. As a result of these protests, more than three million people starved to death who faced Stalin's wrath, similar to the chickens in the novel (Meyers, 1984, p.140).

This behavior of Stalin stands as a summary of his rejection of Communist ideals. As the tortures and oppressions emerge, efforts to hide them intensify. As always, the most potent apparatus of concealment efforts was the exposition of the "external forces" lie. Napoleon's devotion to Frederick and Pilkington symbolizes Stalin's alliance with capitalist countries such as England, France, and Germany. Stalin kept the front doors open to the British and the French and maintained contact with the

Germans through the back door. It is still impossible to say which part of these relations Stalin gave greater importance to (Deutscher, 1959, p.434).

The other collaborator in the novel, Frederick, the neighboring farm owner, symbolizes Hitler's cunning. His deception of Napoleon by paying with counterfeit banknotes and his subsequent attack on Animal Farm may have been symbolic of a breach of the contract between Hitler and Stalin (the Hitler-Stalin Non-Aggression Pact of August 1939). Moreover, the disposal of Frederick's attack is analogous to Hitler's defeat at the Battle of Stalingrad, considered the turning point for the invasion of Russian territory.

ANIMAL FARM AS ECONOMICS EDUCATION TOOL

Economics is not just a technical science that deals with numbers. Economics also has a social and political aspect. In this connection, economics is related to many different branches of science and art. Furthermore, it also includes teaching future economists to think, understand events hidden under the hood, observe and interpret their effects, and create and arrange visible systems peculiar to the societies. Using Animal Farm in economics education has been shaped according to these purposes. Therefore, it can be beneficial to use four main titles; raising awareness, making inferences, teaching some economic terms, and explaining the importance of education.

The previous sections clarify the events and characters represented by the metaphors. This is not only historically crucial but also very useful for economics education. When economics students learn the historical meaning of the fable hidden under the defamiliarization technique, they will think daily events might also have invisible parts. As they learn the interpretation steps, they can infer books, news, agenda, business life, and daily lives. This is crucial because a good economist must, first of all, develop his ability to observe. Then, they can infer from observations and interpretations of the future correctly.

Although the events are taken from history or literature, learning from their reasons, impacts, and results is vital. The fact that economists have the opportunity to guide society indirectly rather than under politicians' direct influence. The declaration of Mr. Jones as an enemy after the animals' takeover of the farm is almost the same thing as the declaration of Snowball as an enemy after Napoleon's takeover. It is possible to live similar events in literature and reality. Therefore, students should learn to take lessons, be protected by similar events, and

predict its conclusion. Only in this way can they make inferences correctly. Study on this part of the book can be improved by assessing progress, determining impacts, and re-estimating the conclusion for each chapter. As the economics instructor allows the students to discuss and think before intervening and then helps them find the deduction, it gives them confidence for the brainstorming. It enables them to conclude by independently carrying out similar steps in the future.

Animal Farm might be used in economics education to show why education is essential. Two arguments require it. First, many economics articles use the education variable as a parameter. Students might understand why it is an important variable and used frequently. Pigs are in power because other animals could not even learn to alphabet in the fable. It is the first indication of the importance of education. On the other hand, Benjamin reads as well as pigs. Even if he is not involved in the management, he is aware of events and makes the right decisions. Second is the questioning of how necessary education is today with the effect of technology. Students -especially Millennials- might think education is obligatory but not needly. Even for the effective and proper use of technology, education is necessary.

CONCLUSION

Animal Farm's narration starts with Old Major's freedom utopia and ends with Mr. Napoleon's totalitarian fact. The circulation of regimes in the book could seem like a peculiar irony without knowing the allegory of characters and defamiliarization of the Russian Revolution. The book is meant for use as an economics education tool because numbers become inadequate reasons to determine and solve complex daily life problems after economics research approaches are more involved in mathematical proof techniques of science.

Animal Farm has several crucial subjects to support economic education. Firstly, the book is written as a fable, making it easily readable. Thus, taking the economics student's attention is more effortless than theoretical works. Secondly, the book's storyline has political and economic patterns to understand the events. Even though Old Major's speech was given inspiration and aims to have freedom, Napoleon's totalitarian regime is far away from animal freedom. The transition of the cases makes it more pleasant to understand the message of Animal Farm. Finally, making economic decisions is essential to design and apply economic policies or interpret the daily issues affecting economics. If economists conclude with

the subtext of cases, economic decisions could be more effective and feasible.

Humankind learns with experiences. Reading books is the safest way to learn with experiences. When Animal Farm is analyzed, it can easily be determined that the main reason for the regime's failure is a lack of training. Due to the lack of education, all the powers of the farm were given to the pigs. Pigs, who are better off than other animals in terms of training, begin to exploit the vulnerabilities in the system for their own purposes. In this new system, they start to consume or even steal the products for their benefit. Animal Farm's emphasis on the lack of education is another vital proof of economics education.

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A Comparative Analysis on Employee Training: Competency-based vs Traditional

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ABSTRACT

The study examines competency-based and traditional based training programs, within the context of their effectiveness and impact on employee performance outcomes. Results found that employers have recognised the weakness of traditional training formats, with some placing a higher value on experience and proof of performance abilities, over academic and professional qualifications. The most prominent finding was that training formats must contain both traditional and competency-based elements. These two factors are in turn linked to directly impacting employee performance, and are suggested as being a more accurate longer term measure. The interviews revealed that employees consider that performance can be linked to and measured by a number of factors including productivity output, staff motivation, engagement, job satisfaction, retention, and customer satisfaction.

Keywords: Employee Training, Traditional Training, Competency-Based Training, Employee Performance, Qualitative.

JEL Classification Codes: M12, M53

Referencing Style: APA 7

INTRODUCTION

Employers are essentially concerned about improving employee performance and raising customer satisfaction (Liao & Chuang, 2004). Numerous studies have been carried out in order to define the key elements that determine effective performance (Iltner & Larker, 1998). To date, experts commonly point out factors such as effective training as the main driver of improving employee performance (Gruman & Saks, 2011). However, the question arises whether training can indeed be effective, and result in performance improvement (Morey et al., 2002).

The essentials of effective training seem to be evident. There is a wide scope of studies describing how to develop effective training programs for different groups of learners (Bartel, 1994; J. Brown, 2002). As a result, employees are generally expected to be trained to enhance their teamwork skills and professionalism, helping them to set long-term goals, organise their workflow in an appropriate manner, and overcome emerging challenges (Kozlowski et al., 2001)

Nowadays, it would be unusual to find a company of reasonable size that would not provide its employees with the relevant training (Cable & Graham, 2000). However, the positive change as the result of such training can be observed only in some of them, therefore it would be rational to suggest that some training strategies contain particular flaws due to which employees fail to show a substantial progress in their performance. Deming and Orsini (2013) explain this phenomenon by the fact that many companies neglect the practical side of the provided training. Thus, the employees learn a lot of valuable information when undertaking corporate education, and may even show high exam results. However, when the training is finally completed, employees have little idea about how the acquired knowledge can be applied in a practical aspect of their respective operations, and they continue to use the familiar techniques and processes (Chen & Huang, 2009). The received training turns out to be ineffective (Bunch, 2007). Moreover, it is hard to measure its value – there are no practical outcomes that can be regarded as the result of the training, as long as employees do not apply the acquired knowledge to their work (Bunch, 2007).

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In this view, it is critical to differentiate between such fundamental training formats as traditional and competency-based. While the former format resembles that of a classic lecture or seminar during which the information is translated through a one-way interaction, the latter entails a wide scope of practice-based tasks and role-modeling activities (Huang, 2001; Naquin & Holton, 2003). Each of them has its own benefits and flaws and it seems to be important to perform a detailed comparison of these training formats in order to develop a clear idea of the essentials of effective training.

This exploratory research paper aims to examine the essentials of effective training in order to understand how it can be applied to improving management outcomes. It is considered that it is the practical aspect of training that makes it productive, and enables employees to enhance the quality of their performance. Accordingly, the research questions of the study are: i) What are the essentials of a training program?, and ii) How can effective training improve management outcomes?

The foremost motivation to carry out the exploratory research is to expand on the existing knowledge about employee training in regards to traditional and competency-based. The problem of employee education is widely discussed in the expert community (Baldwin, Pierce, Joines, & Farouk 2011; Bunch, 2007; Grossman & Salas, 2011). This research paper is particularly interested in examining training from the standpoint of the practical value, in that employee training implies for performance quality. Most importantly, it appears to be useful to understand the core factors that underpin the training failures, as it seems to be unclear why extensive courses and seminars tend to have little or no impact on performance outcomes, and it also seems to be particularly surprising why some employees that show outstanding achievements in the course of training, can fail to show equally successful results in the real-life environment (Brinkerhoff, 2005). Therefore, the objective of the research is to help to answer these questions, and acquire a better understanding of the essentials of effective training. This study differs from previous studies as it offers a firm conceptual framework for effective training that incorporates all aspects.

LITERATURE REVIEW

The idea of investing in the 'human capital' is certainly not a novelty. Machin and Wilkinson (1995) would already describe the economic benefits of employee training in the mid-90s. At that period, the main focus was put on the importance of the so-called lifelong training. This

idea was initially adopted from the education field where it would translate a message that people should not stop their education after finishing schools and universities, but should enhance their development throughout their entire life (Pépin, 2007). While being concise and eligible in the frame of education curriculum, the idea of the lifelong training was not clearly shaped at the early stages of its application in regard to the job context. As such, some experts would associate it with continual development that was obligatory for outcome improvement (Scottish Borders Council, 2013), while others would regard the concept of lifelong training as an appeal for professional development which signified promotion to a higher job position (Tight, 1998). Despite the lack of unity in the idea interpretation, the lifelong training would soon turn into a strategic objective that most companies would integrate into their respective policies (Schuller & Watson, 2009).

However, within only a decade, the interpretation of the lifelong training notion changes significantly. It is interesting to note that the change of the training approach in the job context is closely aligned to those in the educational sector (Hargreaves, 2005). To date, the expert community tends to emphasise the change in the education purpose, for example, its shift to improving students' applied knowledge rather than their theoretical competence. In other words, competence-based training seems to be gaining its competitive advantage rapidly. As such, Harvey (2000, p. 3) speaks about "training graduates for jobs rather than improving their minds". The author points out several trends that should be essentially considered to develop a concise idea of effective education today. First and foremost, he notes that employees are expected to be more flexible. Thus, many companies tend to de-layer their hierarchical structures, eliminating specific positions and shifting to wider portfolios. It means that professional development acquires new implications, such as the competency-based element that is an indication to the successful outcomes (Collin, Van der Heijden, & Lewis, 2012). Second, Harvey (2000) points out that new working patterns, such as freelance and short-term contractors appear on the market, changing the common interpretation of the concept of a graduate job. The appearance of new working patterns requires a change in the training patterns as well (Gherardi, 2001).

The changes of the training purposes and formats are likewise associated with a shift in market demands. Harvey (2000) points out the reduction of the in-house training time, as modern employees are expected to be

already trained to perform the required tasks, providing swift integration into the working environment. For this reason, employers are less concerned about the formal degree of an applicant; instead, they pay more attention to the practical skills and previous experience (Ash, 2006).

Additionally, it seems that personal attributes play a more critical role than the specific knowledge of a graduate in the recruitment process. Harvey (2000, p. 8) explains that the former mainly include "intellect, knowledge (in some cases), and a willingness and ability to learn and continue learning", as well as a wide range of the so-called 'self-skills' that imply the ability to motivate, promote and encourage oneself. Due to the rapid changes in the modern market, experts are particularly concerned about defining the set of most critical skills that employees are expected to have (W. A. Brown, 2007).

Competency-Based Training Opposed to Traditional or Theoretical Training

The nature of competency-based training can be better understood through its contrasting characteristics to the traditional forms of training. There are several distinguishing features that should be considered while evaluating what form of training a particular company uses. First, Naquin and Holton (2003) explain that the key characteristic of competency-based training is that it comprises a large variety of problem-solving tasks. Therefore, employees are required to apply the acquired knowledge during the process of training. On the contrary, with traditional training, it is intended that employees are provided with the relevant information that they are then expected to apply to their work upon completion of the classes (D. Dubois & Rothwell, 2004).

Second, the key aim of competency-based training resides in eliminating the gap between theoretical knowledge and practice (ten Cate & Scheele, 2007). Whereas traditional training targets to enhance employee theoretical knowledge by providing them with new information to learn. In other words, competency-based training is not essentially associated with new knowledge. On the contrary, it might help employees to acquire a better understanding of the already learned information (D. Dubois & Rothwell, 2004).

Third, competency-based training implies an active involvement on the part of employees, whereas, in traditional training, employees might play the role of passive listeners. Therefore, the format of competency-based training requires their intense participation (Naquin & Holton, 2003). Thus competency-based

training has a different design - it contains a lot of practical tasks and the minimum of lecture-format activity. From this perspective, its advantage seems to be evident since employees are required to apply the received knowledge to task resolution, at least in the frame of the hypothetically constructed classroom context.

Another difference between competency-based training and the formal forms of education, is that the former is more powerful in terms of changing ineffective behavior patterns. As such, Ricciardi (2005) describes the research that targeted to evaluate the impact of competency-based training on employees from an HR department. The research revealed that the selected training format has significantly helped to reshape employee behavior in a positive manner. The author explains this occurrence by the fact that competency-based training involves role modeling tasks, during which employees are asked to resolve a hypothetical problem, performing the role of a manager, a subordinate, or a client. Role modeling allows the employees to observe the situation from beyond and to draw the relevant conclusions. Traditional education, by its nature, has fewer options to influence employee behavior due to its narrative-based format (Aswathappa, 2005).

Finally, competency-based training offers more prospects for self-assessment. As a rule, the traditional form of training involves several types of assessment. First and foremost, trainers and supervisors try to assess the level of employee satisfaction. The general process is to ask the attendees whether they have enjoyed and found value in the applicable course or training. According to Goldfinch and Wallis (2009), it is rational to presume employees commonly provide positive responses, as they perceive a survey as a formal procedure. Another way of assessing the training outcomes of the traditional model is a test. Employees might be offered to complete a particular test to evidence the acquired knowledge. On the whole, it is highly problematic to design a consistent model that would ensure an accurate assessment of the training results (Arthur Jr, Bennett Jr, Edens, & Bell, 2003). From this perspective, competency-based training appears to be more beneficial. As such, its outcomes are commonly associated with some practical improvements such as the reduction of the client waiting time, or the optimisation of the data management process. Additionally, due to the diversity of role modeling activities and practical training tasks, employees receive a chance to evaluate their progress on their own. Therefore, they learn to assess their skills and the outcomes of their application to problem-solving (Naquin & Holton, 2003).

Competency-based Training and Employee Performance

Williams (2002) regards employee performance as the manner employees fulfil their job responsibilities or, putting it more simply, as the way they work. According to Kirkpatrick (2006), there are two principal ways of raising the quality of employee performance: rewards, or appraisals and coaching. The question consequently arises, regarding how the positive improvement of employee performance can be evaluated. It is therefore highly important to define what changes in the employee performance will be further interpreted as positive outcomes of the competency-based training.

The review of the relevant literature shows that competency-based training impacts employee performance significantly, in varying aspects. In the frame of this research paper, employee performance will be interpreted as the work related training, and associated 'emotion' based variables that impact on an employee's abilities to assist an organisation to attain its objectives (Wilson, Bennett Jr, Gibson, & Alliger, 2012). D. Dubois and Rothwell (2004) point out that the influence of competency-based training on employee performance is more powerful than that of traditional training. The authors explain it by the fact that competency-based training has a more consistent design that allows developing effective outcome evaluation criteria. In other words, competency-based training leads to the optimisation of the common workflow – employees learn to perform the familiar tasks in a more prompt and effective manner. Naquin and Holton (2003) likewise note that employees' performance becomes more conscious. In other words, employees acquire the understanding of how to meet the target standards, rather than merely get acquainted with what these standards are.

Another impact that competency-based training has on employee performance resides in the positive reinforcement that it implies. As such, D. Dubois and Rothwell (2004) note that competency-based training helps to raise employees' self-confidence. The author explains it by the fact that practical training allows employees to test their abilities and skills, learn to act independently and to manage challenging situations. The successful completion of a training task naturally triggers an employee's motivation to reach the same success in the real-life environment.

Research likewise reveals that competency-based training is particularly valuable for managerial education. Dainty, Cheng, and Moore (2004) explain

it by the fact that, as a rule, the scope of managerial responsibilities is defined less precisely than the scope of the responsibilities other specialists are supposed to fulfil. Therefore, competency-based training assists employees in aligning their vision of the target outcomes to a particular action strategy.

The review of the relevant literature has revealed that competency-based training appears to offer a wide range of advantages over the traditional forms of education. The literature reviewed identified a large number of scientific research evidencing the positive effect that competency-based training has on employee performance. As such, it helps to align the theoretical knowledge to practice, as well as to raise the employee inclusion in the working process. Therefore, it is rational to consider that competency-based training outcomes are more positive and significant than those associated with traditional or theoretical training. Table 1 provides a summary of comparative analysis of competency-based training versus traditional training.

METHODS

The study aims to examine how the essentials of the effective training can improve management outcomes such as employee performance. As this objective requires in depth examination, the research adapted a qualitative design. The collection of the relevant data is carried out by standardised open-ended interviews (Gall, Gall, and Borg, 2003, cited in Turner III, 2010; Bryman & Bell, 2015), where each interview contains the same semi-structured questions. In the course of this study, two methods of interview participant recruitment were used. The first method was the snowball method (Bryman & Bell, 2015). The research participants were also recruited through a social network, LinkedIn. Barker, Barker, and Pinard (2011) advise that social platforms have a number of benefits. The main benefit is that, they allow ensuring the appropriateness of the target participant since there is an access to the personal data such as occupation, position, therefore once again falling under the 'criterion sampling' approach (Bryman & Bell, 2015; Creswell, 2012; Ritchie, Lewis, McNaughton, & Ormston, 2014).

The choice of participants for the research pool was based on a non-probability method of purposive sampling (Bryman & Bell, 2015; Creswell, 2012; DiCicco-Bloom & Crabtree, 2006; Ritchie et al., 2014), of which several principles are commonly employed in the context of a qualitative study. First and foremost, the key criterion for determining a participant's appropriateness for the study was ensuring the participant held the

Table 1. A comparative analysis of competency-based training versus traditional training

	Competency-based training	Traditional training
Training Program	The program content might be composed of both new information and the common knowledge. The main target is to teach employees to apply the knowledge to the resolution of practical tasks (ten Cate & Scheele, 2007).	The program content involves either new information or a new perspective on the common knowledge. The main target is to get employees acquainted with the offered data (D. Dubois & Rothwell, 2004).
Training Format	The training format involves problem-solving activities and a large variety of role-modeling tasks (Naquin & Holton, 2003).	The training has a narrative-based format which involves lectures and seminars given by either corporate leaders or external specialists (Huang, 2001).
Employee Involvement	The training format implies intense employee involvement – they are supposed to solve hypothetical problems, suggest alternative solutions, and display their active and creative attitude (Naquin & Holton, 2003)	In the frame of traditional training, employees play the role of passive listeners most of the time. Their involvement is limited to the participation in final discussions held after a lecture (Freeman, 2016).
Assessment	The training format implies a large scope of self-assessment practices – employees can evaluate how well they manage to apply their knowledge to the solution of particular tasks (Goldfinch & Wallis, 2009).	The assessment is mainly carried out in the form of tests and surveys. Employees do not have any chance to assess their progress themselves (Goldfinch & Wallis, 2009).
Performance-Related Value	The training helps to reshape employee performance in a more effective manner. Depending on the training target, its value can be measured through such variables as the customers' feedback, the frequency of operational mistakes, etc. (Ricciardi, 2005).	The training does not provide any practical guidelines; therefore, it is problematic to evaluate whether employees use the knowledge they acquired (Aswathappa, 2005).

relevant experience (Bryman & Bell, 2015; Creswell, 2012; Seidman, 2013), to ensure the participants will “provide the most credible information to the study” (Turner III, 2010, p. 757). The major inclusion criterion required that a research participant would have experience of working with both competency-based and traditional forms of training. Therefore, it was considered rationale to interview employees who have the experience of working with both types of training. This selection method is referred to as ‘criterion sampling’ (Bryman & Bell, 2015; Creswell, 2012; Ritchie et al., 2014). The applied focus of the selection criteria methodology expedited the selection process, and harmonised with the purpose of capturing rich, pertinent data. Second, it

was considered important that a participant be available for the communication form selected for the interview. Participants were interviewed over Skype. Some of the positive elements of a Skype interview include: Firstly, it allows a distant communication facilitating access to a larger number of participants. Second, despite the distant format, it still allows for a visual contact which is positive from both psychological and interpretation perspectives (Cassell, 2015). Third, the convenience aspect may assist to encourage participants (Bryman & Bell, 2015). Lastly, in comparison to in-person interviews, the interviewer’s ability to build rapport is not compromised (Bryman & Bell, 2015).

All the participants received both practical and theoretical training. These participants were working in management positions in their organizations. They previously worked on roles like technicians, service providers, etc. and then moved into sales role and eventually management roles. Age of participants varied between 24 years old and 45 years old. Among ten participants, six were identified as male and four were identified as female.

The interview questions were developed based on the existing literature and the main research question underpinning this study. During the data collection process, ten semi-structured interviews were conducted. In qualitative studies, instead of focusing on sample size, researchers (Ragin & Becker, 1992; Baker & Edwards, 2012) argue that saturation should be considered as the major decision point. Saturation is reached when there is no new information coming out during the interviews from the expert participants (Glaser & Strauss, 1967). In general the saturation is reached between 10 to 30 interviews, depending on how long the interviews, context, and the belief that researcher have regarding this objective (Thomson, 2004 as cited in Marshall, Cardon, Poddar, & Fontenot, 2013). In this study, the saturation was reached at 10th interview. Each interview lasted about 30 minutes. The analysis of the collected data was performed relying on the frame of a thematic approach (Barker et al., 2011; Bryman & Bell, 2015), utilising open coding, displayed in a matrix format (Bryman & Bell, 2015). This approach allows understanding participants' view on the problem and developing a consistent theory based on the analysis of the collected data (A. Dubois & Gadde, 2002; King & Horrocks, 2010). The method involves transcribing the interview data, and taking an inductive approach to identifying first order (participant-centric) recurring themes and sub-themes, grouping these into categories, and then coding these categories in a second order (researcher-centric) approach, under the relevant concepts (Bryman & Bell, 2015; Braun & Clarke, 2006). This qualitative data was then entered into a framework, being a matrix type framework (Bryman & Bell, 2015). With thematic analysis, meaningful interpretations emerge from the data. This process is performed in an iterative approach to find out the correct and relevant information (Braun & Clarke, 2022).

Each code was then noted where it occurred throughout each transcript, and a tally of each code recorded on the matrix, therefore enabling "quantifying qualitative data" (Mills, Durepos, & Wiebe, 2010, p. 926). The main concepts were already established from the literature review,

being the training program, training format, employee involvement, assessment, and performance-related value. These were the pre-analytical, deductive orientated concepts, and used as the initial matrix framework headings (Bryman & Bell, 2015). Relating themes under each concept were then identified, grouped into their relative categories, and coded. Importantly, as well as the deductive concepts, inductive analysis of the interview data led to the establishment of additional concepts, themes and sub-themes, which were added to the matrix. On the whole, the data analysis procedure was performed in several steps (Bryman & Bell, 2015; Kvale & Brinkmann, 2009).

FINDINGS

The research questions examined in the study were i) What are the essentials of a training program?, and ii) How can effective training improve management outcomes? Interview questions were developed considering these questions and data were collected accordingly. The interview results (see Table 2) clearly showed a preference for competency-based training, and was considered the most effective (9/10 interviewees). Key attributes included maintaining strong focus and engagement (8/10 interviewees), embedding new learning more effectively (6/10 interviewees), adjusting to peoples abilities, needs, immediate correction of errors, and interaction with others (6/10 interviewees).

"Competency-based training has a lot more value, has more interaction, you can identify easier if somebody is not keeping up, not absorbing the information, or requires extra help, you can acknowledge that straight away of ideas and concepts being learned and understood. Traditional training you don't get as much interaction, you don't get as much direct feedback on what's going on."(Participant1).

Perceived weaknesses of competency-based training overall were few, and were generally overcome with an addition of some traditional training methods, such as to provide context and background to the learnings (5/10 interviewees), in order for the trainee to understand why something was completed in a certain way.

"I think it's [competency-based] a good form of training but I don't think it should be the only form of training, I think there should be a number of elements in training somebody. I think it's good that with having a narrative element, you understand the context of why you are doing things and it might

give you a bit more of a deeper understanding, but you definitely need that practical application of being able to be competent at completing whatever it is that you've been taught."

Traditional training is directly linked to narrative-based communication (9/10 interviewees), holding no practice-based elements. Interviewee examples included university lectures, PowerPoint presentations, manuals, textbooks, and conferences. Most interviewees considered traditional training was not effective on its own (9/10 interviewees), and only effective when used to provide a contextual framework for competency-based training (8/10 interviewees). Six out of ten interviewees identified the main weaknesses as holding a limited attention span of audiences, lack of buy-in, less adaptable to different learning styles, and also a lack of awareness if the communicated messages are received or absorbed effectively (5/10 interviewees).

"I did first year of Bachelor of Business, which was narrative-based training, classroom training, it didn't work for me. I completed a year of that and pulled out basically at this point, as I couldn't absorb the information. You lose focus, it's not directed at you personally, it doesn't match your learning needs or your learning abilities. Just like everybody learns in different ways so you're delivering the same message to thirty people or a hundred people in Lecture Theater and not everybody is taking it on board and in my experience I didn't take it on board. I learned bits from it but certainly nowhere near from the practice-based training or direct hands on training that I received later in my life. It was far less effective." (Participant2).

Most interviewees acknowledge that the effectiveness of training is only as effective as how well the training is delivered (4/10 interviewees). One interviewee mentioned their traditional training past as a "death by Powerpoint" experience:

"You can be at training which you can call death by PowerPoint, where by the end of the day, you are a blathering idiot, you've lost all concentration."

For most of the interviewees (9/10 interviewees), learning solely through traditional training was not an effective method of training on its own, although its strengths include:

- Offering context, background, and meaning to a situation or practice (5/10 interviewees)

- Providing a theoretical framework for a practice-based situation (3/10 interviewees)
- Communicating a consistent message to everyone (1/10 interviewees)

Our findings regarding both competency-based training and traditional training can be grouped under four categories. The categories or main themes emerged from the findings include training program or format, employee involvement, assessment, and performance-related value. As seen in Table 2, the two types of trainings demonstrate different characteristics and features on four of these main categories. For example, while competency-based training emphasizes two-way interaction, traditional training values one-dimensional training more. Similarly, while competency-based training focuses more on individuals during the trainings and give high importance to problem solving, traditional training does not give as much importance to individual and neglects practical aspects of the training from the training format perspective.

From the employee involvement perspective, during the competency-based training, engagement is enhanced as a result of two-way interaction between the trainee and trainer. On the other hand, traditional training does not provide a clear picture on how long students kept engaged. "Involvement" is defined as an important consideration of the context of training. Involvement can be described as just 'turning up' to training, or involvement can be defined as 'active engagement' in the training process. Being open to learning and engaged in the learning process is deemed to have more positive outcomes, than with an employee merely expected to 'turn up' for training (4/10 interviewees).

"Unless you are engaged and open and receptive you are not going to learn anything. So even if you are - if it's narrative-based you've still got to be there and listen and be engaged otherwise it's just white noise."

Traditional training was commonly associated with 'one way' interaction, where the tutor does all the talking, and the trainee just listens (8/10 interviewees). Two of the interviewees note that a 'good' tutor will create trainee involvement by initiating debate and discussion. A few interviewees mentioned the importance of a 'safe' environment for training to happen in, whether ongoing, or on the job, or within one-off training sessions (3/10 interviewees). These interviewees felt that being able to ask questions, self-assess honestly if things were not

Table 2. Summary of the themes in the frame of the four main concepts

	Competency-based training	Traditional training
Training program/ format	<p>Hands on</p> <p>Two-way interaction</p> <p>Focused on the individual</p> <p>Effective once combined with traditional</p> <p>Problem-solving and role modeling activities</p> <p>Provides learners with a how-to-act scenario</p> <p>Offers personal experience instead of listening to someone else's achievements in the field</p> <p>Enhanced speed of learning</p> <p>Feeling of independence and confidence</p> <p>Provides a chance to observe other people training (Involves both mentoring and being mentored)</p>	<p>Narrative-based</p> <p>One-dimensional</p> <p>Lack of individual approach (weak instructor-student interaction)</p> <p>Can be compared with university lectures and seminars</p> <p>Neglects the practical aspects critical for effective performance (exemplified by technicians' training)</p> <p>Provides some context around the explored theme</p> <p>Helps to acquire a deeper understanding of the subject;</p> <p>Involves valuable elements of experience sharing</p> <p>Offers more opportunities for an open discussion</p> <p>Offers more opportunities for mastering the already acquired skills</p> <p>Feeling of confidence</p> <p>Effective once accompanied by regular tests and assessments</p>
Employee involvement	<p>Engagement is enhanced through the two-way interaction</p> <p>Empirical experience enhances the general buy-in</p> <p>Enables to complete real work tasks without the real time pressure</p>	<p>It is hard to understand how long students can remain engaged in the lecture/seminar</p>
Assessment	<p>Natural, unconscious self-assessment</p> <p>Facilitates the assessment process: the instructor can easily track one's progress</p> <p>Direct feedback</p> <p>Problem-solving tasks entail a chance for self-assessment;</p> <p>Teach to respond adequately to criticism</p>	<p>Self-assessment through writing a self-assessment paper after the course completion</p> <p>Lack of verification that the communicated message has been received</p> <p>Test/exam</p>
Performance-related value	<p>High performance-related value in telecommunications and franchising fast food industry</p> <p>Positive outcomes: increased satisfaction, engagement, and productivity</p> <p>Improved performance is determined by the fact that this training helps to determine the most problematic areas of an employee performance and address them selectively</p>	<p>Hard to evaluate to what extent improved performance is the outcome of the traditional training</p> <p>Short-term effect</p> <p>Unit standards studies</p> <p>The value is largely determined by the motivation</p>

going well, and openly discuss issues was all seen to increase engagement with the training, and improve the effectiveness of the training overall.

From assessment dimension, the two training types show differences as well. With the competency-based training, the training and the assessment appear as more natural and as part of learning. Instructors can easily track how students progress. Instructors give direct feedback to students as they teach them how to respond adequately. On the other hand with the traditional training, instructors usually rely mostly on test or exam type of assessments. Verification of the communicated message from instructors to students is less than competency-based training. Self-assessment is viewed by most (8/10 interviewees) to be a key part of an engaged training program, and is also seen to be more related to competency-based training than traditional training, due to the interactive nature of competency-based training (8/10 interviewees).

“The tutor can observe the trainee is competent in putting into practice what they have learnt.”

Self-assessment also requires the employees to honestly review and understand their personal barriers or shortcomings. However, third party assessment was also identified as of key importance, to ensure that the correct learnings have been absorbed effectively (8/10 interviewees).

When self-assessment is the process of evaluating one's own efficiency and competency while completing a particular task, all the interviewees mention that this type of self-assessment is important, because it helps employees to define which tasks they are able to complete, and which areas need to be improved. All the interviewees mentioned that this self-assessment helps to enhance employees' confidence in their own abilities, once they learn to cope with a particular assignment. Furthermore, the majority of interviewees associate this type of self-assessment with the competency-based training format (8/10 Interviewees).

“By actually completing tasks on the field or in the practice environment, whether it's problem solving or role modeling. They actually know themselves, before they've undertaken to complete the task, in a pressure free training environment so they can self-assess whether they have undertaken them successfully, or they cannot complete that task or training exercise.”

A few interviewees mentioned that self-assessment during competency-based training was as important as the training itself (3/10 interviewees), for the value of the feedback, observation, and ongoing employee experience.

For traditional training, assessment is normally via a test or a quiz (all interviewees), and there is some question as to what this truly measures: achievement or competency (3/10 interviewees), or just ability to have good short-term memory in preparation for the test (6/10 interviewees). One interviewee argues that a traditional test is still the best indicator of the learner's success. This is in contrast to competency-based training, where trainers continually assess a trainee's development, as well as having the trainee self-assess their own progress (8/10 interviewees).

“There's two parts of it, so there's obviously self-assessment by participant's view point of the training, and whether they've completed it successfully matched against the trainer's view-point of whether they have completed it successfully. So self-assessment makes the participant actually go back and review themselves whether they have done it, do they understand it? And they're verifying and acknowledging that yes they can complete this task, and they have successfully undertaken the training, and they obviously still have to be verified by a third party or the trainer.”

Finally, from the performance-related value perspective, competency-based training helps employees to determine the problematic areas to be improved and eventually provides increased satisfaction, engagement and productivity in general. With traditional training, the effects are usually considered to be short-term and most of the time hard to evaluate the increase in performance. Measurement of training outcomes includes both quantifiable and less direct or immediately measurable results including:

- Productivity outputs (8/10 interviewees)
- Staff engagement levels (6/10 interviewees)
- Staff satisfaction surveys (6/10 interviewees)
- Staff turnover (4/10 interviewees)

Interviewees considered ongoing assessment and competency-based training to be a strong positive for employees, as they were seen to be more confident in their jobs after the training and they were more engaged overall with the work environment (6/10 interviewees).

"Gives the employee the confidence to know that they can complete the task before they have to actually complete it in a real work or real business situations."

One interviewee commented that what is important from the training is not knowledge alone, but both ability and knowledge:

"...better qualification scores ...didn't make them a better employee at the end of the day."

One of the interviewees would align the performance-related value with the fact that competency-based training helps to target the most problematic areas of an employee's performance, therefore suggesting that there should be a special individual program designed on the basis of these results, aimed at helping the employee to improve their professionalism.

Interestingly, the interviewees express different views on the longevity of the effectiveness of both training formats in regard to performance. There is a common view that competency-based training is more productive in a long-term perspective – once an employee acquires a skill, he or she is hardly likely to lose it (7/10 interviewees), contrary to the theoretical material from the traditional training which is apt to be forgotten within a few months.

"I was never one to be able to hold my concentration long enough for long lectures and I would walk out only remembering probably only last thirty minutes or the first thirty minutes. Whereas with the competency one I felt like because you - it becomes interactive through participative involvement, it embeds more and it sinks in what you are actually learning and sometimes its hidden messages."

Three interviewees believe that traditional training is more effective in a long-term perspective, arguing that the learned theory can always be applied to the requirement of a new skill at a much later date, and in a much broader context, so that the timeline and contextual scope offered by the traditional training is therefore less limited, than a task orientated training format.

It is also interesting to note that half of the interviewees argue that the performance-related value depends on individual characteristics, being the individual's preferable learning style. The interviewees believe that both types of training can lead to the performance improvement, once the manager defines which format is more appropriate for a particular employee.

DISCUSSION

The examined literature led to the reasoning that there is a need for selecting a more appropriate training format, and this format according to many authors, is the competency-based training (Baldwin et al., 2011; Goldfinch & Wallis, 2009; Kirkpatrick, 2006; Ricciardi, 2005). However, while the interviewees had a clear preference for competency-based training due to engagement and universality, the results also illustrated these training formats cannot substitute one another, and in fact indicate that both formats are required in order for training to be effective. Based on the findings, the discussion can be grouped based on the main themes identified in the results of the study.

Universality: Competency-based training was clearly considered more effective by the interviewees, and these views are strongly supported by the findings of the numerous academic research mentioned. The academic literature supporting competency-based training, was ultimately outcome focused, i.e. the ability to apply the knowledge in a practical format. Indeed, initially, this was the first and foremost reason provided by the interviewees.

However, what in fact became evident, is that training should contain both elements. Traditional training needs to contain practice-based elements to show trainees how to implement the theory into real life situations. Competency-based formats need to contain theory in order to provide the context and the 'why', for trainee understanding. Indeed, ten Cate and Scheele (2007) find that the goal of competency-based training is to remove the gap between the two formats, in effect combining the two. Therefore, the conclusion is that one format does not replace the other, neither format is universal, and neither can be successfully argued as being better. A combination is the best format. This conclusion is further cemented by the interviewees, and also aligned with findings of Mulcahy (2000), who while speaking of the advantages and preferences of one type, would then cite the importance of the inclusion of the other type.

Throughout the rest of the interview questions, and by further probing into what deemed the respective format being discussed as effective, uncovered deeper, interlinking reasons, such as the immediate feedback for improvements and corrections, the importance of continuous interaction and engagement throughout the training program, and knowledge retention.

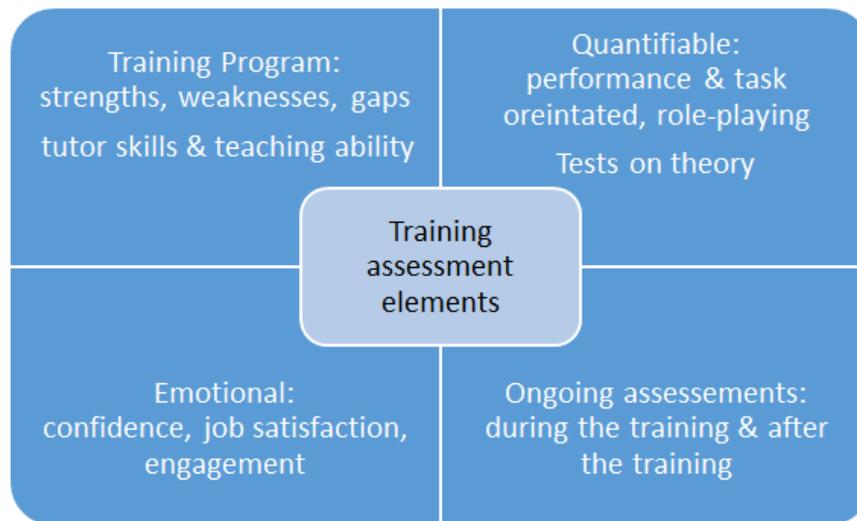


Figure 1. Training assessment elements

Furthermore, the interviewees identified that the formats target different tasks and functions. The results show that the competency-based training is associated with acquiring the necessary practical skills, a view supported by Cornford (2002), and the traditional form of training is used for providing learners with the theoretical knowledge or the so-called 'context.' Custers (2010) finds that the traditional training format can in fact be more useful than practice-based, by the format enabling the provision of a broader theoretical view of the topic, and therefore could be argued as more universal.

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Employee involvement: While competency-based training is considered as capturing a higher engagement level, the effectiveness of the training cannot be solely reliant on the training format, or the trainer. The employee attributes and aspirations are an important contributing element. Once again, the underlying fundamentals for effective training, as similar to Holmes, Reinke, Herman and David's (2021) study, are employee involvement and engagement. The interviewees verified the supposition that a key to effective training, is employee involvement (Goldfinch & Wallis, 2009; Ricciardi, 2005), or in other words, interaction. In this view, it is important to note that in line with Naquin and Holton (2003), and Ricciardi (2005), the interviewees held a consensus that competency-based training offers more prospects for employee interaction than the traditional format, therefore increasing training effectiveness. D. Dubois and Rothwell (2004) also observe that employees are more motivated to learn from practical-based training, due to the practical element.

From the traditional-based training perspective, Risberg (2001) identified the demotivational aspect of trainees being presented with too much theory, or as one of the interviewees noted, "death by Powerpoint". This one-way communication style highlights the importance of employee interaction in the learning environment. It is, therefore, evident that interaction and engagement (involvement) are key aspects of effective training.

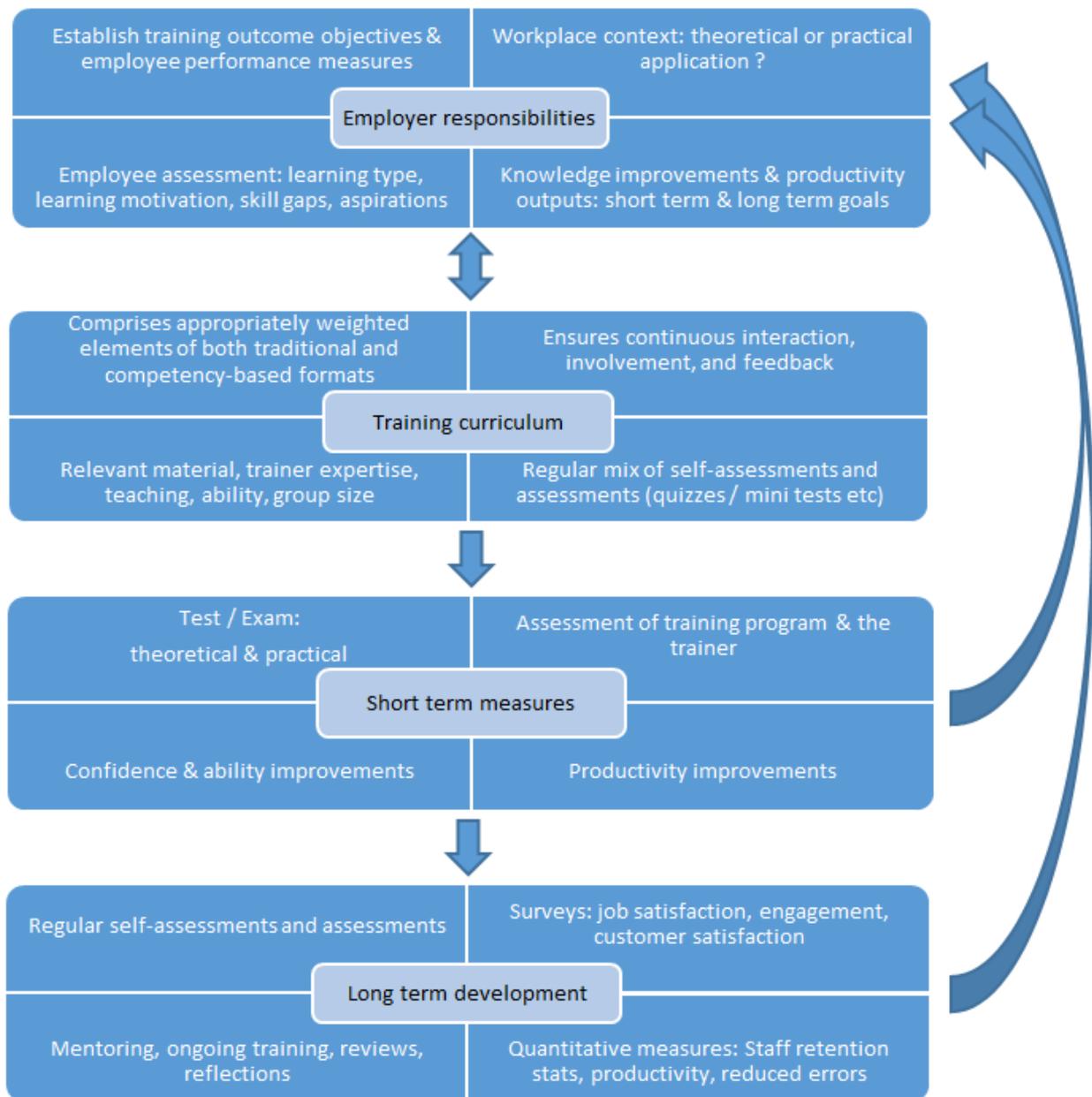


Figure 2. Conceptual framework of effective training

Assessment: Assessments need to have a clear learning objectives or strategy (Hattingh, Dison, & Woollacott, 2019) and incorporate not only the more ‘tangible’ type tests which assess the more immediate results and outcomes, but also needs to assess the impacts on the emotional aspects, such as improvements in confidence, staff satisfaction, staff retention, and customer satisfaction. These emotional aspects can be strongly argued as being more reliable, stable, and a longer term gauge of the effectiveness of the training.

Training assessments should therefore incorporate a number of elements, represented in the figure (see figure 1) below. Once again the key fundamental that is common within the framework, is ensuring employee engagement.

Training program: Where self-assessment was held in the context of trainees providing an assessment of the training received, there were no positively associated connotations from the interviewees, and three outright negative views. This rather skeptical based view is shared by Goldfinch and Wallis (2009), who imply any trainee responses are probably based more on what a training institution would like to hear, rather than what a participant may really think. This skepticism was shared by the interviewees, who also added that any feedback would most likely be ignored regardless. Therefore it would make sense that any employee-based assessment of the training provided, should be completely anonymous, and frank opinions encouraged.

Importantly, the employees would need to see some of these rational suggestions implemented, to validate sincerity of the process.

Training development: Perhaps the pessimistic feedback is an indication that most training formats have remained unchanged for a long period of time, and there is a feeling they are unlikely to change regardless of feedback. Is this a subliminal message to employers and training organisations that training formats need to change? This concept could perhaps be aligned with the findings by Voorhees (2001), where the traditional type training is referred as old. Other researchers in this era also remark on the need for a change towards more competency-based training formats (Gherardi, 2001; Harvey, 2000).

Interestingly, the researched literature that highlights and supports the need for competencybased training, and the importance of the ability to apply theory to practice, appears to gain momentum in later years, such as Ash (2006), Baldwin et al. (2011), Brightwell & Grant (2013), Casner-Lotto & Barrington (2006), D. Dubois & Rothwell (2004), Grossman & Salas (2011), Naquin & Holton (2003), and Schmidt (2007). This could well indicate that in the modern day, training in general, remains in the traditional format.

Skills of the trainer: A related aspect to assessing the training program, when questioned about training effectiveness, four of the interviewees mentioned training efficacy was directly linked to the trainer's attributes and abilities. These views are reinforced by Roberts, Seldon, and Roberts (1987), who advise businesses on the importance of a trainer being well versed in and holding good training techniques, holding good communication skills, and understanding how people learn, all of which contribute to training effectiveness, in the form of increased productivity. H. G. Schmidt and Moust (1995) also conclude that the tutor attributes such as subject knowledge and communication skills hold a direct effect on the level of student learning.

Self-assessment: The interview results do support a positive relationship between competency-based training and self-assessment. The findings by D. Dubois and Rothwell (2004) and Naquin and Holton (2003), also affirm that competency-based training naturally facilitates employees to self-test their abilities and skills. The interviewees discuss the importance of this being that trainees and tutors alike, can assess and observe in a multifaceted and immediate manner. This is also supported by academic research, which identifies

multiple facets, such as detecting and eliminating weaknesses (Rothwell et al., 2010), identifying and filling gaps in employees professionalism (Kandula, 2013; Rothwell et al., 2010), and enabling a validated capability to complete particular tasks (Brightwell & Grant, 2013).

Emotional assessments: These assessments discussed above, are all somewhat instantaneous, quantitative based assessments, and seem a rather straightforward, practical, and a 'common sense' means of assessment, which are ultimately based on performance outcomes. However, Deming and Orsini (2013) suggest that measuring performance outcomes is more reliable if assessed by employee motivation and emotional mind-set, a view that is also shared by Judge and Bono (2001), who identify motivation and job satisfaction as more stable indicators. Indeed, in addition to the interviewees naming productivity outputs as the key measure, they also mention emotional based measurements such as staff engagement, satisfaction, and staff turnover (retention).

In this regard, all the interviewees advise that competency-based training improves confidence. This would certainly assist in positively reinforcing the emotional aspects, and would correlate with research findings that a positive employee is more likely to be self-motivated to learn, and improve their performance outcomes (Risberg, 2001; Salas & Cannon-Bowers, 2001). Harvey (2000) and Baldwin et al. (2011) reason that competency-based training facilitates swift integration to the work environment, which would no doubt increase confidence. These emotional connotations are comprehensively linked to engagement, job satisfaction, and organisational performance (Baldwin & Ford, 1988; Curry, Caplan, & Knuppel, 1994; Gregoire et al., 1998; Roat, 1988). Engagement and job satisfaction would certainly assist with staff retention. In regard to traditional training, however, the interviewees deliberate that assessment appears to be very one dimensional, with a test really being the only option available to assess what knowledge has been retained, and is limited in what it can actually test. This notion is well supported by research findings (Arthur Jr et al., 2003; J. Brown, 2002; Whitmore, 2010). The interviewees further highlight that this may simply measure the short term memory capability of an employee, and is not necessarily able to be applied at a later date, as it suggested by D. Dubois and Rothwell (2004). However, three of the interviewees do support this view. The interviewees also mention that engagement of traditional training is more difficult to maintain. A practical solution to this would seem to be to

complete regular 'mini tests', and/or implement practice-based elements such as role-playing throughout the training.

Short-term and long-term retention of new knowledge: While the interview and literature findings could somewhat argue in favour of the increased effectiveness of competency-based training over traditional training, it is also rational to conclude that the effectiveness of traditional training can be raised significantly if the theoretical material is then put into a practical format, such as through the exercise of role-playing, increasing engagement. Furthermore, our study shows similar findings to Ibrahim and Al-Sahara (2007) and state that regular quizzes, mini-tests, and interactive discussions are also shown assist to raise engagement levels.

Employability and group size were two other themes emerged from the analysis. The interview results held a consensus that competency-based training provides employees with a more substantial advantage in the job market, as it evidences that the employee is proficient in completing the required tasks. These views are well supported by the reviewed literature. The four skillsets identified by Casner-Lotto and Barrington (2006) as being important to employers (professional skills, communication skills, teamwork skills, critical thinking), are referred to in the context of applied knowledge – the ability to apply theoretical knowledge to practical situations. Ash (2006), and Forrier and Sels (2003), also report that modern employers are more concerned about the practical abilities of employees, as opposed to holding formal qualifications. The interview results and the reviewed literature certainly exemplify the importance of training comprising the competency-based elements, as the ability of employees to perform the actual tasks is highly valued by employers. On the other hand, the majority of the interviewees identified group size as a significant contributing factor to training effectiveness, and this related this back to interaction, involvement, and engagement of the trainees. While the actual determination of what constitutes a small or large group appears to be rather subjective, the positive correlation of smaller group size and improved training effectiveness seems to be well substantiated, and that a key contributing factor is the improved levels of interaction and engagement. Figure 2 depicts the conceptual framework of effective training is presented, offering a mapping process of the key contributing variables.

The effective training should begin with employers taking responsibility about what they do and what

needs to be done. This includes developing a strategy for teaching comprised of establishing training objectives, identifying theoretical and practical applications for the training, developing employee assessment criteria and identifying the long-term goals and outputs. These responsibility areas then transferred into training curriculum where teaching material, assessments, weights of assessments, feedback, etc. identified. The curriculum then leads to developing short-term measures followed by long-term development. The last two steps of short-term measures and long-term development can feedback into employer responsibilities.

We suggest that for any teaching session, studies should be undertaken to identify what is the optimum number of trainees per one tutor, and can this be further broken down into industry, profession, previous trainee experience. Another suggestion could be that with the ever increasing power of software and artificial intelligence, can there be better development of interactive online training / tests, and more practical based training developed using 3D imagery or interactive type scenarios (for example pilot simulator type training be incorporated to other industry/ profession).

It is apparent that a training format containing mixed methods of traditional and competency-based formats is required for effective training. Furthermore, there are a number of additional contributing variables, and as with the training format, none of these can lay claim to providing effective training on their own. What is required, is a combination of the impacting variables, placed into a comprehensive learning framework. The employer, employee, training curriculum, trainer, assessments and outcomes measurements, all play equally complex and vital roles for ensuring engagement, knowledge transfer into the workplace, long term knowledge retention, and increased performance outcomes.

CONCLUSION

It is apparent that a training format containing mixed methods of traditional and competency-based formats is required for effective training. Furthermore, there are a number of additional contributing variables, and as with the training format, none of these can lay claim to providing effective training on their own.

What is required is a combination of the impacting variables, placed into a comprehensive learning framework. The employer, employee, training curriculum, trainer, assessments and outcomes measurements, all play equally complex and vital roles for ensuring

engagement, knowledge transfer into the workplace, long term knowledge retention, and increased performance outcomes. The findings provide important insights for organisations, training providers, and employees alike, to assist with increasing the awareness and effectiveness of training programs.

The main contribution of the study is simply that the two training methods must be combined to keep engagement and retention of learnings as we argue that one cannot go without the other. This can also be seen from the other perspective as a trainee may be good at retaining information, but when comes to practical implementation, may not necessarily have the skillsets to complete. In addition, it is worth considering that the environment in the “real work world” is vastly different to a classroom -climate, pressure, politics, relationships with co-workers, resource availability, etc.

The study has limitations. Firstly, the research project was limited by size and scope. Secondly, since most of the interviewees were recruited through the snowball method, there is a risk that their views on the subject may be similar (Morris, 2015). However the preference for qualitative interviews was face-to-face, and as it turned out the snowball method was the most successful for finding volunteers for the interviews.

APPENDICES

Interview guide and questions

Outline / review with interviewee prior to interview commencing:

The research explores two types of training concepts: Competency-based (practice-based) training, and traditional training.

For the purpose of this research paper, the context of these types or training are as follows:

The term 'competency-based training' is in the context of the types of training that focus on field knowledge and offer a variety of practice-based activities, including role modelling tasks and problem-solving activities, requiring participation and input from the attendees.

The 'traditional training' is in the context of the types of training that mainly use lectures and seminars, and involve little activity or input from the employees.

In your career, have you participated in, or your subordinates have participated in both types of training?

Answer no = no interview required.

Answer yes = continue as follows:

We shall be discussing these two training formats in the frame of five training categories: training program, training format, employee involvement, assessment, and performance-related value. However, you are free to expand and add to these at any time during the interview.

Training program

1. What do you consider are the major differences between the training programs these two formats offer?

2. Do you consider one program is more effective than the other? Why?

Training format

3. Do you consider that the format of competency-based training involves a large scope of problem-solving and role-modelling activities? Could you name some examples?

Do you think these activities are effective? Why/why not?

4. Would you characterise the format of traditional training as 'narrative-based'?

Why/Why not? Do you consider this format is effective? In what manner?

Employee involvement

5. Do you think the extent of employee involvement determines the effectiveness of the training? Why/Why not?

6. Do you consider the formats of both types of training entail employee involvement?

Do you consider one of these training formats is more effective in these terms? Why/why not?

Assessment

7. Do you think that self-assessment is an important aspect of effective training?

Why/Why not? Could you provide some examples?

8. Do you consider one of these training formats involves a larger scope of self-assessment practices? How does it affect the desired outcomes of the training?

Performance-related value

9. Do you consider one of these training formats has a more powerful impact on employee performance? Why/why not?

10. Could you provide some examples of performance-related changes associated with either competency-based or traditional type of training (or both)?

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Determining Autonomous Sensory Meridian Response (ASMR) Effect on Advertising Effectiveness by Using Content Analysis

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ABSTRACT

Autonomous Sensory Meridian Response which is abbreviated as ASMR, is emerging as a content that brands prefer to use in their advertisements recently. However, the effects of ASMR contents on consumers can be positive as well as negative, making ASMR contents a risky choice for brands. In the literature, the outcomes of ASMR contents on advertising effectiveness are quite insufficient. Based on this gap, it is aimed to reveal the effect of ASMR on advertising effectiveness by obtaining consumer insights into ASMR contents in ads. For this purpose, ASMR-containing Permolit Paint ad and LC Waikiki (LCW) ad advertised in Turkey were chosen and the comments for these ads in the digital media platforms were analyzed by using content analysis. The results showed that both ASMR ads were mostly evaluated as relaxing and positive, but also provided a positive behavioral attitude such as using the brand and voluntarily watching the ads repeatedly. Yet, some auditory triggers, especially whispering and surface sounds such as tapping and/or scratching the product surface, were found to be prominent sources of negative attitude towards LCW's advertisement.

Keywords: ASMR, ASMR Triggers, Consumer Insight, Advertising Effectiveness, Content Analysis.

JEL Classification Codes: M31, M37

Referencing Style: APA 7

INTRODUCTION

Autonomous Sensory Meridian Response, which is used worldwide with the abbreviation ASMR, expresses the feeling of arousal and happiness experienced by the audience who is exposed to visual, tactile and mostly auditory elements. Jennifer Allen, who first introduced the concept of ASMR, emphasizes that the feeling of arousal created by ASMR is something different from sexual arousal. Thus, she intentionally preferred the word "meridian" instead of "orgasm" when choosing a name for the concept in order to prevent the sexuality associations (Richard, 2016). The elements that create the ASMR effect are whispering, softly speaks, sounds coming from touching, tapping and/or scratching with the surface of some objects, eye contact with the audience, gentle and slow hand and mouth movements as if touching the audience's face, etc. (Aytakin, 2019). The ASMR effect triggered by these elements is generally expressed as a type of feeling that comes with a tingling sensation in the scalp and spine, stimulating the person, giving him relaxation and satisfaction.

ASMR contents are generally consumed by people who have sleep problems and want to fall asleep in a relaxed way (Breus, 2019). ASMRtists who produce ASMR content

on social media use triggers that appeal to the senses of touch (haptic), sight and hearing to give the audience a sense of relaxation. The haptic triggers are the massage movements of the ASMRtist to the audience and movements such as playing with the face and hair. Triggers for the sense of sight are the ASMRtist's harmonious hand movements, eye contact with the audience and playing with the objects such as slime that give a feeling of relaxation. Triggers for the sense of hearing include elements such as whispers, incomprehensible sounds from mouth movements, sounds made by tapping and scratching certain objects with nails and/or fingers (Guy-Evans, 2022). In order to create an ASMR effect, those triggers must be presented in a repetitive, systematic and non-threatening manner. In addition, it is important that the ASMRtist, who prepares ASMR content, is perceived as polite, caring, relevant and reliable by the audience, in other words, by the ASMR consumers.

ASMR finds its place in the marketing world with the advertisement of Dove chocolate with ASMR content published in China in 2015. Auditory triggers such as breaking the chocolate and opening the package of the chocolate were used in the ad (Richard, 2015). IKEA, another brand that uses ASMR content in its ad, tried

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to attract attention by creating an ASMR effect in the audience by using some triggers such as the surface sounds of the IKEA products with its “oddly IKEA” ad lasting for 25 minutes. In addition, brands such as KFC, Toyota, McDonald’s, Pepsi, Coca-Cola, Adidas, BMW, Lego and Google have also tried to attract attention with their ASMR ads. The increase in awareness of ASMR worldwide was realized with the ASMR-containing ad of Michelob Ultra, which was viewed by 100 million people during the Super Bowl. In the ad, American actress Zoe Kravitz speaks in a whisper in a calming nature landscape, opens the cap of the beer, pours the foamy beer into the glass and touches the surface of the beer bottle with her nails (Tiffany, 2019). Thus, the auditory, visual and haptic stimuli of ASMR are used together in the ad. With the worldwide awareness of ASMR, besides the content produced by ASMR channels on YouTube, the number of ASMR content videos of other channels such as food, cosmetics, hair care, massage, etc. is increasing day by day.

Although videos and ads with ASMR content are designed to create a sense of relaxation in the audience, such content may not always give a sense of relaxation. On the contrary, it can trigger other emotions and effects such as discomfort, irritability, disgust and misophonia for the audience (Greer, 2022). Therefore, gaining consumer insight into ASMR-containing ads can guide brands to prepare such ads more effectively. The purpose of this research is to provide guiding outcomes for the practitioners to prepare ASMR ads more effectively by obtaining consumer insight into ASMR ads, which can be evaluated as a new concept in terms of practice and theory. For this purpose, the comments on the ASMR-containing LC Waikiki ad and the Permolit Paint ad advertised online in Turkey were collected from digital platforms and analyzed with a content analysis approach.

In studies on ASMR (Sands et al., 2022; De Kerpel et al., 2021; Aytakin, 2019; Smith et al., 2017), the responses of participants to the ads were generally collected in the manipulated environments, not in their natural environment. However, ASMR effect especially occurs when people’s attention is not distracted and when they generally focus on ASMR content. Thus, they feel ASMR effect more in their natural environment (e.g., at home before sleeping), not in the manipulated environments such as labs. Therefore, results obtained from the data from such manipulated environments in the literature can be misleading. Thus, there is a gap in the literature in terms of measuring natural reactions of ad audiences towards ASMR-containing ads. This creates an important

need for measuring consumer insight towards this kind of ads in the literature. In this paper, spontaneous and true (natural) comments for ASMR-containing ads were collected from their natural environment and analyzed with the content analysis approach to gain consumer insight. This point, while creating the original value of the research and the point of contribution to the literature, provides more accurate inferences from the analyzed comments.

This paper continues with literature review, methodology, analyses and discussion and conclusion sections. In the literature review section, studies on ASMR-containing ads effectiveness and responses towards ASMR triggers were discussed. In the methodology section, firstly, the information about the analysed ads (LCW and Permolit ASMR-containing ads) and the reason why these ads were chosen for this research were given. Secondly, content analysis was explained. Then, coding procedure of the research, population and sample and research questions were given. Analyses section consists of two parts which are Findings I and Findings II. The Findings I includes the content analyses findings of LCW ad, and the Findings II includes the content analyses findings of Permolit ad. Finally, in the discussion and conclusion section, the results of the research were discussed, the advantages and disadvantages of using ASMR content in ads and suggestions were given by making inference from the results, and the opportunities for future research were provided.

LITERATURE

It was observed that the number of studies in which ASMR is associated with advertising effectiveness is quite limited. The studies’ findings stating that the ASMR content in the ad positively affects recall (Sands et al., 2022), strengthens the emotional bond with the brand (Pilny et al., 2022; Chae et al., 2021; Kim, 2020) and provides an increase in purchase intention (De Kerpel et al., 2021; Kaushik & Gokhale, 2021) indicate that ASMR contents can have an impact on advertising effectiveness. On the other hand, Pastore (2018) revealed that while ASMR content may be effective on attitude towards advertising, it may not be effective on attitude towards the brand and purchase intention. At this point, it is important to determine strategies that will increase the effectiveness of ASMR ads. The consumer insights obtained for the ASMR containing ads can be a guide in determining the strategies that will increase the ad effectiveness.

It should be considered that the emotions evoked by the ASMR contents in the ad may have a directing effect on the effectiveness of the ad. Because there are findings indicating that the ASMR content in the ad activates emotions such as happiness, surprise, disgust, calmness and stress (Çerçi, 2021) as well as produces sexual stimulation response (Çerçi, 2021; Aytekin, 2019). At this point, ASMR content can create a kind of vampire effect, overshadowing the product and brand and reducing advertising effectiveness. On the other hand, this situation contradicts the emphasis of Jennifer Allen, who introduced the concept of ASMR, and emphasized that ASMR is something different from sexual arousal. In addition, it is inconsistent with the findings of the study (Poerio et al., 2018; Barratt & Davis, 2015), which states that ASMR does not produce a sexual stimulation response. Therefore, it is important to prepare ASMR content in a way that will not develop a sexual stimulation response in order to achieve effectiveness with ASMR-containing ads.

Whispering, an ASMR trigger that is frequently used in ads and videos with ASMR content (Cash et al., 2018), can be comforting for some, while it can be quite disturbing for others. Whispering can trigger the feeling of disturbance, especially in people with misophonia syndrome, which expresses extreme sensitivity to some sounds such as yawning, heavy breathing sounds and snoring. It was observed that ASMR contents created a feeling of relaxation in some people (Aytekin, 2019; Poerio et al., 2018), while others provided outcomes similar to misophonia syndrome (Aytekin, 2019; McErlean & Banissy, 2018). Therefore, to benefit from the auditory triggers such as whispering, which is frequently used in ASMR-content videos and ads, these triggers must be used effectively and conveniently.

It was observed that the above studies on ASMR effectiveness in the literature did not measure the natural response of the participants towards ASMR contents due to experimental design. Thus, the participants in those studies showed a split attention towards ASMR contents which decreases the validity and reliability of those studies. Because ASMR becomes effective in a natural environment, without any distraction. However, when the participants are integrated with such devices (e.g., EEG, fMRI devices) in such experimental designs, their attention becomes distracted, and they may feel uncomfortable which decrease their focus on ASMR content. A study (ASMR University, 2022) which supports this statement showed that ASMR consumers did not deal with two tasks at the same time and they did not

show a split attention. Also, they indicated that they consumed ASMR contents to relax. This shows the importance of measuring natural/true response of ASMR consumers to gain insight for ASMR contents. Because in an experimental design, the participants probably don't feel relax and their attention will be separated due to some interventions because of the experiment's nature.

Sometimes brands may prefer not to create their own ASMR-containing ad, but to display their products in an ASMR content. A study (Magna, 2022) showed that a product placement in this kind of contents decreased purchase intention, brand respect, perceived quality of the brand, and brand trust. Thus, product placement in ASMR content may create a split attention and disturb ASMR consumers in this way which creates negative outcomes for the brands. On the other hand, product category may affect this outcome. For instance, Mooney and Klein (2016) determined that ASMR consumers were particularly interested in beauty and fitness containing ASMR contents. Thus, ASMR consumers may not feel discomfort if they see cosmetics and fitness products in these contents. They may perceive these products as natural items belonging to ASMR content. They may not think that they are exposed to some kind of advertising messages. Therefore, congruence with ASMR content is important for product placement effectiveness in ASMR contents. Also, this shows that brands can gain advantages if their products are congruent with ASMR contents. Thus, ASMR contents may be useful for congruent (with ASMR contents) brands in terms of native ads.

There is a lack of studies measuring the effect of gender on ASMR effect in the literature. Although there is a finding indicating that females consume ASMR contents more than males consume (Richard, 2019), the reason behind this behavior and difference remains unclear. In addition, there is also a finding indicating that ASMR consumers prefer female voice as a whisper trigger over male voice (ASMR University, 2022). However, there is a lack of studies scrutinizing the reason why ASMR consumers prefer female voices more as a whisper trigger, and this preference differs according to gender, in other words, male consumers prefer female voice more than female consumers do, or vice versa. Thus, more research is needed in terms of relationship between gender and ASMR effect.

Overall, gender issue on ASMR effect has remained unclear in the literature. Also, there is a gap measuring natural responses of ad audiences towards ASMR-containing ads due to mostly preferred experimental design in the literature. Thus, gaining consumer insights towards ASMR-containing ads needs to be investigated.

METHODOLOGY

In this paper, it is aimed to gain insights about LC Waikiki ad and Permolit Paint ad with ASMR content by revealing the attitudes towards the ads, the reasons and the directions of the attitudes. For this purpose, the comments for the ads were collected on social media platforms and analyzed. The reason for the collection of data on social media platforms is that the people on the relevant platforms are self-motivated to comment and the comments are developed naturally and therefore remains intact (Varnalı, 2019). There are several reasons why these ads were chosen for this research. Firstly, these ads do not contain a celebrity as a message source that may distract the audiences' attention from the product/brand and decrease ASMR effect in this way. Secondly, these ads are very similar in terms of content and structure. For instance, both ads use whispering triggers in the same time and at the same amount. Also, in the both ads, ASMRtists create triggers by using the brands' products. In other words, products also serve as ASMR triggers in the both ads. Lastly, the both ads are online ads and shown in the internet. This is important for ASMR effect. Because an ASMR-containing ad designed for TV may not create ASMR effect and increase its effectiveness due to a lot of noise factors that TV audiences may encounter while being exposed to the TV ad. On the other hand, this kind of ads such as LCW and Permolit ASMR-containing ads may create this effect, because they are displayed in the online platform where ASMR consumers feel the effect and consume the content most. For these reasons, LCW and Permolit ASMR-containing ads were specifically chosen for this research. A total of 501 comments obtained within the scope of the research were analyzed with the content analysis approach.

LC Waikiki's ad, titled "the voice of e-commerce lcwaikiki.com", is an online ad and lasts one minute and 37 seconds. Although the message source in the ad is not a famous person, the face of the message source is not completely shown in the ad, but rather the hands of the message source when touching LCW products are shown. During the research period, it was observed that the ad was viewed 83,844 times on YouTube and 386 comments were made on the ad. On the other hand, it was observed that one page (seven) of comments were entered in *Ekşi Sözlük* with the title of "LC Waikiki's ASMR advertisement". When the LC Waikiki ad is evaluated in terms of the ASMR triggers used in its content, it is seen that the whisper is used only in the part where the message source whispers "lcwaikiki.com" at the beginning of the ad and "kıyafetlerinin seslerini dinleyebileceğin adres lcwaikiki.com

(the address where you can listen to the sounds of clothes lcwaikiki.com)" at the end of the ad. In addition, there are different triggers in the ad such as the sounds of touching, tapping and scratching with the LCW products (opening/closing coat zipper, touching the coat, etc.), the opening of the cargo package, the sound of the message source tapping and scratching the cargo box and keyboard, and clicking on the mouse with their hands, and rubbing sound of the mouse on the mousepad.

The ad of the Permomax product group of the Permolit Paint brand titled "Ben Permomax'ı Sesinden Tanırım (I Know Permomax by His Voice)" is an ad advertised online and lasts for three minutes and 28 seconds. Although the message source in the ad is not a famous person, the face of the message source is not completely shown in the ad, but rather the hands of the message source are shown when touching Permolit products. In addition, it is seen that the mouth area of message source's face is focused in the parts where she speaks in a whisper by saying "Ben Permomax'ı sesinden tanırım (I know Permomax by his voice)" at the beginning of the ad and "rengin ritmini Permolit'le yakala (capture the rhythm of the color with Permolit)" at the end. During the period of the research, it was observed that the ad was viewed 1,117,481 times on YouTube and 55 comments were made on the ad. On the other hand, during the research period, it was seen that the first share of the ad was viewed 432,948 times on Instagram and 46 comments were made on the ad. In the second share of the ad on Instagram on April 9, ASMR day, it was determined that the ad was viewed 21,760 times and seven comments were made on the ad. It is seen that Permolit shared the ad twice on his Instagram account. The second share of the ad was made on April 9, which was declared as ASMR day with the motto "it's time to sit back and watch ASMR videos". When the ad is evaluated in terms of ASMR triggers, it is seen that triggers such as whispering at the beginning and at the end of the ad, scratching the color scheme and paint can, stirring the paint, opening the paint brush packages, paint sounds, plaster sounds and some visual triggers such as paint dropping and chatming paint colors were used in the ad.

Content analysis was used to analyse the texts (comments) in this paper. Content analysis focuses on the content of a recorded form of communication. Three types of approaches can be adopted in content analysis which are quantitative, qualitative and mixed. In the quantitative approach, content analysis is performed by statistically analyzing categories and/or the frequency or percentage of coded text (Stemler, 2000). In the qualitative approach, content analysis is carried out

Table 1. Coding Scheme

Main Category	Subcategory	Category definition
Direction of the attitude (Yes=1, No=0)	<ul style="list-style-type: none"> • Positive • Negative • Mixed • Noneliciting 	It is a comment that indicates an attitude in a certain direction. (Note: The noneliciting direction of the attitude means that the comment does not contain any positive or negative attitude expression).
Attitude expression (Yes=1, No=0)	<ul style="list-style-type: none"> • Positive expression • Negative expression 	It is a comment that contains a specific attitude statement towards the advertisement. (e.g., "fantastic", "irritating")
Reasons (Yes=1, No=0)	<ul style="list-style-type: none"> • Ad-related reasons • Brand-related reasons • ASMR-related reasons 	It is a comment that contains a statement about the reason for the attitude towards the advertisement.
Targets (Yes=1, No=1)		It is a comment directed at a specific target (e.g., "the product", "the ad agent")
Behavioral attitude (Yes=1, No=0)	<ul style="list-style-type: none"> • Positive behavioral attitudes • Negative behavioral attitudes 	It is a comment stating that it has developed a behavioral expression towards the product/brand due to the advertisement.

by making subjective interpretations on the texts and revealing the meanings, patterns or themes that may be explicit or implicit (Mayring, 2011). At this point, it can be said that the quantitative approach analyzes the content from an objective and systematic point of view, while the qualitative approach analyzes the content from a subjective point of view. On the other hand, if quantitative and qualitative content analysis approaches are used together, mixed content analysis approach is adopted (Bal, 2013). In the content analysis, after the selection of the content, analysis units are determined and categories are defined. Thus, content units are created. Then, rules for coding are developed in line with variables, research questions or hypotheses, and the content is coded within the framework of these rules. At this point, word count and/or categories are determined. Finally, interpretation is made after the text is analyzed and conclusions are drawn (Sallan Gül & Kahya Nizam, 2021).

Coding Procedure

In this paper, as suggested by Krippendorff (2012), comments were coded by two independent coders to increase the reliability of the study. Before the analysis, the two coders were recruited and trained by the author on how to code the data. As suggested in the literature (Kolbe & Burnett, 1991), the two coders did not communicate in the process of coding and made coding

decisions independently. Sample comments were selected from the comments to be analyzed later, and the coders were expected to code these comments in line with the instructions given to them. Before the coders began the actual coding process, the discrepancies of the coders were discussed and resolved in the presence of the author. The pilot coding process continued until a high reliability score was reached between the two coders. After that, the actual coding process started. Miles and Huberman's (2016) reliability formula ($\text{Reliability} = \frac{\text{Number of Consensus}}{\text{Total Consensus} + \text{Number of Disagreements}}$) was used to ensure reliability between encoders. As a result, the correlation between the codes in terms of categories was found to be between 89% and 91.5%. Since these scores above 80% indicate that the reliability is at an acceptable level (Macias & Lewis, 2004; Riffe et al., 2005; Kassarian, 1977), it can be stated that the reliability of the study is ensured.

Due to the originality of the subject discussed in the study, no categorization that can be a guide for coding has been found in the literature, and it has not been possible to adopt a deductive approach. Therefore, in the study, inductive coding procedure was followed and open coding approach, which is also a technique of embedded theory, was adopted. All of the comments, which were examined in line with open coding, were read several times without skipping, examined in depth, divided into

parts and coded with temporary tags, and categories were created by comparison and conceptualization. On the other hand, in vivo coding was adopted in the determination of specific attitude expressions, and attitude expressions were taken directly.

In terms of the face validity of the study, it is necessary to present the meaning of the categories used in the study (Saldana, 2019). At this point, Table 1, which shows the coding scheme of the study, is a summary table expressing the main categories, subcategories, category definitions and coding procedure in the study.

Population and The Sample of The Research

The population of the research is digital media platforms. In the research, purposive sampling method, which is the sampling method, in which the researcher chooses a sample about a subject he wants to explore or reveal (Teddlie & Tashakkori, 2009), was adopted. Ekşi Sözlük, Instagram and YouTube, which are digital media platforms, were chosen purposefully and formed the sample of the research. Ekşi Sözlük was chosen because it is Turkey's largest digital dictionary that receives the most comments and provides up-to-date content on almost every subject. On the other hand, since YouTube is the most visited social media platform in Turkey (Papuççıyan, 2020), this platform was included in the sample. Instagram, on the other hand, was included in the sample for reasons such as being an important sales, marketing and advertising medium, the high rate of visits to brand pages on Instagram, and Instagram's second place in Turkey in the ranking of the most frequently used social media. The comments were reviewed over a four-month period, October 2021-January 2022, and all comments in the relevant period were addressed. A total of 501 comments were analyzed by analyzing 441 comments on YouTube, 53 comments on Instagram, and 7 comments on Ekşi Sözlük.

Research Questions

This research is shaped on the main question of what is consumer insight towards ASMR ads. The sub-questions shaped under this main question and investigated within the scope of the study are as follows:

- What do the audiences think about the ASMR-containing ads? (What is the general attitude towards the ads analyzed in this research?)
- What is the direction of the attitudes towards the ASMR-containing ads?

- What is the reason (source) of the ad audiences' attitudes towards the ASMR-containing ads?
- Who/what is/are the target(s) of the comments for the ASMR-containing ads?
- Do the ASMR-containing ads lead to any behavioral attitude (using the brand, giving up the brand, etc.) in the ad audience? If it leads to behavioral attitude, what are the statements of this attitude?

ANALYSES

In the study, first of all, a content analysis of the comments towards LC Waikiki's ASMR-containing ad was carried out within the scope of the research questions.

Findings I

Findings regarding the direction of attitude towards LCW ad are shown in Figure 1:

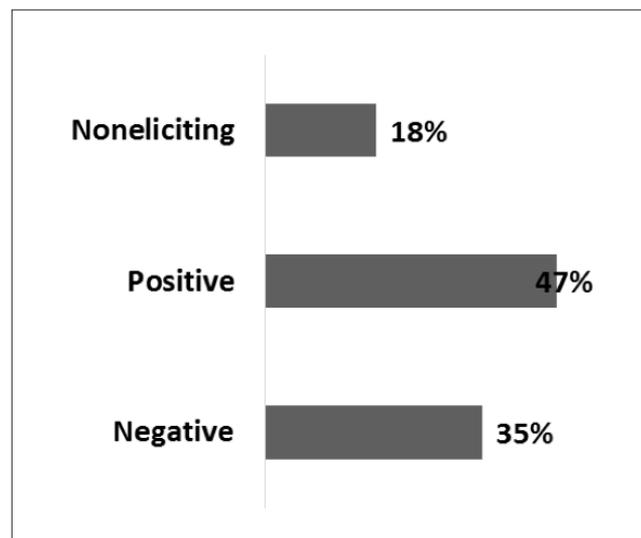


Figure 1. Proportional distribution of the direction of attitude towards LCW ad



Figure 2. Cloud image of expressions used by those with a positive attitude towards the ad

It was determined that the majority of the participants (47%) have a positive attitude towards the ad. The positive expressions used by those who have a positive attitude towards the ad are shown in Figure 2 as a word cloud.

As a result of the content analysis, it was determined that 23 positive statements about the ad were used. It can be seen that some statements are written larger and more distinctly than others on Figure 2. This indicates that these statements are used more frequently than others. Within the scope of the research, it was determined that the most frequently used expression to express a positive attitude towards the ad is "relaxing" (13 times). "Pleasant" (11 times), "fantastic" (10 times), "up-to-date" (5 times), "the most beautiful ad with ASMR content" (4 times), "good" (4 times), "creative" (4 times), "pleasing" (4 times), "successful" (3 times), "the most beautiful ad in the world" (3 times), "excellent" (3 times), "super" (3 times), "nice" (2 times), "distinctive" (2 times), "fabulous" (2 times), "hair raising" (2 times), "revolutionary" (2 times) were found to be the other frequently used positive expressions. In addition, expressions such as "cleverly", "addictive", "proud", "of good quality", "engrossing" and "innovative" were used once and emerged as positive attitude expressions towards the ad.

In the comments, in which the reasons for the positive attitudes towards the ad were stated, it was determined that the aforementioned reasons were grouped under two categories as ad-related (44%) and ASMR-related (56%). The proportional distribution of the categories related to the ad-related reasons that create the positive attitude is shown in Figure 3:

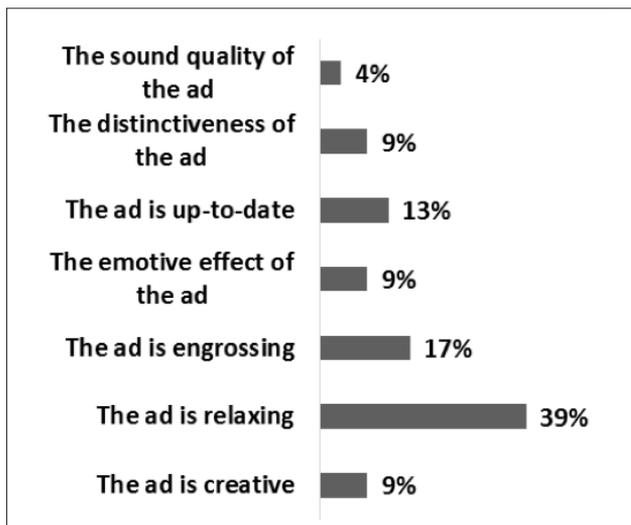


Figure 3. The ad-related reasons that create the positive attitude towards the ad

The reason that "the ad is relaxing" emerged as the most frequently indicated (39%) ad-related source of positive attitude towards the ad. Besides, the creativeness of the ad, that the ad is engrossing, the emotive effect of the ad, that the ad is up-to-date, the distinctiveness of the ad and the sound quality of the ad emerged as the other ad-related reasons creating positive attitude towards the ad.

The proportional distribution of the categories related to the ASMR-related reasons that create the positive attitude is shown in Figure 4:

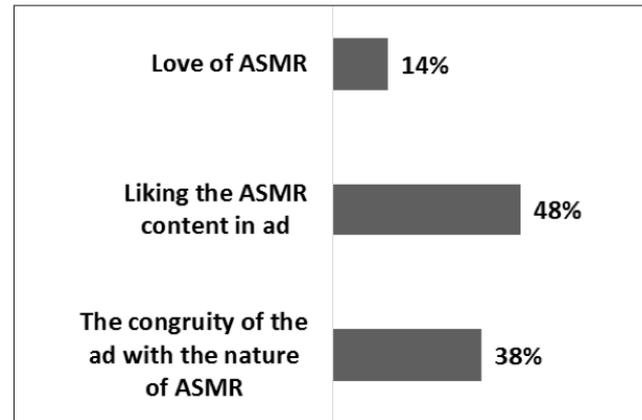


Figure 4. The ASMR-related reasons that create the positive attitude towards the ad

The reason that "the liking the ASMR content in the ad" emerged as the most frequently indicated (48%) ASMR-related source of positive attitude towards the ad. It was determined that the ad audiences developed a positive attitude towards the ad as a result of liking the ASMR content, which expresses ASMR triggers such as whispering, the sound of touching the coat (the product in the ad), and the coat zipper sound. On the other hand, the congruity of the ad with the nature of ASMR emerged as the second most frequently indicated ASMR-related source of positive attitude towards the ad. In the comments, it was understood that some audiences were exposed to the ad during the commercial break of a video with ASMR content. Most of the ads that appear during the commercial breaks of ASMR-containing videos can cause discomfort to the ASMR-influenced audience since they are not ASMR-containing. On the other hand, these audiences stated that they watched the ad with pleasure, without jumping, startled, thanks to the congruity of the ad with the nature of ASMR. That the ad audiences love ASMR emerged as the third ASMR-related source of positive attitude towards the ad.

It was determined that the 35% of the participants have a negative attitude towards the ad. The negative

expressions used by those who have a negative attitude towards the ad are shown in Figure 5 as a word cloud:



Figure 5. Cloud image of expressions used by those with a negative attitude towards the ad

As a result of the content analysis, it was determined that 20 negative statements about the ad were used. Within the scope of the research, it was determined that the most frequently used expression to express a negative attitude towards the ad is “irritating” (8 times). “Nonsense” (7 times), “unlikeable” (6 times), “annoying” (5 times), “pointless” (4 times), “frightening” (3 times), “meaningless” (2 times), “plagiarism” (2 times), “foolish” (2 times), “bad” (2 times), “garbage” (2 times), “cringe” (2 times), “disgusting” (2 times), “sickening” (2 times) were found to be the other frequently used negative expressions. In addition, expressions such as “awful”, “ugly”, “abhorrent”, “contemptible”, “waste of time” and “ASMR effect is insufficient” were used once and emerged as negative attitude expressions towards the ad.

In the comments, in which the reasons for the negative attitudes towards the related ad were stated, it was determined that the aforementioned reasons were grouped under three categories as ad-related (9%), the brand-related (12%) and ASMR-related (79%). Considering the ad content to be plagiarised (67%) and uncreative (33%) emerged as the ad-related reasons that create the negative attitude towards the ad. Advertising the brand as if it were an ASMR channel (75%) and disliking the brand (25%) emerged as the brand-related reasons creating the negative attitude towards the ad. On the other hand, ASMR-related reasons were analyzed under seven categories. The proportional distribution of the categories related to the ASMR-related reasons that create the negative attitude is shown in Figure 6.

The reason that ASMR triggers in the ad are annoying emerged as the most frequently indicated (45%) ASMR-related source of negative attitude towards the ad. It was determined that the ad audiences developed a negative attitude towards the ad due to the ASMR triggers such

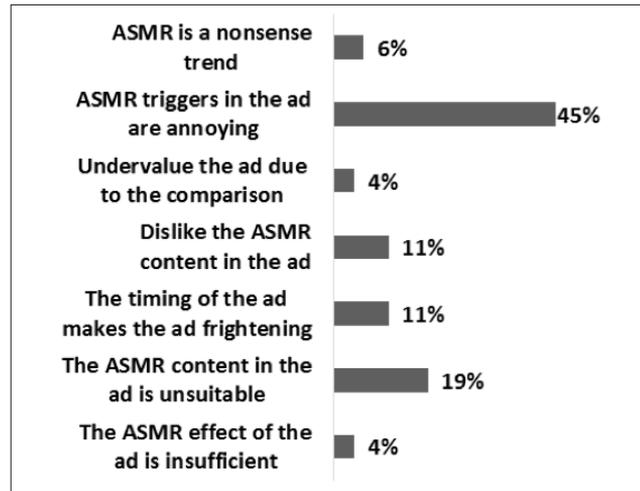


Figure 6. The ASMR-related reasons that create the negative attitude towards the ad

as especially whispering, the sound of touching the coat, and the sound of nylon packaging opening. On the other hand, it was determined that the timing of the ad makes the ad frightening for some ad audiences. They expressed that they startled when they were exposed to the ad in the commercial breaks of any ASMR video content they watched. It was also determined that some ad audiences expressed that they undervalued the ad after they made a comparison between LCW ad and IKEA ad with ASMR content. They indicated that IKEA ad with ASMR content-oddly IKEA ad-was much better than LCW ad with ASMR content. Thus, it can be thought that IKEA’s ASMR advertisement can be a reference point for the ad audiences evaluating the ads with ASMR content by creating a kind of anchoring effect.

The targets of the comments for the ad was examined and a total of 13 target categories were determined. To whom/what the comments about the ad were directed towards, in other words, the proportional distribution of the targets is shown in Figure 7:

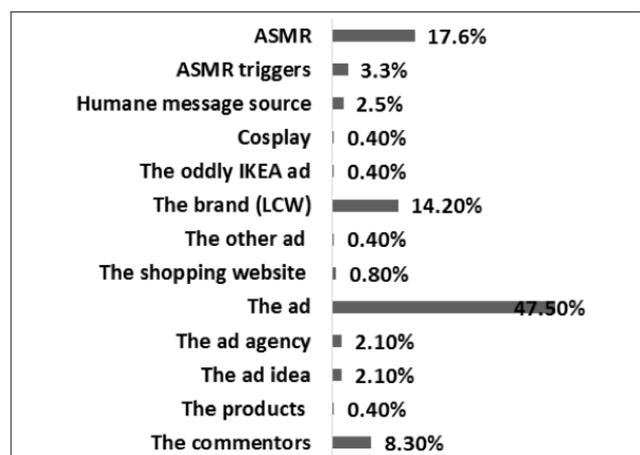


Figure 7. The proportional distribution of the targets of comments for the ad

It was determined that the target of the great majority (47.5%) of the analyzed comments was the ad itself. Besides, the brand itself (LCW) and ASMR were found to be the other remarkable targets of the comments.

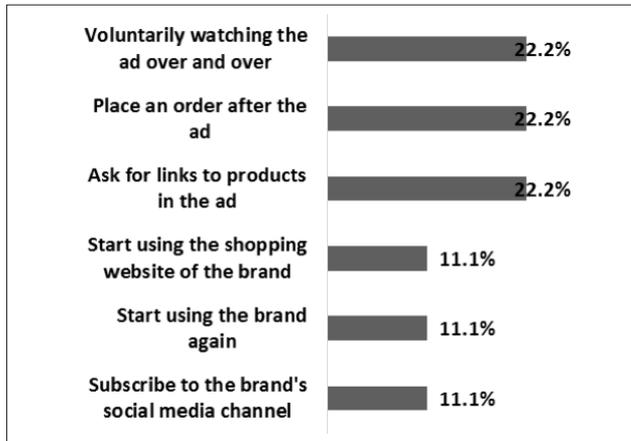


Figure 8. Positive behavioral attitudes towards the ad

It was also examined whether there were expressions about behavioral attitude in the comments. The behavioral expressions identified were grouped into two categories as positive and negative behavioral attitudes. Figure 8 shows the distribution of positive statements about behavioral attitudes towards the ad.

It was determined that the ad audiences asked for links to the products, placed an order after they saw the ad, and they voluntarily watched the ad over and over within the same proportion (22.2%). Besides, it was also determined that the ad audiences started using the brand and shopping website of the brand as well as they subscribed to the brand's social media channel within the same proportion (11.1%).

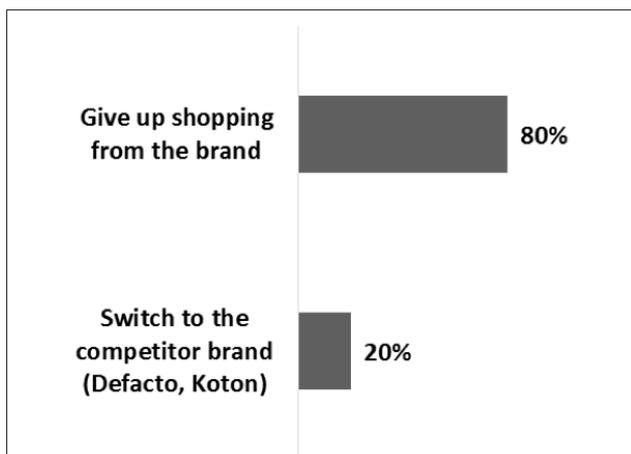


Figure 9. Negative behavioral attitudes towards the ad

From the findings, it seems that the ad can cause negative behavioral attitude as well. Figure 9 shows the distribution of negative statements about behavioral attitudes towards the ad.

As a result of the analysis, it was determined that the ad lead to negative behavioral attitudes such as giving up shopping from the brand (80%) and switching to competitor brands which are Koton and Defacto (20%).

Findings II

In the study, second of all, a content analysis of the comments towards Permolut Paint's ASMR-containing ad was carried out within the scope of the research questions. Findings regarding the direction of attitude towards Permolut advertisement are shown in Figure 10:

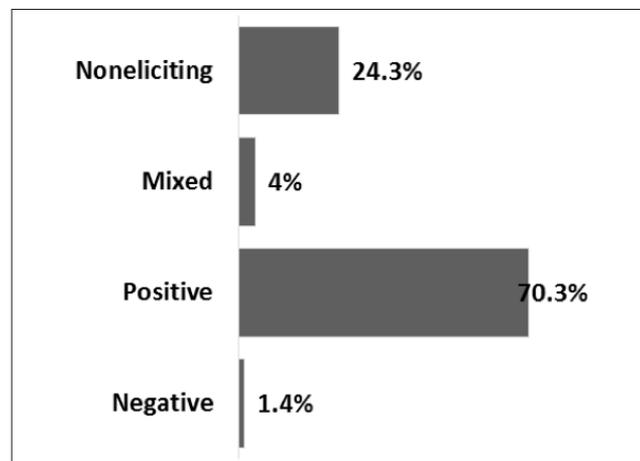


Figure 10. Proportional distribution of the direction of attitude towards Permolut ad

It was determined that the majority of the participants (70.3%) have a positive attitude towards the ad. The positive expressions used by those who have a positive attitude towards the ad are shown in Figure 11 as a word cloud:



Figure 11. Cloud image of expressions used by those with a positive attitude towards the ad

As a result of the content analysis, it was determined that 14 positive statements about the ad were used. Within the scope of the research, it was determined that the most frequently used expression to express a positive attitude towards the ad is “relaxing” (18 times). “Pleasant” (13 times), “good” (6 times), “successful” (4 times), “the best ad” (2 times), “fantastic” (2 times), “super” (2 times) were found to be the other frequently used expressions. In addition, expressions such as “path-breaking”, “attention grabbing”, “the most beautiful ad”, “the best ASMR”, “the most relaxing ad”, “nice” and “of good quality” were used once and emerged as positive attitude expressions towards the ad.

In the comments, in which the reasons for the positive attitudes towards the related ad were stated, it was determined that the aforementioned reasons were grouped under two categories as ad-related (54%) and ASMR-related (46%). The proportional distribution of the categories related to the ad-related reasons that create the positive attitude is shown in Figure 12:

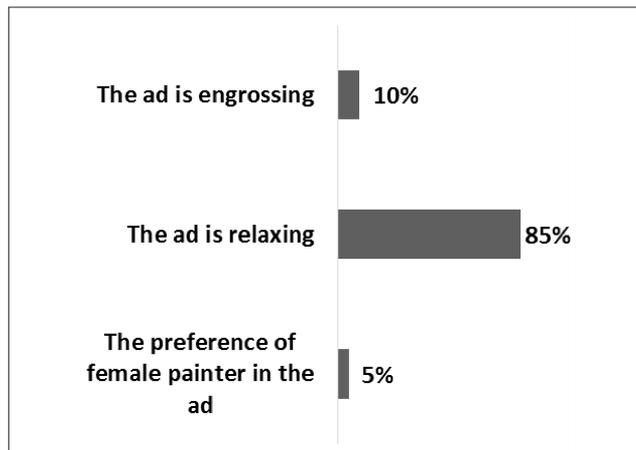


Figure 12. The ad-related reasons that create the positive attitude towards the ad

The reason that “the ad is relaxing” emerged as the most frequently indicated (85%) ad-related source of positive attitude towards the ad. Besides, the reason that the female painter preference in the ad and the ad is engrossing were found to be the other ad-related reasons creating positive attitude towards the ad. The proportional distribution of the categories related to the ASMR-related reasons that create the positive attitude is shown in Figure 13.

The reason that “the liking the ASMR content in the ad” emerged as the most frequently indicated (70.6%) ASMR-related source of positive attitude towards the ad. It was determined that the ad audiences developed a

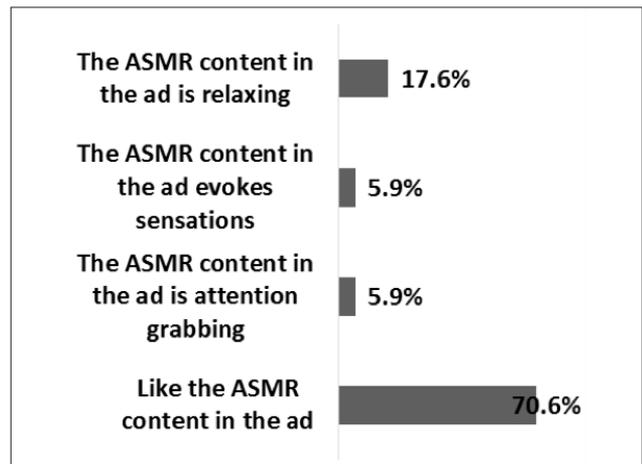


Figure 13. The ASMR-related reasons that create the positive attitude towards the ad

positive attitude towards the ad as a result of liking the ASMR content, which expresses ASMR triggers such as whispering, the sound of paint mixing and painting, and the plaster sound in the ad. Besides, the ASMR content in the ad is attention grabbing, relaxing and evokes sensations were found to be other ASMR-related reasons causing positive attitude towards the ad.

It was determined that only 1.4% of the ad audiences have a negative attitude towards the ad. The only negative expression used by those who have a negative attitude towards the ad was “irritating”, and no reason could be identified for the negative attitude in the comments analyzed. On the other hand, it was determined that 4.1% of the ad audiences have a mixed attitude towards the ad. The reasons for mixed attitudes were grouped under four categories. Figure 14 shows the proportional distribution of the aforementioned categories:

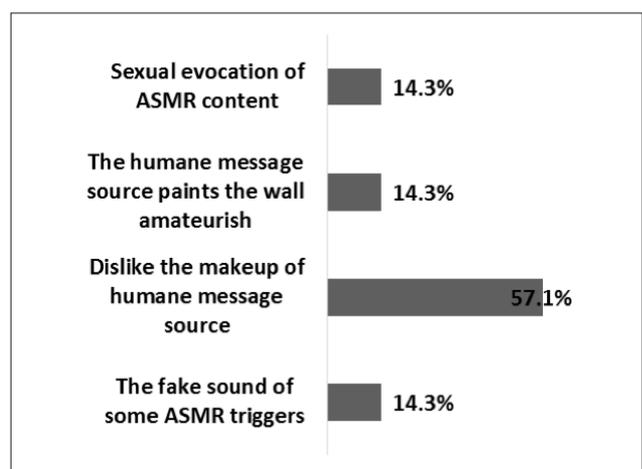


Figure 14. The reasons that create mixed attitude towards the ad

Most of the ad audiences that have a mixed attitude towards the ad (57.1%) indicated that they disliked the lipstick application of the humane message source in the ad. It was observed that the ad audiences mocked the lipstick application even if they evaluated the ad was successful. On the other hand, the female painter (humane message source) in the ad was evaluated as an amateur painter. Besides, it was also understood that the female painter in the ad has a potential of causing a sexual evocation of ASMR content creating a mixed attitude towards the ad. Yet, as it was mentioned above, the choice of female painter was one of the positive ad-related reasons. Thus, it can be said that humane message source in the ad has a potential of creating both positive and mixed attitude towards the ad.

The targets of the comments for the ad was examined and a total of 13 target categories were determined. To whom/what the comments on the ad are directed towards, in other words, the proportional distribution of the targets is shown in Figure 15:

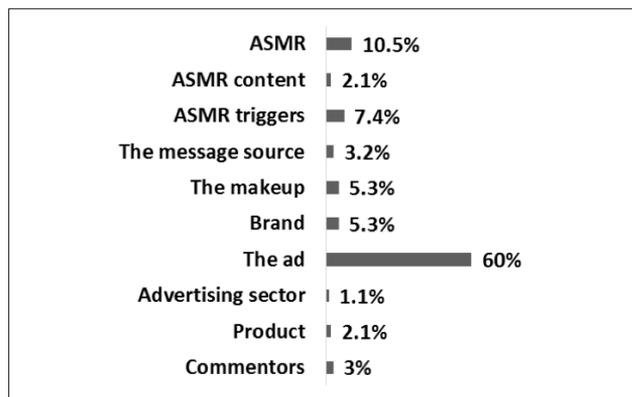


Figure 15. The proportional distribution of the targets of comments for the ad

It was determined that the target of the great majority (60%) of the observed comments was the ad itself. Besides, ASMR and ASMR triggers in the ad were found to be the other remarkable targets of the comments after the ad itself.

It was also examined whether there were expressions about behavioral attitude towards the ad in the comments. The behavioral expressions identified were grouped into one category which is positive behavioral attitudes as there were no expressions of negative behavioral attitude determined. Figure 16 shows the distribution of positive statements about behavioral attitudes towards the ad.

Voluntarily watching the ad over and over was found to be the major (58%) positive behavioral attitude towards the ad. Besides, trying the product and preferring the brand after viewing the ad were found to be other positive behavioral attitudes towards the ad.

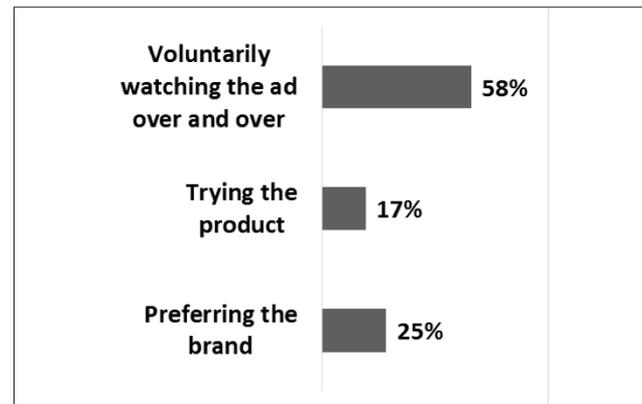


Figure 16. Positive behavioral attitudes towards the ad

DISCUSSION AND CONCLUSION

The most prominent positive expression for both ASMR-containing ads analyzed within the scope of the study is the expression “relaxing” (used 13 times for LCW ad, 18 times for Permolit ad). The most obvious reasons of positive attitude towards these ads are the ad is relaxing (has 39% share for LCW ad, 85% share for Permolit ad) and the liking of the ASMR content in the ad (has 48% share for LCW ad, 70.6% share for Permolit ad). At this point, it can be thought that ASMR content in ads can be used as a kind of experiential marketing tool and attract the audience by giving them a feeling of relax. On the other hand, it should be noted that the most prominent expression in the negative attitude towards the ads is “irritating” (used 8 times for LCW ad, and this is the only negative expression used for Permolit ad). Although no obvious reason could be identified as to why the Permolit Paint ad was expressed as irritating, the fact that the ASMR triggers such as whispering in the ad were found to be annoying, is the prominent source of discomfort when the LCW ad was evaluated as irritating. Therefore, ASMR triggers in ads can provide a positive attitude by giving the audience a feeling of relax, as well as cause a negative attitude by giving a feeling of discomfort.

As a result of comparing the LCW ad with IKEA’s 25-minute “oddly IKEA” ad with ASMR, some audiences (4% of the participants with negative attitudes in terms of ASMR-related reasons) did not like it. This may suggest that IKEA’s ad creates a kind of anchoring effect for the ads with ASMR content. In the oddly IKEA ad, IKEA’s products are promoted by a soft-sounding voice-over, using ASMR triggers. In the

ad, soft-toned speech was used, not whispering. Only the hands and arms of the person in contact with the products are visible. Information such as the color, price, material properties, texture and function of the products promoted in the ad are conveyed in a way that creates an ASMR effect. In this respect, it can be said that the ad functions as an experiential marketing tool. Due to the fact that the ad is taken as an "anchor" by some audiences, the ad can provide clues that can be used by brands that want to use ads with ASMR content. For instance, in order not to irritate the audience, it may be preferable to use a soft voice-over instead of whispering, which has the potential to be considered "annoying".

It was observed that the ads provide important outcomes related to positive behavioral attitudes such as starting to use the brand and ordering from the brand. In addition, findings related to the behavioral attitude that both ads were watched voluntarily and repeatedly were also obtained (has 22.2 % share for LCW ad, 58% share for Permolit ad). The aforementioned outcomes can be interpreted that if the ASMR content is liked, the ad may take a long time to reach the wipe out threshold. On the other hand, it was determined that the LCW ad causes negative behavioral attitudes such as switching (20% of the participants with negative behavioral attitude) to the competitor brand (Defacto and Koton brands) and giving up using the brand (80% of the participants with negative behavioral attitude). Therefore, the reason that the ad audiences dislike ASMR content may cause the brand lose existing customers.

It was determined that the ASMR-containing Permolit Paint ad provides a remarkable positive attitude. Although it is appreciated that a female message source is preferred as a painter in the ad, some reasons related to the female message source have emerged as the main sources of the complex attitude towards the ad. Reasons such as criticism of the way the lipstick of the female message source in the ad is applied (57.1% of the participants with mixed attitude), the way the female painter paints are amateurish (14.3% of the participants), and the sexuality association (14.3 % of the participants) have been identified as the sources of the mixed attitudes. The comments that the Permolit Paint ad evokes sexuality support the findings in the literature that ASMR contents evoke sexuality. In addition, the aforementioned reasons show that the human message source has the potential to lead to a kind of vampire effect by attracting attention and overshadowing the product and the brand. At this point, if a female message source is preferred in ads with ASMR content, how the message source will be positioned emerges as an important factor. In order to prevent sexuality association and to prevent

the vampire effect, the female message source should be positioned in such a way where she is not attention grabbing, as it is in the aforementioned ad of IKEA.

Based on the findings obtained from this study, the possible advantages, disadvantages and application recommendations for brands planning to use ASMR-containing ads can be expressed as follows:

Advantages:

ASMR content, if liked, may delay the ad's reaching the wipe out threshold.

Thanks to its relaxing effect, ASMR contents can be watched/viewed repeatedly and can position products and brands with a positive attitude in the minds of consumers.

ASMR contents can be used as an experiential marketing tool by harmonizing with the products and activating the emotions of the consumer.

With ASMR contents, a dynamic image perception can be created that the brand follows new trends and catches up to date.

Disadvantages:

ASMR content can create a negative attitude towards the brand due to the potential to be perceived as irritating and annoying by some audiences.

Some auditory triggers of ASMR (whispering, surface tapping/scratching sounds, etc.) may trigger misophonia syndrome for some audiences.

ASMR contents may cause a vampire effect by overshadowing the product and brand due to its sexuality association.

Ads with ASMR content may cause the audience to be frightened and startled, especially when the ASMR-containing ad is exposed during the commercial break of any ASMR video, if the timing is not correct and is not prepared in accordance with the nature of ASMR.

Suggestions:

Creating ASMR content by associating it with the product, in other words, using the brand's products as ASMR triggers tool, just like in the ads analyzed in this study, can make the products more catchy.

Whispering, which is one of the most commonly used ASMR triggers, should be used in moderation as it may irritate some people. Whispering can be used at the beginning and/or at the end of the ad, not throughout the ad. On the other

hand, considering the potential of whispering to trigger misophonia syndrome, brands may use a soft voice-over instead of whispering as an auditory trigger, as in IKEA's oddly IKEA ad.

The ASMRtist (human message source) in the ad should not be positioned to overshadow the product and the brand so that it does not create a vampire effect and interrupt and/or decrease the ASMR effect.

Auditory triggers of ASMR by physically contacting with the product (e.g., tapping, scratching the surface) should not be perceived as fake or exaggerated, and the consumer should really be convinced of these sounds. At this point, the sounds in the ad should be in good quality.

The auditory elements in the ad should be arranged in such a way that they do not frighten the audience. Because of the algorithms, there is a possibility that the audience may be exposed to such ads during the commercial break while watching the ASMR-content videos in a relaxed way. Therefore, frightening the audience and detachment from the effect of ASMR can result in gaining their hatred.

Brands should publish ads with ASMR content in digital rather than offline media such as TV and radio. Because the noise factor is intense in offline communication environments, it may be difficult for the audiences to feel the ASMR effect. In the digital environment, the audience may be more focused. At this point, the ASMR effect can be felt more in digital environments.

This study is limited to the comments analyzed within the scope of the data collection period from the digital media platforms within the sample. It was avoided to make erroneous inferences about the gender of commenters on digital media platforms, such as using pseudonyms and misleading profile photos. Within the scope of the study, only the comments on ASMR-containing ads of LCW and Permolit Paint were examined. For all these reasons, the results obtained should not be generalized to all ASMR-containing ads and to a certain product category.

There are several opportunities for future research on ASMR-containing ad effectiveness. First of all, the literature on the possible effect of both the ad audience's and the ASMRtist's gender on the formation of the ASMR effect are quite inadequate. Therefore, it is revealed that the effect of gender on ASMR effect should be analyzed in future studies. More consumer insight is needed to gain insight into ASMR's advertising effectiveness. In addition to content analysis, a netnography approach can be adopted, which can provide more in-depth information on ASMR-content ads to gain consumer insight. On the other hand, the effectiveness of

visual, auditory and haptic triggers according to the product category can be analyzed with a qualitative and quantitative approach. In this way, ASMR contents can be used more effectively in ads. Moreover, the product-ASMR content congruence should also be investigated in future research. Also, ASMRtist's trustability and celebrity effect should be measured. For instance, is the ASMRtist (not a celebrity) more trustworthy for the audiences than a celebrity ASMRtist in the ad? Do the celebrity ASMRtists decrease ad effectiveness by distracting audiences' attention? Does the celebrity's existing image affect ASMR effect and ad effectiveness? In addition, the platform effect should also be investigated in future research. For instance, researchers can compare ASMR-containing TV ad and ASMR-containing online ad in terms of ad effectiveness. In this way, the effect of noise factors on ASMR effect can also be measured. Future studies also have opportunities to measure trigger effectiveness according to product category as well. Does the type of ASMR triggers affect ad effectiveness? Is there any trigger-product category congruence that can be mentioned? For instance, researchers can scrutinize which trigger (auditory, visual, haptic) is more effective on which kind of product. They can measure trigger-product category congruence if this congruence exists.

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The Impact of Derivatives Use on Firm Value: Do Smaller Firms Benefit More? (Evidence from Borsa Istanbul)

N. Savaş DEMİRCİ¹ 

ABSTRACT

While the impact of derivatives use on firm value is still debated theoretically and empirically, whether smaller or larger firms benefit more from the use of derivatives is largely untouched empirically. In this context, the impact of the intensity of derivatives use on firm value separately for smaller and larger firms using derivatives is analyzed with the 2010-2021 annual data of 70 non-financial Borsa Istanbul (BIST) firms. Difference and System Generalized Method of Moments (GMM) estimation results of the dynamic panel data model show that derivatives use positively and significantly affects firm value in smaller firms, and there is no significant effect of derivatives use on firm value in larger firms. Theories proposing that derivatives use can increase firm value are valid for smaller firms. On the other hand, in BIST, smaller firms benefit more than larger firms from derivatives use. The results of the analysis are also consistent with theories suggesting that the value-enhancement effects of derivatives use for hedging are concentrated in smaller firms. The results are encouraging for smaller firms discussing the decision related to financial risk management with derivatives.

Keywords: Financial risk management, Derivatives, Hedging, Firm Value, Panel Data.

JEL Classification Codes: C23, G17, G32

Referencing Style: APA 7

INTRODUCTION

In today's technology world where competition grows day by day, the future is full of more unknowns anymore, and every individual/institutional decision related to the future carries risks at different levels. Risk, which does not have a universal definition and can be defined differently in various disciplines, fundamentally refers to the probability of deviation of the expected outcome from the actual outcome in Finance. Risk differs from uncertainty by being measurable. As well as risk has a negative perception in general, it may bring out negative (threat) or positive (opportunity) results when it is realized. Risk also includes the opportunity of gain in addition to the threat of loss. According to Fabozzi and Drake (2009), the main aim of firms is to reach financial success by taking risks and benefiting from its side providing opportunities. The risks firms face can be classified according to different criteria. Sharpe (1964) expresses that firm risk is the sum of systematic risks (market risks) and unsystematic risks, and while general economic activity brings out systematic risks, firm-specific conditions bring out unsystematic risks. Mowbray, Blanchard, and Williams (1969), who classify

risks as pure and speculative, state that risks causing only negative outcomes are pure, and risks causing negative or positive outcomes are speculative. As financial risk-oriented traditional risk approaches have started to give way to integrated risk approaches globally in the 21st century, BIS (2009) groups liquidity, credit, and market risks as financial, and risks staying out of these and related to operational processes, employees, information technology systems, etc. as non-financial. Vaughan and Vaughan (2008) categorize credit, liquidity, and market risks as financial, and operational, reputational, strategic, and compliance risks as non-financial.

In recent years, more firms have been forced to better understand and measure risks because of increasingly interrelated risks with globalization, fast-changing markets, and sector dynamics, rising awareness that volatility in earnings can significantly affect firm value, and growing organizational requirements for risk-related information to define risk appetite and improve decision-making. In this context, risk management approaches have begun to become widespread. Risk management is a process that comprises identifying, measuring, and managing risk exposures within the

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scope of corporate finance and strategy (Rogers, 2019). The term “risk management”, which aims to maximize the positive impacts and minimize the negative impacts of risk, was first used in the middle of the last century (Lee, 2021). Risk management, whose roots are based in the insurance sector, emerged in the modern sense in the 1950s due to various types of insurance that became incompetent and costly. During the 1960s, some firms implemented practices like reserve funds against possible losses. The use of derivatives began to increase to manage both insurable and uninsurable risks as a result of rising price movements in the markets, and financial risk management practices started to become prevalent in the 1970s (Dionne, 2013). During the 1990s, firm value-enhancement-oriented enterprise risk management (ERM) was developed by expanding the scope of traditional risk management. ERM pays attention to all risks (financial and non-financial) related to accomplishing strategies and reaching financial goals, defines risk as the threat of loss as well as the opportunity of gain, intends to manage risks instead of avoiding risk, and includes applications targeting to manage risks holistically (Lee, 2021). According to the Committee of Sponsoring Organizations of the Treadway Commission (COSO), which standardized the general framework of ERM with its work dated 2004, ERM, which is a dynamic process, aims to reach goals connected with strategy, operations, reporting, and compliance. On the other hand, the need for standardization at the international level has occurred because of increasing interest in risk management so the first version of ISO 31000 was published in 2009, and introduced global risk management standards.

In a firm where risk management is performed, when risk appetite, the amount of risk exposure that the firm accepts, is below the risk exposure of the firm, risk management is implemented to return the exposure level back within the accepted range. There are three alternatives for managing the risk for the firm that identifies the relevant risk: to retain the risk, to mitigate/neutralize the risk and, to transfer the risk. A non-financial firm can bear the risk with potential loss/gain without mitigating or transferring it, reduce the probability of risk occurrence via efficient asset-liability management and/or other internal control processes within the firm, or transfer risk to a third party by traditional insurance, derivatives, alternative risk transfer (ART), also known as structured insurance, and structured financing (Fabozzi and Drake, 2009). While structured financing and ART, which combines traditional insurance products and capital market solutions, are mostly preferred by larger firms, insurance and derivatives are used by

firms commonly for transferring risks for long years. From the standpoint of firms, the main determinants of choice between insurance and derivatives use are relative costs and benefits and whether the risk is insurable or uninsurable. Unlike insurance contracts, derivatives are linked to specific market indexes, can be traded between parties, can make profits, and are not limited to a subject or an amount. They are more suitable for transferring risks correlated with a reference index (Banks, 2004). A derivative is a financial instrument that is derived from financial or real assets like interest rates, stocks, bonds, foreign exchange rates, commodities, and market indexes. etc. and whose value is determined by the value (price) of the underlying asset. Derivatives, which are traded in the futures market, are basically used for hedging (risk transfer via derivatives) and speculation. They may be used for arbitrage. Derivatives are classified into four main groups: forward, futures, swap, and option contracts.

Although derivatives have recently started to be used for transferring non-financial risks like operational risk, these instruments are mostly used to hedge financial risks like credit and market risks (interest rate, foreign exchange, commodity, and equity risks) (Garcia, 2017). With reference to the 2022 data of the Bank for International Settlements (BIS), in global organized exchanges, the daily average turnover of foreign exchange and interest rate futures and option contracts in December was 7.9 trillion US dollars. In over-the-counter (OTC) markets, the same statistic for foreign exchange and interest rate forward, option and swap contracts in April was 10.6 trillion dollars. OTC trading surpassed exchange trading, continuing the trend that started around 2010. After the 2007-2008 Financial Crisis, OTC trading benefited from innovations like central clearing, trade compression, and swap execution facilities. According to the data from BIS, by the end of 2022, the outstanding notional amounts (value of the underlying asset) of all OTC derivatives were approximately 618 trillion dollars. As presented in Figure 1, after a period with decreased hedging in the mid-2010s due to low and stable policy rates in advanced economies, the total notional amounts started to rise again in 2016. In 2022, the share of interest rate, foreign exchange, credit, equity, and commodity OTC derivatives in outstanding notional amounts (618 trillion US dollars) were, respectively, 79.4%, 17.4%, 1.6%, 1.1%, and 0.4%.

While derivatives are intensively used as financial risk management instruments on a global level, especially in developed countries, and value-oriented ERM becomes more common among firms, whether risk management increases the firm value or not is still debated theoretically and empirically. Moreover, views about whether smaller or

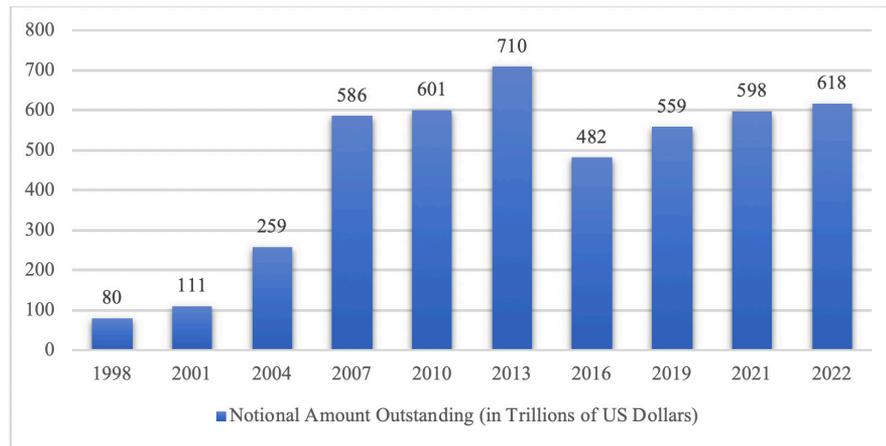


Figure 1. Global OTC Derivatives Market

Source: www.bis.org

larger firms benefit more from the use of derivatives have recently come forward, and derivatives use-firm value relation has begun to be studied at firm size scale. Clark and Mefteh (2010), who find a positive relationship between the use of derivatives and firm value only in larger firms, and Yu (2021), who reports that the use of derivatives positively affects firm value in both smaller and larger firms, are one of the limited researchers that made empirical studies aiming to answer the related question. In this context, the impact of financial risk management with derivatives on firm value is investigated in this study, and by deepening this relation, the impact of the intensity of derivatives use on firm value separately for smaller and larger firms using derivatives is mainly analyzed. For that purpose, after the theoretical and empirical literature is presented, dynamic panel data analysis is employed with the 2010-2021 annual data of 70 non-financial Borsa Istanbul (BIST) firms that used derivatives for hedging at least once during the sample period. This study, which is one of the few articles dealing with derivatives use-firm value relation by separate models for smaller and larger firms, also apart from other studies by using hand-collected notional values instead of simple dummy variable and a longer 12-year data set.

THEORETICAL AND EMPIRICAL LITERATURE

The theoretical foundation of the nexus between risk management and firm value is based on the study of Modigliani and Miller (1958), which is accepted as one of the main theories of Modern Finance. According to the M&M Theory assuming perfectly competitive capital markets, the average cost of capital and market value of a firm are independent of its capital structure, and firm value, which is unaffected by financing decisions, depends on expected earnings (profits) from investments and cost of capital related to its risk class. Smith and Stulz (1985) and MacMinn (1987) state that risk management

practices are financing decisions, and risk management does not affect/increase firm value in the approach of M&M Theory.

Another theory supporting the irrelevance between risk management and firm value is the Capital Asset Pricing Model (CAPM), which was developed by Treynor (1961), Sharpe (1964), Lintner (1965, 1969), and Mossin (1966). The basis of the theory comes from Markowitz’s (1952) Modern Portfolio Theory, which focuses on the expected return-risk relation and argues that the expected return can be maximized for a given level of risk via portfolio diversification. CAPM, which divides the risk of a financial asset into two components as systematic and unsystematic, associates the expected return of the financial asset with its systematic risk linked to movements affecting the whole economy. According to the theory, the value of the financial asset is not affected by unsystematic (diversifiable for investors) risk because investors can eliminate unsystematic risk by building up a portfolio in a competitive market. Financial assets having high systematic risk measured by the β coefficient also have high expected returns. With respect to the CAPM, the relation between the expected return and risk of a stock is as follows:

$$E(R_i) = R_f + \beta_i[E(R_m) - R_f] \quad i = 1, \dots, N$$

$E(R_i)$: The expected return on the stock

R_f : The risk-free interest rate

β_i : The measure of systematic risk of the stock

$E(R_m)$: The expected return of the market portfolio

$E(R_m) - R_f$: The market risk premium

$\beta_i[E(R_m) - R_f]$: The risk premium of the stock

In the CAPM, where the total risk of a firm (stock) is composed of systematic (market) risk and unsystematic (firm-specific) risk, risk management related to firm-specific risks does not affect firm value because the expected return on a stock is unaffected by unsystematic risks. On the other hand, Smith (1995) expresses that risk management related to systematic risks also does not affect firm value due to the fact that risk is correctly priced in parallel with the assumptions of the model.

Although the main theories of Modern Finance argue that risk management does not increase firm value, theoretical approaches suggesting that efficient risk management may increase firm value gradually advanced from the 1980s with the spread of ERM implementations. Positive theories propose that derivatives within the scope of risk management can increase firm value by reducing tax liability and several costs (agency costs, costs of financial distress, and cost of capital). According to Stulz (1984), one of the theorists stating that risk management can positively affect firm value, firms where managers' compensation depends on the change in the value of the firm can increase their value by using derivatives within active risk management policies. Considering the Agency Theory related views of Jensen and Meckling (1976), who suggest that practices like giving managers stock options can decrease agency costs, the use of derivatives can increase firm value by reducing these costs. Stulz and Smith (1985) propose that risk management can boost firm value by decreasing the costs of financial distress and reducing the expected tax liability with decreasing volatility of pre-tax firm value. According to Campbell and Kracaw (1987), risk management enabling managers to work more efficiently increases firm value by decreasing agency costs. Froot, Scharfstein, and Stein (1993) state that, in a firm not managing its risks, there will be volatility in cash flows generated by real assets, and volatile internal financing sources make external financing sources costlier and lessen the amount of investment. Hedging can reduce this variability in cash flows so it can increase the value of the firm. DeMarzo ve Duffie (1995) express that risk management will reduce the information asymmetry between managers and shareholders, and this will improve managers' investment decisions and lead to higher firm value. Judging from the approach of Stulz (1990), who argues that information asymmetry increases agency costs via unproductive investments within the scope of the Agency Theory, it can be said that risk management can increase firm value by reducing information asymmetry.

In particular of the nexus between risk management and firm value, arguments about whether smaller or larger firms implementing risk management benefit more in terms of firm value have begun to become prevalent. Haushalter (2000) proposes that smaller firms, which have more information asymmetries, can increase their value relatively more than larger firms with reduced information asymmetry by risk management. Guay and Kothari (2003) suggest that risk management with derivatives can increase the firm value more in smaller firms by decreasing the expected costs of financial distress more in these firms with referencing to Warner (1977), who states that the costs of financial distress do not increase proportionately with firm size. Guay and Kothari (2003) also argue that in larger firms where risk management practices are various and more complex, derivatives for hedging have a limited share in general risk management programs so the effect of these instruments on value will be less. In a different view from those, according to Allayannis and Weston (2001), who point out that the use of derivatives has large fixed start-up costs, larger firms using derivatives can increase their firm value more due to the advantage of economies of scale.

While there are many studies analyzing the impact of the use of derivatives on firm value without considering firm size, there are a few articles searching the relationship between derivatives and firm value for smaller and larger firms separately. Clark and Mefteh (2010) use the data of 176 non-financial French firms for the year 2004 in multiple regression analysis, divide firms into two groups as smaller and larger, and analyze the effect of derivatives use on firm value for two separate groups. According to the results of the study, in which Tobin's q is used as a proxy for firm value, and the notional values of foreign exchange derivative contracts represent the use of derivatives, the intensity of derivatives use positively and significantly affects firm value in larger firms and does not significantly affect firm value in smaller firms. Yu (2021) analyzes the effect of derivatives use on firm value with quarterly data of North American firms for the 2006-2017 period by grouping firms as smaller and larger. The results of two-stage least squares regression models estimated for smaller and larger firms show that the use of derivatives positively and significantly affects firm value in both smaller and larger firms, and this effect is bigger in smaller firms. In addition, there are two main studies searching the effect of derivatives use on firm value for non-financial firms in Turkey. Ayturk, Gurbuz, and Yanik (2016), and Akpınar and Fettahoglu (2016), who don't group firms according to size, can't find significant effect of derivatives use on firm value.

ECONOMETRIC ANALYSIS

Data Set, Variables, and Descriptive Statistics

In the econometric analysis¹ of the study, 2010-2021 annual data of non-financial firms quoted on Borsa Istanbul are utilised for searching the impact of derivatives use for hedging on firm value separately for smaller and larger firms. Financial firms, which are subject to specific capital regulations, are excluded from the data set because they are market-makers in the derivatives market and use derivatives for different motivations. Though detailed information about the use of derivatives is available with the International Financial Reporting Standards (IFRS) 7 - Financial Instruments: Disclosures, which came into force for Turkish quoted firms in 2007, the beginning year of the data set is taken as 2010 due to increasing level of the intensity of derivatives use and growing data set from this year. Before getting the final sample, non-financial firms having year-end open derivative contracts for hedging at least once during the 2010-2021 period are determined, and 70 firms with complete information related to the notional values of derivative contracts are selected by reading financial reports in detail. In accordance with the main purpose of the study, these firms are split into two groups according to the year-end asset size in 2021: smaller firms and larger firms. 35 firms with the lowest total assets are categorized as smaller, and 35 firms with the highest total assets are categorized as larger. Derivative contracts firms declared that they used for speculative aims are not included in the computation of annual notional amounts. When there is no information for the notional values of contracts in TRY (Turkish lira), values are converted into TRY with year-end exchange rates. The notional values of forward, futures, swap, and option contracts are all taken without separating instruments. The data of firms are taken from Finnet and the website of the PDP (kap.org.tr), and the year-end exchange rates are gotten from the website of the CBRT (tcmb.gov.tr).

In this study, which aims to handle the impact of the use of derivatives on firm value in the axis of firm size, in addition to two variables representing firm value (dependent) and derivatives use (independent), five control variables are selected. The variables are chosen from the studies of Allayannis and Weston (2001), Junior and Laham (2008), Clark and Mefteh (2010), and Nova, Cerqueira, and Brandao (2015), who searched derivatives use-firm value relation. The year-end values of balance sheet items are taken in the calculations related to the variables.

Dependent Variable:

Firm Value (Q): Tobin's q is used as a proxy for firm value. Tobin (1969) defines q as the ratio of the market value of assets divided by the replacement cost of the assets. For getting the q, the method that Junior and Laham (2008), Clark and Mefteh (2010), and Nova, Cerqueira, and Brandao (2015) use is preferred in the study.

$$Q = \frac{TA - TE + MVE}{TA}$$

TA: Book value of the assets

TE: Book value of the equity

MVE: Market value of the equity

Independent Variable:

Derivatives Use (DERIV): The notional values of derivative contracts, which have higher informative power than the simple dummy variable, are taken for measuring derivatives use to get more accurate results like in the studies of Junior and Laham (2008), Clark and Mefteh (2010), Marami and Dubois (2013), and Nova, Cerqueira, and Brandao (2015). The ratio, which also represents the intensity of derivatives use, is calculated as notional value divided by total assets.

$$DERIV = \frac{\text{Notional Value}}{\text{Assets}}$$

Control Variables:

Leverage (LEV): Modigliani and Miller (1963) state that a firm can increase its value by using more debt because of the tax shield of interest. Leverage is calculated as percentage by considering the broad definition of debt.

$$LEV (\%) = \frac{\text{Liabilities}}{\text{Assets}} \times 100$$

Liquidity (LIQ): Jensen (1986) proposes that managers invest sources in negative return projects in firms with high liquidity (free cash flows), and this will decrease firm value. Current ratio is used to represent liquidity.

$$LIQ = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Investment Opportunities (INV): Future investment opportunities may increase firm value. The ratio of capital expenditures to net sales is used as a proxy for investment opportunities as in the study of Allayannis and Weston (2001).

¹ All analyses are performed by Stata 15 Software.

$$INV = \frac{\text{Capital Expenditures}}{\text{Net Sales}}$$

Profitability (PROF): Allayannis and Weston (2001) suggest that more profitable firms are rewarded with higher market values. Return on assets is preferred to measure the level of profitability as a percentage.

$$PROF (\%) = \frac{\text{Net Income}}{\text{Assets}} \times 100$$

Firm Size (SIZE): According to Demsetz and Lehn (1985), larger firms have more capital sources and higher market values. In the literature, total assets, total sales, or the total number of employees are commonly defined as proxies for firm size. Total assets are used to measure the firm size in the analysis. Total assets are deflated by Consumer Price Index (CPI) (2003=100) and converted into natural logarithms.

$$SIZE = LN (\text{Assets})$$

Tables 1 and 2 report the descriptive statistics of the variables for smaller and larger firms (2010-2021).

According to the descriptive statistics, while the average valuation of smaller firms as measured by Tobin's q is higher, the use of derivatives is generally more intensive in larger firms. Dolde (1993) suggests that even if smaller

firms overcome large start-up costs barriers related to risk management, they will continue to face large fixed costs. At this point, it can be said that continuous large costs for smaller firms using derivatives lead to the lower intensity of derivatives use in these firms. Larger firms operate more profitably than smaller firms on average. The mean size of larger firms is approximately 13.5 times that of the mean size of smaller firms.

Smaller and larger firms are also compared by using a t-test. Based on the results of the test, the mean values of the intensity of derivatives use and firm size are significantly different between smaller and larger firms (Table 3).

Method of the Analysis and Results

Dynamic econometric models are models with lagged dependent variables. Because static estimators are biased and inconsistent due to potential endogeneity arising from the lagged dependent variable and other endogenous independent variables, instrumental variable estimators were introduced. Dynamic panel data models are consistently estimated via valid instrumental variables with Generalized Method of Moments (GMM). Arellano and Bond's (1991), Arellano and Bover's (1995), and Blundell and Bond's (1998) GMM estimators are extensively used to estimate.

Table 1. Descriptive Statistics (Smaller Firms)

Smaller Firms	Q	DERIV	LEV (%)	LIQ	INV	PROF (%)	SIZE (in Millions of TRY)
Mean	1.746	0.052	53.616	1.852	0.057	4.825	187.99
Median	1.210	0.000	55.985	1.530	0.005	4.215	149.84
Max.	61.580	0.983	103.720	9.090	3.383	43.310	677.38
Min.	0.550	0.000	9.800	0.300	-0.529	-30.120	15.78
Std. Dev.	3.342	0.119	20.289	1.152	0.236	8.168	145.99
No. Obs.	420	420	420	420	420	420	420

Table 2. Descriptive Statistics (Larger Firms)

Larger Firms	Q	DERIV	LEV (%)	LIQ	INV	PROF (%)	SIZE (in Millions of TRY)
Mean	1.354	0.095	56.949	2.146	0.084	6.233	2,537.26
Median	1.200	0.022	60.810	1.400	0.028	5.885	1,110.81
Max.	6.220	1.101	103.850	17.400	2.963	43.330	18,406.33
Min.	0.220	0.000	7.470	0.210	-2.487	-27.280	63,18
Std. Dev.	0.626	0.168	22.605	2.502	0.265	8.494	3,267.00
No. Obs.	420	420	420	420	420	420	420

Table 3. Smaller Firms vs Larger Firms – Mean Differences

	Mean _l (Larger Firms)	Mean _s (Smaller Firms)	Difference	t-statistic
Q	1.354	1.746	-0.392	2.363**
DERIV	0.095	0.052	0.043	-4.280***
LEV	56.949	53.616	3.333	-2.249**
LIQ	2.146	1.852	0.294	-2.187**
INV	0.084	0.057	0.027	-1.559
PROF	6.233	4.825	1.408	-2.449**
SIZE	2,537.26	187.99	2,349.27	-14.722***

***, **, * denote significance at the 1%, 5%, and 10% levels, respectively.

Assuming that the lagged dependent variable affects the current value of the dependent variable, Arellano-Bond GMM estimator is preferred to form a dynamic model and solve the potential endogeneity issue. This estimator is based on differencing the model. All valid lagged values of dependent and endogenous independent variables can be used as instrumental variables within Difference GMM approach. The Sargan (1958) test, Arellano-Bond autocorrelation test, and the

Wald (1943) test are performed after estimating the model.

To search the impact of derivatives use on firm value for smaller and larger firms with the 2010-2021 annual data of 70 non-financial BIST firms, two-step estimator requiring estimation of a weighting matrix is employed, and appropriate lagged values of variables are used as valid instrumental variables. The balanced panel data

$$Q_{it} = \beta_1 Q_{it-1} + \beta_2 DERIV_{it} + \beta_3 LEV_{it} + \beta_4 LIQ_{it} + \beta_5 INV_{it} + \beta_6 PROF_{it} + \beta_7 SIZE_{it} + u_i + v_i$$

Table 4. Estimation Results of Dynamic Panel Data Model – Difference GMM

Difference GMM Independent Variables	Dependent Variable: Q	
	Smaller Firms	Larger Firms
Q(-1)	.164768 *** (.0203546)	.3645493*** (.042589)
DERIV	1.958215*** (.5576061)	.0840188 (.2253965)
LEV	.0145862*** (.003344)	.0113725*** (.0019693)
LIQ	-.2512531*** (.0526953)	-.0153917 (.0162565)
INV	-.1774582 (.184327)	.0117985 (.0518343)
PROF	.0811696*** (.0052054)	.0163495*** (.0020293)
SIZE	.034329 (.1312732)	-.0677458 (.0447668)
m2	-1.1562	-1.6429
Inst. variables for the equations in first differences	Q(-2 to -4), DERIV(-2 to -3), LEV(-2 to -2), LIQ(-2 to -3), INV(-2 to -3), PROF(-2 to -3), SIZE(-2 to -3)	Q(-2 to -6), DERIV(-2 to -4), LEV(-2 to -8), LIQ(-2 to -6), INV(-2 to -6), PROF(-2 to -5), SIZE(-2 to -6)
Sargan stat.	28.34211	32.43983
Wald chi2 stat.	1912.38***	1073.50***
Number of Observations	350	350

***, **, * denote significance at the 1%, 5%, and 10% levels, respectively. Standard errors are represented in parentheses.

Table 5. Estimation Results of Dynamic Panel Data Model – System GMM

System GMM	Dependent Variable: Q	
Independent Variables	Smaller Firms	Larger Firms
Q(-1)	.3055375*** (.0138455)	.4039948*** (.0340999)
DERIV	1.332865*** (.508307)	-.2005346 (.1226432)
Control Variables	Yes	Yes
m2	-1.168	-1.484
Instrumental variables for the equations in level	One-period lagged first differences of variables	One-period lagged first differences of variables
Sargan stat.	31.28521	32.00639
Wald chi2 stat.	1191.19***	2174.08***
Number of Observations	385	385

***, **, and * respectively indicate significance at the 1%, 5%, and 10% levels and standard errors are in parentheses.

model where independent variables are treated as endogenous like in the studies of Loncan and Caldeira (2014) and Ayturk, Gurbuz, and Yanik (2016), is presented. Table 4 shows the coefficient estimation results of the model based on two separate samples².

The m2 test statistics show that there are no second-order serial correlations in the error terms of the first-differenced equations as expected. The Sargan test indicates that instrumental variables are exogenous as a group in estimations for smaller and larger firms. The results of the Wald test represent that the overall model is significant for two samples. That the lagged dependent variables have positive and significant coefficients confirms the selection of the dynamic approach.

Estimations of the model point out that the intensity of derivatives use in smaller firms positively and significantly affects firm value, and there is no significant effect of the intensity of derivatives use on firm value in larger firms. This result supports the views of Stulz (1984), Stulz and Smith (1985), Campbell and Kracaw (1987), Froot, Scharfstein, and Stein (1993), and DeMarzo and Duffie (1995), who argue that efficient risk management with derivatives increases firm value, for smaller firms. Positive and significant coefficient of derivatives use in smaller firms, and insignificant coefficient of derivatives use in larger firms are in line with the remarks of Haushalter (2000), and Guay and Kothari (2003), who state that the potential benefits of hedging are concentrated in smaller firms. Smaller firms benefit more than larger firms from derivatives use. Although the intensity of derivatives use

in smaller firms is lower, the value-enhancement effect of the intensity of derivatives use is higher in these firms. This study confirms the size effect of derivatives use on firm value for firms in Turkey. The results partially match up with the findings of Yu (2021), who analyzes the effect of derivatives use on firm value and finds that derivatives use positively and significantly affects firm value in both smaller and larger firms, and this effect is bigger in smaller firms.

In addition to the diagnostic tests of the results from the Difference GMM estimator, for robustness check, the model is also estimated by using System GMM developed by Arellano and Bover (1995), and Blundell and Bond (1998). System GMM estimator, which uses the moment restrictions of the system including level equation as well as difference equation, exploits additional orthogonality conditions allowing the use of lagged first differences of variables as instruments for equations in level. Table 5 presents the results of the coefficient estimation for two separate samples by two-step System GMM, where one-period lagged first differences of independent variables are used for the equations in level in addition to the instrumental variables in the Difference GMM approach.

There are no remarkable differences between the results taken from Difference and System GMM estimators. The effect of derivatives use on firm value for smaller firms is positive and significant with a slight decrease in the coefficient. Even if the sign of the coefficient of derivatives use changes, it is still insignificant for larger firms³.

² The model is estimated with the xtabond Stata command.

³ The model is estimated with the xtddpsys Stata command.

CONCLUSIONS

That firms face more risks due to fast-changing market dynamics day by day forces more firms to manage the risks. The spread of ERM practices, which define risk as the threat of loss as well as the opportunity of gain, and focus on value-enhancement integrated risk management implementations, causes the relationship between risk management and firm value to be searched more. While theoretical and empirical studies about this subject continue, this relation has recently begun to be investigated at firm size scale, and questions about whether the potential positive effect of risk management is more intensive in smaller or larger firms have started to be asked. In this context, the impact of derivatives use, one of the commonly used financial risk management instruments, on firm value is analyzed with the data of firms quoted on BIST, and the dynamic panel data model is separately estimated for smaller and larger firms. The results of model estimation show that derivatives use causes an increase in value in smaller firms and has no significant effect on value in larger firms. It is obvious that smaller firms benefit more than larger firms from derivatives use. This study shows that there is a size effect of derivatives use on firm value for firms in Turkey.

The results of the analysis confirm that the efficient use of derivatives for hedging decreases costs more in smaller firms, so smaller firms benefit more than larger firms. In the framework of related theories, which focus on whether smaller or larger firms benefit more from derivatives, there are two sources of this outcome: decreasing agency costs due to reduced information asymmetry and decreasing costs of financial distress. Smaller firms have more information asymmetry than larger firms. Risk management with derivatives reduces information asymmetry between managers and shareholders, and this makes investments more productive and decreases agency costs more in smaller firms. On the other hand, smaller firms face relatively higher costs of financial distress. Risk management with derivatives decreases the costs of financial distress more in smaller firms. In the end, derivatives use increases firm value more in smaller firms. Although smaller firms use derivatives less intensively due to continuous large costs related to risk management, they increase their value with the help of these financial risk management instruments. Additionally, it can be said that derivatives for hedging have a limited share in general risk management programs of larger firms and, larger firms face likely lower agency costs, costs of financial distress, and cost of capital, so the effect of these instruments on

value is limited and insignificant. In Turkey, derivatives use is not a value-enhancement tool for larger firms. It is only a risk transfer instrument for these firms. The general results of the analysis are encouraging for smaller firms discussing the decision related to risk management with derivatives. Further research can study the exact sources of the distinct value-enhancement effect of derivatives use between smaller and larger firms.

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The Renewable Energy Performances of Black Sea and Balkan Countries: An Application of Grey Principal Component Analysis

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ABSTRACT

Renewable energy, accepted as a solution to global energy needs, is an environmentally benign energy source that contributes to the economic development of countries, protects natural resources, and reduces pollution. Dependency on non-renewable energy sources raises serious concerns such as environmental degradation, energy security problems, and supply shortages. This study aims to evaluate the renewable energy performances of 14 Balkan and Black Sea countries with similar historical, cultural, and structural characteristics. For this purpose, the data on countries' renewable energy indicators in 2020 is used in the grey principal component analysis that integrates grey system theory and principal component analysis. Thanks to the grey principal component analysis, it is possible to measure the countries' existing state in renewable energy and evaluate the performance of countries comparatively. Results indicate that countries such as Russia and Türkiye, which stem from their potential in renewable energy indicators, or European Union member countries such as Greece and Romania, which are expected to fulfill certain obligations on renewable energy, rank first in the reference year. On the other hand, countries such as Bosnia–Herzegovina and Serbia, which have critical shortcomings in renewable energy applications, are in last place in the performance evaluation.

Keywords: Renewable Energy, Performance, Ranking, Black Sea and Balkan Countries, Grey Principal Component Analysis.

JEL Classification Codes: Q4, Q42, C60

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INTRODUCTION

Today, increasing environmental concerns, greenhouse gas emissions, and depletion of fossil fuel reserves as the dominant energy source necessitate transformation and draw attention to renewable energy sources. According to the Energy Transformation 2050 report published by the International Renewable Energy Agency (IRENA), while the share of renewable energy in global energy consumption was 10.5% in 2010, this ratio will be foreseen as 28% in 2030 and 66% in 2050 according to the planned energy scenario (IRENA, 2020: 23). Therefore, increasing the use of renewable energy sources no doubt contributes to developing a safe, sustainable, and competitive energy system. It brings with it the expectations of economic development, social inclusion, and environmental sustainability, especially for developing countries (Cantatero, 2020: 1). As a matter of fact, renewable energy sources are essential for these countries as a way of economic development, ensuring energy security, reducing dependency on energy imports and protecting the environment (Lanshina et al., 2018: 600).

Increasing energy consumption and greenhouse gas emissions with rapid industrialization and urbanization in countries cause climate change and warming problems. Countries are accelerating their transition to renewable energy sources to reduce greenhouse gas emissions, which cause damage to the environment, and to combat climate change and increasing warming threats (Shafiei and Salim, 2014: 547). Overcoming these destructive problems, which are global, is possible with the conclusion of international agreements and the implementation of global actions (Bhat and Mishra, 2018: 152). One of the first crucial international steps to reduce greenhouse gas emissions is the Kyoto Protocol adopted in 1997 within the scope of the United Nations Framework Convention on Climate Change (UNFCCC). Adherence to the protocol sets binding targets for countries in reducing greenhouse gas emissions, which require the use of renewable energy sources and the application of environmentally friendly technologies (UNFCCC, 2008: 39). Sustainable Development Goals (SDGs), adopted by the United Nations General Assembly (UNGA) in 2015, provide a transformative framework that guides

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development in economic, social and environmental fields to achieve a sustainable future (Allen et al., 2016: 199). Sustainable energy is at the center of the agenda described as “Transforming Our World: The 2030 Agenda for Sustainable Development”. Because while the related target emphasizes the use of clean and sustainable energy sources to meet energy needs, this use reduces greenhouse gas emissions and thus contributes to the fight against climate change (Gielen et al., 2019: 38). At the same time, reasons such as the supply chain difficulties due to the pandemic, the Russia-Ukraine conflict and the rising energy prices caused by the conflict have added urgency for countries to accelerate their transition to renewable energy today (International Energy Agency (IEA), 2022: 16). In particular, the European Commission has determined the 2030 target for renewable energy sources as 45% to reduce the dependence on fossil fuels imported from Russia (REPowerEU, 2022). Similarly, the IEA Sustainable Development Scenario mandates a 40% reduction in the proportion of fossil fuels in the energy mix by 2030 to achieve the SDGs related to energy (IEA, 2020: 89, 105). In this context, considering the central role of renewable energy in the transition to a sustainable future energy system, determining the current situation of the countries constitutes the originality of this study.

This study uses grey principal components analysis to determine each country’s performance in terms of renewable energy. Grey principal component analysis, introduced to the literature by Tung and Lee (2009), is an analysis that integrates grey system theory and principal component analysis and measures the closeness of the relationship between the data according to the similarities of the geometric curves. In this analysis, which does not require any statistical distribution of the data, a matrix is constructed using the grey absolute correlation degree. This matrix is considered a correlation matrix in principal component analysis, and a performance evaluation model is defined. The study aims to measure the renewable energy performance of the selected Black Sea and Balkan countries based on this defined model. For this purpose, the study determines the country performance of 14 countries in the Black Sea and Balkan geography by using 15 renewable energy indicators in 2020.

The remainder of this paper is organized as follows. Section 2 reviews relevant literature on renewable energy. The grey absolute relationship degree and the theoretical structure of the grey principal component analysis are defined in Section 3. Section 4 gives the experimental results, country performance scores, and

rankings. Finally, the study ends with the presentation of the findings and recommendations for the comparative evaluation of the renewable energy performances of the countries.

LITERATURE REVIEW

The economic potential of renewable energy sources has started to attract the attention of policymakers, academics, industry workers, and other stakeholders in recent years. In this context, the following studies on the economic potential, environmental effectiveness, and effects on sustainable development of renewable energy are presented.

Đurašković et al. (2021) analyzed the current trends and policies in the renewable energies of the Western Balkan countries (Albania, Bosnia–Herzegovina, Kosovo, Montenegro, North Macedonia, and Serbia). They showed that if the countries adopt a transparent, predictable, planned, and active approach to their renewable energy policies, they can create sustainable and flexible energy systems that support their economic development. Karakosta et al. (2012) examined the economic, political, and institutional development processes of renewable energy resources in Serbia and Bosnia–Herzegovina. They discovered that to increase the share of renewable energy in the energy mix of countries, initiatives towards renewable energy sources should be supported and environmental action plans based on energy efficiency should be implemented.

Bhattacharya et al. (2016) examined the effects of renewable energy consumption on the economic growth of 38 countries, including Bulgaria, Romania, Slovenia, Türkiye, Ukraine, and Greece, between 1991 and 2012 using panel data analysis. Consumption of renewable energy is a significant economic growth driver for nations like Bulgaria, Greece, and Romania; it has no positive or negative impact on economic growth in Türkiye; and it has a negative impact on economic growth in Ukraine. Koçak and Şarkgüneşi (2017) evaluated whether renewable energy consumption has an impact on economic growth in 9 Black Sea and Balkan countries for the period 1990-2012 within the framework of the traditional production function. The results demonstrate that using renewable energy has a long-term beneficial impact on economic growth.

Gökgöz and Güvercin (2018) evaluated renewable energy efficiency and productivity performance for European Union (EU) countries between 2004 and 2014 using data envelopment analysis. They found that

countries such as Sweden, Germany, Spain, Belgium, and Romania are among the leading countries in renewable energy efficiency. Carfora et al. (2022) examined the role of renewable and non-renewable energy sources in shaping energy import demand in EU countries. The analysis made using Input-Output tables showed that in the case of import substitution with domestic renewable energy sources, there will be positive contributions to energy dependence, energy security, and sustainable development.

Li and Leung (2021) tried to reveal the renewable energy economic growth relationship in 7 European countries (Germany, Italy, Netherlands, Poland, Spain, Türkiye, and the United Kingdom) with econometric modeling techniques from 1985 to 2018. Empirical findings show that economic growth and fossil fuel prices are essential starting points in the transition to renewable energy. Woo et al. (2015) examined the environmental efficiency of renewable energy in OECD countries from static and dynamic perspectives. Geographical disparities in the environmental efficiency of renewable energy across the OECD were revealed by the implementation results for 2004–2011.

Wang et al. (2022) examined the factors affecting the renewable energy consumption of E7 (Brazil, China, Indonesia, India, Mexico, Russia, Türkiye) countries for the period 1990–2021. Using various panel data approaches, they found that renewable energy consumption contributes more to economic growth and carbon emissions reduction than conventional fuels. Meng et al. (2022) examined the effect of trade diversification, green innovation, and renewable energy on carbon emissions of BRICS-T (Brazil, Russia, India, China, South Africa, and Türkiye) countries for the period 1995–2020. As a result of the analysis with panel data approaches, it has been shown that countries have transformed their production technologies into green technologies and encouraged their renewable energy consumption to reduce carbon emissions.

Recently, many ecological studies have been carried out to meet sustainable development goals by taking renewable energy sources, greenhouse gas emissions, and energy inequality as an indicator of environmental sustainability. Bianco et al. (2021) evaluated the countries in the Eurasian Economic Union within the scope of SDG-7 “Ensure access to affordable, reliable, sustainable and modern energy for all” target. As a result of the analysis for the period 2000–2017, they found that GDP growth and energy intensity are the main factors that determine energy consumption. Wang et

al. (2022) evaluated the relationship between different renewable energy sources and economic growth in selected Asian countries within the scope of the SDG 7 target. It has been concluded that the use of renewable energy resources has a positive and significant effect on Asian economies. Adebayo et al. (2023), within the scope of SDG-13 “Take urgent action to combat climate change and its impacts” target, examined the effect of renewable energy use and natural resources in BRICS countries on the limitation of greenhouse gas emissions with the CS-ARDL technique. They have shown that investments in technological innovation, renewable energy consumption, and natural resources increase environmental sustainability by limiting greenhouse gas emissions.

The literature presented above shows that the economic potential of renewable energy sources and energy efficiency have provided many studies in the related literature. However, this study differs from the studies in the literature in terms of comparing the renewable energy performances of the Black Sea and Balkan countries.

RESEARCH METHODOLOGY

Grey Absolute Degree of Incidence

Grey system theory, introduced to the literature by Deng Julong in 1982, is widely used for relationship analysis, forecasting, decision-making, programming, and control in systems with little data and limited information (Huang, Tsai, and Subeq, 2020: 8099). The absolute grey relationship degree, a part of the grey system theory, measures the degree of relationship between the series according to the similarity of the geometric curves obtained from the series. The more similar the curves, the higher the degree of relationship between the series (Liu and Lin, 2006: 86). The steps of the absolute grey relationship degree as follows:

Provided that there are n ($k=1,2,\dots,n$) alternatives and m ($i=1,2,\dots,m$) evaluation indicators, the behavioral series $Z_i=(z_i(1),z_i(2),\dots,z_i(n)),\forall i$ is created. For the comparability of these series with different qualities and units, the normalized series $X_i=(x_i(1),x_i(2),\dots,x_i(n)),\forall i$ is needed. While performing the normalization process, the following equations are applied, respectively, according to the desired target being benefit, cost, and optimum value (Tung and Lee, 2009: 5917):

$$x_i(k) = \frac{z_i(k) - \min_k z_i(k)}{\max_k z_i(k) - \min_k z_i(k)}, \forall i, k \quad (1)$$

$$x_i(k) = \frac{\max_k z_i(k) - z_i(k)}{\max_k z_i(k) - \min_k z_i(k)}, \forall i, k \quad (2)$$

$$x_i(k) = 1 - \frac{|z_i(k) - OV|}{\max(\max_k z_i(k) - OV, OV - \min_k z_i(k))}, \forall i, k \quad (3)$$

where OV is the optimum value.

The absolute grey degree of relationship emphasizes the similarity between the geometric curves obtained from the series, not the relative positions of the series. Therefore, it is necessary to obtain zero initial points/images of all series curves, namely $x_i^0(k) = x_i(k) - x_i(1), k = 1, 2, \dots, n$. Let $x_i^0(k) = (x_i^0(1), x_i^0(2), \dots, x_i^0(n))$ be images with zero initial points, the equations s_i and $s_i - s_j$ are defined as in equations (4) and (5), respectively (Tung and Lee, 2009: 5917):

$$s_i = \int_1^n X_i^0 dt \quad (4)$$

$$s_i - s_j = \int_1^n X_i^0 - X_j^0 dt \quad (5)$$

Where s_i and $s_i - s_j$ satisfy equations (6) and (7) respectively:

$$|s_i| = \left| \sum_{k=2}^{n-1} x_i^0(k) + \frac{1}{2} x_i^0(n) \right| \quad (6)$$

$$|s_i - s_j| = \left| \sum_{k=2}^{n-1} (x_i^0(k) - x_j^0(k)) + \frac{1}{2} (x_i^0(n) - x_j^0(n)) \right| \quad (7)$$

Let X_i and X_j be two series with the same length, the absolute grey relationship degree between these two series is calculated using equation (8) (Tung and Lee, 2009: 5918).

$$r_{ij} = \frac{1 + |s_i| + |s_j|}{1 + |s_i| + |s_j| + d(s_i, s_j)} \quad (8)$$

$$\text{Where } d(s_i, s_j) = \sum_{k=2}^n |x_i^0(k) - x_j^0(k)|.$$

The grey correlation matrix R from the elements r_{ij} , which expresses the absolute grey relationship degree between the X_i and X_j series, is formed as in equation (9). The r_{ij} elements here provide the properties $r_{ii} = 1, 0 < r_{ij} \leq 1$ and $r_{ij} = r_{ji}$. Since R is a symmetric matrix, it is accepted as a correlation matrix (Tung and Lee, 2009: 5918).

$$R = \begin{bmatrix} 1 & r_{12} & \dots & r_{1m} \\ r_{21} & 1 & \dots & r_{2m} \\ \vdots & \vdots & \ddots & \vdots \\ r_{m1} & r_{m2} & \dots & 1 \end{bmatrix} \quad (9)$$

Grey Principal Component Analysis

The grey principal component analysis is based on the R matrix. Let $X^t = [X_1, X_2, \dots, X_m]$ be a matrix. Using the linear transform $Y_i = y_i^t X$ with $y_i^t = [y_{i1}, y_{i2}, \dots, y_{im}]$, grey covariance of Y_i and Y_j series is expressed as $GC(Y_i, Y_j) = y_i^t R y_j$, grey variance of Y_i series as $GV(Y_i) = y_i^t R y_i$. Therefore, the principal component problem expresses the maximization of $GV(Y_i) = y_i^t R y_i$ under the constraint $y_i^t y_i = 1$. According to the Kaiser rule, $Y_p, p = 1, 2, \dots, l$ related principal components with eigenvalues greater than one are selected (Tung and Lee, 2009: 5918).

Let it be $\lambda_1 \geq \lambda_2 \geq \dots \geq \lambda_l$ and $l \leq m$. If $(\lambda_p, e_p), (\lambda_2, e_2), \dots, (\lambda_l, e_l)$ are the eigenvalue-eigenvector pairs of the R matrix, the principal component is defined as in equation (10) (Tung and Lee, 2009: 5918):

$$Y_i = e_i^t X = e_{i1} X_1 + e_{i2} X_2 + \dots + e_{im} X_m, 1 \leq i \leq l \quad (10)$$

where $e_i^t = [e_{i1}, e_{i2}, \dots, e_{im}]$. When eigenvectors are used as weights, the score of principal component of alternative is calculated using equation (11):

$$pc_i(j) = \sum_{k=1}^m e_{ik} x_k(j), \forall i, j \quad (11)$$

Using each principal component and its corresponding eigenvalue as weight, the total score of the alternatives is calculated using equation (12). The performance ranking of the alternatives is made according to the total score (Tung and Lee, 2009: 5919).

$$PC_i(j) = \sum_{i=1}^l \frac{\lambda_i}{\sum_{i=1}^l \lambda_i} pc_i(j) \quad (12)$$

DATA AND EXPERIMENTAL RESULTS

This study aims to evaluate the renewable energy performances of selected Black Sea and Balkan countries, taking into account the central role of renewable energy in the transition to a future sustainable energy system. For this purpose, the sample of the study consists of 14 countries (Albania, Bosnia-Herzegovina, Bulgaria, Croatia, Georgia, Greece, Montenegro, North Macedonia, Romania, Russia, Serbia, Slovenia, Türkiye, and Ukraine) located in the Black Sea and Balkan geography. The indicators used in the evaluation of the renewable energy performance of the countries that are the subject of the

Table 1: Indicators used in Renewable Energy Performance Evaluation

Code	Indicator	Source
X_1	CO ₂ emissions (kt)	WDI
X_2	Adjusted savings: carbon dioxide damage (% of GNI)	WDI
X_3	Total renewable energy capacity (MW)	IRENA
X_4	Renewable electricity generation (GWh)	IRENA
X_5	Renewable energy imports (Terajoules)	UNSD
X_6	Renewable energy supply (Terajoules)	UNSD
X_7	Renewable energy consumption (Mtoe)	UNSD
X_8	Development of environment-related technologies (% all technologies)	OECD Green Growth
X_9	Environmentally related government R&D budget (% total government R&D)	OECD Green Growth
X_{10}	Kyoto Protocol ratification year	UNFCCC
X_{11}	Regulatory quality (value)	WDI
X_{12}	GDP per capita (constant 2015 US\$)	WDI
X_{13}	Population (total)	WDI
X_{14}	Population growth (annual %)	WDI
X_{15}	Labor force (total)	WDI

Table 2: GADI matrix

1.00	0.54	0.95	0.98	0.83	0.94	0.91	0.86	0.85	0.54	0.76	0.84	0.97	0.80	0.97
0.54	1.00	0.57	0.56	0.59	0.57	0.56	0.58	0.55	0.83	0.62	0.60	0.54	0.63	0.49
0.95	0.57	1.00	0.97	0.84	0.98	0.91	0.85	0.84	0.58	0.77	0.86	0.97	0.84	0.96
0.98	0.56	0.97	1.00	0.83	0.96	0.91	0.85	0.85	0.56	0.76	0.86	0.99	0.82	0.98
0.83	0.59	0.84	0.83	1.00	0.84	0.88	0.85	0.89	0.59	0.86	0.88	0.82	0.84	0.80
0.94	0.57	0.98	0.96	0.84	1.00	0.91	0.85	0.84	0.58	0.77	0.86	0.96	0.85	0.94
0.91	0.56	0.91	0.91	0.88	0.91	1.00	0.86	0.90	0.72	0.81	0.89	0.90	0.83	0.89
0.86	0.58	0.85	0.85	0.85	0.85	0.86	1.00	0.81	0.58	0.81	0.83	0.85	0.82	0.82
0.85	0.55	0.84	0.85	0.89	0.84	0.90	0.81	1.00	0.55	0.81	0.89	0.83	0.81	0.81
0.54	0.83	0.58	0.56	0.59	0.58	0.72	0.58	0.55	1.00	0.63	0.60	0.55	0.64	0.49
0.76	0.62	0.77	0.76	0.86	0.77	0.81	0.81	0.81	0.63	1.00	0.87	0.75	0.89	0.71
0.84	0.60	0.86	0.86	0.88	0.86	0.89	0.83	0.89	0.60	0.87	1.00	0.84	0.89	0.81
0.97	0.54	0.97	0.99	0.82	0.96	0.90	0.85	0.83	0.55	0.75	0.84	1.00	0.82	0.99
0.80	0.63	0.84	0.82	0.84	0.85	0.83	0.82	0.81	0.64	0.89	0.89	0.82	1.00	0.77
0.97	0.49	0.96	0.98	0.80	0.94	0.89	0.82	0.81	0.49	0.71	0.81	0.99	0.77	1.00

study were decided as a result of the examination of the renewable energy reports of the international energy agencies together with the studies of Marques et al. (2010), Aguirre and Ibikunle (2014), and these indicators, together with their codes and units, are presented in Table 1¹. While evaluating the performances of 14 selected countries, 2020 data for 15 indicators of countries were

compiled from World Development Indicators (WDI), IRENA, United Nations Statistics Divisions (UNSD), OECD Green Growth, and UNFCCC.

Grey principal component analysis, which allows size reduction and gives appropriate weights to the variables, was used to evaluate the renewable energy performance of the countries. First, the countries' values for the 15 variables presented in Table 1 were normalized. Second, the absolute grey correlation degree was calculated by

¹ In indicators CO₂ emissions and development of environment-related technologies, the data of the previous year were used, since the data of the countries for the year 2020 are not available.

Table 3: Eigenvalue, Accumulative Explanatory Variance Proportion, Eigenvectors

Eigenvalue	Accumulation	Eigenvector 1	Eigenvector 2
12.22	81.44	0.27	0.19
1.12	89.93	0.19	-0.61
0.56		0.27	0.15
0.27		0.27	0.18
0.21		0.26	-0.03
0.19		0.27	0.14
0.11		0.27	0.00
0.10		0.26	0.02
0.08		0.26	0.04
0.06		0.20	-0.61
0.03		0.25	-0.17
0.02		0.27	-0.03
0.02		0.27	0.20
0.01		0.26	-0.11

Table 4: Grey Principal Component Scores and Rank of Countries

	2020 Score	2020 Rank
Albania	0.62	10
Bosnia–Herzegovina	0.42	13
Bulgaria	0.73	6
Croatia	0.67	8
Georgia	0.70	7
Greece	1.42	3
Montenegro	0.47	12
North Macedonia	0.57	11
Romania	1.31	4
Russia	1.90	1
Serbia	0.41	14
Slovenia	1.26	5
Türkiye	1.61	2
Ukraine	0.64	9

using equation (8) and then the grey correlation matrix was created by using the absolute grey relation degree elements and equation (9). Table 2 presents the grey correlation matrix calculated for the year 2020.

According to the grey correlation matrix, eigenvalue, eigenvector, and accumulative explanatory variance ratio proportion were calculated. As a result of the selection of the principal components with eigenvalues greater than one, Table 3 was created for 2020.

As a result of using the eigenvalues and eigenvectors presented in Table 3 in equations (11) and (12), the grey

principal components total score was calculated for the countries. Table 4 presents the grey principal component scores and rankings calculated for the renewable energy performances of 14 Black Sea and Balkan countries for the relevant year.

As can be seen from Table 4 and Figure 1, it can be seen that Russia, Türkiye, Greece, Romania, and Slovenia have a value greater than one in the renewable energy performance ranking and are in the top five in the ranking.

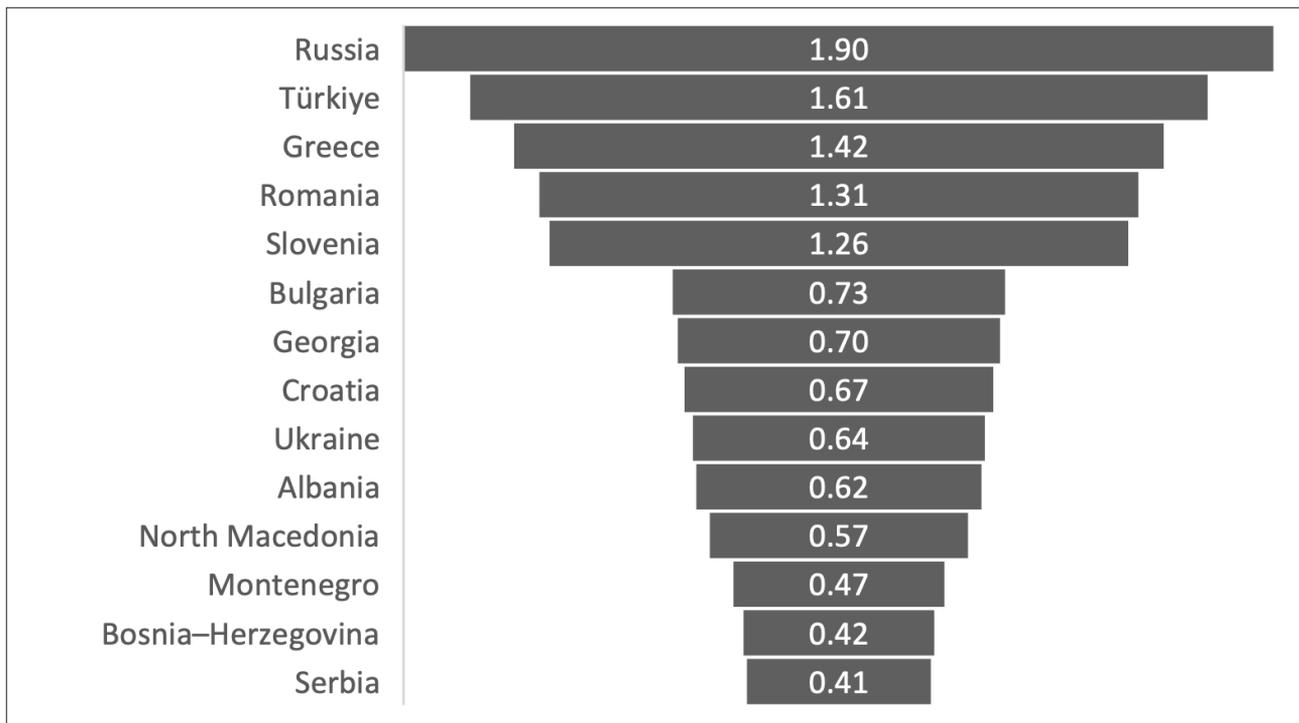


Figure 1. Grey Principal Component Scores of Countries

Russia is thought to play a significant role in the world's energy markets. The country's abundance of natural gas, coal, and oil reserves makes it difficult to develop its renewable energy sources (Proskuryakova and Ermolenko, 2019: 1671). However, several changes to laws and regulations have been implemented to advance the nation's renewable energy industry. For instance, the Ministry of Energy of the Russian Federation published a report titled Energy Strategy of Russia - For the Period Up to 2030 in which it mentioned the importance of renewable energy sources in raising energy efficiency and set various goals for producing electricity from renewable sources (Ministry of Energy of the Russian Federation, 2009). At the same time, the country, which has a renewable energy area of 17 million km², is considered a market with high potential for technologies such as wind turbines, biomass/biogas-burning power generators, and geothermal power plants (Lombardi et al., 2016: 532; Agyekum et al., 2021: 4502). According to the Renewable Capacity Statistics 2022 report published by IRENA, Russia's total renewable energy capacity is 55219.00 MW in 2020, which is the highest value among the countries included in the analysis (IRENA, 2022: 3). Considering the variables in the study, the fact that the country has the highest value in terms of variables such as renewable energy capacity (MW), renewable electricity production (GWh), renewable energy consumption (Mtoe), population and workforce makes it inevitable to rank first in the relevant year.

Türkiye has increased its renewable energy consumption from hydraulic, wind, and solar, especially in the last ten years, and has achieved impressive growth by tripling its renewable electricity production (IEA, 2021a: 11, 73). Thanks to its total renewable energy capacity of 49165.00 MW in 2020, Türkiye stands out as the country with the second highest value after Russia (IRENA, 2020: 3). Besides, the share of renewable energy sources in electricity generation is 42% in 2020. The goal of increasing the use of renewable energy resources, stated in the National Energy Policy adopted by the country in 2017, can be considered among the policies that help the country achieve its high ranking. At the same time, while the country's growing population and growing economy increase energy demand, problems such as limited reserves of fossil fuels, dependence on energy imports, and environmental difficulties can be counted among the factors that push the country to use renewable energy sources more (Tükenmez and Demireli, 2012: 1).

Greece ranked third in the assessment of renewable energy performance with a total renewable energy capacity of 10921.00 MW in 2020. While having a total renewable energy capacity of 11121.00 MW, Romania came in fourth place in the corresponding years. Greece and Romania are seen to have increased their use of renewable energy in 2020, particularly wind and solar energy. In addition, national targets such as renewable electricity consumption, renewable heating and cooling,

and renewable transportation determined by countries within the scope of the EU Renewable Energy Directive for 2020 can be considered as policies that contribute to the country's inclusion in the relevant rankings within the scope of this analysis (Păcesilă, 2013; IEA, 2017: 101).

Slovenia ranks fifth in the renewable energy performance ranking with a score of 1.26. With the National Energy Program adopted in 2004, Slovenia aimed to increase energy use from renewable sources and realized it to a certain extent. Bulgaria ranks sixth in the performance ranking with a score of 0.73. Concerning renewable energy capacity, Bulgaria, the EU's poorest member state is in a superior position to those of the Western Balkan nations. However, the country must address the flaws in the procedure and governance that support the regulatory framework once it is to effectively expand this capacity and ensure the sustainability of the switch to renewable energy (Andreas et al., 2018: 44). Georgia is followed by Bulgaria with a score of 0.70 and Croatia with a score of 0.67. Although it has potential in renewable energy sources, the military intervention of Russia, which started with the annexation of Crimea in 2014, disrupted the renewable energy sector of Ukraine (Kurbatova and Khlyap, 2015: 223). As a result, it is expected that the country will come in ninth place with a score of 0.64.

In the renewable energy performance evaluation for 2020, the Western Balkan nations of Albania, North Macedonia, Montenegro, Bosnia–Herzegovina, and Serbia are at the bottom of the list, as shown in Table 4. Among these countries, Bosnia–Herzegovina adopted the Energy Framework Strategy in 2018 to increase energy efficiency for sustainable energy use and reduce greenhouse gas emissions (Directorate – General for Neighborhood and Enlargement Negotiations, 2022: 3). Although it has implemented several reforms and plans of action, it still lags behind other nations in the use of renewable energy sources. One of the crucial factors in front of renewable energy positioning in Serbia is seen as regulatory quality. The difficulties experienced in formulating and implementing sound policies and regulations in the country greatly hinder energy efficiency and the production of renewable energy resources (Karakosta et al., 2012: 5174). In conclusion, as a result of the increasing energy demand of the other countries within the scope of the analysis and their ambitious policies and reforms aimed at increasing the share of renewable energy resources in meeting this demand, it is expected that these three countries, which are relatively behind, lag in the performance rankings.

CONCLUSION

The World Energy Outlook 2021 report published by the IEA links energy, air pollution, climate change, global warming, and health (IEA, 2021b: 15-22). The increasing concentration of carbon dioxide from the global energy industry is causing noticeable changes in weather and climate, and people are vulnerable to health risks associated with these changes. All these negativities increase the concerns of environmental deterioration. As these details aim to demonstrate, nations seek sustainable, safe, and effective energy production to avoid depleting fossil fuel reserves, prevent weather and climate extremes, and stop global warming. Renewable energy sources are essential for achieving the carbon-neutral target and expediting the transition of all nations to a green economy, both of which are necessary for sustainable development. This study aims to examine the renewable energy performances of 14 Black Sea and Balkan countries in 2020. Grey principal component analysis, a novel algorithm created by fusing grey system theory with principal component analysis, was utilized for this purpose, which involved using the data from 15 renewable energy variables across countries. Grey principal component analysis provides a reliable performance evaluation analysis by measuring the closeness of the relationship between the data according to the similarities of the geometric curves.

As a result of the analysis made using the grey principal component analysis, Russia and Türkiye took the top positions. The position of these countries in the relevant year is due to their potential in renewable energy variables and their implementation of various policies and actions in the renewable energy sectors. Serbia, Bosnia-Herzegovina, and Montenegro came in last in the evaluation of the performance of renewable energy sources. These findings offer conclusions on renewable energy at the local level based on historical, cultural, and structural similarities. According to the performance analysis, countries can raise their standings and help safeguard the environment by utilizing renewable energy sources more frequently and reaping their economic and energy-saving benefits greater extent. The growth in demand for sustainable, secure, and efficient energy technologies will ensure the progress and development of the relevant sector, even though the world's economic, technological, and social factors are constantly changing and have varying effects on the development of the renewable energy sectors of the countries.

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An Empirical Investigation on Growth and Institutional Structure Relations in Central Asian and Caucasian Countries

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ABSTRACT

Whether economic and political institutions have an impact on countries' economic growth performances is one of the important research topics discussed in the literature. Former socialist Central Asian and Caucasian countries trying to adapt into market economy have not yet completed their transition processes, but they have managed to grow their economies in comparison to previous periods. The aim of this study is to analyse the relationship between the growth performances and institutional structures of the Central Asian and Caucasian countries of Azerbaijan, Armenia, Georgia, Kazakhstan, Kyrgyzstan and Tajikistan between the years 2000-2018 by using the decision variables of civil rights, economic freedom, political stability, rule of law and GDP per capita. According to the analysis results obtained via Grey Relational Analysis method by assigning equal importance to all variables, Kazakhstan is found to be the highest-ranking country among all examined countries for all periods. The authoritarian tendencies that these countries have shown during their market economy transitions with regards to matters related to institutional structure have been found to be the reason why countries' economic efforts have failed to yield results.

Keywords: Institutions, Growth, Transition Economies, Grey Relational Analysis, Central Asian and Caucasian Countries.

JEL Classification Codes: P39, B52, C44, O17

Referencing Style: APA 7

INTRODUCTION

Long-term stable growth is one of the economic targets that all countries want to achieve. There are different points of view about sources of growth based on economic theory. For the last two decades, economic literature has shown a tendency to separate the proximate and final causes of the growth. While the proximate causes of growth focus on mechanic concepts such as capital accumulation and productivity, the final causes of growth point to the importance of social structures and institutional factors. For this reason, the connection between the institutions and their growth (un)success of countries has become an important debate for recent economic theories (Özdemir, 2015). The purpose and main contribution of this study are to examine empirically the Central Asian and Caucasian countries where the link between growth dynamics and institutions has received less attention in the literature, although they experienced dramatic institutional changes.

Since the breakup of the Soviet Union, Central Asian (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and

Uzbekistan) and South Caucasian (Azerbaijan, Georgia and Armenia) countries have been independent for almost two decades. Although the region has deep historical roots and holds strategic importance, it has not been comprehensively examined by social scientists who work on institutional change and growth. While Central Asian countries share a common history and common land, their institutional structures and development levels are different from each other, especially after the transition period.

When considering the general economic and political characteristics of these countries, it is seen that Turkmenistan and Uzbekistan have not completed their market transitions yet. Furthermore, based on World Bank (2022) income classification criteria, Turkmenistan and Kazakhstan belong to upper-middle income group countries while Kyrgyzstan, Tajikistan and Uzbekistan remain in the lower-middle income category. The main reasons why they are yet to adapt to the global economy are closely related to their regional features and political structures such as their access to the sea, their underdeveloped transformation infrastructure,

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their distance from the world's important trade centers and their place in a highly conflicted area with political tensions (Batsaikhan and Dabrowski, 2017; 296-301). As one of the transition countries, Azerbaijan is characterized by a low level of human development as well as technology production capacity despite a relatively higher income per capita. On the contrary, Kazakhstan has high-technology products accounting for 41% of all exports (Suslu and Elmirzeyev, 2019, 4-7) and a high score on the human development index of 0.825 (UNDP, 2022). The other example, Armenia, is the leading country with regards to spatial inequality in consumption and job creation; there are simply not enough social safety nets for low-income people living outside the capital city. Similarly, Georgia has a strong economic performance despite its uneven development, too (Fuchs et al., 2019; 2-29). After 2014, these countries have experienced external shocks, and their economic models are not good enough to tolerate these changes linked to the export products based on natural resources, export patterns as a structural factor, volatility of growth and inflation as well as political tensions, poor governance and weak institutions (Kunzel et al., 2018; 39).

This study examines the links between growth and institutions for six Central Asian and Caucasian countries from 2001 to 2018 and compares institutional structures related to their growth performance before and after the global crisis of 2007. These countries have been chosen because of their experience with the transition process for adapting to the capitalist world after the socialist era and the transition process covers the transformation of institutional structures to a competitive market economy under the constraints imposed by the heritage of the old regime's informal rules. The main limitation of the study is the lack of institutional data set for Turkmenistan and Uzbekistan, and therefore, having to exclude these countries from the empirical analysis. The remainder of the study is organized as follows. After the introduction, an empirical literature review on institutions and growth is presented in section 2 while the study's data, model, and methodology are discussed in section 3. Afterwards, the findings obtained through the study are elaborated in section 4. The conclusion and proposed suggestions are presented in the final section of the paper.

LITERATURE REVIEW

The impact of institutions on economic growth has been the subject of many theoretical and empirical studies. Studies in this field use various assumptions and methods based on using the framework of orthodox and heterodox economic theories. In this context, within the

boundaries of the study, firstly, theoretical and empirical studies emphasize the role and importance of institutions in economic growth will be summarized, and secondly, the findings of the research on the transition economies will be examined.

Institutions are explained as "path dependency or long-term institutional evolution, in other words, the historical roots of societies, are the main determinants of economic progress." The institutions are a matter for growth based on its role in forming and shaping human interactions, social order, and the political, social and economic exchange in a society (North, 1989). Acemoglu and Robinson (2015) argue that economic and political institutions are the main determinants of technological evolution and economic development. Acemoglu and Robinson (2019) underline the importance of inclusive political institutions for the broad distribution of political power and the importance of state capacity for economic progress. Acemoglu and Robinson (2008) also explain the mechanism of how inclusive institutions promote economic progress. Inclusive institutions create the right incentives for technological developments and investments through the protection of property rights. However, Acemoglu and Robinson (2008) emphasize that they are at the first stage of understanding the function of institutions. There are debates about limitations in terms of institutional data and empirical modelling in the growth literature and empirical analysis results consistency (Ros, 2011).

Empirical studies discuss the relationship between institutions and growth by using a wide range of statistical and econometric tools. Most of the arguments regarding the main constraints and measurement problems are centred on institutional data set problem endogeneity or multicollinearity between variables. Even if it is acknowledged that institutions are important for growth and development, it is still under discussion which institutions are more effective or when institutional changes show their effect on growth rate. The majority of studies mention the importance of economic institutions such as economic freedom, property size, and size of governments for the growth process (Ayal and Karras, 1998; Vijayaraghavan and Ward, 2001; Siddiqui and Ahmed, 2019; Góes, 2016). On the contrary, Nawaz (2015) underlines the role of political institutions such as bureaucratic quality and corruption control for the growth process for developed and developing countries. Moreover, Nawaz (2015)'s findings support that law and order have more impact on the growth performance in developing countries. Flachaire, García-Peñalosa and

Konte (2014) investigate the impact that institutions have on growth rate and try to answer the question of whether political or economic institutions are key determinants for growth rate. The results indicate that political and economic institutions play very different roles in growth processes. The findings support that, in the short run, political institutions do not play a significant role while the function of economic institutions is determined within the regime. Democratic regimes and strong economic institutions allow for technological changes and physical capital accumulation. On the other hand, growth can also be possible if weak political institutions are supported by strong economic institutions

From the transition countries' standpoint, Peng (2003) defines institutional transition "as fundamental and comprehensive changes introduced to the formal and informal rules of the game that affect organizations as players." He argues that capitalist institutions emerge with distinctive historical conditions in the Western World, but the institutional transformation process in transition economies is relatively artificial. Moreover, the policies implemented during the transition process vary greatly among countries, including shock therapies and gradualist policies. However, path dependency does not let the rule-based institutions of transition countries change like those in the Western World. During the first phase of the transition, chaos, political conflict and tensions seem inevitable in these countries. Way (2008) claims that the stability of authoritarian regimes in transition countries is closely related to their ties with Western countries. The governments of the transition countries that export natural resources do not prefer to distribute wealth to various segments of society, and their institutional setting is organized to serve political and economic elites.

There is a limited number of empirical studies working on the region to measure how institutional change affects their growth performance. Popov (2007) and Tridico (2007) compare the first and second phases of transition-related institutional structure and growth performance. Popov (2007) compares the impact of liberalism between the periods of 1989-1996 and 1996-2003 by using regression analysis. The empirical findings of this study support that the speed of liberalization experienced during the first phases had negative impacts on the transition processes. According to Popov (2007, 1-5), the underlying reasons for the problems encountered during the first phase are weak political and economic institutions which cause a lack of confidence for investors. On the contrary, the economies that demonstrated high performance in the

second phase have strong institutions such as rule of law and democracy. Tridico (2007) also compares the first two phases of transition after the fall of socialism in Central and Eastern European, Central Asian and Caucasian countries based on human development and growth performance. The findings show that countries that were able to adopt institutional policies, social policies and governance principles increased their level of human development.

Piatkowski (2002) investigates the 'new economy' by constructing an indicator (including quality of regulations and contract enforcements infrastructure, trade openness, development of financial markets, R&D spending, quality of human capital, labour market flexibility, product market flexibility, entrepreneurship, macroeconomic stability) for measuring whether economies are ready for ICT to promote long-term economic growth. He found that the speed of adopting the new economy is one of the most important determinants of countries' competitiveness. Based on the empirical results of this study, the highest-scoring country was found to be Slovenia followed by the Czech Republic and Hungary, while Georgia, Azerbaijan, Uzbekistan, Albania, Bosnia and Herzegovina and former Yugoslavia were the lowest-scoring countries. Tridico (2013) argues that the Former Soviet Republic's (FSR) unsuccessful performance in terms of human development and growth was due to its lack of appropriate institutions for social capital and a consistent middle class, which are necessary to improve democracy. These characteristics did not allow for civil society and democratic political institutions. Ordinary and two-stage least squares analyses indicate that an even development target can be reached through democracy, the middle class, and social capital.

Based on the literature review, no sample is not found to apply the grey relational analysis to compare the institutional change and growth performance of Central Asian and Caucasian Countries or other transition countries. The core contribution of this study is to examine the underresearched region by institutional economics by using an alternative method called grey relational analysis for understanding how institutional change affects these countries' growth performance.

DATA

The variables used in the empirical analysis were selected based on the literature review conducted for Central Asian and Caucasian countries (except for Turkmenistan and Uzbekistan) for the period between 2001-2018. Economic institutions (Ayal and Karras, 1998;

Table 1: Definition of Variables

Variable	Original Name of variable and Original Source of Data	Short Description
Civil Rights (C1)	<i>fh_cl*</i> Freedom House	It includes freedom of expression and belief, associational and organisational rights, rule of law, and personal autonomy without interference from the state.
Economic freedom (C2)	<i>fi_index**</i> Fraser Institute	It is designed to identify the consistency of institutional arrangement and policies with economic freedom in five major areas: the size of government, legal structure and security of property rights, access to sound money, freedom to trade internationally, and regulation of credit, labour and business.
Political stability (C3)	wbgi_pve World Bank	It measures perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism.
Rule of law (C4)	wbgi_rle World Bank	It includes several indicators which measure the extent to which agents have confidence in and abide by the rules of society
GDP per capita (C5)	wdi_gdpcappppcon2011 World Bank	GDP per capita as a thousand US dollars based on purchasing power parity

Source: Quality of Government Project, 2020

* Countries are graded between 1 (most free) and 7 (least free).

** The index ranges from 0-10 where 0 corresponds to "less economic freedom" and 10 to "more economic freedom".

Vijayaraghavan and Ward, 2001; Siddiqui and Ahmed, 2019; Góes, 2016) are represented by a composite index of economic freedom and the size of the economy by GDP per capita. Political institutions are represented by civil rights, political stability and rule of law (Flachaire, García-Peñalosa and Konte 2014; Nawaz, 2015). The studies datasets were collected from the Quality of Government Project which represents all data collected from main sources (Teorell et al., 2022). The variables, their short descriptions and their sources are given in Table 1.

GREY RELATIONAL ANALYSIS

Grey Relational Analysis, which is a method used for solving multi-criteria decision-making problems both on its own and as integrated with other methods, is preferred in this study due to its suitability to the topic and its advantages such as requiring fewer data, being able to produce efficient results under uncertain conditions, ease of calculating grey relational coefficients, and not requiring the data set to conform to a specific distribution. Used in various fields, the grey relational analysis method has proven to be yielding better results in comparison to other statistical analysis techniques in research conducted on small samples (Tung and Lee, 2009). The grey relational solution is suggested for problems that do not fit any distribution with multivariate statistics, do not contain enough data and cannot be modelled due

to uncertainty. Grey relational analysis method can be used to measure the relationship between two series numerically and logically, and it can numerically calculate the relationship between the sequences to be compared for this process, and the degree of relationship calculated as a result of the operations is called the grey relationship degree (Wang et al, 2004).

Grey Relational Analysis Method, which is a method used both alone and in combination with other methods to solve multi-criteria decision-making problems, requires a small number of data, can produce effective results in cases of uncertainty, offers easy calculation of grey relational coefficients, and does not require the data set to comply with any distribution. These advantages as well as its suitability to this paper's topic are why it was preferred for this research instead of other multi-criteria decision-making techniques. It can be seen from the studies conducted on small samples that the grey relational analysis method, which is used in many different fields, yields better results than other statistical analysis techniques (Tung and Lee, 2009).

The grey relational analysis consists of six steps (Agarwal and Patel, 2019):

Step 1: Creating the decision matrix

The decision matrix is created with n alternative and m selection criteria. Equation 1 is formulated by using the set of alternatives and the selection criteria.

$$X_i = \begin{bmatrix} X_1(1) & X_1(2) & \dots & X_1(m) \\ X_2(1) & X_2(2) & \dots & X_2(m) \\ \vdots & \vdots & \ddots & \vdots \\ X_n(1) & X_n(2) & \dots & X_n(m) \end{bmatrix} \quad (1)$$

$i = 1, 2, \dots, m \quad j = 1, 2, \dots, n$

Here, j indicates the alternatives and i is the value of the ith criterion with respect to the jth alternative.

Step 2: Normalizing the data set to create a normalization matrix

All data in the normalized series are in [0, 1] interval. Normalization can be calculated by using one of the following three types.

In Equation 2, the normalization procedure is performed if larger is better.

$$X_i^*(k) = \frac{X_i(k) - \min_k X_i(k)}{\max_k X_i(k) - \min_k X_i(k)} \quad (2)$$

In Equation 3, the normalization procedure is performed if smaller is better.

$$X_i^*(k) = \frac{\max_k X_i(k) - X_i(k)}{\max_k X_i(k) - \min_k X_i(k)} \quad (3)$$

In Equation 4, the normalization procedure is performed if a nominal value is desired.

$$X_i^*(k) = 1 - \frac{|X_i(k) - X_0(k)|}{\max\{\max_k X_i(k) - X_0(k); -X_0(k) - \min_k X_i(k)\}} \quad (4)$$

where

$\min_k X_i(k)$: minimum value in the decision matrix

$\max_k X_i(k)$: maximum value in the decision matrix

k: alternative; j=1, 2, ..., n

$x_0(k)$: desired value of alternative k

Step 3: Construction of the absolute value matrix

The absolute distance between the normalized value with reference criteria series, measured in an absolute way and absolute value matrix is generated. By using Equations 5 and 6 are used to create the absolute value matrix.

$$\Delta_{0i}(k) = |X_i^*(k) - X_0^*(k)| \quad (5)$$

$$\begin{bmatrix} \Delta_{01}(1) & \Delta_{01}(2) & \dots & \Delta_{01}(m) \\ \Delta_{02}(1) & \Delta_{02}(2) & \dots & \Delta_{02}(m) \\ \vdots & \vdots & \ddots & \vdots \\ \Delta_{0n}(1) & \Delta_{0n}(2) & \dots & \Delta_{0n}(m) \end{bmatrix} \quad (6)$$

Step 4: Calculating the grey relational coefficient

$$\gamma(X_0(k), X_i(k)) = \frac{\Delta_{min} + \zeta x \Delta_{max}}{\Delta_{0j} + \zeta x \Delta_{max}} \quad (7)$$

Where

Δ_{max} : the highest value in the absolute difference series

Δ_{min} : the lowest value in the absolute difference series

γ : grey relational coefficient

ζ : adjustment coefficient between Δ_{0j} and Δ_{max} ; $\zeta \in [0, 1]$. In this study, adjustment coefficient is used as 0,5 (Yildirim and Onder, 2014).

Grey factor matrix is created based on the values of the grey relational coefficient in equation 8.

$$\begin{bmatrix} \gamma_{01}(1) & \gamma_{01}(2) & \dots & \gamma_{01}(m) \\ \gamma_{02}(1) & \gamma_{02}(2) & \dots & \gamma_{02}(m) \\ \vdots & \vdots & \ddots & \vdots \\ \gamma_{0n}(1) & \gamma_{0n}(2) & \dots & \gamma_{0n}(m) \end{bmatrix} \quad (8)$$

Step 5: Calculating the grey relational degree

If the weights (W_j) of the criteria are equal, the grey relational degree τ is calculated as:

$$\tau(X_0, X_i) = \frac{1}{m} \sum_{k=1}^m \gamma(X_0(k), X_i(k)) \quad (9)$$

If the weights (W_j) of the criteria are different, the grey relational degree τ is calculated as:

$$\tau(X_0, X_i) = \sum_{k=1}^m \gamma(X_0(k), X_i(k)) \cdot W_i(k) \quad (10)$$

APPLICATION

This study examines the economic growth performances of previously socialist Central Asian and Caucasian countries in the periods of 2001-2006, 2007-2012, and 2013-2018 and tries to determine

Table 2: Decision Matrix

Countries	Years	C1	C2	C3	C4	C5
Azerbaijan	2001-2006	5,000	6,260	1,427	1,612	6993,900
	2007-2012	5,000	6,11	2,005	1,626	15952,900
	2013-2018	6,000	6,340	1,750	1,941	16024,100
Armenia	2001-2006	4,000	7,477	2,344	2,076	4540,215
	2007-2012	4,000	7,608	2,589	2,056	7055,567
	2013-2018	5,000	7,713	2,143	2,246	8320,700
Georgia	2001-2006	3,667	7,217	1,487	1,703	4665,151
	2007-2012	3,500	7,595	1,735	2,305	7062,894
	2013-2018	3,000	7,945	2,110	2,750	9210,973
Kazakhstan	2001-2006	4,667	5,990	1,524	1,562	2294,721
	2007-2012	4,667	6,700	1,628	1,233	2800,762
	2013-2018	4,833	6,857	1,791	1,520	3278,704
Tajikistan	2001-2006	5,167	5,530	1,252	1,342	1559,961
	2007-2012	5,167	6,163	1,516	1,253	2120,161
	2013-2018	6,000	6,135	1,678	1,316	2749,310

whether differing economic and political institutions in these periods have had any effect on these countries' economic growth performances during their transition periods. Three separate 6-year periods have been taken into account to more clearly see the realization performance of the transitional goals of the countries. These periods are the six-year period before the 2008 economic crisis, the six-year period during the crisis, and the six-year period after the crisis. The reason why the era is determined into 6-year periods is that the future plans of many governments are set as 5–6-year targets. Within this context, using an equally weighted grey relational analysis method, we evaluated the civil rights, economic freedoms, political stability, rule of law and income per capita indicators of Azerbaijan, Armenia, Georgia, Kazakhstan, Kyrgyzstan and Tajikistan for these years. Then, based on the analysis results, we performed a growth performance test by comparing the results both between different periods and between the countries. Accordingly, the variables determined through the literature review and explained in Table 1, and the decision matrix used in the study are given separately in Table 2 by calculating the arithmetic mean values of 2001-2006, 2007-2012 and 2013-2018.

As can be seen, by using the decision matrix in Table 2, separate assessments were made for each country for 6-year periods. To do this, reference series and comparison matrix were used, and by using the optimal value for each criterion, the normalized decision matrix given in Table 3 was obtained. Furthermore, this study

considered all criteria as equally important and used an equally important grey relational analysis method and evaluated countries first by comparing their own 6-year periods' data individually, and then against each other.

To create Table 3, the normalization process was performed according to Equation 2 by adopting the principle of "the larger the value, the better its contribution", and the process of transforming criteria into the same standard values was completed.

The normalized results in criteria levels were deducted from the reference value in Equation 5, and the absolute values table in Table 4 was obtained.

Using the absolute values calculated in Table 4, the $\Delta_{\max}=1,000$ and $\Delta_{\min}=0,000$ values were determined. In this study, the distinguishing coefficient was taken as $\zeta = 0,5$ to use in the grey relational coefficient matrix. The grey relational coefficient matrix in Table 5 was obtained through Equation 8. The grey relational analysis performance scores and rankings related to each country's 6-year periods are given in Table 6, which were calculated by taking the significance levels of all criteria as the same.

According to Table 6 prepared during the last stage of the grey relational analysis, each country had a different economic growth momentum based on the six-year periods that they needed to adapt to a market economy and to structure their economies accordingly. It was found based on these results that in general,

Table 3: Normalized Decision Matrix

Countries	Years	C1	C2	C3	C4	C5
Azerbaijan	2001-2006	0	0,348	1	1	1
	2007-2012	0	1	0	0,958	0,008
	2013-2018	1	0	0,440	0	0
Armenia	2001-2006	0	1	0,549	0,898	1
	2007-2012	0	0,444	0	1	0,335
	2013-2018	1	0	1	0	0
Georgia	2001-2006	1	1	1	1	1
	2007-2012	0,750	0,481	0,601	0,425	0,473
	2013-2018	0	0	0	0	0
Kazakhstan	2001-2006	0	1	0,192	1	1
	2007-2012	0	0,295	0	0,625	0,384
	2013-2018	1	0	1	0	0
Kyrgyzstan	2001-2006	0	1	1	0	1
	2007-2012	0	0,181	0,611	1	0,486
	2013-2018	1	0	0	0,129	0
Tajikistan	2001-2006	0	1	1	0	1
	2007-2012	0	0	0,381	1	0,529
	2013-2018	1	0,045	0	0,294	0

Table 4: Absolute Value Matrix

Countries	Years	C1	C2	C3	C4	C5
Azerbaijan	2001-2006	1	0,652	0	0	0
	2007-2012	1	0	1	0,042	0,992
	2013-2018	0	1	0,56	1	1
Armenia	2001-2006	1	0	0,450	0,102	0
	2007-2012	1	0,556	1	0	0,665
	2013-2018	0	1	0	1	1
Georgia	2001-2006	0	0	0	0	0
	2007-2012	0,250	0,519	0,399	0,575	0,527
	2013-2018	1	1	1	1	1
Kazakhstan	2001-2006	1	0	0,808	0	0
	2007-2012	1	0,705	1	0,375	0,616
	2013-2018	0	1	0	1	1
Kyrgyzstan	2001-2006	1	0	0	1	0
	2007-2012	1	0,819	0,389	0	0,514
	2013-2018	0	1	1	0,871	1
Tajikistan	2001-2006	1	0	0	1	0
	2007-2012	1	1	0,619	0	0,471
	2013-2018	0	0,955	1	0,706	1

during the initial stages of their market economy transition, each country made some advances towards maintaining strong relations between their economic and institutional structure dynamics to have optimal congruence. However, the economic crises they

experienced in later years prevented them from achieving the desired momentum in their progress. Based on this, it was assumed that evaluating these countries together and interpreting the results accordingly would provide more correct findings; therefore, the Central Asian and

Table 5: Grey Relational Coefficients

Countries	Years	C1	C2	C3	C4	C5
Azerbaijan	2001-2006	0,333	0,434	1	1	1
	2007-2012	0,333	1	0,333	0,922	0,335
	2013-2018	1	0,333	0,472	0,333	0,333
Armenia	2001-2006	0,333	1	0,526	0,831	1
	2007-2012	0,333	0,473	0,333	1	0,429
	2013-2018	1	0,333	1	0,333	0,333
Georgia	2001-2006	1	1	1	1	1
	2007-2012	0,666	0,490	0,556	0,465	0,487
	2013-2018	0,333	0,333	0,333	0,333	0,333
Kazakhstan	2001-2006	0,333	1	0,382	1	1
	2007-2012	0,333	0,415	0,333	0,571	0,448
	2013-2018	1	0,333	1	0,333	0,333
Kyrgyzstan	2001-2006	0,333	1	1	0,333	1
	2007-2012	0,333	0,379	0,562	1	0,493
	2013-2018	1	0,333	0,333	0,365	0,333
Tajikistan	2001-2006	0,333	1	1	0,333	1
	2007-2012	0,333	0,333	0,447	1	0,515
	2013-2018	1	0,344	0,333	0,415	0,333

Table 6: The performance score and ranking of six years period

Countries	Years	Performance Score	Ranked Data	Countries	Years	Performance Score	Ranked Data
Azerbaijan	2001-2006	0,7535	1	Kazakhstan	2001-2006	0,7431	1
	2007-2012	0,5848	2		2007-2012	0,4202	3
	2013-2018	0,4944	3		2013-2018	0,600	2
Armenia	2001-2006	0,7380	1	Kyrgyzstan	2001-2006	0,7333	1
	2007-2012	0,5138	3		2007-2012	0,5535	2
	2013-2018	0,600	2		2013-2018	0,4729	3
Georgia	2001-2006	1	1	Tajikistan	2001-2006	0,7333	1
	2007-2012	0,5330	2		2007-2012	0,5257	2
	2013-2018	0,3333	3		2013-2018	0,4849	3

Caucasian countries were evaluated together by using the same criteria for the periods of 2001-2006, 2007-2012, 2013-2018, and the grey relational analysis ranking results can be found in Table 7.

It can be said that the ranking results given in Table 7, where we compare different periods, are consistent with the institutional theory and the growth trends of the countries. It is inevitable for countries trying to establish institutional structures that allow them to integrate

Table 7: Ranking results for all periods

Countries	2001-2006	2007-2012	2013-2018	General Ranking Result
Azerbaijan	3	4	4	4
Armenia	2	2	3	2
Georgia	4	3	2	3
Kazakhstan	1	1	1	1
Kyrgyzstan	6	6	6	6
Tajikistan	5	5	5	5

with global markets to have successful economic performances. The fact that Kazakhstan was always found to be the country with the best performance for each period proves that in addition to its rich natural resources, the country has been able to produce technology and export technological products and that it has been more successful in human capital compared to other countries. When the economy of Kyrgyzstan is analyzed, it becomes clear why it ranks last in terms of economic growth performance. The Kyrgyz economy has failed because it has not been able to create an institutional capacity to eliminate its political instability, which is consistent with its ranking.

CONCLUSION

The reasons that affect countries' economic growth performances have been an important topic of discussion both in the national and international literature (Acemoglu et al. 2001, Bal and Ozdemir, 2017). Recently, it is observed that the answers given to this question focus on the effects of economic and political institutions. It is especially interesting why there are differences among the economic growth performances of transition economies, which are needed to redesign both their economic and political institutions after transitioning from central planning into a market economy. This study investigates the periodic changes that the economies of Central Asian and Caucasian countries of Azerbaijan, Armenia, Georgia, Kazakhstan, Kyrgyzstan and Tajikistan went through between the years 2001-2018 and looks into the relationship between institutions and these periodic changes.

It is seen that countries that can design and establish institutional structures, such as property rights, regulatory institutions, macroeconomic stability, social security and conflict management to ensure that markets function effectively, can adapt to global competition and have good economic performance (Rodrik, 2014). The inclusive institutions designed by governments increase

creativity and technological development through the improvement in the quality of economic and political institutions. The quality of political institutions and economic institutions ensures the efficient use of public expenditures due to transparency and accountability as well as equal distribution of opportunities between economic agents.

In the study, the period between 2001-2018 was divided into 6-year periods such as 2001-2006, 2007-2012, and 2013-2018 by taking into account the economic crises and wars that these countries experienced. Variables of civil rights, economic freedom, political stability, rule of law and GDP per capita, which were determined through a literature review to evaluate the periodic changes experienced by the Central Asian and Caucasian countries during their transition process and their economic growth performances, were identified as institutional criteria that have an impact on economic growth performance, and they were evaluated with equal significance. The findings obtained via the grey relational analysis technique, which is a multi-criteria decision-making technique, were demonstrated in tables enabling us to comment on the economic growth performances of the countries and the momentum they gained in their transitions throughout different periods. When the analysis results were examined, the findings were found to be consistent with the theoretical approaches that emphasize institutions' effect on growth as well as the growth trends of countries.

In short, although it is known that direct foreign capital investment is the driving force behind countries' momentum and success during their transition to the market economy, it is widely accepted that foreign capital considers economically and politically stable countries to be the rational environment for investment. Based on this statement, it can be said that there is no reason why countries with a stable economic institutional structure cannot be successful if they also create an investment climate that will provide political stability. Therefore,

although Kazakhstan, Armenia and Georgia, which were found to be ranking high in this study in terms of economic performance, are relatively more democratic with regard to their political institutions, it does not seem quite possible to consider them as truly western liberal democracies. Even though they have progressed quickly during their transition to the market economy, they have not been able to fully achieve the desired momentum due to their authoritarian tendencies in matters related to institutional structure.

Finally, the fact that Kazakhstan ranked the highest in all periods can be interpreted as the result of its rich natural resources as well as its ability to produce technology, export technological products, and its success in human capital. Armenia and Georgia, which come after Kazakhstan, ranked high through their efforts towards being a part of the world trade and existing in the global economic system. If Armenia and Georgia wish not only to transform their institutions to match market economy norms both politically and economically but also to have a good economic performance, they must give importance to the stabilization of their political institutional structures. When the economic structures of the lower-ranking countries are examined, it is seen that despite their efforts to integrate into global markets, they have not been successful in establishing institutional structures that enable an efficient resource distribution mechanism.

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A Novel Combined Fuzzy MCDM Approach Based on IMF-SWARA and F-CODAS for Consulting Firm Selection

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ABSTRACT

In today's challenging industry conditions, where being good is not enough to be successful, companies trying to be the best need consultancy in different fields. Consulting firms provide consultancy services to businesses, and they need to determine the most appropriate one for them. Fuzzy MCDM (Multi Criteria Decision Making) methods are appropriate to solve consulting firm selection problem. In this study, consulting firm selection problem of a textile company operating in Istanbul, Turkey is introduced by using a novel combined fuzzy MCDM method based on IMF-SWARA (Improved Fuzzy Stepwise Weight Assessment Ratio Analysis) and F-CODAS (Fuzzy COmbinative Distance-based Assessment) methods. The importance weights of the criteria are calculated with IMF-SWARA method. Findings indicate that the top three important criteria are experience, references, and reliability, respectively. Then, F-CODAS method is used to rank the consulting firms and the best one is presented to the Human Resources (HR) department of the textile company. This study contributes to the existing literature in various aspects. It suggests a novel combined fuzzy MCDM method to solve consulting firm selection and a new Fuzzy CODAS based on Triangular Fuzzy Numbers (TFNs) is proposed. Moreover, HR managers can use the findings of this study to evaluate consulting firms.

Keywords: Fuzzy Multi Criteria Decision Making, IMF-SWARA, F-CODAS, Consulting Firm Selection.

JEL Classification Codes: C44, M10, O15

Referencing Style: APA 7

INTRODUCTION

A consulting firm can be described as a professional service firm providing advice to an organization for a specified fee. A consulting firm consists of consultants who are experts in various fields (El-Santawy & El-Dean, 2012: 126). There are numerous reasons companies really need consulting firms. Companies generally focus on their day-to-day operations and their core activity. Moreover, it is inevitable that companies can face problems and they demand guidance in various area. At this point, consulting firms offer great solutions to businesses. After a company decides to hire a consulting firm according to the needs of the organization, it focuses an evaluation and selection problem among various consulting firms and this problem can be solved using MCDM tools (Tuş Işık & Aytaç Adalı, 2016: 56). Until today, many MCDM tools were used for the selection of the consulting firm in the literature. Tsai et al. (2007) used AHP to solve ERP consultant selection problem. Saremi et al. (2009) solved external consultant selection problem using F-TOPSIS. El-Santawy & El-Dean (2012) applied the SDV and MOORA approach to selection of a consulting firm. Tuş Işık and

Aytaç Adalı (2016) applied UTA method to consulting firm selection problem. Razi et al. (2020) have handled consultant selection problem with the AHP method. Avikal et al. (2022) have solved the problem of consultant selection in ERP projects using hybrid method based on F-AHP and COPRAS-G. Nomir and Hammad (2023) used qualifications-based selection and fuzzy TOPSIS to select engineering consultants.

This study aims to integrate theory with practice and select the best consulting firm for the textile company which is operated in İstanbul, Turkey. For this purpose, a novel combined IMF-SWARA and F-CODAS approach has been used. Selection of consulting firm problem can be affected by uncertain and imprecise data, and it should be noted that not only quantitative objectives, but also qualitative objectives are considered in this problem (Kabir and Sumi, 2014: 381). As stated by Sporrang (2011), it is generally difficult to evaluate qualitative criteria related to consultant firms. According to Razi et al. (2020), selecting the best consultant firm is a very complex problem and generally includes qualitative criteria. Therefore, fuzzy set based MCDM method is used in this study.

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A study introduced by Peker and Görener (2023), in which they applied improved fuzzy SWARA and fuzzy CODAS methods to determine the new facility location of a company. Differently from the other papers in the literature, this study applied a combination of IMF-SWARA and F-CODAS method to select consulting firm. The contributions of this study are threefold. Firstly, this study aims to implement a novel combined fuzzy MCDM method based on IMF-SWARA and F-CODAS to consulting firm selection problem. The second contribution is to use IMF-SWARA which is proposed by Vrtađić et al. (2021) to avoid the use of inadequate linguistic scale of original fuzzy SWARA. Third one is the application of F-CODAS method with triangular fuzzy numbers (TFNs) demonstrated in this study. Additionally, the real-life application about consulting firm selection based on fuzzy MCDM can be a new reference for practitioners and researchers.

The content of the study is given as follows: First, research methods including fuzzy set theory, IMF-SWARA and F-CODAS are presented. Then, the real-life application is given. At the end, conclusion and recommendation for further studies are presented.

RESEARCH METHODS

The fuzzy set theory, IMF-SWARA method, and F-CODAS method are introduced in this part.

Fuzzy Set Theory

In daily life, some expressions such as “probably so”, “very likely”, “not very clear” can be heard. These expressions have a common point in that they include uncertainty (Tsaur et al., 2002: 109). Fuzzy set theory was proposed by Zadeh (1965) to overcome imprecision of human thought. Moreover, Bellman & Zadeh (1970) introduced decision making in fuzzy environment. Fuzzy decision-making theory is covered in this MCDM study.

Triangular Fuzzy Numbers (TFNs)

TFN can be defined as (l, m, u) , where $l \leq m \leq u$. TFN \tilde{M} is demonstrated in Figure 1 (Kahraman et al., 2004: 174).

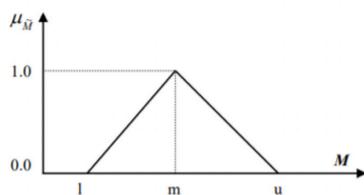


Figure 1. Geometric space of TFN

The membership function of a triangular fuzzy number $\tilde{M} = (l, m, u)$ is given as in equation 1 (Guo & Zhao, 2017: 24):

$$\mu_{\tilde{M}}(x) = \begin{cases} 0, & x < l \\ \frac{(x-l)}{(m-l)}, & l \leq x < m \\ \frac{(u-x)}{(u-m)}, & m \leq x \leq u \\ 0, & x > u \end{cases} \tag{1}$$

Basic algebraic operations of the two positive TFN $\tilde{X} = (l_1, m_1, u_1)$ and $\tilde{Y} = (l_2, m_2, u_2)$ are shown in equations 2 - 10 (Ecer, 2015: 6):

$$\tilde{X} \oplus \tilde{Y} = (l_1 + l_2, m_1 + m_2, u_1 + u_2) \tag{2}$$

$$\tilde{X} \ominus \tilde{Y} = (l_1 - u_2, m_1 - m_2, u_1 - l_2) \tag{3}$$

$$\tilde{X} \otimes \tilde{Y} = (l_1 \cdot l_2, m_1 \cdot m_2, u_1 \cdot u_2) \tag{4}$$

$$\tilde{X} \otimes k = (l_1, m_1, u_1) \otimes k = (l_1 \cdot k, m_1 \cdot k, u_1 \cdot k) \tag{5}$$

In equation 5, $k \geq 0$

$$\tilde{X} \otimes k = (l_1, m_1, u_1) \otimes k = (u_1 \cdot k, m_1 \cdot k, l_1 \cdot k) \tag{6}$$

In equation 6, $k < 0$

$$\tilde{X} \oslash \tilde{Y} = (l_1/u_2, m_1/m_2, u_1/l_2) \tag{7}$$

$$\tilde{X} \oslash k = (l_1, m_1, u_1) \oslash k = (l_1/k, m_1/k, u_1/k) \tag{8}$$

In equation 8, $k > 0$

$$\tilde{X} \oslash k = (l_1, m_1, u_1) \oslash k = (u_1/k, m_1/k, l_1/k) \tag{9}$$

In equation 9, $k < 0$

$$\tilde{X}^{-1} = (1/u_1, 1/m_1, 1/l_1) \tag{10}$$

TFN \tilde{A} is defuzzified by using equation 11 (Perçin, 2019: 535):

$$d(\tilde{X}) = \frac{l_1 + m_1 + u_1}{3} \tag{11}$$

IMPROVED FUZZY SWARA

SWARA method has been proposed by Kersulienė et al. in 2010 to assess criteria weights. Incomplete, inaccessible, or uncertain types of information make it difficult to be certain in the decision-making process. Hence, fuzzy MCDM methods were developed to effectively address the problems associated with such imprecise information. Mavi et al. (2017) extended SWARA method to F-SWARA. As seen in previous studies in the literature, it is thought that there is a complexity regarding the use of linguistic scales for the F-SWARA method. In order to fill this gap and prevent misuse of linguistic scales, Vrtađić et al. (2021) has proposed improved fuzzy SWARA (IMF-SWARA). The current literature shows that researchers

Table 1. Fuzzy linguistic scale

Linguistic variable	Abbreviation	TFNs
Equally important	(EI)	(1, 1, 1)
Moderately less important	(MOLI)	(2/3, 1, 3/2)
Less important	(LI)	(2/5, 1/2, 2/3)
Very less important	(VLI)	(2/7, 1/3, 2/5)
Much less important	(MULI)	(2/9, 1/4, 2/7)

Source: Chang (1996)

Table 2. New fuzzy linguistic scale of IMF-SWARA

Linguistic variable	Abbreviation	Response Scale
Equally significant	(ES)	(0, 0, 0)
Weakly less significant	(WLS)	(2/9, 1/4, 2/7)
Moderately less significant	(MDLS)	(1/4, 2/7, 1/3)
Less significant	(LS)	(2/7, 1/3, 2/5)
Really less significant	(RLS)	(1/3, 2/5, 1/2)
Much less significant	(MLS)	(2/5, 1/2, 2/3)
Dominantly less significant	(DLS)	(1/2, 2/3, 1)
Absolutely less significant	(ALS)	(1, 1, 1)

Source: Vrtađić et al. (2021)

used IMF-SWARA method to analyze different topics. Vrtađić et al. (2021) applied the IMF-SWARA method to evaluate the safety degree of the observed road sections. Zolfani et al. (2021) used IMF-SWARA and fuzzy MABAC methods to evaluate logistics villages in Turkey. Stević et al. (2022) applied IMF-SWARA and EDAS model based on the Bonferroni operator for the ranking of road infrastructure sections considering buses. Puška et al. (2023) determined the weights of criteria in selecting suppliers using IMF-SWARA. Moslem et al. (2023) applied IMF-SWARA and Fuzzy Bonferroni operator to determine significance of the supply quality elements of urban bus transport services.

The difference between SWARA and the IMF-SWARA relates to TFN scale. Vrtađić et al. (2021) have stated that the initial F-SWARA method has not been well conceived and have proved that with two examples. Accordingly, in evaluation process of criteria, although it is indicated that two criteria have equal importance by decision makers (DMs), fuzzy SWARA method results do not support this evaluation. On the other hand, the new fuzzy linguistic scale of IMF-SWARA method has overcome this shortcoming (Vrtađić et al., 2021). For this reason, the IMF-SWARA method proposed by Vrtađić

et al. (2021) has been used in this study. The distinction between F-SWARA and IMF-SWARA is based on linguistic scale and other steps are similar. For more details relating to IMF-SWARA, readers can refer to Vrtađić et al. (2021). The IMF-SWARA method has five steps as below (Mavi et al., 2017: 2405-2407; Vrtađić et al., 2021: 6-7):

Step 1: Firstly, criteria have been selected, and according to the significance level all criteria are ranked.

Step 2: Considering the previously determined rank, each decision-maker determines the relative significance of the criterion (*j*) based on the earlier one (*j*-1). Then, the process is repeated. This ratio is expressed with S_j and indicates the comparative significance of the average value. Table 1 indicates the linguistic scale developed by Chang (1996) which is used in many previous studies about F-SWARA in the literature and Table 2 shows new linguistic scale which is developed for IMF-SWARA.

\tilde{s}_j is known as the comparative importance and denotes the evaluation of decision maker for the criterion *j*.

$$\tilde{s}_j = (s_j^l, s_j^m, s_j^u) \tag{12}$$

In the literature values are calculated by aggregating the evaluations. However, usually it is quite difficult to

obtain a common ranking. On the other hand, aggregated evaluation cannot be obtained, and researchers can face a problem that the rank of importance is quite different and complex in the questionnaire results. Hence, in this study a separate operation for each decision maker instead of aggregated evaluation is performed, and average fuzzy weights are obtained using the arithmetic mean.

Step 3. The fuzzy coefficients are determined by using equation 13.

$$\tilde{k}_j = \begin{cases} \tilde{1}, & j = 1 \\ \tilde{s}_j + \tilde{1}, & j > 1 \end{cases} \quad (13)$$

where triangular fuzzy number $\tilde{1} = (1,1,1)$.

Step 4. Fuzzy weights are calculated with the help of equation 14.

$$\tilde{q}_j = \begin{cases} \tilde{1}, & j = 1 \\ \frac{\tilde{q}_{j-1}}{\tilde{k}_j}, & j > 1 \end{cases} \quad (14)$$

Step 5. Final weights of criteria are calculated by equation 15.

$$\tilde{w}_j = \frac{\tilde{q}_j}{\sum_{k=1}^n \tilde{q}_k} \quad (15)$$

where $\tilde{w}_j = (\tilde{w}_j^l, \tilde{w}_j^m, \tilde{w}_j^u)$ is the final fuzzy weight of the criterion j .

F-CODAS

Keshavarz Ghorabae et al. (2016) proposed CODAS method and later fuzzy CODAS method was proposed by Keshavarz Ghorabae et al. (2017). Assessment scores of alternatives are determined using Euclidean and Taxicab distances in CODAS method. The Euclidean and Taxicab distances cannot be used in fuzzy environment. Hence, in F-CODAS method fuzzy weighted Euclidean and Hamming distances are used (Keshavarz Ghorabae et al., 2017: 7).

Various fuzzy numbers are used according to different subjects, and TFNs, and trapezoidal fuzzy numbers (TrFNs) are the commonly used in fuzzy MCDM applications (Musani and Jemain, 2013: 1007). Hadi-Vencheh and Mokhtarian (2011) stated that TFNs are particular cases of TrFNs and the general statement is that if the middle two fuzzy numbers are the same, TrFNs transform to TFNs. The original F-CODAS method used TrFNs. However, for the sake of ease of operation and simplicity, differently from the original F-CODAS, TFNs are used in this study.

The scholars used F-CODAS for solving different problems in literature. Keshavarz Ghorabae et al. (2017) proposed F-CODAS for market segments evaluation and selection. Personnel selection problem has been introduced with Atanassov intuitionistic F-CODAS method by Yeni and Özçelik (2019). For the same purpose, Yalçın and Yapıcı Pehlivan (2019) used the F-CODAS. Katrancı and Kundakcı (2020) applied the F-CODAS method to assess ten cryptocurrency alternatives. Ulutaş (2021) handled supplier selection problem using F-CODAS. Peker and Görener (2023) applied improved fuzzy SWARA and fuzzy CODAS methods to determine the new facility location of a company.

The steps of the F-CODAS method are summarized below (Keshavarz Ghorabae et al., 2017: 7-9):

Step 1: Alternatives are determined, and DMs express their assessments by the linguistic terms in Table 3. Later, the average fuzzy decision matrix is constructed as seen in equation 16 using equation 17.

$$\tilde{X} = [\tilde{x}_{ij}]_{m \times n} = \begin{bmatrix} \tilde{x}_{11} & \tilde{x}_{12} & \dots & \tilde{x}_{1n} \\ \tilde{x}_{21} & \tilde{x}_{22} & \dots & \tilde{x}_{2n} \\ \vdots & \vdots & \dots & \vdots \\ \tilde{x}_{m1} & \tilde{x}_{m2} & \dots & \tilde{x}_{mn} \end{bmatrix} \quad (16)$$

$$\tilde{x}_{ij} = (x_{ij}^l, x_{ij}^m, x_{ij}^u) = \left(\frac{\sum_{k=1}^K x_{ijk}^l}{K}, \frac{\sum_{k=1}^K x_{ijk}^m}{K}, \frac{\sum_{k=1}^K x_{ijk}^u}{K} \right) \quad (17)$$

In which \tilde{x}_{ij} indicates the average fuzzy performance value of i^{th} alternative for j^{th} criterion and k is the number of DMs.

Table 3. Linguistic terms and TFNs

Linguistic Variables	Abbreviation	TFNs
Very Poor	(VP)	(0, 0, 1)
Poor	(P)	(0, 1, 3)
Medium Poor	(MP)	(1, 3, 5)
Fair	(F)	(3, 5, 7)
Medium Good	(MG)	(5, 7, 9)
Good	(G)	(7, 9, 10)
Very Good	(VG)	(9, 10, 10)

Source: Chen (2000)

Step 2: Fuzzy normalized decision matrix \tilde{N} is obtained as expressed between equations 18-20:

$$\tilde{N} = [\tilde{n}_{ij}]_{m \times n} \tag{18}$$

$$\tilde{n}_{ij} \begin{cases} \frac{\tilde{x}_{ij}}{\max(\tilde{x}_{ij})} & \text{if } j \in \text{Benefit} \\ 1 - \left(\frac{\tilde{x}_{ij}}{\max(\tilde{x}_{ij})}\right) & \text{if } j \in \text{Cost} \end{cases} \tag{19}$$

Step 3: Fuzzy weighted normalized decision matrix \tilde{R} is obtained. The fuzzy weighted normalized performance values \tilde{r}_{ij} are calculated by using equations 21 and 22:

$$\tilde{R}[\tilde{r}_{ij}]_{m \times n} \tag{21}$$

$$\tilde{r}_{ij} = (\tilde{w}_j \otimes \tilde{n}_{ij}) \tag{22}$$

Step 4: Fuzzy negative ideal solution is obtained using the equations 23 and 24:

$$\tilde{N\tilde{S}} = [\tilde{n\tilde{s}}_j]_{1 \times n} \tag{23}$$

$$\tilde{n\tilde{s}}_j = \min_i \tilde{r}_{ij} \tag{24}$$

Step 5: Fuzzy weighted Euclidean (ED_i) and fuzzy weighted Hamming (HD_i) distances are calculated. Let two triangular fuzzy numbers be $\tilde{A}_1 = (l_1, m_1, u_1)$ and $\tilde{B} = (l_2, m_2, u_2)$. The fuzzy weighted Euclidean (ED_i) distance is calculated by using equations 25 and 26 (Roszkowska & Wachowicz, 2015: 6):

$$d_E(\tilde{A}, \tilde{B}) = \sqrt{\frac{(l_1-l_2)^2 + 2(m_1-m_2)^2 + (u_1-u_2)^2}{4}} \tag{25}$$

$$ED_i = \sum_{j=1}^n d_E(\tilde{r}_{ij}, \tilde{n\tilde{s}}_j) \tag{26}$$

where d_E denotes weighted Euclidean distance.

HD_i is calculated as seen in equation 27 and 28 (Roszkowska & Wachowicz, 2015: 6):

$$d_H(\tilde{A}, \tilde{B}) = \frac{|l_1-l_2| + 2|m_1-m_2| + |u_1-u_2|}{4} \tag{27}$$

$$HD_i = \sum_{j=1}^n d_H(\tilde{r}_{ij}, \tilde{n\tilde{s}}_j) \tag{28}$$

where d_H denotes weighted Hamming distance.

Step 6: Relative assessment matrix (RA) is established by using equations 29 and 30.

$$RA = [p_{ik}]_{m \times m} \tag{29}$$

$$p_{ik} = (ED_i - ED_k) + (t(x) \cdot (HD_i - HD_k)) \tag{30}$$

Where, $k \in \{1, 2, \dots, m\}$ and t is a threshold function. It is calculated by equation 31:

$$t(x) = \begin{cases} 1, & \text{if } |ED_i - ED_k| \geq \theta \\ 0, & \text{if } |ED_i - ED_k| < \theta \end{cases} \tag{31}$$

The threshold parameter (θ) is in the range of 0.01 - 0,05 and determined by DMs (Keshavarz Ghorabae et al., 2017: 9). Based on the literature, we utilize $\theta = 0.02$ in this study.

Step 7: Assessment score (AS_i) of each alternative is calculated as seen in equation 32.

$$AS_i = \sum_{k=1}^m p_{ik} \tag{32}$$

Step 8: Finally, alternatives are ranked in descending order of AS_i . The highest AS_i shows the best alternative.

APPLICATION

The consulting firm selection problem of a textile company which is operated in İstanbul is introduced with a novel combined fuzzy MCDM approach in this study. This approach is based on the IMF-SWARA and F-CODAS method. The flowchart of the combined fuzzy MCDM method is given in Figure 2.

The Human Resources department of the textile company wants to select the best consulting firm to train its employees in the field of personal development. For this purpose, a decision committee is formed to define the criteria and then they evaluate the alternative consulting firms. This decision committee consists of 5 DMs. Table 4 shows the background information of DMs.

Table 4. Demographic characteristics of DMs

	Age	Gender	Education level	Position	Working duration
DM ₁	34	Female	Bachelor	HR specialist	8 years
DM ₂	39	Male	Bachelor	HR specialist	15 years
DM ₃	45	Female	Master	HR manager	20 years
DM ₄	35	Female	Bachelor	HR specialist	7 years
DM ₅	40	Male	Master	HR specialist	14 years

After preliminary screening, three alternative consulting firms are determined. Table 5 shows the information about alternative consulting firms.

Table 5. Background information of alternatives

	Experience in the sector	Firm size
A ₁	24 years	103 employees
A ₂	12 years	56 employees
A ₃	15 years	35 employees

Criteria determination have been made by circulating questions and answers of the DMs and researchers. Later, ten criteria have been identified with group decision. These criteria are seen in Table 6.

Decision committee evaluated all criteria individually. To obtain the weights of the evaluation criteria steps of the IMF-SWARA method are followed. Criteria are ranked according to their significance and each DMs express the relative significance of the criterion *j* according to the previous criterion *j-1* with fuzzy linguistic scale as

Table 6. Decision Criteria

C ₁	Experience
C ₂	Reputation
C ₃	Reliability
C ₄	References
C ₅	Professional knowledge
C ₆	Technical skills / certificates
C ₇	Managerial skills
C ₈	Communication skills
C ₉	Consulting Fee
C ₁₀	Team quality

in Table 2. Evaluation outcomes of the 5 DMs are given between Table 7 and 11. For each decision maker, \tilde{s}_j values are obtained as seen in equation 12, then \tilde{k}_j values are obtained by equation 13. Later, fuzzy weights \tilde{q}_j are determined by using equation 14. At the end, the final weights of all the criteria are calculated via equation 15.

Table 7. Evaluation results of DM₁

	\tilde{s}_j			\tilde{k}_j			\tilde{q}_j			\tilde{w}_j		
	<i>l</i>	<i>m</i>	<i>u</i>	<i>l</i>	<i>m</i>	<i>u</i>	<i>l</i>	<i>m</i>	<i>u</i>	<i>l</i>	<i>m</i>	<i>u</i>
C ₁				1.000	1.000	1.000	1.000	1.000	1.000	0.147	0.153	0.160
C ₃	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	0.147	0.153	0.160
C ₄	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	0.147	0.153	0.160
C ₉	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	0.147	0.153	0.160
C ₅	0.286	0.333	0.400	1.286	1.333	1.400	0.714	0.750	0.778	0.105	0.115	0.125
C ₁₀	0.222	0.250	0.286	1.222	1.250	1.286	0.556	0.600	0.636	0.082	0.092	0.102
C ₆	0.286	0.333	0.400	1.286	1.333	1.400	0.397	0.450	0.495	0.058	0.069	0.079
C ₈	0.333	0.400	0.500	1.333	1.400	1.500	0.265	0.321	0.371	0.039	0.049	0.059
C ₇	0.286	0.333	0.400	1.286	1.333	1.400	0.189	0.241	0.289	0.028	0.037	0.046
C ₂	0.333	0.400	0.500	1.333	1.400	1.500	0.126	0.172	0.217	0.019	0.026	0.035
$\Sigma \tilde{q}_j$							6.246	6.535	6.786			

Table 8. Evaluation results of DM₂

	\tilde{s}_j			\tilde{k}_j			\tilde{q}_j			\tilde{w}_j		
	<i>l</i>	<i>m</i>	<i>u</i>	<i>l</i>	<i>m</i>	<i>u</i>	<i>l</i>	<i>m</i>	<i>u</i>	<i>l</i>	<i>m</i>	<i>u</i>
C ₄				1.000	1.000	1.000	1.000	1.000	1.000	0.174	0.185	0.202
C ₁	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	0.174	0.185	0.202
C ₉	0.333	0.400	0.500	1.333	1.400	1.500	0.667	0.714	0.750	0.116	0.132	0.152
C ₂	0.000	0.000	0.000	1.000	1.000	1.000	0.667	0.714	0.750	0.116	0.132	0.152
C ₃	0.000	0.000	0.000	1.000	1.000	1.000	0.667	0.714	0.750	0.116	0.132	0.152
C ₅	0.500	0.667	1.000	1.500	1.667	2.000	0.333	0.429	0.500	0.058	0.079	0.101
C ₇	0.222	0.250	0.286	1.222	1.250	1.286	0.259	0.343	0.409	0.045	0.063	0.083
C ₆	0.286	0.333	0.400	1.286	1.333	1.400	0.185	0.257	0.318	0.032	0.048	0.064
C ₁₀	1.000	1.000	1.000	2.000	2.000	2.000	0.093	0.129	0.159	0.016	0.024	0.032
C ₈	0.250	0.286	0.333	1.250	1.286	1.333	0.069	0.100	0.127	0.012	0.019	0.026
$\Sigma \tilde{q}_j$							4.940	5.400	5.764			

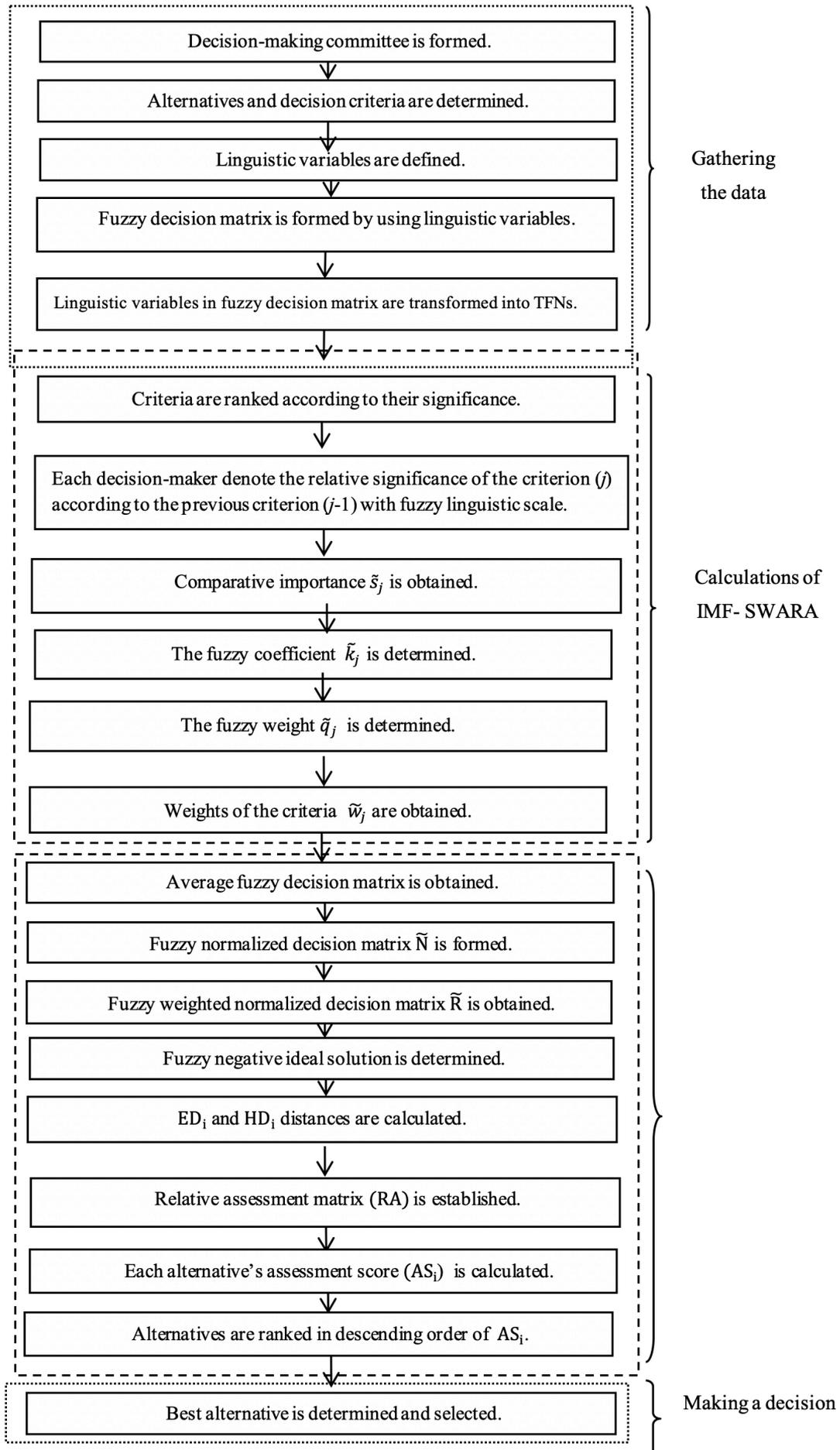


Figure 2. Flowchart of the combined fuzzy MCDM method

Table 9. Evaluation results of DM₃

	\tilde{s}_j			\tilde{k}_j			\tilde{q}_j			\tilde{w}_j		
	<i>l</i>	<i>m</i>	<i>u</i>	<i>l</i>	<i>m</i>	<i>u</i>	<i>l</i>	<i>m</i>	<i>u</i>	<i>l</i>	<i>m</i>	<i>u</i>
C ₁				1.000	1.000	1.000	1.000	1.000	1.000	0.212	0.220	0.231
C ₄	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	0.212	0.220	0.231
C ₅	0.222	0.250	0.286	1.222	1.250	1.286	0.778	0.800	0.818	0.165	0.176	0.189
C ₈	0.286	0.333	0.400	1.286	1.333	1.400	0.556	0.600	0.636	0.118	0.132	0.147
C ₂	1.000	1.000	1.000	2.000	2.000	2.000	0.278	0.300	0.318	0.059	0.066	0.073
C ₃	0.000	0.000	0.000	1.000	1.000	1.000	0.278	0.300	0.318	0.059	0.066	0.073
C ₆	0.222	0.250	0.286	1.222	1.250	1.286	0.216	0.240	0.260	0.046	0.053	0.060
C ₇	0.400	0.500	0.667	1.400	1.500	1.667	0.130	0.160	0.186	0.027	0.035	0.043
C ₉	0.500	0.667	1.000	1.500	1.667	2.000	0.065	0.096	0.124	0.014	0.021	0.029
C ₁₀	1.000	1.000	1.000	2.000	2.000	2.000	0.032	0.048	0.062	0.007	0.011	0.014
$\Sigma\tilde{q}_j$							4.332	4.544	4.723			

Table 10. Evaluation results of DM₄

	\tilde{s}_j			\tilde{k}_j			\tilde{q}_j			\tilde{w}_j		
	<i>l</i>	<i>m</i>	<i>u</i>	<i>l</i>	<i>m</i>	<i>u</i>	<i>l</i>	<i>m</i>	<i>u</i>	<i>l</i>	<i>m</i>	<i>u</i>
C ₄				1.000	1.000	1.000	1.000	1.000	1.000	0.179	0.191	0.206
C ₉	0.222	0.250	0.286	1.222	1.250	1.286	0.778	0.800	0.818	0.139	0.153	0.169
C ₁₀	0.222	0.250	0.286	1.222	1.250	1.286	0.605	0.640	0.669	0.108	0.122	0.138
C ₃	0.250	0.286	0.333	1.250	1.286	1.333	0.454	0.498	0.536	0.081	0.095	0.111
C ₁	0.000	0.000	0.000	1.000	1.000	1.000	0.454	0.498	0.536	0.081	0.095	0.111
C ₇	0.000	0.000	0.000	1.000	1.000	1.000	0.454	0.498	0.536	0.081	0.095	0.111
C ₆	0.000	0.000	0.000	1.000	1.000	1.000	0.454	0.498	0.536	0.081	0.095	0.111
C ₅	0.400	0.500	0.667	1.400	1.500	1.667	0.272	0.332	0.383	0.049	0.063	0.079
C ₈	0.222	0.250	0.286	1.222	1.250	1.286	0.212	0.265	0.313	0.038	0.051	0.065
C ₂	0.222	0.250	0.286	1.222	1.250	1.286	0.165	0.212	0.256	0.030	0.041	0.053
$\Sigma\tilde{q}_j$							4.846	5.241	5.581			

Table 11. Evaluation results of DM₅

	\tilde{s}_j			\tilde{k}_j			\tilde{q}_j			\tilde{w}_j		
	<i>l</i>	<i>m</i>	<i>u</i>	<i>l</i>	<i>m</i>	<i>u</i>	<i>l</i>	<i>m</i>	<i>u</i>	<i>l</i>	<i>m</i>	<i>u</i>
C ₃				1.000	1.000	1.000	1.000	1.000	1.000	0.228	0.235	0.245
C ₁	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	0.228	0.235	0.245
C ₄	1.000	1.000	1.000	2.000	2.000	2.000	0.500	0.500	0.500	0.114	0.118	0.122
C ₁₀	0.286	0.333	0.400	1.286	1.333	1.400	0.357	0.375	0.389	0.081	0.088	0.095
C ₂	0.000	0.000	0.000	1.000	1.000	1.000	0.357	0.375	0.389	0.081	0.088	0.095
C ₈	0.222	0.250	0.286	1.222	1.250	1.286	0.278	0.300	0.318	0.063	0.071	0.078
C ₅	0.250	0.286	0.333	1.250	1.286	1.333	0.208	0.233	0.255	0.048	0.055	0.062
C ₇	0.333	0.400	0.500	1.333	1.400	1.500	0.139	0.167	0.191	0.032	0.039	0.047
C ₉	0.000	0.000	0.000	1.000	1.000	1.000	0.139	0.167	0.191	0.032	0.039	0.047
C ₆	0.250	0.286	0.333	1.250	1.286	1.333	0.104	0.130	0.153	0.024	0.031	0.037
$\Sigma\tilde{q}_j$							4.082	4.246	4.385			

Table 12. Average fuzzy weights of the criteria

		<i>l</i>	<i>m</i>	<i>u</i>	Defuzzified Weights
C ₁	Experience	0.168	0.178	0.190	0.179
C ₂	Reputation	0.061	0.071	0.082	0.071
C ₃	Reliability	0.126	0.136	0.148	0.137
C ₄	References	0.165	0.173	0.184	0.174
C ₅	Professional knowledge	0.085	0.098	0.111	0.098
C ₆	Technical skills / certificates	0.048	0.059	0.070	0.059
C ₇	Managerial skills	0.043	0.054	0.066	0.054
C ₈	Communication skills	0.054	0.064	0.075	0.064
C ₉	Consulting Fee	0.090	0.100	0.111	0.100
C ₁₀	Team quality	0.059	0.067	0.076	0.067

The arithmetic means of the evaluation results of the 5 DMs are calculated to obtain the average fuzzy weight values for all criteria. The obtained average fuzzy weights are given on Table 12 and defuzzified weights are calculated using equation 11.

According to the outcomes of the study, C₁; Experience (0.179) and C₄; References (0.174) are the most significant criteria and C₇; Managerial Skills (0.054) is the least significant criterion. According to this, C₇; Managerial Skills criterion may be ignored in future studies on this subject.

There are some studies in literature that solved the same problem with MCDM. El-Santawy & El-Dean (2012) have revealed that Expected Growth and Current Cost are the most important criteria while Company Size is the least important criterion. A similar study of Kabir and Sumi (2014) demonstrate that Work Experience in Related Field is the most important criterion while Communication and Interpersonal Skills is least important criteria. Razi et

al. (2020) selected the best consultant. The study findings show that Past Experience is one of the most important criteria and this result coheres with this study. However, differently from this study References is relatively less important criterion than other criteria. Avikal et al. (2022) have solved the problem of consultant selection in ERP projects. The findings show that the top two important criteria are Reputation and ERP Project Experience. The findings are consistent as compared to this study findings.

To calculate the ranking of alternatives, steps of F-CODAS method are followed, and the best consulting firm is determined. The alternatives have been evaluated separately by the decision committee under each criterion with the linguistic variables that are given in Table 3. Five decision maker's evaluation results are summarized in Table 13. As C₉ Consulting Fee is a quantitative criterion there is no need to use linguistic variables and it is given in terms of Euro.

Table 13. Evaluation results of five DMs

	DM ₁			DM ₂			DM ₃			DM ₄			DM ₅		
	A ₁	A ₂	A ₃	A ₁	A ₂	A ₃	A ₁	A ₂	A ₃	A ₁	A ₂	A ₃	A ₁	A ₂	A ₃
C ₁	VG	MG	G	G	G	VG	VG	G	G	G	MG	MG	VG	G	G
C ₂	G	G	VG	VG	MG	G	MG	G	VG	VG	G	G	G	MG	VG
C ₃	G	MG	G	MG	G	G	G	VG	MG	G	MG	G	VG	MG	G
C ₄	VG	G	MG	VG	G	MG	G	MG	G	G	G	VG	G	G	VG
C ₅	MG	VG	G	G	VG	G	VG	G	MG	VG	G	G	VG	G	G
C ₆	G	G	VG	G	VG	VG	G	VG	G	G	MG	VG	G	VG	MG
C ₇	G	VG	G	MG	G	G	MG	G	VG	G	MG	VG	MG	G	G
C ₈	VG	G	MG	VG	MG	G	VG	G	MG	MG	VG	G	VG	G	MG
C ₉	3750	3200	2700	3750	3200	2700	3750	3200	2700	3750	3200	2700	3750	3200	2700
C ₁₀	G	VG	MG	G	MG	VG	G	VG	G	VG	G	MG	G	MG	G

These evaluations which are given as linguistic variables are expressed with TFNs. Crisp numbers are crisp data that presents the value of the involved criteria. As C_9 criterion is quantitative it is given as a crisp number. Then, the average fuzzy decision matrix is obtained with the help of equation 17 and can be seen on Table 14.

Table 14. The average fuzzy decision matrix

	A_1			A_2			A_3		
	<i>l</i>	<i>m</i>	<i>u</i>	<i>l</i>	<i>m</i>	<i>u</i>	<i>l</i>	<i>m</i>	<i>u</i>
C_1	8.2	9.6	10.0	6.2	8.2	9.6	7.0	8.8	9.8
C_2	7.4	9.0	9.8	6.2	8.2	9.6	8.2	9.6	10.0
C_3	7.0	8.8	9.8	6.2	8.0	9.4	6.6	8.6	9.8
C_4	7.8	9.4	10.0	6.6	8.6	9.8	7.0	8.6	9.6
C_5	7.8	9.2	9.8	7.8	9.4	10.0	6.6	8.6	9.8
C_6	7.0	9.0	10.0	7.8	9.2	9.8	7.8	9.2	9.8
C_7	5.8	7.8	9.4	7.0	8.8	9.8	7.8	9.4	10.0
C_8	8.2	9.4	9.8	7.0	8.8	9.8	5.8	7.8	9.4
C_9	3750	3750	3750	3200	3200	3200	2700	2700	2700
C_{10}	7.4	9.2	10.0	7.0	8.6	9.6	6.6	8.4	9.6

Later, normalized fuzzy decision matrix is obtained via equations between 18 – 20 as seen on Table 15.

Table 15. Normalized fuzzy matrix

	A_1			A_2			A_3		
	<i>l</i>	<i>m</i>	<i>u</i>	<i>l</i>	<i>m</i>	<i>u</i>	<i>l</i>	<i>m</i>	<i>u</i>
C_1	0.82	0.96	1.00	0.62	0.82	0.96	0.70	0.88	0.98
C_2	0.74	0.90	0.98	0.62	0.82	0.96	0.82	0.96	1.00
C_3	0.71	0.90	1.00	0.63	0.82	0.96	0.67	0.88	1.00
C_4	0.78	0.94	1.00	0.66	0.86	0.98	0.70	0.86	0.96
C_5	0.78	0.92	0.98	0.78	0.94	1.00	0.66	0.86	0.98
C_6	0.70	0.90	1.00	0.78	0.92	0.98	0.78	0.92	0.98
C_7	0.58	0.78	0.94	0.70	0.88	0.98	0.78	0.94	1.00
C_8	0.84	0.96	1.00	0.71	0.90	1.00	0.59	0.80	0.96
C_9	0.00	0.00	0.00	0.15	0.15	0.15	0.28	0.28	0.28
C_{10}	0.74	0.92	1.00	0.70	0.86	0.96	0.66	0.84	0.96

Weighted normalized fuzzy decision matrix is constructed via equations 21–22 as seen on Table 16.

Table 16. Weighted normalized fuzzy matrix

	A ₁			A ₂			A ₃		
	<i>l</i>	<i>m</i>	<i>u</i>	<i>l</i>	<i>m</i>	<i>u</i>	<i>l</i>	<i>m</i>	<i>u</i>
C ₁	0.14	0.17	0.19	0.10	0.15	0.18	0.12	0.16	0.19
C ₂	0.04	0.06	0.08	0.04	0.06	0.08	0.05	0.07	0.08
C ₃	0.09	0.12	0.15	0.08	0.11	0.14	0.09	0.12	0.15
C ₄	0.13	0.16	0.18	0.11	0.15	0.18	0.12	0.15	0.18
C ₅	0.07	0.09	0.11	0.07	0.09	0.11	0.06	0.08	0.11
C ₆	0.03	0.05	0.07	0.04	0.05	0.07	0.04	0.05	0.07
C ₇	0.02	0.04	0.06	0.03	0.05	0.06	0.03	0.05	0.07
C ₈	0.05	0.06	0.07	0.04	0.06	0.07	0.03	0.05	0.07
C ₉	0.00	0.00	0.00	0.01	0.01	0.02	0.03	0.03	0.03
C ₁₀	0.04	0.06	0.08	0.04	0.06	0.07	0.04	0.06	0.07

Fuzzy negative-ideal solutions are obtained by the equations 23-24 and given on Table 17.

Table 17. Fuzzy negative-ideal solutions

	<i>l</i>	<i>m</i>	<i>u</i>
C ₁	0.10	0.15	0.18
C ₂	0.04	0.06	0.08
C ₃	0.08	0.11	0.14
C ₄	0.11	0.15	0.18
C ₅	0.06	0.08	0.11
C ₆	0.03	0.05	0.07
C ₇	0.02	0.04	0.06
C ₈	0.03	0.05	0.07
C ₉	0.00	0.00	0.00
C ₁₀	0.04	0.06	0.07

Fuzzy weighted Euclidean distances are obtained by the equations 25-26 and fuzzy weighted Hamming distances are calculated via equations 27-28 and summarized on Table 18.

Table 18. Fuzzy weighted Euclidean and Hamming distances

	A ₁	A ₂	A ₃
ED	0.076	0.038	0.068
HD	0.071	0.036	0.064

Relative assessment matrix is obtained via equations 29-31 and given on Table 19.

Table 19. Relative assessment matrix

	A ₁	A ₂	A ₃
A ₁	0.000	0.073	0.008
A ₂	-0.073	0.000	-0.058
A ₃	-0.008	0.058	0.000

Finally, assessment scores are obtained via equation 32 as seen in Table 20.

Table 20. Assessment scores of alternatives

	AS _i
A ₁	0.082
A ₂	-0.131
A ₃	0.049

Assessment scores of alternatives show that $A_1 > A_3 > A_2$. Then, it is suggested to the textile company hire A_1 consulting firm. The textile company have found the result appropriate and decided to hire A_1 consulting firm.

CONCLUSION AND DISCUSSION

Consulting firms have been buzzword among businesses with the numerous benefits they provide to companies. After the company decides to hire a consulting firm, it evaluates firms in terms of many criteria which are qualitative or quantitative. For the effective evaluation of consultancy firms, it is significant to determine the weights of the criteria correctly. Consulting firm selection problem have been introduced in this study. Ten criteria have been determined for the selection of the best consulting firm. Since all the criteria except "C₉ Consulting Fee" in this study are qualitative, it is thought that fuzzy MCDM is an appropriate tool to solve consultant selection problem.

Based on our findings, the top three important criteria for consulting firm selection problem are C₁: Experience, C₄: References and C₃: Reliability. In addition to this, the best consulting firm has been determined with the help of the F-CODAS method. According to the results obtained from the F-CODAS method, A_1 consulting firm is found as the best alternative.

This study contributes to literature as follows. This study presents the application of a novel combined IMF-SWARA and F-CODAS method to consulting firm selection. The IMF-SWARA and F-CODAS model can be used as a beneficial reference in the field of fuzzy MCDM. The original F-CODAS method includes trapezoidal fuzzy numbers. However, for the sake of ease of operation and simplicity, differently from the original F-CODAS, TFNs are used in this study. The use of F-CODAS method with TFNs will be a new reference for researchers. The findings of this study can be used by HR managers to identify and select the best consulting firm.

The limitation of this study is that the obtained results depend on a single case study. For future research, the criteria, and alternatives handled for consulting firm selection problem can be extended and different fuzzy MCDM methods or the combined method can be applied. Also, the assessments can be taken by group decision making methods and the findings can be compared.

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Wage Returns to Field of Study-Occupation Mismatch in Turkish Graduate Labor Market: Quantile Regression Approach

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ABSTRACT

In this paper, we estimate the income effects of horizontal mismatch and its interaction with fields of study for Turkish higher education graduates using the Turkish Labor Force Survey dataset. After controlling the vertical mismatch to reduce potential bias, our baseline findings show that one point (decrease) increase in the (mis)matching index leads to 21.9% wage (penalty) growth. However, the return to the matching varies significantly between fields of study. We also explore the extent to which the impact of horizontal mismatch is sensitive to the ability levels represented by the conditional quantile of the income distribution of graduates. Our quantile regression estimations point us to heterogeneous matching returns for different quantiles of fields of study. While the positive wage effect of matching is significantly valid at the above and below the median income in six and three majors respectively, the three majors' negative matching is above the median income.

Keywords: Horizontal mismatch, Inequality, Turkish graduate labor market, Wage returns, Quantile regression.

JEL Classification Codes: J30, J40

Referencing Style: APA 7

INTRODUCTION

Any economic system should target to allocate the human resource effectively as the definition of economics, which encourages the efficient usage of all resources, puts forward. However, in a dynamic and evolutionary economic structure, the composition of sectors continuously changes, allocation of this resource may not always be adaptable to the environment to the same extent and this situation also led to hampering employment growth (Sahin et al. 2011). Moreover, dramatic increases in the proportion of graduates make it difficult to match them with suitable occupations (Freeman, 1976). Among eleven developed countries 26% of total employment suffers from overeducation, which is an incidence that workers have an education level greater than a job requires (Galasi, 2008). This number is similar in developing countries, calculated as 27% for 38 countries (Sam, 2018).

In Turkey, the number of graduates with two- or three-year vocational higher education or four-year faculty diploma soared 117% (from 3.2 to 10.3 million) between 2004-2019. The number of universities for the same period also rose from 53 to 206. This rapid expansion

has amplified the size of employment problems of university graduates to the agenda. Particularly, it makes us question how this massive supply shock of additional graduates has been affected when they could not find a suitable job in their education field.

For the reasons above, the economy can utilize the skills of their labor force but sometimes they cannot, unlike the human capital theory based on neoclassical economics (Rumberger, 1987). When they fail to manage to fully utilize the labor force, the mismatch between job and qualification occurs and it affects efficiency and the labor market outcomes such as wage, job satisfaction, and job search (Allen and Van der Velden, 2001; DeLoach and Kurt, 2018). Vertical and horizontal mismatches are a sort of distinction that refers to two types of mismatches in literature. The educational mismatch is the situation in that workers have more (or less) educational levels than their job requires. For example, a person with a tertiary (secondary) education diploma is over-educated (under-educated) mismatch whose job requires secondary (tertiary) education. In this regard, over-education mismatch has been a well-documented topic due to the expansion of

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higher education. Studies found that over-education led to income penalties between 13% and 27%. Also, horizontal mismatch, which examined in recent years is defined as a mismatch between the field of study and occupation. After the first study by Robst (2007), the income penalty of limited studies is 10% to 32% (Kim, Ahn, and Kim, 2016)¹.

In this paper, we aim the effect of the horizontal mismatch of university graduates on income levels in Turkey. This subject is highly relevant because of the rapid expansion in the number of graduates and changing industry composition in a developing country. According to our knowledge, a study (Orbay, Aydede, and Erkol, 2021) examined this issue in Turkey and found no effect of the field of study on wages. They concluded that disequilibrium between supply-demand for skilled workers creates excessive relative supply and thus constant relative wages.

Our paper, however, deviates from two dimensions. Firstly, we analyze the effect of each field of study matching on wage following Robst (2007) This approach interacts with the field of study with matching indices and enables us to estimate wage return to each field as they are matched. On the other hand, contrary to the self-reported mismatch information in this paper, we utilized our objective matching measurements. Our findings show that after controlling vertical mismatch, there is significant variation in terms of wage return to matching in different majors.

Secondly, we observe the effect of horizontal mismatch on wages depending on unobservable worker ability of fields of study. Following McGuinness and Bennett (2007) and Kim, Ahn, and Kim (2016), we utilize quantile regression analysis by assuming that any conditional quantile of income distribution reflects these abilities. To our best knowledge, this paper is also the first study to analyze the wage effect of a mismatch for different fields of study using a quantile regression approach.

The rest of the paper is organized as follows. Section 2 introduces discussions about theoretical foundations and empirical findings of vertical and horizontal mismatches. Section 3 presents the data and horizontal mismatch indices used. In section 4 we present the Mincerian wage model to be estimated and regression results. Finally, in section 5 concluding remarks are given.

¹ Even before the expansion of universities, Unal (1990) pointed out to the employability and matching problems of Turkish graduates.

BACKGROUND

Theoretical Foundations of Mismatch

In the literature, we come across four theoretical arguments that concentrate on educational mismatch. Although most of these arguments relied on vertical mismatch, they can easily extend to the horizontal mismatch. The first one is the human capital theory which sees human capital as combining parts of schooling, experience, and on-the-job training. Therefore, once graduates join the labor market, they are matched with jobs that require less schooling than they acquired. As they gain experience and skills via on-the-job training, this mismatch case would disappear by climbing the job ladder. However, this status may be permanent for under-educated workers when they compensate for their lack of schooling with experience (Chiswick and Miller, 2009). Similarly, according to this theory, as the labor market adjusts horizontal mismatches would disappear and the earnings of workers with the same educational backgrounds will converge.

Contrary, job competition theory asserts that every occupation has different characteristics that identify productivity and hence the wage. After workers compete for these jobs, they would be matched by employers whose order is based on the proximity of job characteristics. In that situation, a horizontal mismatch is possible because of ability or other characteristics related to education. Therefore, workers with similar educational backgrounds have different earnings because of the nature of the jobs they hold (Nordin, Persson, and Rooth, 2010).

The third is the technological change theory that asserts that new (old) graduates will be over-educated (under-educated) because of their school-provided skills. However, whether this situation is permanent or transitory depends on the flexibility of production technologies (Kiker, Santos, and Oliviera, 1997). This is also valid for horizontal mismatch because advancing technologies may require more technical skills in some occupations than before. For example, executive positions are highly associated with computer science applications such as data science, machine learning, and artificial intelligence. In this case, the horizontal mismatch for economics and business administration graduates may become permanent.

The fourth is the assignment theory which deals with assigning different jobs to workers with different characteristics to maximize the output. According to this

argument, together with the search theory, over- and undereducation and under- and over-utilization of skills have the same meaning, and workers who are weakly matched are less productive compared to their peers (Sattinger, 1993; Di Pietro and Urwin, 2006). Horizontal mismatches also exist and lower the productivity and then the wage level of workers than those with matched.

Selected Empirical Studies of Mismatch and Wages

Vertical Mismatch

In the literature, the measurement of vertical mismatch relied on schooling duration and survey responses. As expected, education mismatch takes into consideration the formal education years of the respondents (Duncan and Hoffman, 1981; Rumberger, 1987; Hartog and Oosterbeek, 1988; Hersch, 1991) by adapting over-, required- and under-education (ORU) approach (McGuinness and Sloane, 2011). In this specification, the difference between the schooling years of a worker and the required education of an occupation identifies whether he or she is mismatched or not.

Along with the raising ratio of graduates to the youth population in developing as well as developed countries, controversies over a mismatch in the job market and its impact on wages have been intensified among labor economists. In earlier studies, based on the assignment models (Tinbergen, 1956), a mismatch has been set up between the job and formal education level of the individual and this level has been used as a proxy for skills (Tsang and Levin, 1985; Sattinger, 1993). Additionally, further empirical studies of this approach conducted in the United States (Duncan and Hoffman, 1981; Rumberger, 1987), Netherlands (Hartog and Oosterbeek, 1988), and Spain (Alba-Ramirez, 1992) claim that over-educated people who have higher education level than their own is required to earn less than those who are matched with the same level, but more than those who are their co-workers. Conversely, under-educated people who have a lower education level than their own are required to earn more than those who are matched with the same level, but less than those who are their co-workers. Similarly, institutional arguments also emphasize formal education which is an observable characteristic for bargaining agreements (Di Pietro and Urwin, 2006). Later, this approach has been criticized because of the assumption that each job requires a certain skill level which is gained only through schooling and independent of attributes. According to the heterogeneous skill theory developed after the 2000s, the skill level is determined by not only workers' schooling but also their endowments.

At the same time, as a lot of studies pointed out, the relationship between skill and education mismatch is poor because over or under-educated workers differ among themselves in terms of human capital within education levels (Badillo-Amador and Vila, 2013; Di Pietro and Urwin, 2006; Allen and Van der Velden, 2001). Also, skill mismatch explains the changes in wage levels even after education mismatch is controlled in the Mincerian equations. A detailed literature survey for the wage effect of vertical mismatch can be found by McGuinness, Pouliakas, and Redmond (2018).

For the studies covering the Turkish labor market, the first one is Filiztekin (2011). It obtains the same findings that over-educated people earn more than their colleagues but less than those with the same level of education. However, Acar (2016) used panel data and an instrumental variable approach to address unobservable skill and endogeneity. It reveals that there is no significant effect of mismatch on wages. On the other hand, Duman (2018) found less wage return for over-educated workers than those with required people. On the other hand, this gap got smaller in the private sector.

Horizontal Mismatch

Compared with the vertical mismatch, the horizontal mismatch is a recent topic. A seminal study on the link between the mismatch of occupation and field of study and income is Robst (2007) for graduates of the UK. This study used survey data asking respondents the extent to which their work and education are related. It found that a complete mismatch led to 10% wage losses for women and 11% for men. These losses were 2.1% for women and 2.8% for men for the partial mismatch.

As we put forward in vertical mismatch, the horizontal mismatch is measured by using either self-reporting of respondents as Robst (2007) applied or some relatedness indices derived from the ratio of graduates to total employees within an occupation². For the former group, Kelly, O'Connell, and Smyth (2010) also analyzed the wage return to mismatch measuring with self-reporting data for Ireland and found a 5% wage loss. Moore and Rosenbloom (2016) also found wage penalties for horizontal mismatch. Sellami et al. (2018) observed that an income penalty is not inevitable in Belgian graduates when measurement error and unobserved heterogeneity are addressed. Robst and VanGilder (2016) also analyzed the wage penalty of economics and business graduates in the UK when they are mismatched and found that

² In the next section, we discussed the latter group of indices.

economics graduates suffer less from mismatching than business graduates. Montt (2015) concluded in cross-country analysis that the income penalty of the field of study only exists if graduates are also overqualified. Kim, Ahn, and Kim (2016) measured the return to the matching of Korean graduates and obtain the income penalty for lower quantiles of income distribution³.

Self-reported mismatch variables may create endogeneity with wages. According to Nordin, Persson, and Rooth (2010), the absence of satisfaction with wages results to report low relation between job and field of study. Therefore, some relatedness indices have been developed. In the latter group, Nordin, Persson, and Rooth (2010) found that in Sweden negative return was twice for men that found for US men. In fact, this income penalty size for Swedish women has been the same for US women. However, as men gain experience in the labor market, this penalty would begin to get compensated. Lemieux (2014), on the other hand, utilized from relatedness index primarily but also used information on respondents' reporting the extent to which their education is suitable for their job. It has been concluded that relatedness significantly and positively affects annual wages. Lindley and McIntosh (2015) questioned the sources of wage inequality among UK graduates and found that the primary reason stemmed from the inequality within the field of study. Their further analysis also showed that different job definitions within a subject, which is close to the horizontal mismatch concept, is not the largest source of that inequality. In another study analyzing the UK, Syed (2015) used early-level requirements of each occupation and relate them to majors to decide mismatch status. Findings have shown different (positive or negative) wage returns to mismatch for each major. Lastly, Aydede and Dar (2016) used a relatedness index of Canadian natives to estimate the cost of a mismatch of immigrants. They showed that their underutilization is negligible.

Lastly, studies examining the relationship between horizontal mismatch and wages in Turkish labor markets are so limited. While Suna et al. (2020) using self-reported information and Ege (2020) analyzed the reasons and incidence of horizontal mismatch among vocational high school and university graduates respectively, Orbay, Aydede, and Erkol (2021) is the most relevant study to our paper. They developed a relatedness index capturing vertical mismatch and found no significant wage

effect of horizontal mismatch, arguing that except for regulated occupations, jobs do not need major-specific requirements in Turkey.

DATA, RELATEDNESS INDEX AND MISMATCH

In this paper, we use the 2019 Turkish Household Labor Force Survey (LFS) data conducted by TurkStat. The reason why we choose the 2019 wave of this survey is that consequent periods are subject to the COVID-19 pandemic shock. Undoubtedly this crisis has huge implications for labor markets. In addition, the inflationary environment in Turkey and exchange rate volatility has also effects on temporary effects on matching composition. To isolate these effects, we choose the most recent "relatively normal" period as a sample to be analyzed. This dataset represents the population and gives information about the demographic, economic, and employment structure of the Turkish labor market. Our main variables to calculate the (mis)match index are occupation and field of study information of workers. For both variables, the International Standard Classification of Education (ISCED-13) and the International Standard Classification of Occupation (ISCO-08) have been used to group those having vocational high school and two-year vocational higher education or four-year faculty degree at a university. We reduced our sample to workers with full-time employed, university degreed, and salaried status and ended up with 30,269 observations, representing 5.7 million people using sample weights.

After obtaining frequency distributions of 43 occupations and 22 fields of study, we calculated the relatedness index (RI) for 631 occupation-field of study pairs:

$$RI_{of} = \frac{\frac{L_{of}}{L_f}}{\frac{L_o}{L_t}} \quad (1)$$

In the formulation above, subscripts o and f represent occupation and field of study, respectively. Similar to Balassa's revealed comparative advantage index, this measurement takes one depending on the relative size between the nominator and denominator. However, the denominator contributes to the index in two respects. On the one hand, it takes simultaneously account the distribution of fields of study for each occupation and of occupations for each field of study. On the other hand, it rescales simple density using occupation share in the economy (Aydede and Dar, 2016; Orbay, Aydede, and Erkol, 2021).

³ Here we present some selected studies that link horizontal mismatch and wage. Detailed literature survey on this topic, see Sellami, Verhaest, and Van Trier (2018).

There are various mismatch measurements that use indirect information and relate occupations and fields of study⁴. While some studies use only the nominator part of the relatedness index using share itself (Nordin, Persson, and Rooth, 2010) or the mode value of the field of study within an occupation (Nieto, Matano and Ramos, 2015), others use network type indices such as degree centrality (Narin and Hayes, 2017) and concentration for each occupation (Lindley and McIntosh, 2015). However, since the network approach treats only the most common field of study within an occupation as a tie and there is no obvious majority within occupations, we proceed to use the index for our analysis. We also normalize the index () to range between zero to one.

Table 1 shows the NRI values of occupation and field of study pairs. Among them, pair with the highest is and legal, social, and cultural professionals (26) and law majors. We can state that law graduates are most likely to match in their occupation. Nature and the labor market projections of this job definition may tend to stay these graduates in a specific occupation. Moreover, the fact that this pair is followed by Health and Veterinary graduates with Health Professionals (22) supports this finding⁵. Since these jobs at the same time require some accreditation processes to professional associations (bar association, medical chambers) based on their diploma, graduates with other fields of study could find any position in these occupations. However, there are exceptions to this finding like education major, which is eleventh in terms of linking to teaching professionals (23) and second in salaried workers. The potential reason for this result is that in recent years these graduates' probability of being employed in the public sector has decreased due to a reduction in civil servant appointments. Meanwhile, these graduates might opt for another occupation group. Production and specialized services managers (13) have the second highest value among education graduates. The other two majors having the highest matching are information and communication technologies (with Information and Communications Technicians (35)), Mathematics, and Statistics (with Information and Communications Technology Professionals (25)). The lowest values are accommodated in low-skilled occupation categories (workers, plant machine operators, and elementary occupations) as expected.

On the other hand, business and administration graduates who are the largest major (1,743,791) in the

salaried worker groups have no NRI value greater than .10. This implies that these graduates did not engage in an occupation as law and health graduates. There are many reasons why such a major concentrated their graduates with their jobs like "managers" occupation. One may be that because most of them -especially men due to the avoidance of compulsory military service for a short time- have graduated from Open Education Faculty, during their education they already had a job mismatched with that major and did not change it after graduation. On the contrary, engineering graduates have been significantly positioned in "professional" occupations.

MODEL AND ESTIMATION RESULTS

Wage Model and Relatedness

In this section, we present the models to be estimated using the Mincer type earning function. Let subscripts , , , and be individual, education field, occupation, industry, and region respectively, our baseline model including as the continuous form is following:

$$\ln W_{ifosr} = \alpha + p_{sr} + X_i' \beta + \delta over_i + \pi under_i + \theta NRI_{fo} + D_r + D_o + D_f + \varepsilon_{ifosr} \quad (2)$$

In the equation above is the hourly wage by worker with the field of study and occupation . is the industry concentration index to control the relative importance of the industry in the region . is worker-level characteristic vector capturing age and experience (and their squares) as well as binary variables of gender marital status and working in the private/public sector, and formal and informal sector. and were measured using the ORU approach and added to the equation to control vertical mismatch. , , and region, occupation, and field of study fixed effects, respectively.

We also estimate equation (2) by splitting normalized values into four categories as Aydede and Dar (2016) applied. Our aim here is to understand how the matching elasticity of wages differs among different intervals. This may provide us with important insights especially when low matching intensities suffer from low wage gains or losses.

Another dimension like Robst (2007), we examined is the field of study-specific wage returns to the matching. By using adding an interaction term to equation (2) we can estimate the following equation:

$$\ln W_{ifosr} = \alpha + p_{sr} + X_i' \beta + \delta over_i + \pi under_i + \theta NRI_{fo} + (NRI_{fo} * D_f)' \delta + D_r + D_o + D_f + \varepsilon_{ifosr} \quad (3)$$

⁴ For more information on these groups of indices and their advantages and limitations, please see Narin and Hayes (2017).

⁵ It is also consistent with the UNI-VERI database provided by the Human Resources Office of the Presidency of the Republic of Turkey.

Table 2. Frequency Distribution of Income Percentiles in Degree Field (%)

Degree Field/Income Quantile	10th	25th	50th	75th	90th	100th	Total
Education	3.60	10.01	15.41	29.91	31.22	9.84	100
Arts	12.15	25.50	26.15	16.39	8.41	11.39	100
Humanities	6.63	10.85	27.81	32.33	16.06	6.32	100
Languages	5.74	12.26	26.29	23.21	17.75	14.76	100
Social and Behavioral Science	6.08	15.24	26.59	27.81	11.30	12.98	100
Journalism and Information	15.82	21.20	16.79	24.90	12.16	9.12	100
Business and administration	9.79	20.90	27.13	22.03	9.85	10.30	100
Law	8.90	11.73	22.10	12.29	12.02	32.97	100
Biology	4.59	16.88	23.20	26.56	16.87	11.90	100
Physical Science	6.20	11.96	23.01	23.85	19.84	15.14	100
Math and Statistics	1.27	14.06	23.39	25.50	22.16	13.63	100
Information and communication	15.01	35.56	28.12	11.47	2.84	7.00	100
Engineering	7.59	15.97	28.63	19.55	12.59	15.67	100
Manufacturing and process.	12.32	24.28	27.40	13.37	10.24	12.38	100
Architecture and const.	9.90	15.34	26.26	19.28	16.60	12.62	100
Agriculture, forestry and fishery	9.94	17.29	20.19	19.94	24.67	7.96	100
Veterinary	9.77	13.05	13.38	38.57	18.52	6.71	100
Health	5.81	11.21	17.96	32.48	9.17	23.36	100
Social services	14.62	26.17	28.29	24.90	1.99	4.03	100
Personal services	11.64	25.98	27.27	17.83	8.22	9.07	100
Occupational health and transport	13.97	16.97	25.29	20.43	15.75	7.60	100
Security services	4.71	5.61	22.00	33.81	23.59	10.27	100

Source: Authors' own calculations using 2019 Turkish LFS data.

In this specification, the vector would be informative regarding the separate effect of for each graduate section. Therefore, the higher values mean that the degree of matching in this field of study would provide higher wage-earning.

Estimating equation (3) with OLS assumes that the wage return of (mis)matching is constant for all income levels. However, different income quantiles might have been affected by different values because wage distributions represent the unobservable abilities of workers (Kim, Ahn, and Kim, 2016). This assumption is reasonable to control abilities when the last cohorts have similar education and experience levels (McGuinness and Bennett, 2007).

To examine such a relationship, we used a quantile regression estimator as previous studies applied. However, instead of traditional regression quantiles, we adapted the modified version based on moment conditions that define conditional means developed by Machado and Santos Silva (2019). This approach also simplifies the process of managing incidental parameter problems.

Table 2 shows the distribution of employees across income percentiles for each degree field. It seems unequal and different distribution patterns in between fields. More than half of the graduates of ten majors (arts, journalism and information, business and administration, information and communication,

Table 3. Baseline Specification of Hourly Wage Regression

Variables	(1) Continuous NRI	(2) NRI classified
Industry concentration	-0.280** (0.001)	-0.279** (0.001)
Experience	0.034** (0.000)	0.034** (0.000)
Experience^2	-0.074** (0.000)	-0.074** (0.000)
Female	-0.080** (0.000)	-0.081** (0.000)
Public	0.310** (0.000)	0.312** (0.000)
Illegal	-0.365** (0.002)	-0.364** (0.002)
Married	0.112** (0.000)	0.112** (0.000)
Over-educated	0.157** (0.000)	0.156** (0.000)
Under-educated	-0.192** (0.005)	-0.193** (0.005)
NRI	0.217** (0.002)	
0.25-0.50		0.054** (0.001)
0.50-0.75		-0.080** (0.002)
0.75-1		0.271** (0.002)
Constant	2.859** (0.002)	2.869** (0.002)
Observations	30,269	30,269
R-squared	0.573	0.574
Region fixed effects	yes	yes
Field fixed effects	yes	yes
Occupation fixed effects	yes	yes

Robust standard errors in parentheses ** p<0.01, * p<0.05, + p<0.1

Sample weights have been used.

In column (2), base category for NRI is 0-0.25.

Base category of vertical mismatch is required education.

engineering, manufacturing and processing, architecture and construction, social services, personal services, occupational health, and transportation) have been positioned at the lower-income distribution. On the other hand, law, health, and engineering fields have the highest share at the top percentile.

Another concern in estimating equations (2) and (3) is the possible endogeneity between and error terms. In education economics literature it is claimed that this problem in return of education context leads to unobserved ability bias and the instrumental variables approach can be used as a remedy. However, Card (1999) found that the bias was smaller than expected. When we contain this bias in the effect of the field of study or mismatch or relatedness on the wage, we could not find a suitable instrument that is not correlated with an error term and correlated with . Meanwhile, Altonji et. al. (2012) and Nordin, Persson and Rooth (2010) used some proxies, but they saw no significant changes in their results. In addition, Lemieux (2014) and Aydede and Dar (2016) also suggested that OLS is still valid to estimate the average effect of the field of study on wages.

Estimation Results

Table 3 presents baseline specifications to see matching returns. All controls are significant and consistent with expectations. Effects of over- and under-education mismatches are also consistent with the literature, meaning that over-educated (under-educated) workers earn less (more) than their well-matched peers. In column (1), our variable of interest, has a significant and positive coefficient, meaning that as the matching of the field of study with occupation increased wage rose by %21.7. This finding is consistent with Robst (2007) and most of the following studies using its approach. If we interpret conversely, those who are one point mismatched with their subject face a 21.7% of income penalty.

We dig this analysis a little further to see if there is variation among coefficients of different ranges. To do so, we adopted the methodology of Aydede & Dar (2016) converting into categories based on their values. In this regard column (2) which we separate each quarter showed that each category has a different wage return. Moreover, compared to the lowest quarter, this effect has been increasing as matching climb to higher. Put differently, higher matching means higher wage returns for the Turkish graduate labor market. The third quarter is the exception to this finding, meaning that matching in this range led to an 8% income penalty. However, it disappears as moves to the higher quarter.

We proceed with our analysis to obtain a field of study-specific effects of matching on wage using Table 4. The coefficient of alone turned out to be negative. This implies that when the matching variable does not interact with major groups, the effect of in Table 2 would be positive since most of the fields of study have a positive effect on higher segments of wage.

In column (1) using OLS estimation, after capturing the other covariates, we first saw that the effect of each major varied substantially. Among them graduates of social services, if they match with their right occupation, have the highest return, 1.73 times greater than that of those with humanities diplomas. It follows the law 1.69 times. Contrary, language graduates suffered from income loss (%32) when they were assigned to the occupations that previous graduates mostly preferred. On the other hand, we realized that higher average or maximum values of majors approximately correspond to higher wage return to matching. We tested whether there is any pattern between the two variables and found a correlation coefficient of .03 for average and .20 for maximum . In other words, if workers having majors with tighter among occupations are assigned to an occupation whose within this major is high, their wage return would be more likely to rise.

Columns (2) to (6) of Table 4 report quantile regression estimation results⁶. We built five different quantiles of the conditional distribution of wages. If we consider OLS results average effects, other columns would be the return of the mismatching for a given income quantile. Then we observed different coefficients of and its interactions with the field of study across quantiles even though their average is close to OLS. For example, wage return to business and administration matching is 8% (compared to humanities graduates) in the 90th quantile while its average return is 25.5%. In the education major, 17.7% matching return at the beginning and 34.8% one at the end of distribution was observed. However, a significant average effect of .259 in column (1) implies that matching of the graduates slightly provides wage growth, especially in higher wage levels. Language graduates, on the other hand, significantly face an income penalty (97.1%) toward the highest wage distribution. Contrarily, law, information and communication, engineering, architecture and construction, health, and social services provide statistically significant wage premiums

⁶ Here we present the coefficients of and its field of study interactions only. We share the coefficients of other control variables upon request.

$$p_{sr} = \frac{\frac{\text{total workers in industry } i \text{ of region } r}{\text{total workers in region } r}}{\frac{\text{total workers in industry } i}{\text{total workers}}}$$

Table 4. OLS and Quantile Hourly Wage Regression Results with Interacted Model

Variables	(1) OLS	(2) 10th	(3) 25th	(4) 50th	(5) 75th	(6) 90th
Over-educated	0.156** (0.000)	0.112** (0.005)	0.132** (0.004)	0.155** (0.004)	0.180** (0.005)	0.204** (0.007)
Under-educated	-0.189** (0.005)	-0.096 (0.082)	-0.138* (0.067)	-0.186** (0.063)	-0.238** (0.076)	-0.288** (0.098)
NRI	-0.094** (0.004)	0.015 (0.064)	-0.034 (0.053)	-0.091+ (0.050)	-0.153* (0.059)	-0.212** (0.077)
NRI # field:						
Education	0.259** (0.005)	0.177+ (0.095)	0.214** (0.078)	0.257** (0.073)	0.303** (0.088)	0.348** (0.114)
Arts	0.378** (0.019)	-0.388 (0.336)	-0.043 (0.277)	0.356 (0.260)	0.789* (0.311)	1.202** (0.404)
Languages	-0.324** (0.014)	0.277 (0.242)	0.006 (0.200)	-0.307 (0.187)	-0.647** (0.224)	-0.971** (0.291)
Social and behavioral science	0.286** (0.015)	0.238 (0.256)	0.260 (0.211)	0.285 (0.198)	0.312 (0.237)	0.339 (0.308)
Journalism and information	0.401** (0.014)	0.486+ (0.284)	0.448+ (0.234)	0.404+ (0.219)	0.356 (0.263)	0.311 (0.341)
Business and administration	0.255** (0.012)	0.566** (0.209)	0.426* (0.173)	0.264 (0.162)	0.088 (0.194)	-0.080 (0.251)
Law	0.688** (0.004)	0.394** (0.070)	0.527** (0.058)	0.679** (0.054)	0.845** (0.065)	1.003** (0.084)
Biology	-0.552** (0.015)	-0.223 (0.281)	-0.372 (0.232)	-0.543* (0.217)	-0.729** (0.260)	-0.906** (0.337)
Physical science	0.217** (0.016)	0.616* (0.307)	0.436+ (0.253)	0.228 (0.237)	0.003 (0.284)	-0.212 (0.369)
Math and statistics	-0.225** (0.013)	0.111 (0.240)	-0.040 (0.198)	-0.215 (0.186)	-0.405+ (0.222)	-0.586* (0.288)
Information and communication	0.143** (0.006)	-0.003 (0.102)	0.063 (0.084)	0.139+ (0.079)	0.222* (0.095)	0.300* (0.123)
Engineering	0.555** (0.008)	0.538** (0.150)	0.546** (0.124)	0.555** (0.116)	0.565** (0.139)	0.574** (0.180)
Manufacturing and process.	0.103** (0.016)	0.270 (0.274)	0.195 (0.226)	0.108 (0.212)	0.013 (0.254)	-0.077 (0.329)
Architecture and const.	0.328** (0.007)	0.208+ (0.119)	0.262** (0.098)	0.325** (0.092)	0.392** (0.110)	0.457** (0.143)
Agriculture, forestry and fishery	0.126** (0.009)	0.190 (0.154)	0.161 (0.127)	0.128 (0.119)	0.092 (0.143)	0.057 (0.185)
Veterinary	0.177** (0.008)	0.354* (0.145)	0.274* (0.119)	0.182 (0.112)	0.082 (0.134)	-0.013 (0.174)
Health	0.284** (0.005)	0.125 (0.080)	0.197** (0.066)	0.279** (0.062)	0.369** (0.074)	0.454** (0.096)
Social services	0.730** (0.016)	0.513+ (0.305)	0.611* (0.251)	0.724** (0.236)	0.847** (0.282)	0.964** (0.366)
Personal services	-0.365** (0.026)	-0.027 (0.465)	-0.179 (0.383)	-0.356 (0.359)	-0.547 (0.430)	-0.730 (0.558)
Occupational health and transport	0.508** (0.037)	0.273 (0.683)	0.379 (0.563)	0.502 (0.528)	0.635 (0.633)	0.762 (0.821)
Security services	0.258** (0.014)	0.351+ (0.210)	0.309+ (0.173)	0.260 (0.163)	0.208 (0.195)	0.158 (0.252)
Observations	30,269	30,269	30,269	30,269	30,269	30,269

Robust standard errors in parentheses

** p<0.01, * p<0.05, + p<0.1

Base category for field of study is humanities.

Sample weights and fixed effects as in table 3 have been included in each column.

Base category of vertical mismatch is required education.

matching—especially at higher income distribution. In a nutshell, we can state that in most fields wage return to graduates when they approach occupations most related to their majors depends on unobserved ability, which is assumingly identified by the quantile of income. In this sense, our results are complementary to Robst (2007), and Orbay, Aydede, and Erkol (2021), which estimate the only average effect of horizontal mismatch irrespective of the income distribution of workers. Indeed, the results in Table 3 are found similar to Orbay, Aydede, and Erkol in terms of magnitude. On the other hand, it is observed in this study that this varies with a different set of abilities of workers. They also help to broaden the findings of Kim, Ahn, and Kim (2016) investigate the effect of a horizontal mismatch for all fields. They found that Korean workers face income penalties in all income distributions. However, we find that the income effect of horizontal mismatch in a group of similar abilities is not homogenous between different fields of study.

CONCLUSION

In this paper, we examined how the horizontal mismatch affects income in Turkish graduate labor markets by controlling vertical mismatch. We also observed these return differences across fields of study and income quantiles to see different effects of mismatch across unobservable ability levels. Firstly, we found that our matching index positively affects wage level on average, meaning that as workers are employed in non-related occupations, they would face a 21.7% income penalty. Even though this effect turned out to be negative at the upper-middle value of the index, it is then positive at the highest quarter. Secondly, each field of study that Turkish graduates have completed has a different wage return to matching. Even though four majors provide negative wage returns, the positive impact of the rest varies significantly. In addition, these returns are positively correlated with matching.

Quantile regression results also showed heterogeneity in wage return across fields and quantiles. Some of the majors such as business and administration, journalism, information, and veterinary significantly provide wage growth only below the median income. In six of them, wage growth is above the median income level. Finally, only graduates of three majors have a negative income penalty as they find jobs related to their major and this effect proliferates above the median income level. Our results indicate that unobservable ability is an important aspect to evaluate the different field of study effects of mismatch on labor market outcomes. Hence, our policy implications of results are twofold.

Firstly, policymakers should pay attention to the heterogeneous effect of mismatch between the field of study for different segments of the economy while reducing income inequality. Since our results also show the effect on different income distributions, it helps to construct a policy set regarding who should be targeted. For example, because business administration and economics graduates are positively affected by matching when they are at the lower income quantile, subsidies would rapidly change the labor market outcomes of this segment.

Subsidies to firms to hire a qualified workforce for qualified jobs should be discussed. On the other hand, certification requirements for a while to perform some jobs would show firms productivity gains if they employed workers suitable for their education. In addition, as seen in the literature, these efforts to overcome horizontal mismatch help to enhance the efficiency of the economy.

Secondly, officials of statistical branches in Turkey should pay attention to questions related to the mismatch. In this study, we use only objective measurements to estimate the wage effect of mismatch. We would take the opportunity to compare the results if TurkStat asked respondents in the labor force survey their mismatch status in a subjective way. Moreover, the panel structure of this dataset also would enable us to control the unobserved heterogeneity of workers.

Our findings seem to contradict human capital theory because they assert that horizontal mismatch is a temporary situation. However, a long-term perspective using longitudinal data may approve this argument. Similarly, job competition theory focusing on job characteristics seems to lack a field of study dimension to see the wage differentials among workers. Using more disaggregated occupation classifications while developing a matching index may change our results. Therefore, future research should focus on this issue. Nonetheless, our findings are consistent with other studies confirming the assignment theory which claims that field of study and occupation jointly matter to estimate wage return.

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Male Alcohol Use, Intimate Partner Violence, and Female Autonomy: The Turkish Case

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ABSTRACT

This study analyzes the effect of intimate partner violence on female autonomy, defined as the decision-making capability of a woman who is married or cohabiting with a partner, by using Turkish micro-level data sets on domestic violence against women. The study employs the instrumental variable methodology to estimate the causal impact of the occurrence and level of intimate partner violence on female decision-making autonomy. The estimation shows that experiencing intimate partner violence in the last twelve months diminishes the female decision-making autonomy significantly. A further estimation is implemented to find out whether the source of autonomy reduction is employment loss caused by partner violence, which can discourage women from work. IV estimations show that intimate partner violence, instead, pushes women towards work for the sample, which is not restricted to married women. This may indicate that participation in employment is not sufficient alone to ensure freedom in households and should be accompanied by legislative and institutional measures targeting direct prevention of intimate partner violence.

Keywords: Intimate Partner Violence; Female Autonomy; Alcohol Use; Household Bargaining; Instrumental Variable.

JEL Classification Codes: J12, J16, K36

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INTRODUCTION

Intimate partner violence is a multidimensional problem, harming both the physical and mental health of its victims (Krug et al., 2002), depriving them of economic resources, disrupting their dignity and liberty (Stark, 2012), and endangering young generations (Aizer, 2011; McCloskey et al., 1995). It distorts human development by damaging women's freedom (Agarwal & Panda, 2007). From a more classical perspective of development, it induces enormous costs on the health and judicial system of countries and leads to GDP loss (UN-Women, 2016; Fearon & Hoeffler, 2014) via its direct and indirect effects (Duvvury et al., 2013).

The problem has become more challenging after the Covid-19 pandemic when couples are isolated to their homes. Reports from all around the world show that the incidents of domestic violence are rising significantly (UN-Women, 2020). The rise in the pandemic indicates that isolation from the outside world to households increased the incidence of the problem. Therefore, the pandemic experience raises the importance of the interactions between household dynamics and domestic violence.

This study analyzes the impact of intimate partner violence on female autonomy. Female autonomy is evaluated by this study as a woman's capability to make decisions without intervention from her husband or intimate partner, based on the Sen's capability approach (Sen, 1999). Sharaunga et al. (2019) evaluate decision-making autonomy as one of the indicators of women empowerment. This capability is also a reflection of the bargaining power of a woman in freedom of making the decisions about herself, as shown in Eswaran and Malhotra (2011). The position of in the household depends on her bargaining power in the household, which is affected by factors such as her real and potential earnings, education level, labor market status, the status of women in society. Autonomy is one of the best indicators of this power. The violence-autonomy relationship has important implications for the intergenerational effects. Women with lower socio-economic status are more likely to fail to obtain enough resources for their children due to low bargaining power in households, leading to problems ranging from malnutrition to undereducation (Smith et al., 2003). Besides, witnessing domestic violence in childhood increases a male's probability of using intimate partner

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violence and a female's likelihood of facing intimate partner violence in adulthood (Pollak, 2004).

The main debate in this literature is whether the likelihood of experiencing intimate partner violence is higher for women with lower bargaining power or not. Some game-theoretic models suggest that the likelihood of exit from the relationship is higher for women with higher bargaining power, so the probability of being violated is lower for them (Aizer, 2010; Anderberg et al., 2016). An opposite approach suggests that some men use violence as a bargaining instrument against women with more bargaining power (Eswaran & Malhotra, 2011) or as a way of the male backlash reaction to the higher status of women (Chin, 2012).

The link between intimate partner violence and female autonomy is bi-directional. The estimates ignoring reverse causality suffer from endogeneity bias. In this study, intimate partner violence is instrumented with male partners' alcohol use frequency, demonstrating both theoretical and empirical evidence for the validity of exclusion restrictions. The choice of alcohol use as an instrument is theoretically based on proximal effect models of alcohol use and violence, suggesting that alcohol use directly increases the probability of violence without any mediator variable (Klostermann & Fals-Stewart, 2006; Foran & O'Leary, 2008). Alcohol use directly affects intimate partner violence and is not endogenous for female autonomy. The proximal alcohol models show that alcohol increases the likelihood of intimate partner violence by its nature in the days when her partner uses alcohol. In the day when a male partner uses alcohol, the probability of intimate partner violence increases independently of his partner's autonomy. Then, alcohol use influences autonomy only through violence. Lots of studies relate alcohol-aggression behavior to intoxication harming cognitive abilities to judge the cues from the outside world (Hoaken & Stewart, 2003). Therefore, alcohol use creates a rise in the probability of intimate partner violence, unassociated with the bargaining power and autonomy of a partner. This study uses this variation in order to estimate the causal effect of intimate partner violence on autonomy.

The present study contributes to the literature focusing on the interaction of intimate partner violence and women's bargaining power from several angles. Most of the studies focus on the effect of autonomy on violence, and a relatively small number of studies analyze the effect of violence on autonomy, which is the main research interest of this paper. Besides, this

study proposes a novel instrument, alcohol use of males, to capture intimate partner violence shifts to isolate the causal effect on female autonomy from selection bias.

One main contribution is that this study presents evidence from Turkey, which constitutes a unique case which has witnessed a conflict, for a long time, between modernization and patriarchal culture, at the center of which women stand. One of the conflicting fields is the Istanbul Convention on combating violence against women. Although the country signed this convention and took progressive steps in the framework of the convention in the first half of the 2010s, such as the adoption of the law on domestic violence and the foundation of violence prevention centers, the reaction from the patriarchal societies has later on returned to a huge campaign demanding an exit from the convention. Violence prevention centers opened in 14 pilot provinces within the scope of Law No. 6284 on the Protection of the Family and Prevention of Violence against Women have now spread to 81 provinces. Women who have been subjected to violence or are at risk of violence can apply to these centers for consultancy, guidance, and guidance services and empowering and supportive services on the issues they need (Republic of Turkey Ministry of Family and Social Services, 2013).

The estimation results reveal that intimate partner violence reduces female decision-making autonomy by a range from 50 percent to 75 percent, which is in coincidence with the studies based on instrumental theories of violence, suggesting that some males may use violence so as to get control over their partners and household bargaining process against them. The estimations results are robust, performing a slightly low change across specifications. The validity of the instrument is also supported by the correlation coefficients derived from the data.

The study is structured as follows: In the following section, female autonomy and the impact of violence on it are discussed from the perspective of the capability approach. In section 3, the female autonomy and violence relationship is evaluated by focusing on bargaining between the wife and the husband in the household. In Section 4, data and methodological issues are expressed. In Section 5, estimation results are presented. Then, the study ends with concluding remarks and policy evaluations.

CONCEPTUAL FRAMEWORK

Autonomy and Violence Dynamics from the Capability Approach

This study analyzes the freedom deprivation effect of intimate partner violence by specifically focusing on the Turkish women's decision-making autonomy. Decision-making autonomy is women's freedom in choosing between alternatives related to their household and outside life as household members. Then, decision-making autonomy is highly related to Sen (1999)'s concept of capabilities and development, which defines the capability for people to guide their lives according to their own valuations and defines development as the extension of freedoms. According to this definition, female autonomy can be defined as the capability of a woman, who is married or has an intimate partner, in decision making. Agarwal and Panda (2007) suggest that domestic violence is one of the main sources of Sen (1999)'s concept of unfreedom in the household. Therefore, domestic violence creates a significant barrier against Sen (1999)'s concept of development.

The deprivation of decision-making autonomy, a reflection of unfreedom, is one of the first areas in which the negative impact of domestic violence is observed. Nussbaum (2005) suggests that violence threatening the women's body harms the capabilities to use their senses, imagination, and thought. Nussbaum (2005) also states that it has been used to control them, preventing them from using their reasoning and expressing themselves for centuries. Fear of suffering violence plays a key role in the process of deprivation from these capabilities. This study precisely investigates to what extent violence reduces the capability to use their thought by focusing on the impact of violence on decision-making autonomy-capability of married women.

Undermining female's capability, autonomy, and freedom, domestic violence against women is a source of insufficient development, irrespective of which concept of development is used. However, analyzing the violence-autonomy relationship in the capability approach gives a better interpretation of the consequences of domestic violence since there are times that the classical perspective of development becomes short-sighted in evaluating the violence. The capability approach of development shows the negative effect more prominently in a variety of angles. There are times when the mainstream concept of development is left inadequate against domestic violence, which is also itself a form of underdevelopment. For example, the mainstream definition gives too much

attention to income increase, and there is an implicit presumption that income increase accomplishes improvements in all other areas. On the other hand, there are cases in which men acted more violently against women achieving higher income in order to seize their income or due to male backlash effects. However, from the capability perspective, it is more important how the increase in income reciprocate in the capabilities of women rather than the income increase itself, which gives a more realistic perspective in the examination of violence and development.

On the other hand, decision-making autonomy is a capability, in Sen (1999)'s notion, that is generally at the target of domestic violence against women, especially in patriarchal societies. Even in the cases, the target of a man is not reducing the decision-making freedom of women, the decision-making autonomy of his partner is destroyed due to domestic violence through various mechanisms, and the negative impact is persistent due to the intergeneration effects caused by children growing in the violent families. Domestic violence directly restricts the capability of freedom to choose among alternatives when men use it to limit certain choices of women, such as whether to participate in social life, whether to work, even what to wear, to whom to communicate with, how to spend her income. Women under such a restriction have very low bargaining power in the household, restricting their capability to join to the decision of how to allocate the household resources.

Agarwal and Panda (2007) define domestic violence as a source of actions harming various dimensions of freedom in the families such as economic freedom, political freedom, and freedom to benefit from social opportunities. As a result of the negative impact on human lives, the development of the country is also harmed by domestic violence. Agarwal and Panda (2007) also indicates the reverse causality by revealing that capabilities, especially relative capabilities in the family, can also affect domestic violence level, which is taken into account in our estimations using the instrumental variable approach.

Autonomy and Violence Relationship from the Bargaining Perspective

There is no consensus on the relationship between female autonomy and intimate partner violence in the literature. According to game-theoretic household bargaining models, intimate partner violence is decreasing in the bargaining power of women. Aizer (2010), for example, states that a labor market with better

potential conditions for a married woman, by improving her potential alternative options, increases her probability of exiting from the marriage when she is violated. Thus, the husband should desist the idea of using violence or give up if he used it before, or reduce the tendency to use violence against a wife with a higher probability of divorce. Anderberg et al. (2016) presents empirical evidence from England and Wales for their household bargaining model, predicting that unemployment of a male reduces the probability of intimate partner violence against females while female unemployment increases it. This is because violent-type males hide their types when they are unemployed and have lower bargaining power relative to their partner. However, when a female partner is unemployed, the violent-type male partner shows no hesitation to expose violence against his partner with relatively low bargaining power. Panda and Agarwal (2005) demonstrate that women who own real estate face a lower possibility of domestic violence.

On the contrary, the models theorizing violence as an instrument to control the household bargaining process for males predict that intimate partner violence may increase when the socioeconomic conditions of women become better. There is evidence that some men use more violence against their partners as their socio-economic status improves because they perceive violence as an instrument to control females (Eswaran & Malhotra, 2011). Eswaran and Malhotra (2011) suggest that a man can increase the violence against his partner when her bargaining power increases if the initial bargaining power is below a certain threshold. In this case, the violence is an instrument for him to gain the upper hand in household bargaining back after the increase in her bargaining power. Bloch and Rao (2002) shows that some men use violence as an instrument against the families of wives to get more dowry payments in India where the families of bribes pays dowry payments to grooms in a way that payments can continue even after marriages. Sometimes, violence is used, not for a specific interest but used to react to higher socio-economic status of a woman, which is perceived as a threat to males' traditional leader role in a country with a patriarchal climate (Chin, 2012). This is called as the male backlash effect.

The evidence from developing countries with strong patriarchal mechanisms is more in support of instrumental and male backlash theories. However, this does not mean that similar mechanisms are completely absent in developed countries. For example, some legislative measures against domestic violence increased domestic violence in the US, as being contrary to the

main goal of the regulations (Farmer & Tiefenthaler, 1996; Iyengar, 2009). Farmer and Tiefenthaler (1996) shows that the police and shelter protection can finally increase domestic violence for those who applied to the services but without power and determination to divorce, in order to signal their threat points to their husbands. Dropping the charges in these cases increases the likelihood of intimate partner violence if a husband identifies that the divorce threat is non-credible. In parallel to Farmer and Tiefenthaler (1996), Iyengar (2009) shows that a mandatory arrest law authorizing police to arrest domestic violence suspects without a warrant increased the incidence of domestic violence due to lower reporting of partners' violent behaviors by women and reactionary attitudes by partners. Firstly, women lowered their calls for police in such cases, foreseeing a higher possibility for their husbands to be arrested, unintentionally giving them more room for violence. Secondly, the attempts to apply to the police are reacted more widely by husbands, increasing violence-including its wildest forms like female homicides, since the cost of the police involvement in the case is higher than before.

According to Tumen and Ulucan (2019), a similar failure was experienced in Turkey in two provinces, Adana and Bursa, which hosted the panic button experiment to protect women against domestic violence. The violence increased against those equipped with the button and those who did not have the button but can potentially have the button because of males' backlash reaction against the threat to apply for the panic button. This finding is opposite to the Aizer (2010)-type bargaining models.

By using the discontinuity created by the 1998 education reform increasing mandatory years of schooling from five to eight years, Erten and Keskin (2018) demonstrate that schooling years of the women living in rural areas increased as a result of the reform, but the increase triggered psychological violence against them due to the control seeking behavior of males. The results of this study are in line with the studies modeling intimate partner violence as an instrument to gain the upper hand in bargaining with the partner. Erten and Keskin (2020) use the exogenous variation created by the Syrian refugee influx to Turkey, which leads to the exclusion of some Turkish women from informal sector employment as a result of the competition with the Syrian workers. They show that this exclusion reduced the incidence of domestic violence, as instrumental models of violence predict.

Dildar (2020) presents evidence in parallel with Aizer (2010)-type of models predicting that intimate partner violence against women decreases when women's

socio-economic conditions are better. According to the study, earning higher than the partner decreases the risk of intimate partner violence by various amounts for different socio-economic groups. There is a decrease in physical and sexual violence among women from the lower class and a reduction in psychological violence among women from the middle-top class. Another main finding is that although employment is correlated with the incidence of intimate partner violence in the country, there is no causal effect of employment. By considering the bi-directional interaction between domestic violence and autonomy for Turkey, Yilmaz (2018) shows that violence significantly decreases the economic independence of females while violence is lower among the women with higher autonomy.

The literature has generally focused on the effects of intimate partner violence on female autonomy and gives less attention to the variation on autonomy caused by intimate partner violence.

One of the exceptions is Eswaran and Malhotra (2011). According to Eswaran and Malhotra (2011), there is a two-sided relationship between domestic violence and female autonomy. Therefore, estimation of the effect of violence on autonomy may potentially possess a bias stemming from the reverse causality. In order to isolate the effect of the research of interest from this potential bias, they use instrumental variable regression.

Two-way reverse causality between intimate partner violence and female autonomy is also underlined by Fakir et al. (2016). By isolating the effect of autonomy on intimate partner violence from the reverse causality, estimations demonstrate that women with higher autonomy face more events of domestic violence. Based on this finding, they propose measures targeting the other domestic violence determinants rather than increasing women empowerment directly. Anderson and Eswaran (2009) show that the autonomy of females is more sensitive to earned income rather than unearned income. They present evidence from Bangladesh that verifies their hypothesis.

Heath (2012) shows that participating in employment increases the probability of being violated among women with lower initial bargaining power, which is caused by early marriage or low education level. Their husbands react to the increase in their autonomy by using violence. In contrast, a woman with a high baseline bargaining power cannot be violated by their husbands due to their capability to divorce.

Fajardo-Gonzalez (2020) states that being violated urges women to work in Colombia. This effect remains significant after using exogenous variation caused by husbands' exposure of violence in their childhood. As argued by the author, the main mechanism behind this result is that a violated a woman's desire to work is higher to refrain from violence.

There are many studies in the literature that link alcohol use of male partners on intimate partner violence against females. The main model in this literature on which the majority of studies base is the proximal effects model of alcohol on intimate partner violence. The proximal effect models mention that alcohol directly and causally increases the number of violent behaviors.

Leonard and Quigley (1999) show evidence that alcohol directly triggers partner violence in their study, taking into account the other individual risk factors. The main critiques from spurious models of alcohol and violence are that the most part of the co-movement between alcohol use and violence is only a correlation, with the other variables driving the movement of alcohol and violence in the same direction. Indirect models suggest that alcohol has indirect effects triggering some other factors, which play roles in the incidence of domestic violence. As a response to these critiques, proximal models of alcohol presents evidence that the effect of the alcohol on violence remains after controlling all other individual and socio-economic factors that can play a role in the relationship (Klostermann & Fals-Stewart, 2006; Foran & O'Leary, 2008). The timing of violence also shows the direct effect of alcohol on intimate partner violence. Fals-Stewart (2003) shows that the probability of violence increases in the day of drinking of violent males. Luca et al. (2015) examines the effects of alcohol prohibition in India on both male alcohol consumption and domestic violence against females. They show that the prohibition reduced both. Women disproportionately benefited from the prohibition. Karim (2006) shows that the wives of arrack drinkers are violated more than the other families in Bangladesh. Although it is a country where domestic abuse of women is a regular practice, alcohol consumption produces more severe results when it is combined with patriarchal attitudes.

Table 1: Descriptive Statistics

Variables	All		2008		2014	
	Mean	SD	Mean	SD	Mean	SD
The main variables						
Physical violence	0.085	0.279	0.094	0.291	0.071	0.257
Physical violence (ever)	0.335	0.472	0.357	0.479	0.298	0.457
Autonomy	0.599	0.305	0.590	0.300	0.614	0.312
Current Work Status	0.173	0.378	0.154	0.361	0.206	0.404
Own income	0.208	0.406	0.191	0.393	0.236	0.425
Age	35.303	11.740	34.722	11.700	36.287	11.744
Partner's alcohol use						
Everyday	0.038	0.166	0.028	0.165	0.028	0.166
Weekly once to twice	0.038	0.193	0.39	0.194	0.037	0.191
1 to 3 times monthly	0.048	0.214	0.049	0.217	0.046	0.210
Less than once monthly	0.072	0.259	0.073	0.261	0.071	0.257
Daily average	0.040	0.168	0.041	0.170	0.039	0.166
IPV ratios wrt. partners' alcohol use						
IPV-everyday drinkers	0.246	0.431	0.258	0.438	0.222	0.417
Weekly once to twice	0.164	0.371	0.186	0.390	0.127	0.334
1 to 3 times monthly	0.128	0.334	0.126	0.332	0.131	0.338
Non-drinkers	0.090	0.286	0.102	0.303	0.069	0.253
Education (Women)						
Without a degree	0.215	0.410	0.235	0.424	0.181	0.385
Primary sch.	0.440	0.496	0.451	0.497	0.421	0.493
Middle sch.	0.127	0.333	0.105	0.306	0.166	0.372
High sch.	0.148	0.355	0.148	0.355	0.149	0.356
College	0.065	0.246	0.058	0.234	0.076	0.266
Education (Partner)						
Without a degree	0.149	0.357	0.153	0.360	0.143	0.350
Primary sch.	0.401	0.490	0.412	0.492	0.382	0.486
Middle sch.	0.130	0.336	0.120	0.325	0.147	0.354
High sch.	0.207	0.405	0.207	0.405	0.207	0.405
College	0.107	0.309	0.102	0.303	0.114	0.318
College plus	0.003	0.062	0.003	0.055	0.005	0.073

Note: The means of the variables employed in the estimations are given in the table.

DATA AND METHODOLOGY

Data

2008 and 2014 releases of the Turkish National Research on Domestic Violence Against Women survey data sets of TurkStat (Turkish Statistical Institute) are used in the study. The data sets provide cross-sectional information on individual and socio-economic characteristics of 20,116 women aged 15-59 in Turkey.¹The main interested

variables in this study, incidence and level of intimate partner violence against women, their husbands' alcohol consumption levels, and women's autonomy in their own decisions are included in the survey. Regarding the violence, the exposure to physical, psychological, sexual, and economic violence by husbands or intimate male partners are asked to the respondent women. If the answer is yes, then the surveyed woman is inquired about the level of violence she faced. This study focuses on the incidence and the level of physical violence, which is the interested type of violence. The survey asks respondent whether her husband or the intimate male partner (1)

¹Indeed, the raw data include 20,257 women in total. We deleted 141 observations since the province of residence was missing for them.

slapped her or threw an object to her, (2) pulled her hair or pushed/attacked her, (3) punched or struck her with an item, (4) kicked or defeated her, (5) squeezed her or burned a part of her body, and (6) used knife or gun on her or threatened her with these items. The data classifies the violence into two categories with respect to the time of intimate partner violence; intimate partner violence in the lifetime and intimate partner violence in the last 12 months from the survey date. The latter one is the main focus of this study in estimations.

The survey questions the respondent woman about her decision-making autonomy. A similar procedure to Eswaran and Malhotra (2011) is followed in the construction of the female's autonomy variable. A respondent is asked about her autonomy to make decisions without interventions from her partner or husband. Specifically, the survey asks whether the partner or husband intervened her to prevent her from (1) meeting her friends, (2) from seeing her family members, (3) whether he wants information every time about where she is, (4) whether he gets angry when she communicates with other men, (5) whether he forces her to ask permission before she goes to a health center or hospital when she has health problems, and (6) whether he interferes with her clothing. Six autonomy dummy variables are created, corresponding to these six questions. Each dummy takes the value of one if the woman's answer is no, indicating that she can take the corresponding decision by herself. Autonomy dummy on 'the decision to see friends' variable, for instance, takes the value of zero if the woman is intervened by her husband, while it is equal to one if the woman is able to decide without intervention from her husband. The mean of these six variables is employed as an overall autonomy variable. The mean of this variable is equal to 0.60 in the pooled data, while it is equal to 0.59 and 0.61 in 2008 and 2014, respectively.

The survey asks whether the husband or intimate partner drinks alcohol (1) almost every day, (2) once or twice a week, (3) a few times in a month, or (4) less than once a month. Additional variables are created based on the information on whether the women have any income from any source, whether she worked in the last week before the survey, and whether her intimate partner worked in the last week before the survey.

Table 1 presents the main statistics derived from the data. The statistics show that the ratio of females who are physically violated by their partners is 35 percent in 2008 and reduces to a level of around 30 percent in 2014. The ratio of women who experience physical intimate partner

violence in the last twelve months is 9 percent in 2008 and 7 percent in 2014. Both general physical violence and last year's physical violence shows a reduction from 2008 to 2014 in the data. The ratio of male partners who drink alcohol every day is around 3 percent in 2008 and 2014. The ratio is around 4 percent for those consuming alcohol on a weekly basis. The intimate partner violence ratio with respect to the alcohol use categories of partners are also shown in the table. The intimate partner violence ratio is highest among the women with everyday drinker partners, with a ratio of around 24 percent in the pooled data. The ratio reduces to 16 percent for women with partners drinking on a weekly basis, while the ratio is 13 percent for those with partners drinking on a monthly basis. The ratio is 9 percent for women with non-drinker partners. This data clearly shows the correlation between the frequency of alcohol use of partners and intimate partner violence.

Methodology

The variation created by alcohol drink habits of male partners is used as an instrument to capture the causal effect of intimate partner violence against women on their autonomy. An instrument should be relevant for the instrumented variable-endogenous regressor, which is violence in this case. It should affect the main dependent variable only through its effects on the violence. This condition is the exclusion restriction, which should be addressed before an IV estimation.

There is no doubt that men's alcohol consumption directly impacts both the incidence and the level of violence against their partners. As shown by the proximal models of alcohol, alcohol urges violent action on its user by distorting the brain's motor function. As a result, it has strong predictive power for both the incidence and the level of domestic violence. The data also supports these theoretical considerations derived from the proximal alcohol model. Empirically, the relevance of the instrument is checked by the F-statistic of the first-stage regression of an IV model, which is required to be at least 10 to ensure the instrument's validity (Angrist & Pischke, 2009). Our first-stage results confirm that the instrument satisfies the F-statistics standard².

The only channel through which alcohol use of a partner influences the female autonomy should be violence according to the exclusion restriction. In other words, if there are effects of the instrument on the main dependent variable directly or via other explicit channels

² The first stage F-statistics range from 43.13 to 75.24 in our IV regressions.

or unobservables, the results can become questionable. It is highly unlikely to link a female's autonomy directly to her partner's alcohol consumption without referring to the violence. The data used in this study also supports this hypothesis³. The number of reasons for the alcohol habits of the male partner to be correlated with the female's autonomy is very limited. The alcohol habits are mostly predetermined from the relationships, and they are highly improbable to change in the dynamics of the partnership. Besides, there are studies arguing that more than 50 percent of alcoholism is explained by genetic factors (Ducci & Goldman, 2008), which are explicitly exogenous for partner's autonomy. Concerning marriages, most marriages in Turkey are arranged marriages due to the country's patriarchal structure, indicating the lack of mechanisms in which women select according to men's alcohol use. As long as it does not systematically match women and men according to their autonomy and alcohol use habits, matching does not violate the exclusion restriction. One other factor that can endanger the estimation results is if the factors connected with the instrument also influence the main outcome variable (see, for example, Acemoglu et al., 2001). In the literature focusing on the relationship between alcohol and intimate partner violence, some models against proximal models suggest that the link between alcohol use and intimate partner violence can be mediated by another variable influencing both, such as age (Foran & O'Leary, 2008). In order to take this issue into account, a set of control variables, including age and age difference with partners, are included in different specifications in order to capture the effects of the other variables that can be correlated with alcohol consumption use and can contaminate the estimated parameter.

$$V_{i,t,p,r} = \alpha_0 + \alpha_1 X_{i,t,p,r} + \alpha_2 A_{i,t,p,r} +$$

$$f_p + f_t + (f_r X f) + \omega_{i,t,p,r}$$

$$Y_{i,t,p,r} = \beta_0 + \beta_1 X_{i,t,p,r} + \beta_2 A_{i,t,p,r} +$$

$$f_p + f_t + (f_r X f) + \varepsilon_{i,t,p,r}$$

³ The correlation coefficients between intimate partner violence and female's autonomy is 0.008, which can indicate a direct relationship between the variables is also weak in the data. On the other hand, the correlation coefficient between physical violence last year and autonomy is -0.136. Very low co-movement of the main variable with the instrument, which is highly correlated with the endogenous regressor, is supportive of the exclusion restriction.

The main econometric specification used in the study is shown by Equation (1) and Equation (2). Equation (1) shows the first stage equation, with A denoting alcohol consumption, which is the instrument used in the estimations. Equation (2) represents second stage estimation, in which the autonomy variable is regressed on the intimate partner violence variable. The subscripts *i*, *t*, *p*, and *r* denote the women surveyed, year of the survey, province, and region, respectively⁴. *Y* denotes the autonomy level, *X* represents the vector of all control variables, and *V* shows intimate partner violence. *f_p* and *f_r* denote the province and region fixed effects, orderly. *f_tXf_r* is included to capture the variation caused by time-region interactions. β_2 shows the research interest of this study. Equation (2) is estimated by using OLS and IV. In all estimations, the standard errors are clustered at the provincial level, with 81 clusters. The main equation is estimated by using a variety of specifications. The equations are estimated in 6 specifications, which differ in the included control variables. In specifications (1), (2), (4), and (5), women without partners are excluded from the sample. In specification (3) and (6), unmarried women are also excluded from the sample. In specification (1) the control variables are the age and education degree of the corresponding woman. Specification (2) covers specification (1) and includes the partner's education and an interaction variable of the partner's and the woman's education as control variables. Specification (3) includes the age of the corresponding married woman at the beginning of the relationship and the age difference with the husband. Since these two variables are only available to married women, the sample is restricted to married women in this specification. Specification (4) includes age, education degree of women, education degree of the partner, and a variable denoting whether the women have an income from any source. Specification (5) excludes the income variable, which is included in specification (4) and includes employment variables of the women and the partner, instead. In specification (6), similar to specification (3), the sample is restricted to married women, and new variables, including the woman's age at the beginning of the relationship, the difference with the husband's age, and the number of their children, are included in addition to the variables in the specification (5). The inclusion of the labor market variables and income variables can be criticized by arguing that they are bad controls. Being aware of this,

⁴ Turkey implements NUTS classification system. Turkey has 81 provinces, which are used to create provincial fixed effects. NUTS-2 definition separates the country into 26 regions by combining several provinces in the same geographical location. The regional fixed effects are constructed with respect to NUTS-2 identification.

these variables are included for checking the robustness of the parameter of interest with respect to different specifications.

RESULTS AND DISCUSSION

The model is firstly estimated through OLS. The estimation results of OLS is shown by Table 2. Table 2 shows that intimate partner violence experienced in the last year reduces women's autonomy by 15 percentage points. The estimated parameters of the effect of violence on autonomy are highly significant and stable across the specifications. However, the OLS results potentially possess a bias, mostly caused by the reverse causality problem between female autonomy and violence. The correlation between autonomy and violence should be negative according to the game-theoretic, Aizer (2010)-type, bargaining models, and, in contrast, can be positive according to the instrumental theories of violence. If the reduction in the autonomy increases the violence furtherly as predicted by the game-theoretic models, the opposite co-movement between them strengthens, indicating that OLS overestimates the negative relationship. On the other hand, if the usage of violence is more of a reaction against the women achieving a recent increase in their bargaining power, the reduction in the autonomy reduces the violence furtherly, indicating that the OLS underestimates the absolute value of the parameter. The latter seems to be the case in Turkey when the OLS results are compared with the IV estimations, which estimates, at least, a three times higher negative effect than OLS. Lower OLS estimation of the coefficient of interest is also reported by Eswaran and Malhotra (2011), in which OLS estimate is significant while the coefficient of interest is -0.88 in IV estimations.

The IV estimations show that the reduction of autonomy caused by physical violence in the last year ranged from 49 to 71 percentage points in the specifications, and all of which are highly significant, as can be seen from Table 3. First stage F-statistics are also available in IV estimation tables, indicating the relevance of the instrument with the values above the threshold level. The minimum reductions are observed in the third and sixth specifications, in which the sample consists of married women, and a set of new variables are added. Specifications (5) and (6) are the estimations with the largest set of control variables. The reduction in the coefficient of interest in specification (3) and (6) mostly stems from the restriction of the sample to married women and the inclusion of the new variables.

The effect of the level of physical violence in the last year is also analyzed by using the IV estimation in this study. Table 4 shows that one unit increase in the number of times of violence diminishes the women's decision-making autonomy by approximately 6 percentage points. The coefficient is more stable across the specifications than the incidence of violence, except specification (2) in which one unit increase in the violence level reduces the autonomy by 7.1 percentage points. Our results are supported by the findings of Eswaran and Malhotra (2011) reporting 88 percent reduction caused by the incidence of domestic violence. Eswaran and Malhotra (2011) also report a rise in the coefficient in the IV estimation compared to the OLS, like this study. The rise is sharper in their estimations from OLS estimate of an insignificant effect to -0.88 in the IV estimate. The results of this study are also in line with Yilmaz (2018) reporting a negative effect of violence on autonomy for the Turkish case.

The estimation results raise some questions about the actions taken by women against the harmful experience. The source of reduction in autonomy may partly be loss of employment caused by violence. Intimate partner violence may reduce the courage of women to participate in economic life. Contrarily, women can start to work to prevent violence. In order to find out, an OLS and an IV estimation are employed by using the first three specifications from autonomy estimation with current work status as the main outcome variable⁵. The OLS estimation results are shown in Table 5 while Table 6 shows the IV estimation results. The findings show that the incidence of domestic violence also urges women to work, although it is not as strong as the effect on autonomy. Table 6 indicates that the incidence of domestic violence increases the probability of working currently by around 35-38 percentage points in as shown by columns 1 and 2. The effect becomes insignificant in specification (3), in which the sample is restricted to the married couples, and the new variables available only for the married ones are included. A possible explanation can be that the decision to work for a married woman is not as easy as a woman cohabiting with a partner, indicating a lower tendency to work. The estimation results show that the source of autonomy reduction is not the work loss caused by intimate partner violence. Indeed, the increase in work in unrestricted sample and autonomy loss, which are experienced simultaneously, may indicate that the participation in economic life is

⁵ Partner work status is additionally included in specification (2) and (3) in these estimations. Women's income status is excluded.

not sufficient alone to ensure freedom in households. The rise in the likelihood of working after violence is in coincidence with the findings of Fajardo-Gonzalez (2020) reporting a 22.7 percent increase as a result of violence in the last year.

CONCLUSION

This study analyzes the impact of physical intimate partner violence on female autonomy by using a micro-level data set from Turkey. The instrumental variable methodology is used to capture the causal effect by instrumenting the endogenous regressor with the alcohol use frequency of male partners. Results show that the existence of intimate partner violence in the last year reduces female decision-making autonomy dramatically by at least 49 percentage points. The estimation employing the number of physical violence as an endogenous regressor rather than a binary variable of violence shows that each physical partner violence event reduces the autonomy by 6 percentage points. Furthermore, this autonomy reduction is witnessed while women are pushed to work by intimate partner violence.

The first step to be taken to ensure the freedom of women is to free them from domestic violence. In this sense, the results are consistent with the studies analyzing domestic violence in the capability approach and arguing that domestic violence harms women's freedom and, as a result, human development. This study shows that, as long as violence is an option for men, it reduces the autonomy of women, and it can also be used against a woman when she achieves better conditions in terms of income, education, etc. The findings are also in line with instrumental theories and violence in the sense that violence can be used as a tool against a woman's power in the household. This means that an improvement in a female's outside life may not translate itself into the household against the barrier of violence, endangering the returns and sustainability of the improvement. Thus, female empowerment is not enough alone to end the violence cycle, and they must be supported by legislative and institutional measures that directly target the prevention of intimate partner violence. Indeed, Turkey took important steps in this respect in the first part of the 2010s, such as the participation in the Istanbul Convention and the adoption of the law against domestic violence protecting women. After the withdrawal from the convention, the persistence of the law is a consolation for the legal base for the fight against domestic violence, which should be strengthened by additional measures. Our study

also shows evidence of the effect of alcohol use on the incidence of domestic violence. Therefore, providing consultancy and educational services for alcohol-related domestic violence by violence prevention centers could be helpful.

Table 2: OLS estimations of the Effect of Occurrence of Partner Violence on Female Autonomy

	Spec.1	Spec.2	Spec.3	Spec.4	Spec.5	Spec.6
Physical violence	-0.136 (0.007)***	-0.157 (0.006)***	-0.172 (0.006)	-0.147 -0.006	-0.150 (0.006)***	-0.172 (0.006)***
Education (Woman) Primary sch.	0.021 (0.006)***	-0.207 (0.018)***	0.018 (0.005)***	-0.025 (0.006)***	-0.025 (0.006)***	0.017 (0.005)***
Middle sch.	0.022 (0.011)*	-0.324 (0.0201)***	0.034 (0.011)***	-0.031 (0.011)***	-0.031 (0.011)***	0.033 (0.010)***
High sch.	0.051 (0.011)***	-0.389 (0.016)***	0.070 (0.009)***	-0.012 (0.01)	-0.010 (0.010)	0.069 (0.009)***
College	0.098 (0.012)***	-0.464 (0.016)***	0.124 (0.010)***	0.023 (0.012)**	0.026 (0.012)**	0.125 (0.010)***
College plus	0.179 (0.039)***	-0.495 (0.014)***	0.184 (0.020)***	0.089 (0.026)***	0.090 (0.027)***	0.183 (0.021)***
Age	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes	Yes
YearXRegion interactions	Yes	Yes	Yes	Yes	Yes	Yes
Education-(Partner) Primary sch.	-	0.095 (0.013)***	-0.001 (0.009)	0.299 -0.016	0.262 (0.016)***	-0.002 (0.009)
Middle sch.	-	0.117 (0.017)***	0.001 (0.010)	0.339 -0.014	0.294 (0.015)***	-0.0001 (0.010)
High sch.	-	0.122 (0.016)***	0.012 (0.009)	0.361 -0.015	0.317 (0.016)***	0.010 (0.009)
College	-	0.107 (0.026)***	0.018 (0.011)*	0.384 -0.014	0.340 (0.015)***	0.016 (0.011)
College plus	-	0.342 (0.017)***	0.038 (0.027)	0.409 -0.026	0.356 (0.029)***	0.034 (0.028)
Own income	-	-	-	0.017 (0.004)***	-	-
Woman's employment	-	-	-	-	-0.01 (0.004)**	-0.002 (0.005)
Partner's employment	-	-	-	-	0.071 (0.004)***	0.019 (0.004)***
Partner'sXWomen's education	No	Yes	No	No	No	No
Initial age	No	No	Yes	No	No	Yes
Age difference	No	No	Yes	No	No	Yes
Fertility	No	No	Yes	No	No	Yes
# of observations	19,443	19,443	15,622	19,443	19,443	15,622
# of clusters	81	81	81	81	81	81
R2	0.247	0.246	0.229	0.245	0.243	0.229

Note: The violence variable is created as a dummy variable indicating whether the woman is physically violated by the partner in the last year from the survey date or not. In specifications (3) and (6), the sample is restricted to married women, women with a partner are also included in the rest of the specifications. Standard errors are clustered at province level. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Table 3: IV Estimations of the Effect of Occurrence of Partner Violence on Female Autonomy

	Spec.1	Spec.2	Spec.3	Spec.4	Spec.5	Spec 6
Physical violence	-0.570 (0.078)***	-0.712 (0.094)***	-0.491 (0.074)***	-0.629 (0.087)***	-0.624 (0.086)***	-0.490 (0.074)***
Education (Woman)						
Primary sch.	0.010 (0.007)	-0.229 (0.022)***	0.015 (0.006)**	-0.038 (0.008)***	-0.038 (0.008)***	0.014 (0.006)**
Middle sch.	0.017 (0.013)	-0.360 (0.023)***	0.037 (0.012)***	-0.036 (0.012)***	-0.035 (0.012)***	0.036 (0.012)***
High sch.	0.026 (0.012)**	-0.454 (0.021)***	0.064 (0.009)***	-0.035 (0.011)***	-0.032 (0.011)***	0.063 (0.009)***
College	0.060 (0.016)***	-0.541 (0.019)***	.112 (0.011)***	-0.011 (0.014)	-0.005 (0.014)	0.112 (0.011)***
College plus	0.129 (0.042)***	-0.582 (0.022)***	0.165 (0.019)***	0.035 (0.029)	0.04 (0.030)	0.164 (0.020)***
Education-(Partner)						
Primary sch.	-	0.104 (0.015)***	-0.010 (0.009)	0.314 (0.019)***	0.281 (0.018)***	-0.012 (0.009)
Middle sch.	-	-0.111 (0.017)***	-0.012 (0.010)	0.347 (0.017)***	0.311 (0.017)***	-0.013 (0.010)
High sch.	-	0.115*** (0.017)***	-0.005 (0.009)	0.363 (0.018)***	0.325 (0.018)***	-0.007 (0.009)
College	-	0.094 (0.031)***	-0.003 (0.012)	0.384 (0.016)***	0.342 (0.017)***	-0.005 (0.012)
College plus	-	0.892 (0.094)***	.035 (0.032)	0.442 (0.031)***	0.387 (0.034)***	0.031 (0.032)
Own income	-	-	-	-0.014 (0.004)***	-	-
Woman's employment	-	-	-	-	-0.013 (0.005)**	-0.001 (0.005)
Partner's employment	-	-	-	-	0.085 (0.005)***	0.016 (0.005)***
Partner'sXWomen's education	No	Yes	No	No	No	No
Initial age	No	No	Yes	No	No	Yes
Age difference	No	No	Yes	No	No	Yes
Fertility	No	No	Yes	No	No	Yes
F.S. F-stat.	75.24	70.03	61.72	71.85	72.92	61.85
# of observations	19,443	19,443	15,622	19,443	19,443	15,622
# of clusters	81	81	81	81	81	81
R2	0.81	0.824	0.880	0.822	0.825	0.881

Note: The violence variable is created as a dummy variable indicating whether the woman is physically violated by the partner in the last year from the survey date or not. In specifications (3) and (6), the sample is restricted to married women, women with a partner are also included in the rest of the specifications. Age, year, province fixed effects and year-region interaction terms are included in all specifications. Standard errors are clustered at province level. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Table 4: IV Estimations of the Effect of the Level of Partner Violence on Female Autonomy

	Spec.1	Spec.2	Spec.3	Spec.4	Spec.5	Spec.6
Physical violence	-0.058 (0.009)***	-0.071 (0.010)***	-.058 (0.009)***	-0.063 (0.009)***	-0.063 (0.009)***	-0.058 (0.009)
Education (Women)						
Primary sch.	0.009 (0.007)	-0.209 (0.022)***	.013 (0.006)**	-0.037 (0.007)***	0.037 (0.007)***	0.013 (0.006)
Middle sch.	0.018 (0.013)	-0.332 (0.022)***	.039 (0.011)***	-0.033 (0.012)***	-0.032 (0.012)***	0.037 (0.011)
High sch.	0.032 (0.011)***	-0.425 (0.019)***	.066 (0.010)***	-0.028 (0.010)***	-0.026 (0.010)**	0.065 (0.010)
College	0.072 (0.014)***	-0.513 (0.018)***	.119 (0.011)***	-0.0004 (0.013)	0.003 (0.014)	0.118 (0.011)
College plus	0.140 (0.042)***	-0.540 (0.019)***	.169 (0.021)***	0.049 (0.027)*	0.053 (0.029)*	0.167 (0.021)
Education-(Partner)						
Primary sch.	-	0.100 (0.014)***	-.014 (0.010)	0.299 (0.017)***	0.268 (0.017)***	-0.015 (0.010)
Middle sch.	-	0.115 (0.017)***	-.017 (0.011)	0.329 (0.016)***	0.297 (0.016)***	-0.018 (0.011)
High sch.	-	0.116 (0.018)***	-.008 (0.010)	0.34 (0.016)***	0.311 (0.016)***	-0.010 (0.010)
College	-	0.082 (0.030)***	-.003 (0.013)	0.378 (0.016)***	0.336 (0.016)***	-0.005 (0.013)
College plus	-	0.318 (0.027)***	.019 (0.027)	0.406 (0.028)***	0.355 (0.030)***	0.016 (.0028)
Own income	-	-	-	-0.012 (0.005)**	-	-
Woman's employment	-	-	-	-	-0.007 (0.005)	0.002 (0.005)
Partner's employment	-	-	-	-	0.079 (0.005)***	0.015 (0.005)
Partner'sXWomen's education	No	Yes	No	No	No	No
Initial age	No	No	Yes	No	No	Yes
Age difference	No	No	Yes	No	No	Yes
Fertility	No	No	Yes	No	No	Yes
F.S. F-stat.	52.08	50.52	43.26	51.16	51.03	43.13
# of observations	19,443	19,443	15,622	19,443	19,443	15,622
# of clusters	81	81	81	81	81	81
R2	0.818	0.832	0.874	0.833	0.836	0.874

Note: The violence variable is created as a level variable demonstrating how many times the women face partner violence in the last year. In specifications (3) and (6), the sample is restricted to married women, women with a partner are also included in the rest of the specifications. Age, year, province fixed effects and year-region interaction terms are included in all specifications. Standard errors are clustered at province level. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Table 5: OLS Estimations of the Effect of Partner Violence on Current Work

	Model1	Model2	Model3
Physical violence	-0.006 (.0087)	-0.008 (0.008)	0.006 (0.008)
Education (Women) Primary sch.	-0.005 (0.008)	0.040 (0.017)**	-0.006 (0.008)
Middle sch.	-0.008 (0.013)	0.0003 (0.016)	-0.002 (0.014)
High sch.	0.022 (0.014)	0.042 (0.023)*	0.005 (0.014)
College	0.267 (0.021)***	0.294 (0.050)***	0.279 (0.023)***
College plus	0.355 (0.054)***	0.588 (0.149)***	0.350 (0.082)***
Education-(Partner)			
Primary sch	-	-0.007 (0.011)	-0.003 (0.012)
Middle sch.	-	-0.038 (0.017)**	-0.032 (0.013)**
High sch.	-	-0.036 (0.017)**	-0.036 (0.013)***
College	-	-0.071 (0.036)*	-0.053 (0.017)***
College plus	-	-0.133 (0.008)***	-0.0590 (0.063)
Own income	-	-	-
Woman's employment	-	-	-
Partner's employment	-	0.058 (0.008)***	0.071 (0.009)***
Partner'sXWomen's education	No	Yes	No
Initial age	No	No	Yes
Age difference	No	No	Yes
Fertility	No	No	Yes
# of observations	20,116	20,116	20,116
# of clusters	81	81	81
R2	0.094	0.102	0.111

Note: The violence variable is created as a dummy variable indicating whether the woman is physically violated by the partner in the last year from the survey date or not. In specifications (3), the sample is restricted to married women, women with a partner are also included in the rest of the specifications. Age, year, province fixed effects and year-region interaction terms are included in all specifications. Standard errors are clustered at province level. *** p < 0.01; ** p < 0.05; * p < 0.1

Table 6: IV Estimations of the Effect of Partner Violence on Current Work

	Spec.1	Spec.2	Spec.3
Physical violence	0.356 (0.136)***	0.380 (0.143)***	0.162 (0.126)
Education (Women) Primary sch.	0.002 (0.009)	0.055 (0.023)**	-0.002 (0.008)
Middle sch.	-0.006 (0.013)	0.023 (0.019)	-0.001 (0.013)
High sch.	0.039 (0.017)**	0.088 (0.032)***	0.016 (0.014)
College	0.299 (0.027)***	0.368 (0.053)***	0.292 (0.025)**
College plus	0.346 (0.059)***	0.649 (0.157)***	0.369 (0.077)**
Education-(Partner) Primary sch	-	-0.013 (0.011)	0.000 (0.012)
Middle sch.	-	-0.034 (0.018)*	-0.025 (0.013)*
High sch.	-	-0.031 (0.019)	-0.025 (0.013)*
College	-	-0.061 (0.035)*	-0.040 (0.018)**
College plus	-	-0.5424 (0.141)***	-0.054 (0.064)
Own income	-	-	-
Woman's employment	-	-	-
Partner's employment	-	0.055 (0.008)***	0.072 (0.009)***
Partner'sXWomen's education	No	Yes	No
Initial age	No	No	Yes
Age difference	No	No	Yes
Fertility	No	No	Yes
F.S. F-stat.	77.19	70.25	61.64
# of observations	19,443	19,443	15,622
# of clusters	81	81	81
R2	0.182	0.188	0.249

Note: The violence variable is created as a dummy variable indicating whether the woman is physically violated by the partner in the last year from the survey date or not. In specifications (3), the sample is restricted to married women, women with a partner are also included in the rest of the specifications. Age, year, province fixed effects and year-region interaction terms are included in all specifications. Standard errors are clustered at province level. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

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How Does Being Trusted Affect Sharing? Findings from the Ultimatum Game

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ABSTRACT

According to economic models, individuals are rational, possess full knowledge, and strive to maximize their utility beyond their actual characteristics. Nevertheless, in the real world, people shape their behavior within a social structure and can display altruistic attitudes. This study investigates how trust facilitates sharing among individuals. To determine this, the Ultimatum Game was conducted with 412 participants. Three cases were determined, and the bidder was instructed to divide 10 thousand TL first in the typical game. Afterward, it was said that the other person was in need, and the bid was requested to be renewed. At the last stage, bids were received if there was any doubt about the needy. According to the typical game, people are more empathetic towards those in need and offer 6667 TL rather than 4264 TL. However, when a question of reliability is raised, 4658 TL is offered regardless of need. The findings show that the neoclassical economics concept of homo economicus, which seeks to maximize utility, is not valid in real life.

Keywords: Ultimatum game, Reliability, Sharing, Equity, Altruism.

JEL Classification Codes: C78, C91, D64

Referencing Style: APA 7

INTRODUCTION

The problem of how collective behaviors such as cooperation, coordination, security, and justice among individuals emerge in dynamic systems is of interest to researchers from many disciplines of social and natural sciences such as Evolutionary Biology, Economics, Physics, Social Sciences, and Computer Sciences. The studies aim to determine how the desired collective behavior is shaped in a typical and evolutionary way. In the real world, interactions between individuals or firms are asymmetrical, and players may have different roles, characteristics, or bargaining power (Cimpeanu et al., 2021, 1-2).

The Ultimatum Game (UG) is a well-known game in Game Theory. Güth, Schmittberger, and Schwarze (1982) designed UG to model bargaining situations, such as contracts or other job interviews. In this game, the first player is given an amount of money. This actor bids the second player an amount of the money given to him, and the second player accepts or rejects the offer. If the second player accepts the bid, the money is shared. Neither player can get money from the game when the bid is rejected. The game has strategies to maximize the utility of both players. For example, the bidder seeks to find the lowest bid that the second player will accept.

With changing conditions, the behavior of the bidders and offerees differs.

On average, in a typical UG, players tend to offer 40-50% of the purse. Such offers are generally accepted. This ratio maximizes the bidder's return. On the other hand, offerees lower their acceptance rate when they encounter lower bids, and the acceptance rate approaches zero for bids below 20%. Offerees react to unfair treatment, rejecting the bid knowing they will not receive any money and punishing the bidder (Tabibnia et al., 2008). Informal institutions (traditions, customs, relationship of affinity) of the society are among the reasons for rejecting the bid in the UG (Camerer, 2011, 9-11).

Previous research shows that encountering a new situation (emotion regulation strategy) significantly increases the acceptance rate of unfair offers. Facing a new situation can make people see the positive side of accepting offers (for example, getting some money or generously paying more to someone who might need money). Therefore, recognizing the positive effects of making and accepting offers by regulating the negative emotions associated with violating the norm of justice can play an essential role in making more effective economic decisions in UG (Park et al., 2021, 3).

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It should be noted that applied UG studies are limited in the Turkish literature¹. A study conducted by Dilek and Keskingöz (2018) on university students in Kastamonu found that students shared 33% of the total money given to them. Boyacı and Sultan (2016), on the other hand, conducted a 4-round study on university students in Istanbul, and the average bids ranged from 31% to 54%. Hatipoğlu (2021) found in his study that people bid 36% of their money. In another study, Kırış and Dilek (2021) examined people's economic decisions according to their religiosity typologies. According to the findings, religiosity typologies and Islam religion affect human behavior. Consequently, there is evidence that traditionally religious individuals make more altruistic decisions than secular individuals.

Furthermore, Dilek and Yıldırım (2023) examined gender differences in UG. The first finding is that women bid higher than men. As for the acceptance of proposals, there is no difference between men and women. Additionally, men and women do not decide based on the gender of the other party when making or receiving offers. Alternatively, Cevizli and Bilen (2021) examined the sharing game based on anchoring and emotional factors. People between the ages of 20-30 are affected by both emotional and environmental factors when making sharing decisions.

The findings in this study will reveal how people change their behavior when they are sure of the economic actor with which they cooperate or coordinate (the situation where their property rights are guaranteed). In addition, it is revealed to what extent people's demographic characteristics (age, gender, and employment status) affect the decisions. A possible explanatory finding will be whether the bidder increases its bid to the other party in case of incomplete information (doubtful situation), based on the theory of New Institutional Economics (NIE). In neoclassical economics, contracts are taken as data. Accordingly, the parties fulfill the requirements of the contract. In the real world, as bounded rationality, opportunism, transaction costs, asymmetrical information, and problematic property rights are encountered, inefficiency occurs in the markets (Çetin, 2012, 56). Due to the lack of research analyzing the UG with the concepts of NIE, this study is expected to contribute to the literature.

THEORETICAL BACKGROUND

In explaining and understanding economic theory, neoclassical economics has made important contributions. However, models have been constructed based on assumptions that do not correspond with reality, such as complete information, rational individuals, and zero transaction costs. With full knowledge and considering their own interests, economic agents make accurate, benefit-maximizing decisions. In contrast to these assumptions, economic activity and exchange in the real world include asymmetric information, bounded rationality, opportunism, incomplete contracts, poorly defined property rights, and positive transaction costs (North, 1990, 11). Neoclassical economics usually ignores emotions and unconscious processes underlying the assumptions it makes.

In contrast, Institutional Economics argues that individuals have limited capacity to cope with uncertainty and unobservable events due to their insufficient knowledge. Based on the NIE, the concept of rationality is replaced by the concept of bounded rationality, which rejects the unrealistic assumption of complete information (Ankarloo, 2002, 12). Simon (1957, 198) contends that the human mind is incapable of comprehending all possible conditions in reality. Because real life is filled with uncertainty and unpredictability. As a result, an individual is not fully rational, but rather bounded rational. Humans are not capable of understanding all situations, and their behavior differs based on their rationality. Therefore, people's predictions and inferences are often inaccurate and unrealistic. This is why neoclassical economics doesn't hold true to its assumptions of complete information and rational individuals.

As human factors, Williamson argues that individuals are motivated by opportunistic behavior and self-interest, given that economic units have bounded rationality. As a result of these two basic assumptions, most economic agents are prone to deception, concealment, and trickery (Williamson, 1990). Opportunism is the ability of economic actors to pursue their own interests. Concepts such as cheating and acting strategically are included in this understanding. Asymmetrical or incomplete information leads to more opportunistic behaviors. As a result of asymmetric information, one party may be able to use it against the uncertainty if their information is superior. This situation causes adverse selection and abuse behaviors after the contract (Akerlof, 1970).

Williamson (1985, 30-32) describes four situations that emerge when bounded rationality and opportunism are

¹ For further studies of game theory in Turkey, Demirci and Palancı (2019) may be of relevance.

evaluated together. The parties are more reliable than ever without opportunism and bounded rationality. The situation, however, is utopian. However, when there is opportunism, there may be situations where there is unbounded rationality, and without opportunism, there is bounded rationality. Real-life situations contain opportunism and bounded rationality.

As a result of bounded rationality, contracts are incomplete (Foss and Klein, 2010, 4). The neoclassical theory of economics assumes that contracts are given and based on these assumptions, they are complete. However, NIE contends that contracts will not be fully executed due to problems, such as uncertainty about the future, bounded rationality, positive transaction costs, and opportunism (Pollak, 1985). Since contracts are created under limited foresight and bear a cost element, they tend to be incomplete in the real world (Williamson, 1979, 237).

Aside from these contributions of the NIE, economics developed new economic models since the early 1970s with input from other scientific fields. Behavioral Economics (BE) was developed as a result of integrating psychology with economics. Traditional economics accepted intuition and rationality as theoretical constructs and used them as data. BE is shaped by deviations from traditional economic theory. Since in the real world, opportunistic and non-utilitarian behaviors and paradoxes cannot be resolved by traditional economic logic (Kenning and Plassman, 2005, 343). Experimental games and real-world situations both exhibit bounded rationality. Modern criticisms of rationality emphasize the fact that individuals make systematic mistakes even when the right choice is obvious (Gül and Pesendorfer, 2005, 21). With the behavioral approach, it becomes possible to capture the real individual in mainstream economics, which has fallen into error by accepting the idea that economic agents are selfish.

Factors influencing bounded rationality include emotion, culture, and age. Emotions play a significant role in determining whether people face moral dilemmas while making decisions. A person may not be able to act rationally in this situation and may act on emotion instead. It leads people to make decisions before they have a clear understanding of the possibilities (Loewenstein et al., 2008). Therefore, ignoring the emotional aspect of human behavior will result in an incomplete understanding of human behavior (Ardalan, 2018, 203-204). Decisions are also influenced by age. In the literature, a number of studies have examined how age influences risk taking. According to these studies, risk taking decreases with

age (Morin and Suarzez, 1983; Riley and Chow, 1992). Additionally, cultural differences can influence economic decisions. Societies form informal institutions, and these institutions direct the codes of tradition, culture, and behavior (Mako & Mitchell, 2013).

Likewise, altruistic behaviors are influenced by these institutions. This phenomenon explains the behavior of many people who are willing to sacrifice their own interests for the benefit of others. It also explains why people are willing to cooperate for mutual benefit and work together in order to maximize their collective success. Altruism also plays an important role in the formation of social ties and trust between individuals, leading to stronger communities and greater social cohesion. For instance, a study conducted by Fehr & Schmidt (2006) found that people are more likely to contribute to public goods when they are aware that their contributions are helping others in the group.

This study, different from the literature, discusses whether the bidders show altruism if the offerees are in need and whether they increase or decrease their bids. For this purpose, first, a typical UG design is created, and the money is given to the bidder to share. In the second stage, the bidder is asked to share the relevant money with someone in need. The study then compares the results of the first stage to those of the second stage, to see if the bidders increase or decrease their bids when the offerees are in need. It is hypothesized that the bidders will demonstrate altruistic behavior, as they are aware of the other person's situation and want to help them out. There is also a third case about the needy, but there is doubt as to whether the indigent actually need it. This would lead the bidder to assume that the other offeree is acting opportunistically. The proposal will be evaluated in order to see how opportunism and bounded rationality affect it. The results of the evaluation will provide insight into how altruism and opportunism play a role in the bidding process. This information could then be used to guide future bidding strategies and to better understanding how people interact in a competitive bidding situation.

METHOD

Online questionnaires were used in this study. All necessary information about the game was conveyed to the respondents to ensure the clarity of the questions asked in the survey. Participation in the survey was random, and 412 people responded out of about 1000 people. The demographic structure of the respondents confirms the randomness. The bid amount of 10

thousand TL has been determined by considering the 2022 minimum subsistence limit.

Research was conducted in March 2022. As of this date, the pandemic has ended. Due to the new normal brought about by the pandemic period, social behaviors have changed with practices like social distance, quarantine, and distance education. Furthermore, income distribution changed during the pandemic (Chen vd., 2021).

Since the survey was conducted in three stages instead of a one-stage game, the participants' opinions on reliability put forward from different perspectives. Thus, it will be clearly understood how the norm of sharing is shaped according to changing emotional circumstances. Participants were asked the following questions:

Bid 1: "You are given 10.000 TL in cash. You are asked to share this with a stranger. You will give this person a portion of the money. 10.000 TL will be divided by the amount offered if this person accepts the bid. If the person refuses the bid (maybe because he does not like it, thinks it is too low, etc.), neither of you will receive any money. The offeree is aware that 10.000 TL was shared. How much would you bid?" has been prompted. Bidders were allowed to bid from zero TL to 10 thousand TL in 1000 TL increments.

Bid 2: " You are again awarded 10.000 TL in cash. The rules are the same as in the previous question. A total of 10.000 TL will be shared. You will make the bid, and the offeree will have the option to accept or reject it. If he/she refuses, neither of you will get paid. This time, you are told that the other individual is a 'needy person.' What would your offer to the other person be in this situation?"

Bid 3: " You are again awarded 10.000 TL in cash. The rules are the same as in the previous questions. 10 thousand TL will be shared. You will make the bid, and the offeree can accept or reject it. If he/she refuses, neither of you will receive any money. The context has modified with the prior question in that you have been notified that the other person is in need, but you are unsure whether that individual is in need. You are told that the other individual is a 'needy person but you are skeptical'. In this instance, what would your offer to the other individual be?"

Cronbach's Alpha Reliability Coefficient and ANOVA statistical methods were used to analyze the findings.

DEMOGRAPHIC STRUCTURE

Demographic information was requested from the respondents. These included questions about gender, age range, education, employment status, and, if unemployed, the reason why. It is hypothesized that the differentiation in these factors will alter the players' bids in light of the literature's findings.

Table 1: Demographic Characteristics (%)

Participants' Demographics	
Number of Participants (n=412)	n (%)
Gender	
Female	225 (%54.6)
Male	187 (%45.4)
Age Range	
15-19	19 (%4.6)
20-29	118 (%28.6)
30-39	160 (%38.8)
40-49	81 (%19.7)
50-59	19 (%4.6)
60 ve üzeri	15 (%3.6)
Graduation Degree	
Primary education	11 (%2.7)
High school	71 (%17.2)
College of faculty	205 (%49.8)
Postgraduate	125 (%30.3)
Employment	
Employed	272 (%66.1)
Unemployed	140 (%33.9)
Unemployment Reason	
Student	55 (%39.3)
Housewife	41 (%29.3)
Retiree	17 (%12.1)
Job Seeker	27 (%19.3)

Demographic characteristics of the participants are given in Table 1. According to the table 54.6% are female, and 45.4% are male. Many studies reveal that women are less willing to negotiate and bargain than men. One reason for the emergence of the gender gap is that women are given less credit for success and receive lower wages than men (Demiral & Mollerstrom, 2020; Heilman & Kusev, 2017). In addition, men and women take different degrees of risk when making decisions (García-Gallego et al., 2012).

Some other studies reveal that age is another determining factor in UG. Because emotions are starting

to have a more significant impact on decisions as people get older. Additionally, intentions vary between age groups (Bailey et al., 2013; Sutter, 2007). As given in Table 1, the respondents are predominantly between the ages of 20-49. The percentage of respondents aged 20-29 is 28.6%, aged 30-39 is 38.8% and aged 40-49 is 19.7%.

Another demographic factor used is the level of education, which represents the equality of opportunity and whether the person makes rational decisions. The graduation degree explores proper decision-making behavior and the psychological mechanisms underlying it. With the impact of this factor, people have different opinions about making a fair bid (Nguyen et al., 2011; Eisenkopf et al., 2013). Among the respondents, the rate of high school graduates is 17.2%, the rate of graduates from college or faculty is 49.8%, and the rate of graduate education is 30.4%. The rate of people with undergraduate and graduate is 81.1%.

As another determining factors, employment which represents the economic and cultural conditions was considered. Diverse behaviors can exist between social groups, and differentiations can significantly contribute to the explanation of behavioral disparities (Henrich et al., 2005). On the other hand, it is necessary to use participation in the labor market as a deciding factor in the bids. Because the salary level of the employees varies with the decisions (Fehr et al., 2009). For this reason, the participants were asked whether they were employed or not. 66% of people are employed, while 34% are unemployed. Most unemployed are students (39.3%) and housewives (29.3%). Furthermore, 19.3% are looking for a job.

DESCRIPTIVE ANALYSIS

Table 2 summarizes the responses in the Bid 1 column. When the bids were evaluated, the rate of offering half of 10 thousand TL was 59.7%. Furthermore, the percentage of submitting an offer of more than 5000 TL is 11.2%. The percentage of bidders that bid less than 5000 TL is 29.1%. The bidder is utilizing his bidding power in this case. However, as two extremes, those who donate no money (4.1%) are lower than those who offer 10 thousand TL (5.6%).

The question in Bid 2 changes the scenario by informing the bidder that the offeree is in need. Table 2, column 2 displays the responses. The distribution has shifted significantly between Bid 1 and Bid 2. At this point, the percentage of bidders for 5000 TL reduced from 59.7% to 27.2%. The percentage of bids over 5000 TL increased

from 11.2% to 61.2%. Furthermore, the proportion of those who offered the full 10.000 TL surged from 5.6% to 23.5%. The percentage of bids under 5000 TL declined from 29.1% to 11.7%.

The responses to Bid 3 are presented in Table 2's Bid 3 column. Bid 2 and Bid 3 have different bid rates. For example, the proportion of those offering 5000 TL has risen from 27.2% to 45.4%. This ratio, however, may be deceptive because the 45.4% bid is lower than the 59.7% bid of 5000 TL in Bid 1. Furthermore, the bid rates for less than 5000 TL in Bid 3 are 36.1%. This rate was 11.7% in Bid 2.

Individuals boost their low offerings even if they are skeptical of the needy. As a result, when people doubt trustworthiness (due to incomplete contract status), they withdraw their offers. Additionally, when the bids beyond 5000 TL are reviewed, the rate drops from 61.2% in Bid 2 to 18.5% in Bid 3. Nonetheless, this rate is greater than the 11.2% in Bid 1. Furthermore, whereas 23.5% of people donated the full 10.000 Turkish Lira to the needy person in Bid 2, this plummeted to 6.8% in Bid 3.

Table 2: Bid Rates (%)

	Bid 1	Bid 2	Bid 3
0 TL	4.1	1	4.1
1000 TL	5.8	2.2	6.6
2000 TL	2.9	1,2	3.6
3000 TL	8.3	3,4	10.4
4000 TL	8	3.9	11.4
5000 TL	59.7	27.2	45.4
6000 TL	2.7	14.3	5.6
7000 TL	0.7	11.2	2.9
8000 TL	1,2	8.3	2.2
9000 TL	1	3.9	1
10.000 TL	5.6	23.5	6.8

Table 3 shows the average bids of the 412 participants that took part in the survey.

Table 3: Offered Amount (TL)

Bid 1	Bid 2	Bid 3
4264	6667	4658

The amount in the typical UG (Bid 1) is consistent with the literature. Bid 1 is 4624 TL, Bid 2 is 6667 TL, and Bid 3 is 4658 TL. People raise their bids when someone is in need by acting more altruistically. 412 participants increased the offers to needy persons by nearly 2400 TL per person. When there is a lack of confidence, however, offers are

lowered despite the necessity. The average difference between the offers made to the reliable needer (Bid 2) and the unreliable needy person (Bid 3) is around 2000 TL. Again, although it is unreliable, it can be seen that people have increased their offers to the needy by 400 TL (comparison of Bid 1 and Bid 3).

Findings on Demographic Characteristics

This section summarizes the level of the respondents' bids according to their demographic structure. Table 4 presents the amounts offered by gender. When the bids are examined, it is seen that women offer higher than men in general. In Bid 1, the typical UG, women offer 6% more than men on average, while this rate rises to 15% in Bid 2, which is given to the needy. However, when there is doubt about reliability, women's offer is very close to men's, and only 1% more is offered.

Table 4: Amount Offered by Gender (TL)

	Bid 1	Bid 2	Bid 3
Female	4733	7093	4684
Male	4492	6155	4625

Table 5 summarizes the bids given by the respondents by age range. In the first game, people between 30-39 and 50-59 make the highest bid. In the second bid to those in need, people in the 50-59 age range again made the highest bid, increasing their bids to an average of 7526 TL. In other words, they allocate 25% of the relevant amount for themselves. On the other hand, when there is doubt about reliability, the group between the ages of 50-59 gives the lowest offer compared to all other age groups. All age groups reduced their offers to unreliable needers compared to reliable ones. In addition, those aged 20-29 gave the lowest bids.

Table 5: Amount Offered by Age Range (TL)

	Bid 1	Bid 2	Bid 3
15-19	4421	6368	4421
20-29	4313	6364	4288
30-39	4831	6812	4950
40-49	4716	6704	4765
50-59	4864	7526	4158
60 and above	4533	6600	4800

Table 6 presents the offers given according to employment status. Generally, the offers given by the employed are higher than the unemployed. The offer of the employed group in the first game is 3% higher than the unemployed, 2.5% in the second game, and 7.5% higher in the third game.

Table 6: Amount Offered by Employment Status (TL)

	Bid 1	Bid 2	Bid 3
Employed	4673	6724	4772
Unemployed	4528	6557	4436

The unemployed individuals were also asked the reason for their unemployment, and the bids of the relevant subgroups were formed as in Table 7. The table shows students and job seekers gave the lowest offer in typical UG. In the second game, all segments increased their bid amounts significantly. Housewives provide the highest level of assistance to those in need and offered approximately 7 thousand TL of 10 thousand TL to the other party. In addition, students and retirees also offered approximately 6500 TL. In case of doubt, all segments significantly reduced their offers. Housewives gave the highest bid at this stage, while job seekers offered the lowest bid. The offer made by job seekers to the reliable needy is 61.5% more than the one made to the needy who doubt reliability. When Bid 1 and Bid 3 are compared, students and housewives in the unemployed group cautiously increased their offers to the needy. Although they are suspicious, job seekers and retirees lowered their offers compared to the first situation.

Table 7: Bids Given by the Unemployed (TL)

	Bid 1	Bid 2	Bid 3
Student	4364	6527	4436
Job seeker	4370	5925	3667
Housewife	4804	7073	4951
Retiree	4647	6412	4412

STATISTICAL FINDINGS

In this section, the findings will be evaluated using statistical methods. First, consistency analysis was performed with Cronbach's Alpha Reliability Coefficient. Then, ANOVA was used to investigate whether there was a statistical difference between the respondents' bids in 3 different situations.

Table 8: ANOVA Results

Bids						
Variance Source	Sum of Squares	Degrees of Freedom	Average Squares	F value	p-value	F table value
Between Groups	1128433657	2	564216828.5	111.1508	0***	3.003
Bids by Gender						
Bid 1	5948925	1	5948925.289	1.4109	0.2356	3.86423927
Bid 2	89901501	1	89901500.96	15.648	0.00009***	3.86423927
Bid 3	352799	1	352798.6317	0.0696	0.7921	3.86423927
Bids by Age Groups						
Bid 1	19905527	5	3981105.376	0.9426	0.4532	2.2362
Bid 2	30091883	5	6018376.531	1.0116	0.4104	2.2362
Bid 3	36840651	5	7368130.237	1.465	0.2001	2.2362
Bids by Graduation Degree						
Bid 1	6618097	3	2206032.45	0.5208	0.6682	2.6268
Bid 2	17415310	3	5805103.4	0.9755	0.4042	2.6268
Bid 3	1399834	3	466611.4972	0.0916	0.9646	2.6268

Reliability Analysis

Cronbach's Alpha Confidence Coefficient was calculated to determine the test's reliability about three survey questions. This coefficient is used to measure the internal consistency of a set of questions. It evaluates how well the questions measure the same construct and is a measure of the reliability of the test.

By using this method, 3 proposals from 412 participants were analyzed. This coefficient has a range of values from 0 to 1. A coefficient close to 1 means that the consistency is increased. If the coefficient is between 0.70 and 0.77, it has relatively high reliability (Taber, 2018, 1278). The scale calculated in our study was found to be 0.705. Accordingly, the scales created in our study from zero TL to 10 thousand TL are consistent. This means that our scale is reliable and can be used to measure people's views on the suggested monetary range. It is also an indication that the participants understood the questions and answered them accurately.

ANOVA Analysis

ANOVA was used to investigate whether there was a statistical difference between the bids in three different cases, and the results are presented in Table 8. When the difference between the groups is examined statistically, the null hypothesis, which is no difference between the averages of the groups, is rejected because the p-value is less than 0.05. Accordingly, the difference between

the respondents' bids in the three cases is statistically significant.

Second, it was examined whether bids were differentiated by gender. First and third bids do not show any statistical significance. Despite this, the second bid is statistically significant. Accordingly, the bids of men and women to those in need differ. As shown in Table 4, women offer 7093 TL on average in the second bid, while men offer 6155 TL.

Third, it was examined whether bids differed by age group. According to the findings, the difference between age groups is not statistically significant in all bids. So, the average bids of the young, middle-aged, and older do not change in all three bids.

Finally, the bids were analyzed according to graduation degree. The findings show that graduation degree does not reveal a significant relationship that will make a difference between the bids.

CONCLUSION

Making accurate decisions and predictions about distributing donations is a constant challenge for people. It is known that under incomplete contracts, people are bounded rational, and in such cases, opportunism arises. It is often a complex problem to solve how a party can target types of proper behavior when bidding or shape this complex interaction under limited knowledge. Thus,

understanding the implications of bounded rationality and opportunistic behavior is essential in order to make effective donation-distribution decisions.

Our study started with a typical UG. The average 4264 TL bid by respondents in this game does not contradict 40-50% of bidding literature findings. Then, people offered an average of 6667 TL of 10 thousand TL to those in need. This situation is inconsistent with the homo economicus assumption of maximizing its own utility, which is expressed in neoclassical economics. Because the bidders increased their offers to those in need by more than 50%. As a result of this kind of behavior, altruism is clearly exhibited. The third stage investigated how participants behaved when concerns about reliability arose. When people are doubtful of the other party due to the case of asymmetric information and incomplete contracts, they limit their offers to those in need and refuse to cooperate. As a solution, the protection of property rights and their operationalization by formal institutions will increase reliability. Consequently, reliable foundations must be established, and real needy people should be reached. This is important because unreliable conditions lead to a situation of mistrust, where people are not willing to cooperate, even if they are in need. Establishing reliable foundations and ensuring that real people in need are reached will help to create an environment of trust and cooperation, which will lead to better outcomes for all.

In another finding, men and women bid differently for those in genuine need. The reasons for this difference can be examined in more detail in future studies. There may also be an informal institutional structure and theological reasons for this differentiation. On the other hand, age range and graduation degree do not affect bids. This finding demonstrates that an individual's age and educational progress do not change their offers, implying that they adapt to the cultural structure of society. This indicates that gender is a more influential factor as opposed to age and educational progress when considering the amount of support and assistance someone is willing to provide to those in need. This may be due to the fact that certain gender roles and expectations are deeply ingrained in society, making it more likely for individuals to abide by them even in situations where they have the potential to be altruistic.

Increasing similar game-theoretic studies in Turkey is vital in revealing how and with what motives individuals make behavioral decisions in society. Because in different regions and social groups in Turkey, the efficiency of formal and informal institutions can vary. This can lead to a better understanding of how decision-making is

affected by incentives, power dynamics, and other factors, which in turn can lead to better policy. Furthermore, it can help identify the factors that contribute to and shape economic outcomes in the country.

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IPOs and Evaluation of the Borsa Istanbul IPO Index

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ABSTRACT

This study emphasises the importance of capital markets and focuses on the opportunities and risks of IPOs for companies and investors. Capital markets contribute to economic growth by providing long-term investment opportunities for both domestic and foreign investors. IPOs, one of the most important financial instruments of the capital market, support economic stability by enabling capital to be spread to the mainstream and small investors to be brought into the market. However, opening new accounts only for the purpose of participating in public offerings may limit transactions in the market and pose an obstacle to long-term investments. Financial markets in Turkey have developed rapidly through structural arrangements and global integration efforts. However, fluctuations have been experienced during periods such as financial crises and pandemic events. Public offerings play a critical role in bringing companies to financial markets and transforming resources into investments. For this reason, many projects have been undertaken to increase the number of public offerings and to encourage the development of capital markets. Therefore, considering the importance of public offerings in terms of financial markets and Turkish economy, the issue needs to be examined and analysed in detail. This study provides information on capital markets and IPOs, and in the analysis part, the performance of Borsa Istanbul IPO Index (XHZRZ) is analysed, and performance prediction is made. The index is modelled with the traditional ARIMA method, and the artificial intelligence based XGBoost algorithm and forecasts are made using the models. When the performances of the models are compared, it is determined that the machine learning based XGBoost Model provides better forecasting performance.

Keywords: Financial Markets, Financial Time Series, IPO, Borsa Istanbul, Machine Learning.

JEL Classification Codes: C55, D53, G12, G17, G23

Referencing Style: APA 7

Initial public offerings refer to the process by which a private company's shares are offered to the public for the first time through the issuance of shares. IPOs provide resources to companies by allowing a company to raise equity capital by giving investors the right to become shareholders in the company. To make the IPO more attractive, companies usually offer a share premium to potential investors when going public. Investors are more willing to participate in an IPO in order to profit from this situation (Investopedia, 2023). Therefore, more investors are willing to buy the company's shares. In addition, companies may also go for a second public offering after the initial public offering.

When stocks are bought by a large number of investors and traded on the stock exchange, the market becomes more liquid. An investor who wants to sell his/her stock can then trade easily. Therefore, companies always prefer to reach more investors with their shares in public offerings. For this reason, companies make an agreement with a private brokerage firm in the process of going public, allowing them to trade with investors on

more favorable terms by trading through the institution. However, these transactions create different costs for the company. Publicly traded companies are required to provide information on this issue to their investors as well as to supervisory and regulatory bodies (Ibbotson and Ritter, 1995).

The ability of a company to raise the required capital by going public depends on the conditions, quality and efficiency of the financial system. It is assumed that the positive performance of IPOs can be achieved by economies with more favorable trends in terms of macroeconomic variables, consistently applied effective legislation, and high levels of institutional and financial information.

In capital markets, the success of the IPO process is evaluated according to the total number and size of IPOs realized during the year. Practice shows that in many countries IPOs have proven to be a good way to finance national growth, attract capital, manage brands, improve employee knowledge and skills, and diversify the shareholder structure.

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While loans from financial institutions will always play an important role for companies, capital markets are the real foundation for strong, stable and long-term financing. Therefore, it is necessary to emphasize the great advantages that developed capital markets offer to investors and companies. This is evidenced by the number and value of transactions in advanced market economies such as the US, China, Japan and Western European countries, which have significant IPO market activity and high performance (Pesterac 2020).

The literature discusses the findings on the short and long-term performance of companies that go public in many countries and the indices that include these companies. Studies analyze differences in average initial returns, the impact of binding regulations or contractual mechanisms, and the characteristics of IPOs (Loughran et al., 1994). A large number of studies are empirical analyses of anomalies in the pricing of initial public offerings (IPOs) of stocks. Some of these include the phenomenon of underpricing, especially in the short run. Another one is the hot issuance, i.e. the excessive interest of market participants in the IPO. This anomaly is often associated with companies in high-profile or high-tech industries. These IPOs are often characterized by excessive demand for short-term gains. However, investors often speculate and plan to sell these shares the day after the IPO. The other anomaly is the overpricing of initial public offerings in the long run (Ritter, 1991).

This paper emphasizes the importance of IPOs in financial markets and highlights the opportunities and risks that IPOs present for companies and investors. In addition, for the sustainability of IPOs, the Borsa Istanbul IPO Index is analyzed and its performance is analyzed using the traditional Autoregressive Integrated Moving Average (ARIMA) Model and the Extreme Gradient Boosting (XGBoost) Model, one of the artificial intelligence based deep learning methods. The results of the analysis show that the IPO index will follow a horizontal course with fluctuations, albeit with a slight depreciation. The results also show that the XGBoost neural network method explains the performance of the index better than the ARIMA Model. Studies in the literature also support that artificial intelligence-based deep learning methods give better results in financial time series. Thus, the overall performance of IPOs can be evaluated more accurately for both companies and investors.

FINANCIAL MARKETS

Financial markets, one of the important elements of national economies, bring together the supply of funds and the demand for funds through financial institutions by using financial instruments. The surplus funds of savers are transferred to investors in need of funds and the transfer of funds in the market is ensured. Thus, new investments can be funded or existing investments can meet their working capital needs. Investments also lead to an increase in demand by affecting expenditures. Increased demand, in turn, retrigger the need for investments. Therefore, financial markets support real markets and contribute positively to the economic growth of the country. The development and stability of financial markets are of great importance in this respect.

Financial markets in Turkey have developed rapidly, especially with the structural adjustments made after 1980, and have started to make significant progress in the process of integration with global markets. With the transition to a free market economy, growth policies that encourage export oriented production were brought to the forefront, while the balance of payments was ensured and the inflation rate was tried to be reduced to reasonable levels. However, the financial crises of 1994, 2001, 2008, 2018 and the COVID-19 pandemic that started in 2020 deeply affected the financial system. During these periods, exchange rates and stock market indices experienced significant fluctuations. Figure 1. shows the graph of the US dollar exchange rates of the Central Bank between 1988 and 2023, and Figure 2. shows the graph of the closing date of the BIST 100 Index between the same dates. When the graphs are analyzed, the fluctuations and the recent rapid trend are visible.

After the pandemic, a rapid recovery process started in financial markets, especially in capital markets. Capital markets have become more attractive for financial investors for many reasons such as the newly implemented economic policies, the low real interest rate on deposits due to the high inflation rate, the decision to terminate the Currency Protected Deposit (FXPD) practice, and the effect of the significant number of IPOs in the Borsa Istanbul equity market.

CAPITAL MARKETS AND BORSA ISTANBUL

Financial markets are divided into two categories; money markets, where highly liquid investments with a maturity of less than one year can be made, and capital markets, which consist of investments longer than one year. Capital markets in Turkey are based on the

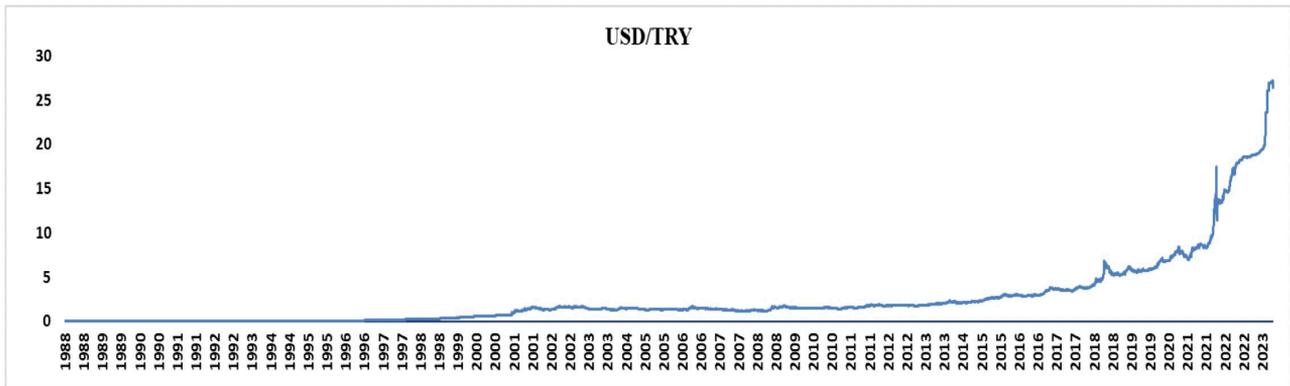


Figure 1. Indicative Central Bank US Dollar Rates (1988-2023)
Source: Central Bank of Turkey, EVDS

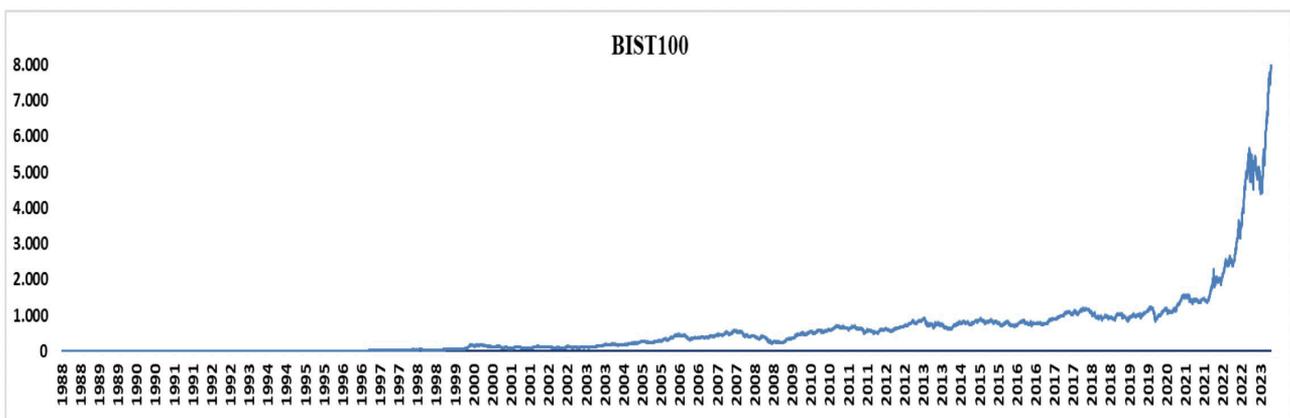


Figure 2. Borsa Istanbul BIST 100 Index Closing Data (1988-2023)
Source: Borsa İstanbul, Datastore

Dersaadet Bond Exchange, which was established in Istanbul in 1973. Bonds of the domestic and foreign debts of the Ottoman Empire and share certificates of foreign companies were traded on the stock exchange. Today, Borsa Istanbul (BIST) is at the center of capital markets.

BIST has Equity Market, Debt Securities Market, Futures and Options Market (VIOP), Precious Metals and Diamond Market. Primary market transactions and secondary market transactions are carried out in these markets. The primary market is the market where securities are offered to the public for the first time, while the secondary market is the market where existing securities that have already been offered to the public are traded by financial investors under market conditions. Having a secondary market for securities increases liquidity for financial investors and increases the demand for the primary market. In addition, BIST includes the Istanbul Settlement and Custody Bank (Takasbank), where the settlement and custody transactions of securities are carried out, and the Central Registry Agency (CRA), which provides custody, data storage, data reporting, investor services, and corporate governance services.

Capital markets offer an attractive environment for foreign investors as well as domestic investors seeking long term investments. Foreign investors generally prefer to invest in the stocks of companies with high potential in the BIST equity market (Data Analysis Platform, 2023). By bringing investors into the economy, foreign currency inflows to the country also increase. Thus, capital markets both enable the transfer of funds among investors and create foreign resources for the country. Therefore, the functioning of the market is of great importance for ensuring economic stability and sustainability.

Capital markets, and the BIST equity market in particular, have recently been among the most popular financial investment instruments. According to Data Analysis Platform data, the total portfolio value of the BIST equity market constitutes approximately 67% of the total portfolio value of all securities in the BIST. Moreover, when the BIST equity market is analysed in terms of the number of investors and portfolio value, while the number of investors was 904,646 and the portfolio value was TL 68,706 million on 31 December 2005, this number reached 6,247,715 investors and a total portfolio value of

TL 3,927,835 million on 31 August 2023. Therefore, in the last eighteen years, the number of investors in the equity market has increased by 691% and the total portfolio value by 5717%. Domestic investors account for 99.6% of the current number of investors, and approximately 41% of domestic investors are young investors under the age of thirty-five. The biggest reason for the rapid increase in the number of investors and portfolio value is explained by the increasing number of public offerings, especially in the last year. Figure 3 shows the number of investors and portfolio value in the Borsa Istanbul IPO index between 2005 and 2023. Especially after 2020, the number of investors and portfolio value will increase rapidly.

IPOs also accelerate the institutionalization process of companies, as companies are required by the CMB legislation to have independent external audits, apply International Financial Reporting Standards (IFRS), inform the public on time and accurately through the Public Disclosure Platform (PDP), establish an investor relations department, and be transparent. In this case, the completion of corporate governance processes increases the recognition of companies in international markets and can increase the potential of foreign investors. Confidence in companies can also increase their creditworthiness. In addition, companies may also go for a second public offering after the initial public offering.

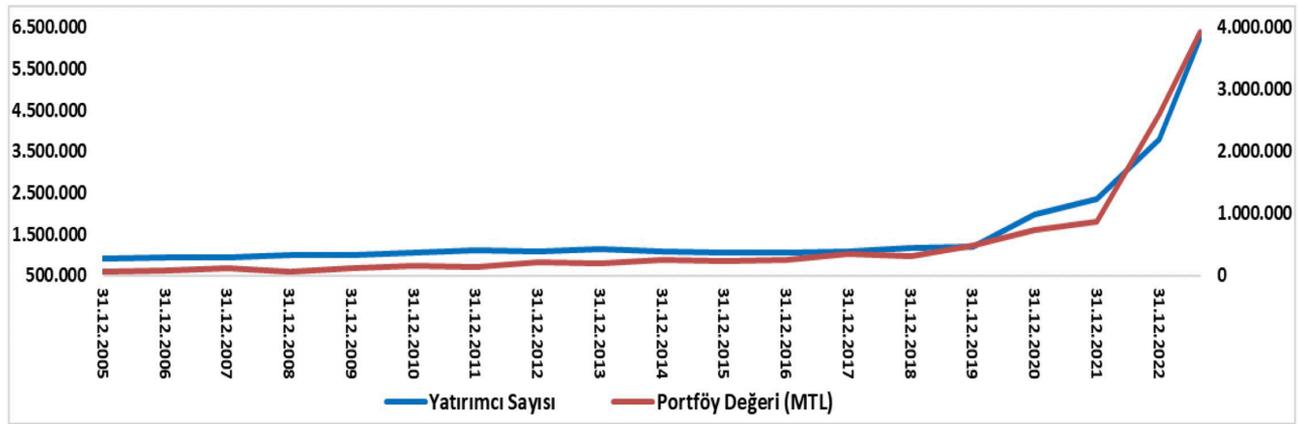


Figure 3. Borsa Istanbul IPO Index Number of Investors and Portfolio Value (2005-2023)

Kaynak: Central Registry Agency

PUBLIC OFFERING

Public offering or going public is defined as the sale of shares of capital market instruments of joint stock companies to investors through a call and announcement. Companies may offer their shares to the public for the first time, or companies that have already offered their shares to the public may make a secondary public offering. Companies wishing to go public may also offer their existing shares to the public or increase their capital for public offering. Companies going public are subject to the Capital Markets Law prepared by the Capital Markets Board (CMB), the regulatory and supervisory authority of capital markets (CMB, 2022). Public offerings have many benefits for companies, investors, and the national economy.

Public offering is one of the financing methods used by companies to meet their resource needs and is less costly compared to other methods. Since the financing is long term and provides liquidity, it is highly preferred by companies. In addition, the public offering process provides publicity and prestige for companies. In a sense,

From the perspective of financial investors, the public offering of shares of joint stock companies provides investors with an alternative financial investment instrument and an opportunity for return. Small investors in the market can utilize their savings as partners in companies. Since publicly traded companies are subject to CMB legislation, they are considered reliable by investors. The fact that share certificates can be easily converted into cash also provides an advantage for investors. However, it should not be forgotten that the high return potential offered by public offerings also carries a great risk. Because equities are financial investment instruments with a high level of risk. Therefore, investors need to have a high level of financial literacy, to be able to understand, follow, and interpret financial markets and parameters to make the right investment decisions. Investors should also have sufficient information about the company they become a shareholder of by purchasing shares.

When IPOs are evaluated from the perspective of the national economy, one of the biggest benefits of IPOs is to ensure the spread of capital to the grassroots.

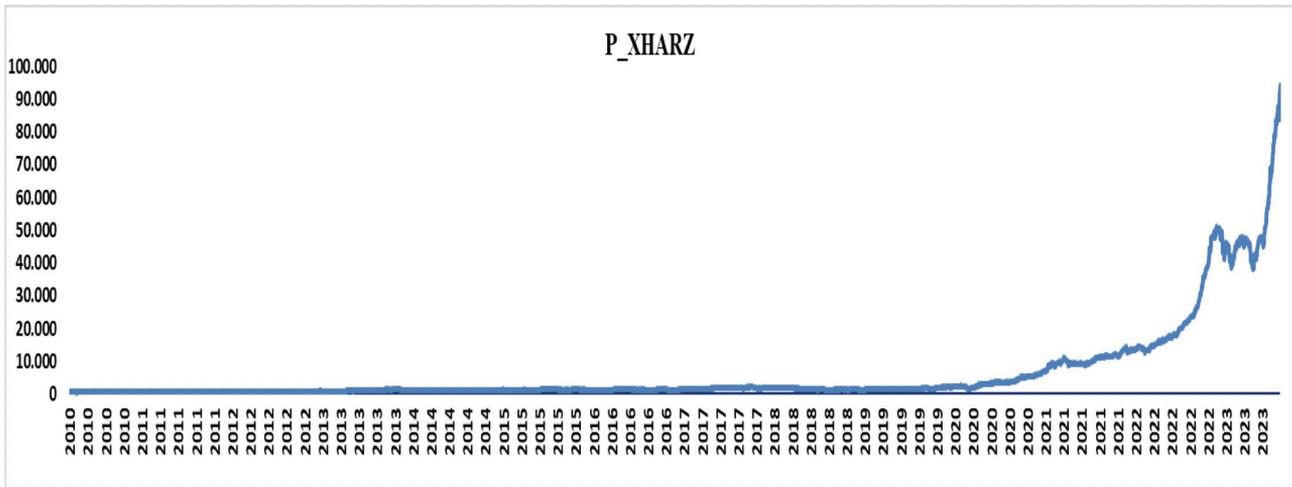


Figure 4. Borsa Istanbul IPO Index Closing Data (2010-2023)

Source: Borsa İstanbul, Datastore

Small investors also participate in the market through IPOs and the number of investors in the market increases. However, the opening of new accounts only for participation in public offerings may cause limited transactions in the market and the number of investors may not be sustainable. Public offerings are also important in bringing companies to the financial markets and transforming the funds provided into investments.

Since IPOs contribute greatly to the development of capital markets, the IPO Mobilization project was launched in 2008 by the CMB, BIST, Istanbul Chamber of Industry (ICI), and the Union of Chambers and Commodity Exchanges of Turkey (TOBB) to increase the number of publicly traded companies. The project aimed to increase the number of publicly traded companies and promote the development of capital markets. In this way, confidence in the market would be increased, the number of investors would increase, and savings would be transformed into long term investments. A total of

110 companies went public between 2008 and 2015 (Vergipedia, 2020). Although IPOs decreased between 2016 and 2021, they increased again in 2021, with 52 companies going public in 2021 and 40 companies going public in 2022. Since the demand for IPOs, especially in the recent period, is very high, the companies that have gone public can sell in limited quantities with equal distribution methods to meet the demands of the investors. Although this situation limits the investor’s risk, it creates an obstacle to long term investment and gives investors the habit of short-term investment. In 2023, when the offerings until August 31 were analysed, 32 companies went public, total proceeds reached approximately 42.9 million, and 10,506,242 new accounts were opened. The number of investors under the age of thirty-five in the equities market increased by 91% to 2,568,862. The data shows the intensity of demand for public offerings in 2023.

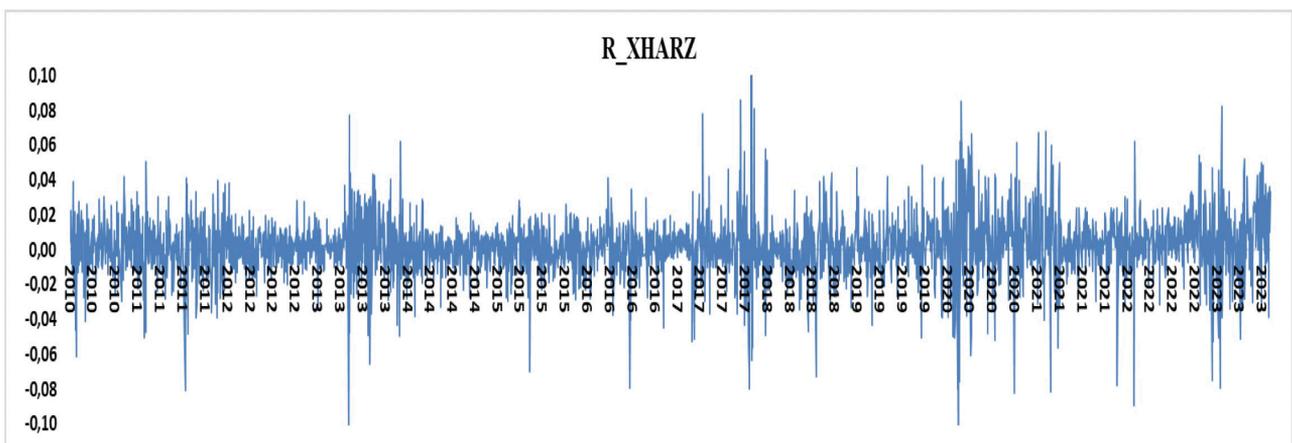


Figure 5. Borsa Istanbul IPO Index Return (2010-2023)

Source: Borsa İstanbul, Datastore

Borsa Istanbul IPO Index

The BIST IPO Index (XHARZ) consists of the stocks of companies that have been offered to the public and started trading on Borsa Istanbul. The index has been calculated since April 26, 2010. As of September 10, 2023, there are ninety two companies in the index (KAP, 2023). IPO companies remain in the index for 2 years (BIST, 2023).

When the XHARZ closing value graph is analysed, it is seen that the index has gained value from year to year due to the positive impact of public offerings on the market. The fluctuations seen in the return graph are indicative of the volatility in the index.

Studies on Borsa Istanbul IPO Index

There are many different studies and analyses in the literature on IPOs in financial markets, their economic effects, and performance evaluations. These studies contribute to the understanding and management of IPOs both in the academic world and in the finance sector.

It has been analysed whether the change in the operating performances of the IPOs made in Borsa Istanbul has occurred in a positive or negative direction in the periods following the IPOs. According to the results, it was determined that the operating performance of the firms decreased after the initial public offering period and decreased significantly in all performance indicators in the following year. Yıldırım and Dursun (2016) analysed the first day price anomaly in initial public offerings in BIST in terms of the sector to which the company belongs and the IPO techniques. While the study did not reveal any significant difference depending on the sector and technique, it was determined that the first day anomaly continued on the first day and even on the second day (Yıldırım and Dursun, 2016). In another study on the prices at which IPOs are made, Avcı et al. (2020) determined that the prices are statistically significantly lower and that this does not vary by sector, while the size of IPOs is directly proportional to the size of companies.

FINANCIAL TIME SERIES FORECASTING METHODS

Financial time series are observations taken consecutively over time (Box et al., 2016). Statistical methods are generally used in time series forecasting. Among these, linear regression, autoregressive moving average, autoregressive conditional variance, and error correction models are the most used methods. However, in financial markets that contain uncertainty

and can be affected by many factors, it becomes difficult to predict multivariate financial time series. Because time series are considered to be randomly distributed, modeling can be done by ensuring stationarity and making some assumptions. Therefore, it may be difficult to obtain accurate results in long term forecasts (Wang and Wang, 2015). Recent studies show that artificial intelligence based deep learning methods, which are frequently used in recent times, and which are developing further with technology, can provide better forecasting results in modeling the series. Many price forecasting algorithms used in price forecasting of financial investment instruments are also improving day by day. Aygören et al. (2012) forecasted the BIST 100 Index as a dependent variable and gold prices, interest rate, interbank transaction amount, and dollar closing values as independent variables using the ARMA model and artificial neural network methods and found that the ARMA model is more unsuccessful than the model obtained with artificial neural networks. Özdemir (2008) used the ARIMA model and artificial neural networks to forecast the BIST100 Index with monthly time series. According to the results, the modeling with artificial neural networks is better than the ARIMA model. Pabuçcu (2019), Gündüz et al. (2017), Tkac and Verner (2016), Telli and Coşkun (2016), Babu and Reddy, (2015), Hantias et al, (2012), Maciel and Ballini (2010), Kutlu and Badur (2009), Thawornwong et al. (2003), Desai and Bharati (1998) have studies showing that the use of artificial intelligence method provides better performance.

Autoregressive Integrated Moving Average

Financial time series are generally used for forecasting purposes. In time series analysis, the relationship between a single variable and its past values is examined (Brooks, 2014). The series is nonstationary due to trend, seasonality, random fluctuations, and cyclical fluctuations. For this reason, the necessary differencing (d) process is performed to make the series stationary. Now, the equation for the mean is written with the most appropriate Autoregressive Model AR(p) and Moving Average Model MA(q). Thus, the Autoregressive Integrated Moving Average (ARIMA (p, d, q)) model is estimated (Box and Jenkins, 1970). Finally, the adequacy of the model is tested. The error term of the model refers to the unexplained unexpected events and shocks in the model, while AR(p) indicates the number of lagged dependent variables in the model and MA(q) indicates the relationship between the current and past values of the model's error term (Tsay, 2010).

Tarih (GG.AA.YYYY) / Date (DD.MM.YYYY)	Kapanış Değeri / Closing Value	
0	2010-04-27	591.82
1	2010-04-28	600.34
2	2010-04-29	602.83
3	2010-04-30	616.39
4	2010-05-03	611.37

Table 1. First 5 Rows of Control Data for Control Purposes in ARIMA Model

Source: Borsa İstanbul, Datastore

Extreme Gradient Boosting

The Extreme Gradient Boost (XGBoost) machine learning algorithm (Chen and Guestrin, 2016) is a supervised forecasting method consisting of a scalable decision tree and conditions. The model is based on the optimisation of the objective function. By combining parallel decision trees, unnecessary downward excessive branching in the decision tree is prevented. Thus, the time spent in the model is shortened and faster results are obtained. Each parallel decision tree produced minimises the error in turn (Bonaccorso, 2017).

The method uses the boosting method and has structures that are added on top of each other sequentially. It chooses the most appropriate one among the conditions created for prediction and continues until it reaches the result and moves to the next condition. In the model, each new decision tree is added on top of the previous one at certain weight ratios, and the model is improved with the reduced difference in each iteration. For each data, a different decision tree is required. Thus, the Extreme Gradient Boosting Model provides more accurate prediction by making inferences from the previous training samples with supervised learning. Different parameters can also be used in the model (Mitchell and Frank, 2017).

Analysis of Borsa Istanbul IPO Index with ARIMA and XGBoost Methods

The study forecasts the Borsa Istanbul IPO Index (XHARZ) by using the daily closing data between January 27, 2010 and August 31, 2023. The data used are taken from Borsa Istanbul Historical and Reference Data Platform, Datastore (Borsa İstanbul, 2023).

The ARIMA model used in the analysis was implemented using the Pandas library of the Python program, which provides high performance, data structures and data

analysis tools. The data obtained were converted into DataFrame. The graphics of the study were created with the Matplotlib module. The main library of the ARIMA model is Statsmodels.tsa.arima.model. Numerical Python (Numpy) is a basic Python library for scientific calculations. Optuna is a hyper parameter optimization algorithm that gives better results with fewer trials. It automates this process instead of manual trial and error. Scikit learn (sklearn) is a library of machine learning algorithms in Python. Its main purpose is to allow users to easily create and train machine learning models. Scikit learn supports machine learning tasks such as classification, regression, clustering, dimensionality reduction, and many more.

The accuracy of the data was checked with the first five rows and the XHARZ graph was plotted again to check the data.

The hyper parameter optimization algorithm Optuna finds for the Autoregressive Integrated Moving Average (ARIMA (p, d, q)) model.

The Mean Absolute Percentage Error (MAPE) value is used to test the ARIMA model. The MAPE value is a percentage error measure used to evaluate the model's performance. It gives the proportional amount of error between the prediction values and the actual values in the modeling created in the analysis. A MAPE value below 10% indicates that the performance of the estimated model has a high degree of accuracy. A value between 10% and 20% indicates that the model is a correct prediction. Models with a MAPE value above 50% are considered to be inaccurate forecasting models (Smith and Johnson, 2020).

The Model Average Absolute Percentage Error (MAPE) value realized with ARIMA (1, 0, 2) values is approximately 38.30%. Starting from 2010, the graph of the one-year forecast made by training the model with all data is shown in Figure 7.

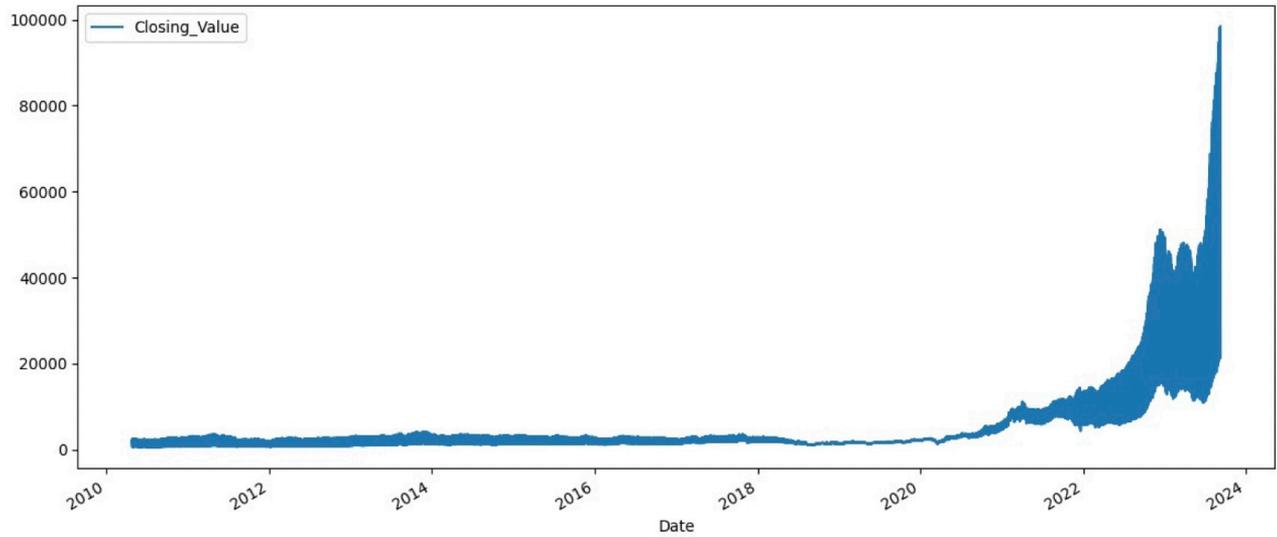


Figure 6. Matplotlib Module Outputs of Borsa Istanbul IPO Index Data

Source: Borsa İstanbul, Datastore

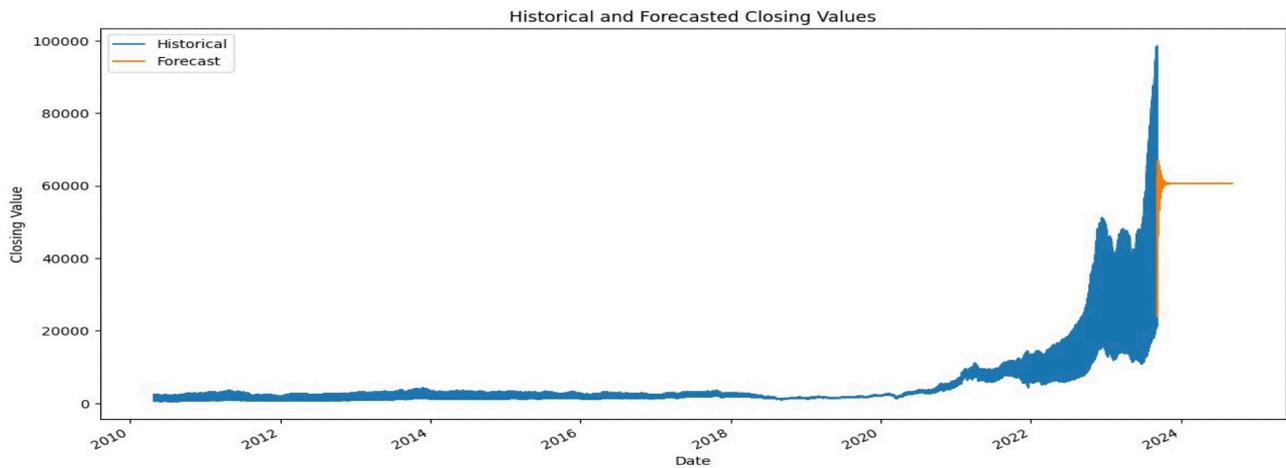


Figure 7. 1 Year Forecast Graph of Borsa Istanbul IPO Index Data Obtained by Training ARIMA Model

Source: Borsa İstanbul, Datastore

In the XGBoost Model, as in the ARIMA model, the application was made using the Pandas library of the Python program used in the analysis, and the data obtained were converted into DataFrame. Graphs were created with the Matplotlib module. The main library of the XGBoost model is XGBoost. Numpy Python library was used. The Optuna optimization algorithm was also used to train the sub parameters of the model. Scikit learn (sklearn) is a library of machine learning algorithms in Python.

The accuracy of the data was checked with the first five rows and the XHARZ plot was drawn again to check the data.

For the XGBoost Model, 90% of the approximately 13 years of data is used in the training data part of the study, while 10% is used for the test data. Figure 9 shows the

comparison of the 10% test data generated with the XGBoost model of Borsa Istanbul IPO Index data with real data.

The calculated MAPE value of the XGBoost Model is approximately 12.52%. Figure 12 shows the one-year prediction graph of the model with 90% training data and 10% test data since 2010. Figure 10 is the 1-year prediction graph of the XGBoost Model obtained by training 10% test data.

In the analysis part of the study, to predict the performance of the Borsa Istanbul IPO Index, forecasts are first made with the traditional Autoregressive Integrated Moving Average (ARIMA) Model and the artificial intelligence based Extreme Gradient Augmentation Model with the data between January 27, 2010, and August 31, 2023. Then, the performances

Tarih (GG.AA.YYYY) / Date (DD.MM.YYYY)	Kapanış Değeri / Closing Value	
0	2010-04-27	591.82
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2	2010-04-29	602.83
3	2010-04-30	616.39
4	2010-05-03	611.37

Table 2. First 5 Rows of Control Data for Control Purposes in XGBoost Model

Source: Borsa İstanbul, Datastore

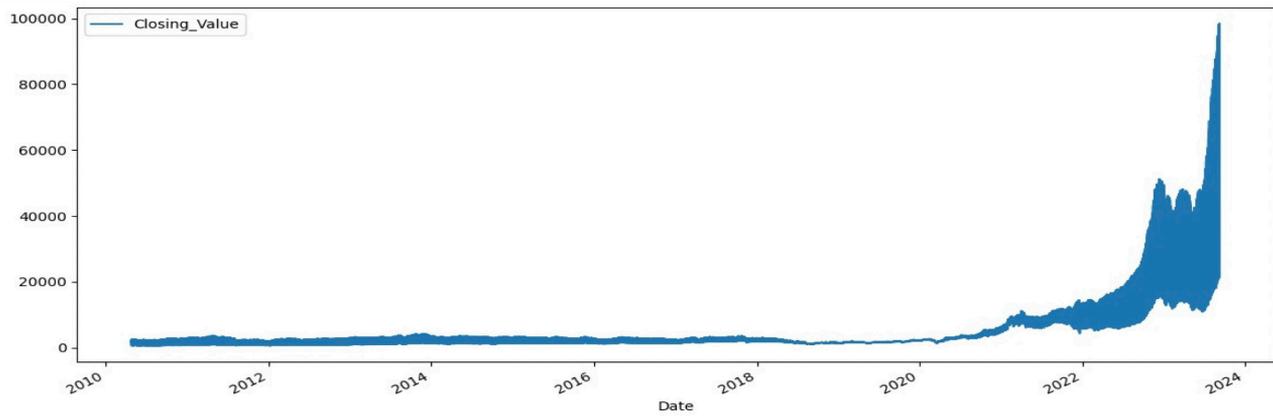


Figure 8. Matplotlib Module Output Graph of Istanbul IPO Index Data

Source: Borsa İstanbul, Datastore

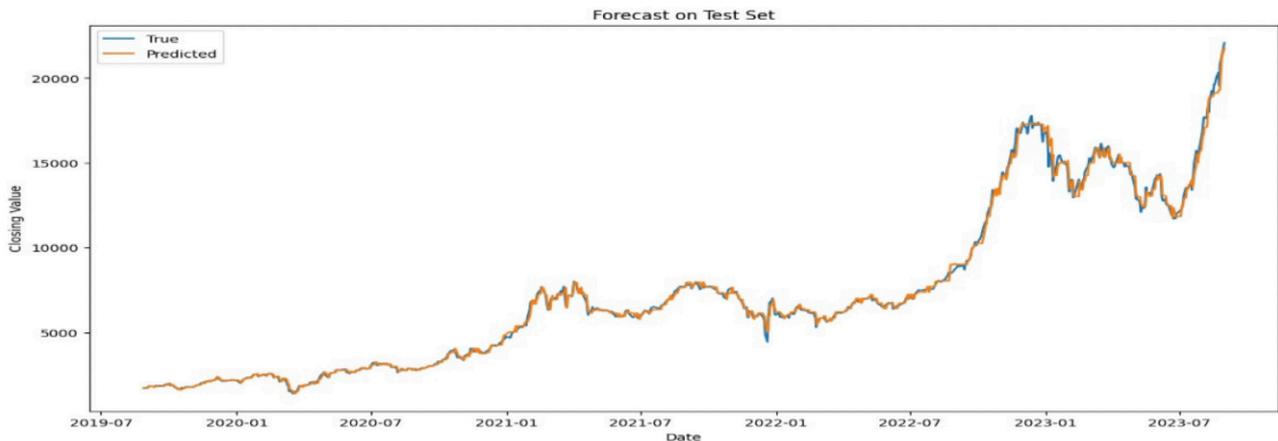


Figure 9. Comparison of 10% Test Data Generated with XGBoost Model of Borsa Istanbul IPO Index Data with Real Data

Source: Python, XGBoost Model Output

of the traditional model and the machine learning algorithm are compared and the model that gives the best forecasting performance for XHARZ is preferred. Thus, more reliable forecasts can be obtained by combining different methods. According to the results of the analysis, the MAPE value of the ARIMA (1, 0, 2) Model, which is a traditional model, is approximately 38.30%. The MAPE value of the XGBoost Model, one of the artificial intelligences based deep learning methods, is approximately 12.52%. The results of the analysis show

that the XGBoost neural network method explains the performance of the Borsa Istanbul IPO Index better. Therefore, the results of the study support other studies in the literature and show that artificial intelligence based deep learning methods provide more accurate results in financial time series.

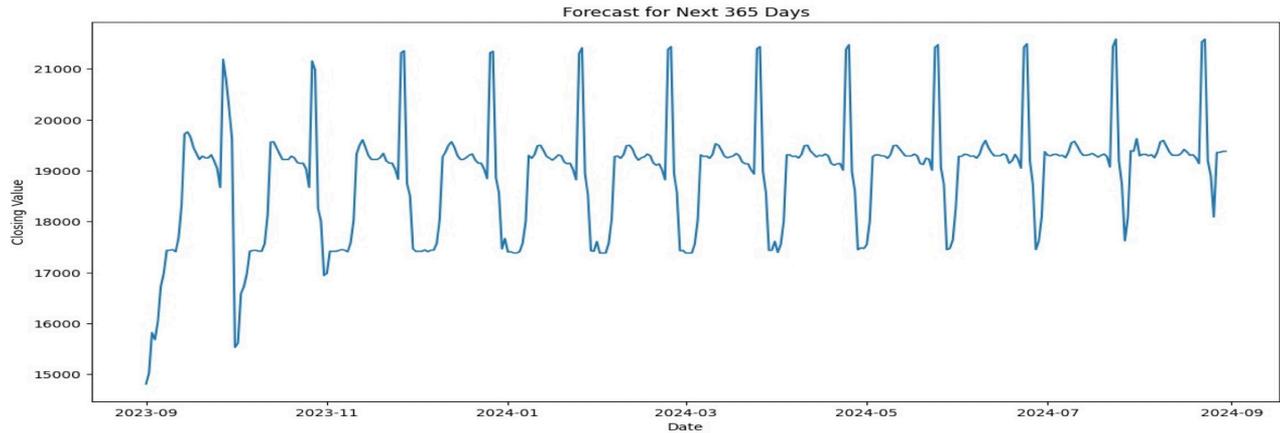


Figure 10. 1 Year Forecast Graph of Borsa Istanbul IPO Index Data Obtained by Training XGBoost Model

Source: Python, XGBoost Model Output

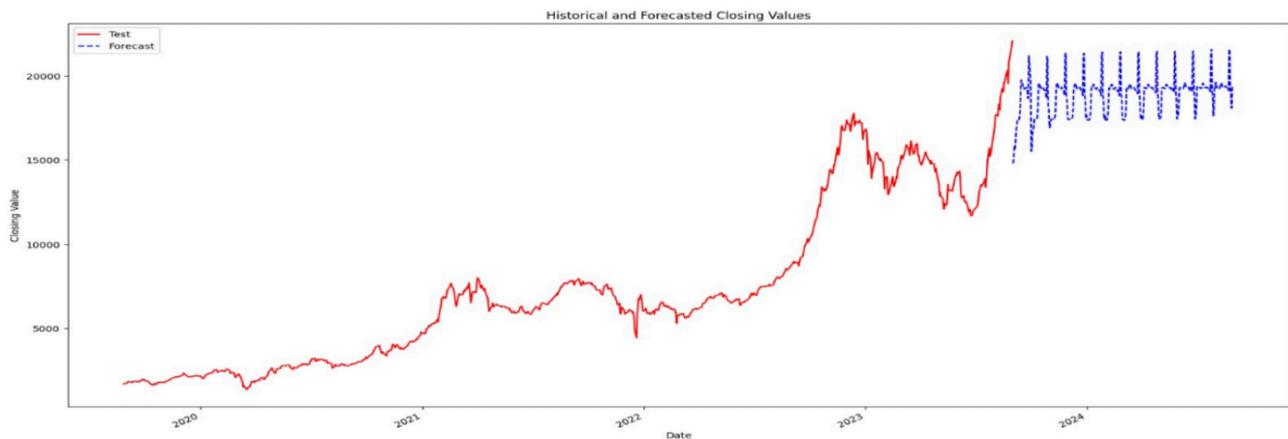


Figure 11. 1 Year Forecast Graph of Borsa Istanbul IPO Index Data Obtained by Training 10% Test Data with XGBoost Model

Source: Python, XGBoost Model Output

CONCLUSION

IPOs are an important source of financing for financial markets and can help businesses grow, diversify investors, raise investor awareness, increase employment, and stimulate economic growth. However, the regulation and management of IPO processes is also a very important issue, as negative results of IPOs can potentially cause great damage to both capital markets and the national economy. For this reason, it is important to monitor the Borsa Istanbul IPO Index values and closely monitor them by making the necessary analyses.

In this study, the forecasting of the Borsa Istanbul IPO Index with the data of the preferred period was made with the ARIMA time series model and XGBoost neural network methods, and models were developed to predict the future value of the XHARZ index. The accuracy of the models was tested by MAPE performance evaluation method and the predicted models were compared. The estimated ARIMA (1, 0, 2) model shows lower performance than the XGBoost neural network

model. The results confirm that deep learning methods provide more accurate outputs in financial time series. In addition, the results show that the XHARZ Index will continue its horizontal course with a slight depreciation and fluctuations within a year.

When the analysis is evaluated in general, it is determined that the XGBoost Model, which is one of the artificial intelligences based deep learning methods among the prediction models created with the data of the Borsa Istanbul IPO Index in the preferred period, performs better than the other methods and the method explains the XHARZ index better.

Machine learning models, which are frequently used in financial markets, have developed even more with the technological developments in recent years. Since deep learning algorithms can be trained, it is supported by studies in the literature that time series models built using these algorithms perform better. The results of the study also confirm that the neural network models tested give better results than traditional models.

Therefore, the use of machine learning methods in financial time series analysis can help to create better forecasting models by examining complex relationships in more detail, processing big data more easily and faster, and to analyze data better, as there may be many factors affecting financial markets. Thus, the IPO data in the capital markets analyzed in the study will be interpreted more accurately and IPOs can be closely monitored, the performance of financial markets will be evaluated more accurately with deep learning algorithms, and the stability of the markets will be monitored and better protected.

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Kicking Away the Ladder or Not? Unraveling Income Inequality Perceptions in the World

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ABSTRACT

Income inequality can be accepted one of the most significant problems of the 21st century. This research aims to explore the factors influencing support for income equality at both the individual and macro levels worldwide. By analyzing the latest data from the World Values Survey, which includes responses from 50,615 individuals across 42 countries, and incorporating key macroeconomic variables obtaining World Bank, this study identifies several crucial determinants of attitudes towards addressing income inequality using logistic regression analysis. The research findings reveal that factors such as material well-being, life satisfaction, institutional trust, job status, place of residence, level of education, and religiosity play a significant role in shaping individual perceptions of income inequality, particularly in the context of support for either redistributive policy or free-market capitalism as potential solutions to mitigate income disparities. Additionally, macro-level variables reveal a substantial influence on support for income equality. Income per capita, income share of top 10, the unemployment rate, and women's representation in parliament as a proxy for gender equality are found to significantly increase the likelihood of endorsing efforts to reduce income inequality. Our results remain robust when controlling for alternative income-related variables.

Keywords: Income Inequality, Public Perceptions, Redistributive Policy, Well-being, Institutional Trust.

JEL Classification Codes: D31, D63, I30, O10, C30

Referencing Style: APA 7

INTRODUCTION

Growth has been at the center of all economic and social issues since the debate on modern growth theories appeared after World War II, align with the intensification of industrialization competition and the restructuring of the post-war world. Industrialization oriented growth policies, led by Bretton Woods and the IMF, were universally recommended to the entire world (Rodrik, 2011; Chang, 2015). During this period, developed capitalist countries prioritized growth and propagated this idea worldwide through the conditions attached to aid and the policy tools recommended by international institutions and academics. From 1945 to the late 1960s, the primary focus was solely on quantitative output growth, with many other variables such as income distribution, equality, justice, social inclusivity, and environmental preservation being neglected. Even though growth-oriented policies started to be questioned due to the damage caused by the 1973 crisis and the with the advent of neoliberal policies after 1980, increasing inequalities emerged as one of the most significant outcomes of this process. Joseph Stiglitz, one

of the main architects of these policies, described this period as marked by discontents of the globalization -or we can say growth with finance capital- due to the inequalities it generated and deepened (Stiglitz, 2017; Chang, 2015). While the world economy tries to escape from an economic crisis, it has to face with the more widened one. This led to the emergence of discussions on poverty, inequality, and environmental degradation within the sustainable development paradigm of the 1990s. First, the Millennium Development Goals, consisting of 8 objectives, and later the Sustainable Development Goals, comprising 17 comprehensive goals, were proposed to combat multi-dimensional inequality and damages by United Nations Development Programme (UNDP). However, it is challenging to assert today that the first two issues of the 17 development indicators, reducing income inequality and ending poverty, have been resolved.

Despite all programs suggested and implemented by international organizations and the efforts the local organizations, ensuring equality in the 21st century remains as a distant goal. The inequality agenda has

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regained its popularity after the seminal work of Piketty (Capital in the Twenty-First Century) to reassess historical trends of global income and wealth inequalities with novel datasets of World Inequality Lab (Milanovic, 2012; Jones, 2015). According to the findings of recent World Inequality Report (2022), income inequality within countries is currently dramatically high, and even though the developing world has made some progress in catching up economically over the past four decades, inequality between countries and within countries still is notably high. As the global population continues to grow, total income also increases, albeit with occasional fluctuations in growth rates. However, this positive economic outlook does not translate into a similar reduction in inequalities (Chancel et al., 2022).

The data provided by the World Inequality Lab highlights a persistent trend over the past half-century; the income disparity between the top 1% of the global population and the bottom 50% has shown no signs of narrowing, as illustrated in Figure 1. Furthermore, as demonstrated in Map 1, the most recent data pertaining to the top 10 income shares for the year 2021 underscores significant regional variations in income inequality. The lighter areas on the map represent regions where the share of income received by the top 10% is lower. Yet it is obvious that both developing, developed, and less developed countries are suffering from unequal income distribution. That is why in the social science literature, there is a vast theoretical and empirical literature on income equality at the macro level.

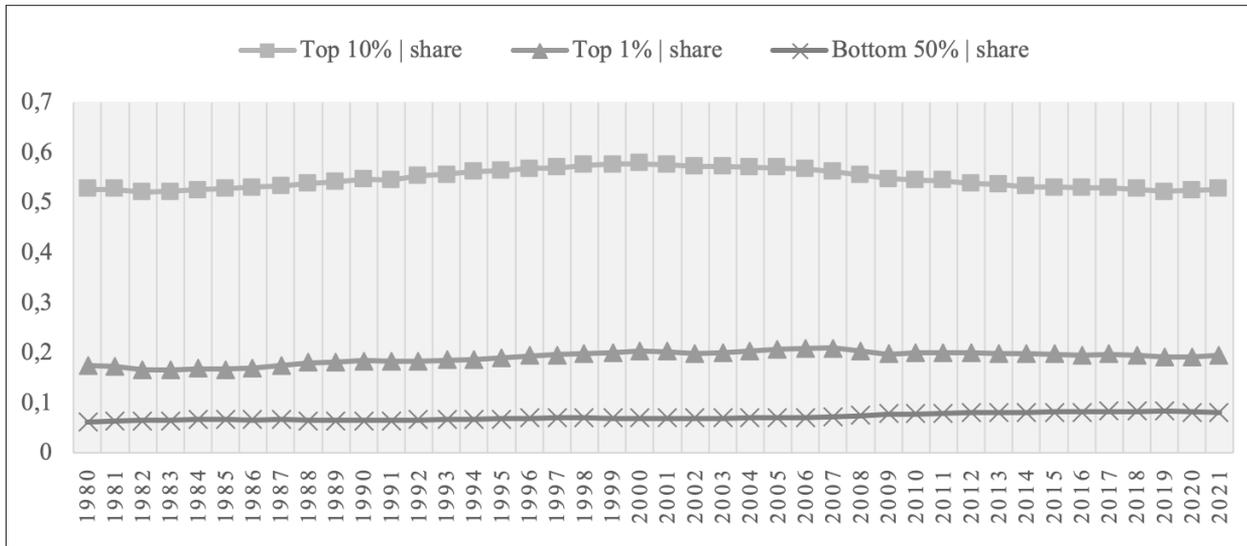
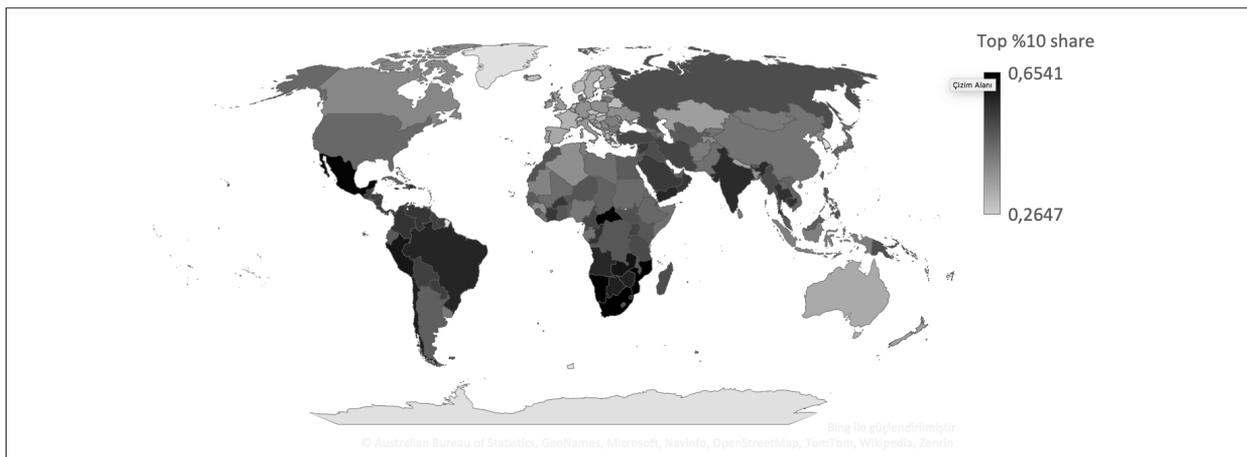


Figure 1. Pre-tax national income share (1980-2021)

Source: Facundo Alvaredo, Anthony B. Atkinson, Thomas Piketty and Emmanuel Saez. 2022. World Inequality Database. WID.world. <http://wid.world/data>



Map 1. Income Inequality in the World (Top %10 share, 2021)

Source: Compiled by the author using Facundo Alvaredo, Anthony B. Atkinson, Thomas Piketty and Emmanuel Saez. 2022. World Inequality Database. WID.world. <http://wid.world/data>

On the other hand, there is limited literature on individuals' perceptions of income inequalities. Therefore, in this study, the question "Who wants income equality, and who wants to let the market distribute income?" is posed to address this gap. In other words, we are asking who wants more support for redistributive policy, and who wants greater incentives for individual effort? This research aims to analyze the primary individual-level factors that drive people's support for income equality in the world, incorporating the main macro-economic variables of countries. By revealing these factors, the study seeks to provide valuable insights that can guide policy decisions and promote a more cohesive society, enhancing our understanding of the determinants of individuals' perceptions of income equality. In this study, we aim to answer the main question by adopting Chang's (2002 [2005]) "kicking away the ladder" concept. Basically, Chang (2015) argues that the standard set of neo-liberal policy recommendations implied after the Washington consensus, especially for developing countries (like Latin American ones), is mainly based on liberalization, deregulation, and privatization (Williamson, 2004). Chang (2015) criticizes these neo-liberal policies and highlights that the developed countries of today did not follow these specific policies themselves when they were developing but instead used a different set of policies. The "kick the ladder away" metaphor refers to how developed countries have prevented developing countries from using the same policies that they themselves used to become rich; in short, after they climb the ladder, they kick the ladder away. Can the kicking away the ladder metaphor also be applied to perceptions of income inequality? If rich people oppose policies that aim to reduce income inequality, they are essentially "kicking away the ladder" that enabled them to become rich in the first place. This is because policies that reduce income inequality, such as progressive taxation and social welfare programs, support the creation of a fair and equal opportunity environment, including for those who are less well-off, which may not be favored by individuals with higher incomes. On the other hand, if people are in favor of social cohesion and social democracy, they do not "kick the ladder" and can become supportive of redistributive policies. In summary, this study aims to determine who desires more equal income and who advocates for market-driven income distribution, or, in other words, who kicks the ladder away and who does not? In this study, individual-level income-based variables and macro-level indicators are found to be moving in different directions. Individuals with higher material well-being, life satisfaction, and income tend to be less inclined to support redistributive

policies, while increasing inequality at the country level increases support for redistributive policies.

In this framework, first a brief literature review is presented. Subsequently, details of data and methodology are introduced. Following this, the empirical findings are highlighted, and finally, our concluding remarks are discussed.

A BRIEF LITERATURE

Income and wealth inequalities are major subjects within the field of social sciences.¹ There is a vast body of literature dedicated to understanding the dynamics of income distribution. On a global scale, the theoretical foundations of this research can be traced back to Adam Smith's 18th-century question, "Why are some nations poor and why others are not?" (Smith, 1776 [2018]). 236 years later, Acemoglu and Robinson's (2012) seminal work "Why Nations Fail: The Origins of Power, Prosperity, and Poverty" increased interest in this topic and prompted a reevaluation of income inequalities and their relationship to the institutional structure of the countries. After that, Piketty (2013), has put forward a series of policy recommendations aimed at addressing global income and wealth inequality by using novel dataset. His proposals include the need for market intervention to redistribute the income and capital. He also advocates for the use of effective tax policies to combat rising inequality, specifically through higher taxes on wealth, including a wealth tax (Piketty, 2013 [2014], Pressman, 2016). And today, both theoretical and empirical literature on income inequality and its consequences is increasing day by day. While there is a considerable body of research on inequalities, studies focusing on public perceptions of income inequality are notably scarce, and the existing studies primarily encompass country-specific analyses, because measuring public perceptions of inequality is quite challenging (Trump, 2023).

In the literature, there are cross-country analysis mainly based on median voter model. According to this model, individuals who move out of poverty begin to demand less redistribution, as they care less about receiving social benefits and more about the taxes, they have to pay to finance social assistance programmes (Meltzer and Richard, 1983; Corneo and Gruner, 2002). This idea challenges the notion that reducing income disparities lead to social stability and a greater likelihood of transitioning to democracy, as stated by several works like Easterly (2001) and Acemoglu and Robinson (2006). Additionally, protests and social movements

¹ In this research, we focus on income inequality and do not delve into perceptions of other forms of inequality.

in developing countries show that as new groups of individuals climb the income ladder, it often results in high conflicts over wealth or income distribution, contradicting the expectation of reduced conflict (Wietzke and Sumner, 2014). In this framework, Wietzke (2016) finds out that this supports the intuition that falling poverty rates in today's fast-growing emerging economies are associated with more, not less, conflict over distributional outcomes. This finding is contrary to the expectations in the median voter model. The author finds that, on average, support for redistribution grew faster in societies that experienced higher rates of poverty reduction under internationally accepted extreme poverty thresholds. Kenworthy and McCall (2008), based on the median voter model, use data from the International Social Survey Programme (ISSP) to define the association between public opinion regarding income inequality and the support for redistribution policies in 8 countries for 1980-1990 period. They find that public opinion on income inequality varies significantly among countries, and that support for redistribution policies is more prominent in nations where public opinion on income inequality is more egalitarian. Even though the median voter hypothesis states increasing inequality in the distribution of earnings or income leads to higher levels of generosity in redistributive policies, the author reveals that this hypothesis may not be very useful. Colagrossi et al. (2019), using Eurobarometer data for EU-28 countries, applied binary logistic regression, finding that support for redistribution is positively linked with the level of income inequality. In addition to these, Milanovic (2000) and Finseraas (2009) find a positive relationship between inequality and demand for redistributive policy; others, for example, Moene and Wallerstein (2003) and Rodriguez (1999), find a negative relationship.

One of the country-specific examples, Wong et al. (2009), focusing on Hong Kong, find that in a capitalist society emphasizing competitive individuality, income polarization is often reluctantly accepted. Their study revealed that subjective perceptions of income inequality, measured by the seriousness and justness of income disparities, fluctuated more than actual inequality. According to the findings of this research, interestingly, even though the Gini coefficient increased, perceptions of unfairness in income distribution decreased in the 1990s. The literature on perceptions of income inequality in the USA is relatively rich. Xu and Garand (2010) using state-level income inequality and 2004 American National Election Study (ANES) data and applying ordered logit models depicting individuals'

perceptions of rising income inequality as a function of state income inequality and various control variables. Author's find that people in states with big income gaps tend to see greater national income inequality over the last 20 years. The study also looked at how factors like political knowledge and family income play a role. It turns out, family income is the main factor. People with lower incomes are more likely to connect state income gaps with their perception of overall inequality compared to those with higher incomes. Addition to this, Bartels (2008) and McCall and Kenworthy (2009) find that increasing income inequality in the USA is affected by individuals' political ideology, access to information and interest about politics, education level, and media exposure (Bartels, 2008; McCall, 2005; McCall and Kenworthy, 2008). One of the most recent studies for the USA is Franko's (2017). Based on theories of macro-political behavior and place-based contextual effects, author tries to examine how public perceptions of inequality developed in the USA after 1980. The author finds, through the application of time-series cross-sectional analyses, that the public's perceptions of growing inequality are largely influenced by objective state economic indicators and state political ideology.

As we can see, the findings about determinants of public perceptions on income equality are quite mix. In terms of the empirical literature, we aim to reexamine the conventional view by proposing "Hypothesis 1: Higher levels of material well-being and life satisfaction are positively associated with support for income equality worldwide." This expectation aligns with the findings of Easterly (2001) and Acemoglu and Robinson (2006), who suggest that individuals who attain a certain level of income or life satisfaction may be more inclined to endorse income equality, driven by their pursuit of fairness, social cohesion, and harmony, or their perception of reduced threats from income equality policies. In this study, if we confirm this conventional view, we will conclude that the "kicking away the ladder" concept cannot be applied to income equality perceptions worldwide. "Hypothesis 2: Greater levels of institutional trust are positively correlated with supporting income equality worldwide." This expected positive correlation can be explained by the belief in the effectiveness of income redistribution mechanisms and the belief in collaborative efforts that lead to mutual benefits on a global scale. "Hypothesis 3: Socio-economic and demographic factors have the potential to exert an influence on decisions supporting income equality worldwide."

In this respect, this research aims to fill the gap in understanding global perceptions of income equality, considering well-being, institutional trust, and controlling for macroeconomic variables, socio-economic factors, and demographic characteristics.

DATA AND METHODOLOGY

In this study, data from Wave 7 of the World Values Survey (version 5.0) and World Bank Development Indicators, encompassing data from 64 countries are used. After excluding individuals with missing values, final dataset consisted of 50,615 individuals drawn from 42 countries. These countries are Argentina (ARG), Armenia (ARM), Australia (AUL), Bangladesh (BNG), Bolivia (BOL), Brazil (BRA), Canada (CAN), Chile (CHL), Colombia (COL), Cyprus (CYP), Czech Republic (CZR), Ecuador (ECU), Ethiopia (ETH), Germany (GMY), Greece (GRC), Guatemala (GUA), Indonesia (INS), Japan (JPN), Kenya (KEN), Madagascar (MAD), Malaysia (MAL), Mexico (MEX), Mongolia (MNG), Morocco (MOR), Nicaragua (NIC), Nigeria (NIG), Netherlands (NTH), Peru (PER), Philippines (PHI), South Korea (ROK), Romania (ROM), Russia (RUS), Slovenia (SLO), Serbia (SRB), Tajikistan (TAJ), Thailand (THI), Tunisia (TUN), Turkey (TUR), Ukraine (UKR), Uruguay (URU), the United States of America (USA), and Zimbabwe (ZIM). Appendix 1 provides an overview of these countries and their respective sample characteristics.

Our dependent variable is a latent variable, which was retrieved from Question 106 in WWS. This is a scale ranging from 1 (Income should be made more equal) to 10 (There should be greater incentives for individual effort). We create a binary variable: if an individual's response falls within the range of ≥ 5 , they are more likely to support free-market solutions in income distribution, and if the response is below 5, the individual is more likely to support redistributive policies. A variable called P_i was created that takes the value of 1, when the individual support redistributive policy, and 0 if individual support free market solution for income redistribution which means the P_i variable used in the study has a binary structure. In this case, it is proper to use a logistic model to estimate the probabilities of the dependent variable being either 0 or 1 (Gujarati, 1995). In this case, it is proper to use a logistic model to estimate the probabilities of the dependent variable being either 0 or 1 (Gujarati, 1995). Logit models are statistical methods that provide the probability distribution of values for the dependent variable and allow for classification based on these values. The general functional structure of the model is as follows (Green, 2000; Gelman, 2008).

$$P_i = E(Y_i = 1 / X_i) = \frac{1}{1 + e^{-(\beta_1 + \beta_2 X_i)}} \quad (1)$$

When $\beta_1 + \beta_2 X_i = Y$ and $Y \in Z$; " P_i "; " P_i " takes the values between 0 and 1. This implies that there is no linear relationship between P and Y . Therefore, the estimator cannot be predicted using the least squares method in this model. When individuals' likelihood of supporting income equality is represented as " P_i " and the likelihood of supporting free market in income distribution is represented as " $1 - P_i$ " the model can be rearranged as in equation number 2.

$$P_i = \ln\left(\frac{P_i}{1 - P_i}\right) = \beta_1 + \beta_2 X_i \quad (2)$$

When estimating the likelihood of prioritizing equality compared to free market distributive mechanisms through the logarithm of the odds ratio, the linearity problem is eliminated. So, it is possible to estimate the impact of a change in the independent variable " X_i " on the likelihood of supporting income equality. In this estimation method, coefficients do not provide an interpretation of the numerical value of the effect on the dependent variable; rather, they allow for an analysis of the direction of the effect based on its sign.

Table 1 provides an overview of the independent variables employed in the analysis. Primary independent variables of this study are that: *life satisfaction*, *material well-being*, and *institutional trust*. In addition to these, several control demographics, such as *income* (to make robustness checks for income-related indicators in Models 1–5), *religiosity*, *sex*, *age groups*, *number of children*, *education level*, *employment status* and *place of residence* are used. These control variables are crucial for capturing the nuanced influences on our dependent variables and help ensure the robustness of our analysis by accounting for potential confounding factors (Aigner and Heins, 1967; Bernerth et al., 2018). Furthermore, macro-level variables are also included: gross domestic product per capita, unemployment rate, income received by the top 10, and proportion of seats held by women in national parliaments as a proxy for gender equality.

In appendix section several descriptive tables are presented as following: Appendix 2 presents frequency distribution of variables, Appendix 3 displays descriptive statistics for macro-level variables, and Appendix 4 displays a matrix of correlations.

We employ a forward stepwise approach for logistic regression to identify the final model. This model selection process involves conducting the Wald test for individual parameters, with a significance level set at 0.1. All parameters that satisfy this requirement are kept in

Table 1. Variables and Definitions

Individual-Level Variables		
Question	Variable Name	Scale
Q106. Incomes should be made more equal There should be greater incentives for individual effort.	Dependent variable	Binary (0-1) 0 free market capitalism 1 support for redistributive policy
Independent Variables		
Q49. How satisfied are you with your life these days?	Life Satisfaction	Binary (0-1) low-high
In the last 12 months, how often have you or your family, Q51 Gone without enough food to eat. Q52 Felt unsafe from crime in your home. Q53 Gone without medicine or medical treatment that you needed. Q54 Gone without a cash income. Q55 Gone without a safe shelter over your head.	Material well-being	Binary (0-1) low- high
Q64-Q89 Trust level of Churches, armed forces, the press, television, labor unions, police, courts, government, political parties, parliament, civil service, universities, elections, major companies, banks, environmental organizations, women's organizations, charitable or humanitarian organizations, the European Union, the United Nations, the International Monetary Fund, the International Criminal Court, the North Atlantic Treaty Organization, the World Bank, the World Health Organization, the World Trade Organization	Institutional Trust	1 low 2 medium 3 high 4 very high
Q.288. Income group	Income	1 low 2 middle 3 upper middle 4 high income
Q173. Are you religious or not?	Religiosity	Binary (0-1) A religious person- Not a religious person
Q260. Respondent's sex	Sex	Binary (0-1) Male-female
Q261. How old are you?	Age groups	<=30, 31-45, 45-60, 60 =>
Q274. Do you have any children?	Number of children	Number
Q275. What is the highest educational level that you have attained?	Education level	(1-3) primary-high school-university
Q279. Are you employed now or not? How many hours a week?	Employment status	1 "other" 2 "unemployed" 3 "student" 4 "housewife" 5 "retired" 6 "employees"
H1. Place of residence type	Place of residence	Binary (0-1) urban-rural
Macro-level Variables		
Variable	Definition	
gdppc	Logarithm of gross domestic product per capita, PPP (constant 2017 international \$)	
top10share	Logarithm of income share of top 10	
unemployment	Logarithm of unemployment rate (%of labor force)	
womenrep	Logarithm of Proportion of seats held by women in national parliaments	

Source: Compiled by the author. We use macroeconomic variables for the year 2019 and 2020 average.

the final model. To add probability weights based on the initial equilibrated weights from the World Values Survey dataset, analysis is carried out using Stata 15 with the "svy" prefix. A tool created by Archer and Stanley (2006) with the "svylogitgof" command is used to assess the goodness of fit. Any observations with missing values related to the survey design variables are excluded from the analysis.

EMPIRICAL FINDINGS

The results of our regression analyses examining the factors influencing public perceptions of income equality can be categorized into three distinct sections: main independent variables, socio-economic and demographic factors, and macroeconomic indicators. The regression coefficients for all alternative models are

Table 2. Regression Coefficients of Logistic Regression

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Individual level variables						
Material well-being (ref: low)						
high	-.204*** (.032)				-.122*** (.032)	-.088*** (.032)
Life satisfaction (ref: low)						
high		-.459*** (.025)			-.454*** (.025)	-.399*** (.025)
Institutional Trust (ref: low)						
moderate			.081*** (.027)		.116*** (.027)	.131*** (.027)
high			.078** (.036)		.127*** (.036)	.157*** (.037)
very high			-.322* (.175)		-.276 (.176)	-.254 (.175)
Income (ref: low)						
Middle				-.264*** (.023)		-.228*** (.024)
High				-.548*** (.028)		-.488*** (.028)
Age groups (ref: <30)						
31-45	.033 (.034)	.025 (.034)	.044 (.034)	.001 (.034)	.028 (.034)	-.002 (.034)
45-60	-.04 (.037)	-.059 (.037)	-.033 (.037)	-.079** (.037)	-.055 (.037)	-.087** (.037)
>60	.062 (.053)	.046 (.053)	.066 (.053)	.002 (.054)	.052 (.053)	.003 (.054)
Employment status (ref: student)						
Other	-.026 (.033)	-.024 (.033)	-.029 (.033)	-.016 (.033)	-.023 (.033)	-.013 (.033)
Unemployed	.098** (.045)	.102** (.045)	.104** (.045)	.089** (.045)	.1** (.045)	.088* (.045)
Housewife	.07 (.048)	.063 (.048)	.066 (.048)	.057 (.048)	.062 (.048)	.052 (.048)
Retirees	.122*** (.041)	.118*** (.041)	.12*** (.041)	.109*** (.041)	.118*** (.041)	.108*** (.041)
Employee	.138*** (.038)	.119*** (.038)	.144*** (.038)	.106*** (.038)	.116*** (.038)	.086** (.038)
Place of residence (Ref: urban)						
Rural	.105*** (.023)	.103*** (.024)	.104*** (.023)	.076*** (.024)	.106*** (.024)	.081*** (.024)
Sex						
Female	.063*** (.021)	.063*** (.022)	.063*** (.021)	.059*** (.022)	.063*** (.022)	.059*** (.022)

Table 2. Regression Coefficients of Logistic Regression (Continued)

Education level (ref: primary school)

High school	-.2*** (.027)	-.194*** (.027)	-.209*** (.027)	-.162*** (.027)	-.189*** (.027)	-.151*** (.027)
University	-.356*** (.031)	-.335*** (.031)	-.371*** (.031)	-.275*** (.031)	-.329*** (.031)	-.252*** (.031)
Graduate	-.351*** (.045)	-.324*** (.045)	-.366*** (.045)	-.199*** (.046)	-.326*** (.045)	-.189*** (.046)
Religiosity (ref: religious)						
Not religious	.007 (.025)	-.004 (.025)	.012 (.025)	.005 (.025)	.003 (.025)	.005 (.025)
Atheist	.252*** (.044)	.23*** (.044)	.257*** (.044)	.252*** (.044)	.237*** (.044)	.241*** (.044)
Number of children	-.01 (.007)	-.007 (.007)	-.009 (.007)	-.009 (.007)	-.008 (.007)	-.008 (.007)
Macro-level variables						
gdppc	1.094*** (.082)	1.153*** (.082)	1.11*** (.082)	1.103*** (.082)	1.151*** (.082)	1.15*** (.083)
top10share	8.563*** (1.079)	7.843*** (1.085)	8.794*** (1.089)	8.403*** (1.091)	8.088*** (1.092)	8.085*** (1.1)
unemployment	.391** (.163)	.314* (.165)	.417** (.165)	.461*** (.166)	.395** (.167)	.496*** (.169)
womenrep	2.834*** (.283)	2.518*** (.286)	2.847*** (.286)	2.972*** (.285)	2.642*** (.289)	2.857*** (.29)
Constant term	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	50,615	50,615	50,579	50,615	50,615	50,615
Goodness of Fit (Prob > F)	0.374	0.072	0.734	0.277	0.198	0.007

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1. Original equilibrated weights from the World Values Survey were used. To calculate standard errors, we use the linearized method.

Source: Authors' calculation.

presented in Table 2, and Table 3 displays the marginal effects specific to Model 5, which is our final model. To provide a robust analysis, six models are estimated. The first three models present the analysis separately for material well-being, life satisfaction, and institutional trust. Model 4 serves as a robustness check, as it employs only the income scale, allowing us to compare it with the first two models that incorporate income-related well-being variables. It is worth noting that the consistently negative and significant coefficients associated with these variables further confirm the robustness of our findings. In model 6, we use material wellbeing, life satisfaction, institutional trust, and income together; this can also be a robustness check to validate that all the signs of the main independent variables are not changing. Model 5 is the final model for two reasons: first, we do not need income-supported two variables (material wellbeing and income directly, life satisfaction indirectly). Second, when we look at the goodness of fit results Model 6 shows no goodness of fit, it suggests that

adding those additional variables did not significantly improve the model's ability to explain the variation in our dependent variable compared to Model 5.

Main Independent Variables

Our study revealed that individuals with high material well-being, income, and life satisfaction are less likely to support income equality in line with the findings of Colagrossi et al. (2019). This finding is contrary with the mainstream expectations, and findings suggests that individuals with high material well-being and life satisfaction may be less inclined to endorse pro-poor redistributive policies, potentially due to their belief in the importance of hard work and personal effort. This phenomenon can be seen as a manifestation of the "kick the ladder away" concept (Chang, 2015), where those who have achieved a certain level of income success are less supportive of income equality measures. It appears that their stance is driven more by meritocratic

Table 3. Marginal Effects for Final Model (Model 5)

	dy/dx	Std.Err.	t	P>t	[95%Conf.	Interval]
Material wellbeing	-0.027	0.007	-3.770	0.000	-0.041	-0.013
Life Satisfaction	-0.102	0.006	-18.120	0.000	-0.113	-0.091
Institutional trust						
moderate	0.025	0.006	4.300	0.000	0.014	0.037
high	0.028	0.008	3.490	0.000	0.012	0.044
very high	-0.058	0.036	-1.620	0.104	-0.128	0.012
Age groups						
31-44	0.006	0.008	0.820	0.412	-0.009	0.021
45-59	-0.012	0.008	-1.460	0.143	-0.028	0.004
>60	0.012	0.012	0.970	0.330	-0.012	0.035
Employment status						
Other	-0.005	0.007	-0.710	0.480	-0.019	0.009
Unemployed	0.022	0.010	2.200	0.028	0.002	0.042
Housewife	0.014	0.011	1.290	0.198	-0.007	0.034
Retirees	0.026	0.009	2.870	0.004	0.008	0.044
Employee	0.026	0.008	3.030	0.002	0.009	0.042
Place of residence						
rural	0.023	0.005	4.490	0.000	0.013	0.034
Sex						
female	0.014	0.005	2.920	0.003	0.005	0.023
Education level						
high school	-0.042	0.006	-7.050	0.000	-0.054	-0.031
university	-0.073	0.007	-10.690	0.000	-0.086	-0.059
graduate	-0.072	0.010	-7.350	0.000	-0.091	-0.053
Religiosity						
not religious	0.001	0.005	0.130	0.900	-0.010	0.011
atheist	0.053	0.010	5.350	0.000	0.033	0.072
Numberofchildren	-0.002	0.002	-1.120	0.262	-0.005	0.001
gdppc	0.254	0.018	14.070	0.000	0.219	0.289
top10share	1.784	0.240	7.420	0.000	1.313	2.255
unemployment	0.087	0.037	2.370	0.018	0.015	0.159
womenrep	0.583	0.064	9.160	0.000	0.458	0.707

Note: dy/dx for factor levels is the discrete change from the base level.

Source: Authors' calculation.

principles than altruistic tendencies. This phenomenon can be primarily attributed to the unique circumstances of households that have recently escaped extreme deprivation or are just above the poverty line. These households, who were previously very poor, tend to advocate for more redistribution policies to reduce their vulnerability to economic shocks and to eliminate the risk of falling back into extreme poverty. It can be concluded that the idea that after reaching a certain level of income or life satisfaction, individuals may be more inclined to support income equality as they seek fairness, social cohesion, and harmony or perceive reduced threats from income equality policies is not valid for a capitalist world economy. Through this analysis, it can be indirectly highlighted that reciprocity, altruism, and empathic responsiveness cannot be seen in people who have higher living conditions.

Furthermore, we found that individuals with high institutional trust are more likely to support income equality, aligning with existing research showing a positive association between trust in public institutions

and support for income equality. In countries where institutional trust is low, there is often concern about the public approval and legitimacy of the political system (Gould and Hijzen; 2017; Medve-Balint and Boda, 2014; Gould and Hijzen, 2017). This finding is not in line with the Dutta and Sobel (2023) study, which indicates fewer trusting individuals (and societies) generally desire higher degrees of income inequality because of individualism instead of searching for collective action. Regarding these contradicting findings, different dimensions of trust as an important component of social capital should be further investigated.

When we compare the magnitude of the effects of main independent variables considering Table 5, the negative effects of high life satisfaction have the biggest effects on supporting income equality. The positive effect of increasing rate of institutional trust is high when we compared the negative effects of material well-being and life satisfaction.

Control Demographics

Age groups, employment status, place of residence, sex, education level, religiosity, and the number of children were used as control demographics in the study. According to results, there are no statistically significant differences between age groups compared to individuals under the age of 30. Regarding number of children, it could be expected as the number of children increases, concerns for economic security should also increase. However, the results do not indicate any statistically significant relationship between the number of children and income equality concerns. Unemployed individuals, retirees, and employees are more inclined to support income equality over greater incentives for individual effort when compared to the reference group, which is “students.” When examining the rural-urban dichotomy, UN reports suggest that living in rural areas makes individuals more vulnerable because they heavily rely on agricultural production, which is not stable for generating income (UN World Social Report, 2021). That is why it makes sense to expect that rural residents would be more likely to support income equality, as those who are most affected by income inequality should advocate for equal income distribution. Our results support this view, showing that rural residents are more likely to support income equality. Historically, women have been the most affected group by inequalities, especially concerning income equality (Perrin, 2022; Katz et al., 2005; Ruel & Hauser, 2013). We also found that females are more likely to support income equality rather than greater incentives for individual effort. Accessing equal educational standard for women and man can create opportunities to reduce income inequalities by empowering

people. Studies indicate that educational factors, such as higher educational attainment and a more equal distribution of education, play a significant role in making income distribution more equal (Hovhannisyan et al., 2019). However, what about the perceptions of educated individuals towards income equality? As education levels increase, there is a growing likelihood of supporting greater incentives for individual effort in income distribution. This is because education can have a positive impact on economic growth and productivity, leading to higher wages and increased opportunities for individuals. Furthermore, as highlighted by Dabla-Norris et al. (2015), individuals who endorse income inequality often hold the belief that disparities in income stem from differences in individual effort and talent. This perspective aligns with the concept of “individualism” prevailing over “collectivism.” Standardized education tends to produce individuals suitable for participation in the free-market system, emphasizing STEM (Science, Technology, Engineering, Mathematics) fields, while collectivism is frequently marginalized. Regarding magnitude of the individual variables, difference in religiosity level seems the one of the most important factors increase the likelihood of supporting income equality over free market distributive policies. People who consider themselves atheists are more likely to support income equality compared with the religious people.

Macroeconomic Variables

The living environment shapes people’s perceptions, which is why we aimed to control the relationship between macroeconomic variables and perceptions. In the analysis,

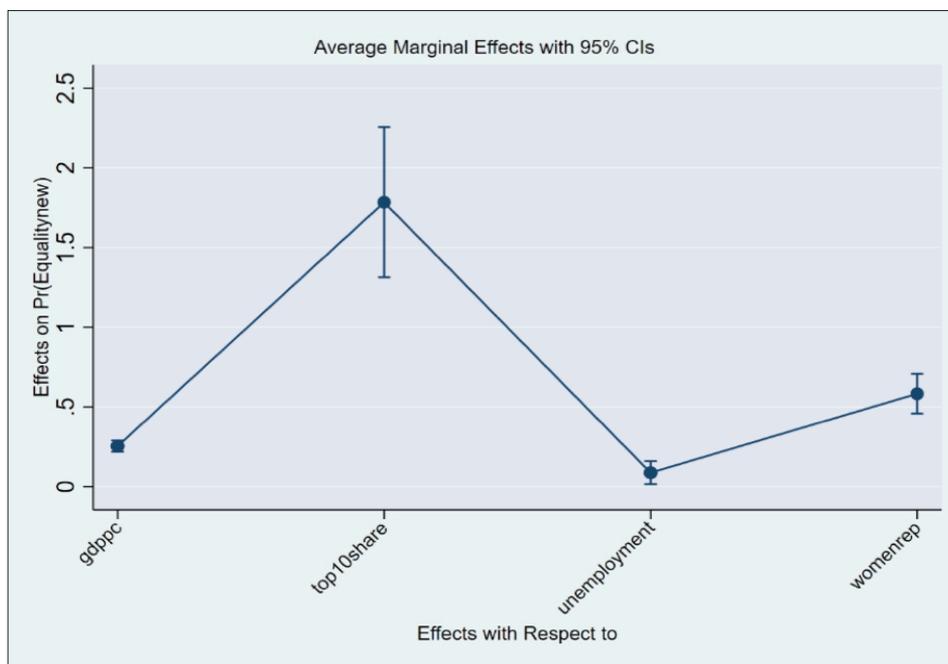


Figure 2. Average Marginal Effects of Macroeconomic Variables

Source: Authors’ calculation.

GDP per capita, the unemployment rate, the top 10 income shares, and the representation of women in parliaments to account for country-level inequalities as a proxy of gender equality in the country with a presumption that gender equality can influence people to be more inclined toward equal income distribution are added to the models.

As expected, when income per capita improves, unemployment decreases, and country-level inequality increases, people tend to be more supportive ensuring income equality by support for redistributive policy instead of free market solutions in line with the findings of Meltzer and Richard (1983), Milanovic (2000), and Finseraas (2009) in which state inequality and demand for redistribution should be positively linked. However, it's crucial to note that individual-level variables do not consistently align with macro-level variables. In summary, when a country experiences overall positive economic conditions, its residents are more likely to endorse policies that promote income equality. When we scrutinize the marginal effects, the positive impact of country-level income inequalities becomes even more pronounced (as depicted in Table 3 and Figure 2), prompting individuals to lean towards the belief that "income should be made more equal" rather than "there should be greater incentives for individual effort." On the other hand, individual well-being and life satisfaction exhibit adverse effects, indicating that individual well-being does not contribute significantly to promoting policy to ensure equal income for everyone. Conversely, the likelihood of preferring income distribution to be left to market mechanisms increases.

CONCLUSION

In the 21st century, income inequality has emerged as a pivotal issue due to its pervasive impact across various aspects of society. Addressing this challenge is essential for developing strategies that foster inclusive and sustainable economic growth while ensuring the well-being of individuals and communities. This study aims to explore both individual and macro-level determinants of public perceptions of income equality, using individual-level data from the World Values Survey (WVS) and macro data from the World Bank. We employ binary logistic regression analysis to achieve two primary aims: Firstly, we contribute to the existing literature by examining public perceptions of income equality using the latest available data. Secondly, we extend the analysis by exploring the influence of well-being indicators and institutional trust within this framework, while controlling for macro-level factors. Overall findings of this research indicate that planning of policies based on social preferences,

inequality, general macro-economic condition of the countries and socio-demographic factors matter.

The research findings reveal that factors such as material well-being, life satisfaction, institutional trust, job status, place of residence, level of education, and religiosity play a significant role in shaping individual perceptions of income inequality, particularly in the context of support for either redistributive policy or free-market capitalism as potential solutions to mitigate income disparities. Additionally, macro-level variables reveal a substantial influence on support for income equality. Income per capita, income share of the top 10, the unemployment rate, and women's representation in parliament as a proxy for gender equality are found to significantly increase the likelihood of endorsing efforts to reduce income inequality. This finding, contradicting Kenworthy and McCall (2008) and Wietzke (2016), is in line with the median voter-voter hypothesis, which suggests that higher inequality in a country tends to increase the generosity of redistributive policy. It should be highlighted that individual-level determinants and macro-level determinants say different things based on the median voter theory. At the individual level, if material well-being, life satisfaction, and income level increase, individuals are less likely to support a redistributive policy. On the contrary, considering the overall economic conditions of the countries, they tell a different story.

When we revised the hypothesis, the results did not confirm "Hypothesis 1: "Higher levels of material well-being and life satisfaction were expected to have a positive association with support for income equality"; as we found evidence to the contrary. This finding could be attributed to factors such as individuals' perceptions of fairness, reduced concerns about potential threats from income equality policies, or a desire for social cohesion and harmony in an individualist capitalist world economy. It can be concluded that people kicking away the ladder if they meet materialistic needs and have greater life satisfaction. For Hypothesis 2, we anticipated a positive correlation between greater levels of institutional trust and support for income equality in the world. Our findings confirm this hypothesis for the people's trust in institutions at a "moderate" and "high" level compared with those with lower trust. It can be argued that when people trust institutions, they are more likely to believe that the government and other institutions will use redistribution policies fairly and effectively to benefit everyone in society. For Hypothesis 3, we explored the potential influence of socio-economic and demographic factors on decisions supporting income equality. While we did find some partial

evidence to support this hypothesis, it's worth noting that we did not identify significant differences between categories for age groups and number of children. In this study, interesting findings appear as individuals with high material well-being, income, and life satisfaction show reduced support for income equality, potentially due to their belief in hard work and meritocracy. Conversely, those with higher institutional trust are more likely to endorse income equality. Demographic factors such as rural residence and female gender correlate with higher support for income equality. Education levels show that as education increases, so does the inclination towards greater incentives for individual effort. Country-level factors like higher level of GDP per capita, lower unemployment, and reduced income inequalities positively influence support for redistributive policies. These results highlight the complexity of income equality perceptions, suggesting a need for targeted policies, trust-building in institutions, and context-specific approaches to address income disparities effectively. It is important to acknowledge certain limitations in this study. This study utilizes data obtained from 42 different countries that have different social, cultural, and economic characteristics. Nevertheless, it is important to acknowledge that various unexamined characteristics specific to these societies and nations, such as the degree of democracy, freedom of speech, different components of social capital, media and internet censorship, geographical location, and many others, may also influence perceptions of income equality. To comprehensively understand the full spectrum of factors that potentially shape individuals' behavior, future research endeavors may delve into an analysis of these additional aspects.

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Appendix 1. Country Codes and Sample Distribution by Countries

Country Code	Freq.	Percent	Cum.
ARG	620	1.22	1.22
ARM	645	1.27	2.50
AUL	1546	3.05	5.55
BNG	1165	2.30	7.86
BOL	1695	3.35	11.20
BRA	1010	2.00	13.20
CAN	4018	7.94	21.14
CHL	615	1.22	22.35
COL	1520	3.00	25.36
CYP	582	1.15	26.51
CZR	1096	2.17	28.67
ECU	1036	2.05	30.72
ETH	577	1.14	31.86
GMY	1336	2.64	34.50
GRC	916	1.81	36.31
GUA	1070	2.11	38.42
INS	2618	5.17	43.59
JPN	756	1.49	45.09
KEN	1090	2.15	47.24
MAD	929	1.84	49.08
MAL	1304	2.58	51.65
MEX	1453	2.87	54.52
MNG	1611	3.18	57.71
MOR	1200	2.37	60.08
NIC	867	1.71	61.79
NIG	1125	2.22	64.01
NTH	1244	2.46	66.47
PER	1133	2.24	68.71
PHI	1200	2.37	71.08
ROK	1245	2.46	73.54
ROM	705	1.39	74.93
RUS	1063	2.10	77.03
SLO	1027	2.03	79.06
SRB	737	1.46	80.52
TAJ	1200	2.37	82.89
THI	883	1.74	84.63
TUN	882	1.74	86.38
TUR	1919	3.79	90.17
UKR	585	1.16	91.32
URU	841	1.66	92.98
USA	2447	4.83	97.82
ZIM	1104	2.18	100.00
Total	50,615	100.00	

Source: Compiled by the author.

Appendix 2. Frequency Table of Variables

	Freq.	Percent	Valid	Cum.
Dependent Variable: Income equality				
Free market capitalism	29656	58.590	58.590	58.590
Support for redistributive policy	20959	41.410	41.410	100.000
Material well-being				
Low	6109	12.070	12.070	12.070
high	44506	87.930	87.930	100.000
Life-satisfaction				
Low	11482	22.680	22.680	22.680
High	39133	77.320	77.320	100.000
Institutional trust				
Low	9922	19.600	19.620	19.620
Moderate	31694	62.620	62.660	82.280
High	8775	17.340	17.350	99.630
Very	188	0.370	0.370	100.000
Income				
Low	18902	37.340	37.340	37.340
Medium	19689	38.900	38.900	76.240
High	12024	23.760	23.760	100.000
Employment Status				
Other	18432	36.420	36.420	36.420
Unemployed	3868	7.640	7.640	44.060
Student	7705	15.220	15.220	59.280
Housewife	6206	12.260	12.260	71.540
Retirees	6201	12.250	12.250	83.790
Employee	8203	16.210	16.210	100.000
Number of children				
No child	15346	30.320	30.320	30.320
1	8916	17.620	17.620	47.930
2	13372	26.420	26.420	74.350
3	6842	13.520	13.520	87.870
4	3178	6.280	6.280	94.150
5	1369	2.700	2.700	96.850
6	775	1.530	1.530	98.390
7	349	0.690	0.690	99.080
8	221	0.440	0.440	99.510
9	111	0.220	0.220	99.730
10	59	0.120	0.120	99.850

Appendix 2. Frequency Table of Variables (continued)

11	20	0.040	0.040	99.890
12	22	0.040	0.040	99.930
13	8	0.020	0.020	99.950
14	6	0.010	0.010	99.960
15	5	0.010	0.010	99.970
16	1	0.000	0.000	99.970
17	2	0.000	0.000	99.970
18	3	0.010	0.010	99.980
21	3	0.010	0.010	99.990
22	5	0.010	0.010	100.000
23	1	0.000	0.000	100.000
24	1	0.000	0.000	100.000
Place of residence				
Urban	34041	67.250	67.250	67.250
Rural	16574	32.750	32.750	100.000
Sex				
Male	24717	48.830	48.830	48.830
Female	25898	51.170	51.170	100.000
Education level				
Primary school	15794	31.200	31.200	31.200
High school	18325	36.200	36.200	67.410
University	12293	24.290	24.290	91.700
Graduate	4203	8.300	8.300	100.000
Religiosity				
Religious	32374	63.960	63.960	63.960
Not religious	14437	28.520	28.520	92.480
Atheist	3804	7.520	7.520	100.000

Source: Compiled by the author.

Appendix 3. Descriptive Statistics for macro variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Gdppc	50,615	4.255	.378	3.346	4.797
Top10share	50,615	1.464	.069	1.32	1.622
Unemployment	50,615	.709	.265	-.125	1.237
Womenrep	50,615	1.343	.216	.529	1.725

Source: Compiled by the author.

Appendix 4. Matrix of Correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) Material well-being	1.000														
(2) Life satisfaction	0.176	1.000													
(3) Institutional trust	-0.021	0.065	1.000												
(4) Income	0.116	0.186	0.040	1.000											
(5) Age groups	0.064	0.020	-0.017	-0.062	1.000										
(6) Employment status	-0.071	-0.074	0.015	-0.121	-0.057	1.000									
(7) Place of residence	-0.036	-0.046	0.124	-0.092	-0.048	0.074	1.000								
(8) Sex	0.003	-0.004	0.006	-0.028	-0.031	0.173	-0.004	1.000							
(9) Education level	0.119	0.093	-0.064	0.252	-0.037	-0.202	-0.218	-0.033	1.000						
(10) Religiosity	0.066	0.022	-0.065	0.051	0.020	-0.090	-0.154	-0.060	0.190	1.000					
(11) Number of children	-0.075	-0.013	0.041	-0.087	0.414	0.035	0.119	0.044	-0.221	-0.133	1.000				
(12) Gdppc	0.186	0.124	-0.094	0.067	0.255	-0.210	-0.274	0.006	0.250	0.320	-0.160	1.000			
(13) Top10share	-0.144	-0.018	-0.052	-0.081	-0.216	0.110	0.020	-0.012	-0.192	-0.271	0.079	-0.419	1.000		
(14) Unemployment	0.029	-0.039	-0.100	0.015	-0.007	0.057	-0.034	0.023	0.024	-0.083	-0.026	-0.076	0.074	1.000	
(15) Womenrep	0.003	0.075	-0.133	0.022	0.059	0.040	-0.097	-0.011	0.074	0.036	0.000	0.058	-0.018	-0.164	1.000

Source: Compiled by the author.

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