International Journal of Economics, Politics, Humanities & Social Sciences
Vol: 5 Issue: 1 e-ISSN: 2636-8137 Winter 2022

THE RELATIONSHIP BETWEEN LABOR MARKET INDICATORS AND QUALITY OF LIFE: CANONICAL CORRELATION ANALYSIS FOR THE OECD COUNTRIES

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Makale İlk Gönderim Tarihi / Recieved (First): *10.12.2021* ***Makale Kabul Tarihi / Accepted:*** *09.01.2022*

Makale Türü: Araştırma Makalesi **/** ***Article Info*****:** Research Article

Atıf / Cite: Yalçın, E. C. (2022). The relationship between labor market indicators and quality of life: Canonical correlation analysis for the OECD countries, *International Journal of Economics, Politics, Humanities & Social Sciences*, 5(1), 17-28

Abstract

The study aims to measure the relationship between labor market indicators and quality of life. 35 OECD countries were selected as a sample and the data set for the year 2018 was studied. The relevant data set was obtained from the sub-variables of the Better Life Index included in the OECD statistics. The hypothesis that is the subject of the research has been tested by Canonical Correlation Analysis. The labor market canonical variable was measured on the basis of labor market indicators of employment rate, personal earning, long-term unemployment rate and labor market insecurity variables. The canonical variable of quality of life is formed by the variables life expectancy, self-reported health and life satisfaction. As a result of the study, according to the 2018 Better Life Index data in OECD member countries; the variable that contributes the most to obtaining the labor market canonical variable is personal earning also, there is a negative correlation between labor market and labor market insecurity and long-term unemployment rate, and a positive correlation between labor market and employment rate and personal earnings. It was determined that the life satisfaction variable contributed the most in obtaining the canonical variable of quality of life also, there is a positive correlation between quality of life and life expectancy, self-reported health and life satisfaction. A strong positive correlation between the labor market and quality of life canonical variables is among the findings.

Keywords: Job, Labor market, Quality of life, Canonical correlation analysis.

JEL Codes: E24, I31, C38.

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1. Introduction

Today, improving quality of life has become the life goal of individuals, and quality of life is one of the most discussed concepts in social science literature. In this context, the question most asked by scientists can be considered to be "what are the dynamics that affect the quality of life". Scientists from different disciplines have given different answers to this question. For example, psychologists have studied the impact of well-being, hedonic or economic pleasures on the quality of life, while economists have tried to understand the impact of issues such as income, health and education on quality of life. The field of marketing focuses on the relationship between quality of life and consumption, while the field of public administration studies the impact of services provided in the public sphere on quality of life. The current research focuses on the relationship between the dynamics of working life and the quality of life, which is considered to be a macro reflection of the concept of "work", which is the dream of every person in modern society.

Working life is defined as an area where individuals have been preparing for many years, receiving education, earning income, socializing, being a member of society and expressing themselves. In this aspect, working life can be considered as a "path" that every individual goes through. In addition, working life is assessed as related to the quality of life of an individual in terms of income generation, inclusion in the social security system, use of health services and establishment of social relations. From this point of view, it is thought that there is a definite link between the labor market and quality of life. As a matter of fact, it is believed that dynamics such as employment rate and job-related earnings, which are indicators of the labor market, act in connection with dynamics such as life expectancy at birth and life satisfaction, which are indicators of quality of life. On the other hand, a similar link can be established in the opposite direction for long-term unemployment and insecurity in the labor market, which are also indicators of the labor market.

In this context, the current research aims to examine the relationship between current OECD data, labor market indicators and quality of life using canonical correlation analysis. As a matter of fact, the research has a significant difference in terms of Turkish social sciences literature in by using this technique. In the first part of the study, the concepts of labor market and quality of life were included, and in the second part, the correlation between labor market and quality of life was discussed. In the third section, details about the study method are given, and in the last section, the study results are evaluated.

2.Conceptual Framework

The aim of this study is to examine the relationship between labor market and quality of life. Therefore, first of all, the concepts of the labor market and its indicators, quality of life will be studied. The related variables were constructed based on the sub-indicators of the OECD Better Life Index.

2.1. Labor Market and Indicators

The concept of the labor market is characterized as a market in which the supply of labor is exchanged for labor demand. The laws of supply and demand apply in this market. In this context, the labor market is expressed as an environment where the supply and demand of labor are met, where the wage and working conditions that are the price of labor are determined (Gündoğan and Biçerli, 2013: 4). Labor markets have significant effects on the individual, society and the economy. The dynamics of the labor market is measured by the OECD through the employment rate, job-related earnings, labor market insecurity and long-term unemployment.

Employment is defined as the inclusion of individuals providing their labor with their free will in order to meet their needs, the needs of their dependents and increase their welfare level, together the

natural resources and capital factors, in the production process and paid in return for the value they provide in production. The employment rate is measured as a percentage (%) per unit and shows how much of the population in a country is employed in the labor market (Başol & Yalçın, 2020:888). The employment rate is one of the important indicators of labor markets and is calculated by the ratio of individuals employed in a particular period in a country to the active population (Employment Rate = Employed / Active Population * 100) (Işığıçok, 2011: 22). The increase in this rate is an indicator that individuals in the country are involved in working life at a higher rate, and the employment rate in general is higher in developed countries.

The work-related earnings variable is measured in US dollars ($) per unit and shows the average income of individuals in the country only from the employment they are involved in. An increase in this value indicates that the income obtained due to work, that is, income itself, has increased (Korkmaz, 2021: 27-29). The primary reason why employees expect financial gain in return for their work is due to the fact that wages are an important tool in meeting the physiological needs necessary to continue their lives. Along with globalization, the expectations of individuals have also increased, and the expectation of material gain has also increased (Sağır, 2016: 421). As a matter of fact, the work that individuals undertake and the profits they earn from this work also increase well-being (Akar, 2014: 6).

In this context, the employment rate and work-related earnings variables represent positive indicators of the labor market. Accordingly, an increase in the employment rate and work-related earnings in a country indicates that the positive labor market indicators in the country have improved, which can create income for employees, and the volume of the labor market has increased.

Labor market insecurity is defined as the expected loss of earnings, measured as a percentage of previous earnings related to unemployment, and is measured in percent (%). This loss is the rate that varies depending on the risk of becoming unemployed, the duration of unemployment and the state's financial support for the unemployed in the face of these losses (https://stats.oecd.org/Index.aspx?DataSetCode=BLI). The increase in this rate indicates that the risk of unemployment in the country is high and the social protection facilities provided are insufficient (Ataştöken & Yalçın, 2020: 207).

The unemployment rate gives the proportion of the workforce who do not have a job in the workforce but are seeking employment. In measuring unemployment in the total labor force, the number of unemployed and those who are not included in the labor force is used. The ratio is calculated by using the formula “unemployed / labor force * 100" (Işığıçok, 2011: 32). The unemployed in the countries are evaluated in two separate forms in terms of duration. First of all, unemployment is considered as short-term less than 12 months and long-term. As a matter of fact, the OECD shows unemployment statistics with long-term unemployment in terms of labor market indicators. The long-term unemployment rate is the proportion of the workforce that has not had a job in the workforce for more than 12 months but is seeking employment, and is measured as a percentage (%). An increase in the unemployment rate, which is considered an indicator of macroeconomic stability, means that the number of available jobs is decreasing and the employment opportunities and the economy are decreasing, while a decrease in the unemployment rate means an expansion in the economy (Işığıçok, 2011: 33). Especially in times of crisis, the continuity of unemployment and the possibility of moving from employment to unemployment increases (Güneş, 2019: 335).

Labor market insecurity and unemployment rate variables represent negative indicators of the labor market. Accordingly, an increase the level of labor markets insecurity in a country and the increase in the unemployment rate indicate that the negative labor market indicators in the country are increasing.

2.2. Quality of Life

Quality of life is a multidisciplinary concept that has a fairly wide scope, ranging from sociology to health sciences, and is considered by many different disciplines. According to the World Health Organization, quality of life is "the ability of individuals to determine their own position in relation to their goals, expectations and concerns in the socio-cultural environment in which they live. Quality of life is also defined as a highly complex process that is directly related physical and mental state, social relationships, personal beliefs and state of freedom." (WHO, 1997: 3). Quality of Life is defined by Shin and Johnson (1978: 478); as "a universal evaluation of the quality of life according to the criteria chosen by the person"; while Pavot and Diener (1993: 102) describe quality of life as "the subjective and cognitive judgments that individuals reach by comparing the criteria they want to achieve in life and the outputs they have achieved". The United Nations (1997: 61) defines quality of life as "human well-being measured by social indicators rather than quantitative income and production".

It is seen that different variables are used in the literature to measure quality of life. For example, some authors consider quality of life with the indicators of life satisfaction, educational status, and health (Cambell et al., 1976: 267); others consider indicators such as income, life satisfaction, occupation and health (Tüzün and Eker, 2003: 5-6); Walker and van der Maesen, 2004: 29-30; Aydıner Boylu and Paçacıoğlu, 2016: 138); while others consider the indicators of economic situation, ecological and physical environment, health, social justice and quality of available public services (Sarı & Kındap, 2018: 44). In this study, the quality of life variable was measured with the sub-indicators defined by Başol & Çıtak (2020: 173) and Sevgi & Başol (2020:1550). Accordingly, life expectancy, self-reported health and life satisfaction used in the OECD Better Life Index were used to measure the quality of life variable (Başol & Çıtak, 2020: 173). Accordingly, life satisfaction shows the numerical response that individuals give to the question of how satisfied they are with their lives, ranging from 0 to 10 The decrease in this number indicates that the average life satisfaction in the country is decreasing, and the increase indicates that the life satisfaction in the country is increasing. The expected life expectancy at birth is measured in years. Finally, it is the state of self-reported health. This variable refers to the proportion of those with self-reported good health in a survey study conducted among individuals aged 15 and over. A decrease in this rate indicates a decrease in the rate of those with self-reported good health, whereas an increase indicates that the rate of those self-reporting as healthy has increased (Sevgi & Başol, 2020:1550).

In general, the lengthening of an individual's life expectancy, an increase in the average level of life satisfaction, and an increase in the rate of feeling healthy indicate that an individual's quality of life is improving.

2.3. Relationship Between Labor Market Indicators and and Quality of Life

When considered from both micro and macro perspectives, it can be said that there is a positive relationship between labor markets and quality of life (Yoshikane, 2010; Flavin, Pacek & Radcliff, 2010: 446; Bir, 2019). Accordingly, an increase in the employment rate and the level of job-related earnings in a country, and on the other hand, a decrease in the rate of long-term unemployment and labor market insecurity strengthen labor market indicators, which in turn has a positive effect on the quality of life in the country. According to the findings in literature, it is possible to state that there is a positive relationship between labor market indicators and quality of life. Accordingly, the following hypothesis was put forward in the present study.

H_1: There is a positive correlation between labor market indicators and quality of life.

3. Method

In this study, the direction and degree of the correlation between labor market indicators and quality of life in OECD countries were attempted to be revealed by utilizing canonical correlation analysis (CCA). In this section, the mathematical expression of CCA is given.

3.1. Canonical Correlation Analysis (CCA)

Canonical correlation analysis, first proposed by Hotelling (1936), is a multivariate statistical analysis method that analyzes the relationship between two sets of variables in which each set contains two or more variables (Thompson, 1984: 11). In CCA, it is not necessary that the number of variables in the data sets be equal. (Alpar, 2017: 757). When determining the relationship between two data sets, CCA uses canonical variables derived as a linear function of dependent and independent variables (Bektaş and Tekin, 2013: 320).

Assume that there are p variables in the first variable set and q variables in the second variable set, with p and q greater than 1. The new pairs of variables (U_i, V_j) consisting of linear combinations of variables, are called canonical variables. The process of obtaining canonical variables is as follows (Johnson and Wichern, 2002: 543-545):

The *(p×1)* dimensional random vector *X* and the *(q×1)* dimensional random vector *Y* represent the first and second groups, respectively. The correlation matrix of all variables consists of four parts: R_{XX}: correlation within *X* variables; R_{YY}: correlation within *Y* variables; R_{XY}: Correlation between *X* and *Y* variables and R_{YX}: Correlation between *Y* and *X* variables. The aim of CCA is to obtain a linear component of the variables of each cluster with maximum correlation and unit variance. Obtaining as many linear components as the smallest element variable set provides simple summary measures of a set of variables. Set

$$U = a'X$$

$$V = b'Y$$

for some pair of coefficient vectors a and b. The maximum canonical correlation r_1 finds a and b as follows:

$$r_1 = max\ Corr(U,V) = max \frac{a'R_{XY}b}{\sqrt{a'R_{XX}a}\sqrt{b'R_{YY}b}}$$

In order to obtain the canonical coefficients, the correlation coefficients between all variables are calculated first. In order to maximize the correlations between the U and V canonical variables, the correlation coefficient where the a and b coefficients are maximum is obtained. Before interpreting the findings obtained as a result of the analysis, it is necessary to test the statistical significance of the canonical correlation coefficients. Accordingly, the null hypotheses used are formed as follows.

$$H_0: r_1 = r_2 = \cdots = r_i, \qquad i\text{=the number of canonical correlations}$$

Wilks' Lambda, Pillai's Trace, LawleyHotelling Trace, Roy's Largest Root and Barlett methods are the most commonly used methods for testing hypotheses.

Wilk' lambda statistic is

$$\Lambda_1 = \prod_{i=1}^{k}\left(1 - r_i^2\right)$$

and is a likelihood-ratio statistics. For small values of Λ_1 the null hypothesis is rejected. Pillai's trace for canonical correlation is

$$V^{(k)} = \sum_{i=1}^{k} r_i^2$$

and the Lawley-Hotelling Trace is

$$U^{(k)} = \sum_{i=1}^{k} \frac{r_i^2}{1 - r_i^2}$$

On the other hand Roy's Largest Root is $\theta = r_1^2$.

Before applying CCA, it should be tested whether certain assumptions are met. The first assumption is that multiple normality must be provided for sets of variables in data sets. Secondly, since the canonical correlation algorithm works by maximizing the linear relationship of the variables in the two data sets, the relationship between canonical pairs must be linear. In other words, there should be a linear relationship between the variables. Another assumption is that there are no extreme values depending on the normality in the data (Alpar, 2017:760). In the light of these assumptions, the multivariate normality and linearity of the variables in the two sets of variables were first investigated in the current study and whether there were deviating observations was determined.

4. Data and Findings

In accordance with the purpose of the current study, the 2018 Better Life Index for OECD countries was studied with the indicators. According to the BLI, the labor market indicators variable set consists of labor market insecurity, employment rate, long-term unemployment rate and personal earnings. As the dependent variable, life expectancy, self-reported health and life satisfaction variables define the quality of life variable set. Information on the variables used in the analysis is provided in Table 1.

Table 1. Variables used in the study

(Latent) Variables	Indicators	Coding
Labor Market Indicators (U)	Labor Market Insecurity	X_1
	Employment Rate	X_2
	Long-term Unemployment Rate	X_3
	Personel Earnings	X_4
Quality of Life (V)	Life Expectancy	Y_1
	Self -reported Health	Y_2
	Life Satisfaction	Y_3

The initial sample, which is the subject of the study, consists of 37 countries that are members of the OECD. Due to the fact that linearity and multiple normality assumptions could not be provided at first in the testing of CCA assumptions, the deviating observations were excluded from the sample. The countries excluded from the sample due to deviating observations are Greece and Spain. Thus, the number of sample countries used in the analysis decreased to 35. Descriptive statistics of the groups of variables subjected to analysis in the study are given in Table 2.

Table 2. Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
X_1	5.55	3.04	0.7	12.5
X_2	70.00	6.44	52	86
X_3	1.95	1.48	0.05	6.59
X_4	40274.00	13281.11	15314	63062
Y_1	80.41	2.65	74.7	84.1
Y_2	67.15	14.24	33	88
Y_3	6.65	0.69	5.4	7.6

Assumptions have been tested before applying CCA. Firstly, Q-Q plots were checked to determine whether the variables provided the linearity assumption. Then, multivariate normality tests were applied. For testing of multivariate normalities, Doornik-Hansen (2008) omnibus test and both bivariate and multivariate normality tests were applied. The Doornik-Hansen multivariate normality test results are given in Table 3.

Table 3. Doornik-Hansen test results for bivariate and multivariate normality

Doornik-Hansen test for bivariate normality				
Pair of variables		*chi2*	*df*	*Prob>chi2*
X_1	X_2	4.08	4	0.3954*
	X_3	1.51	4	0.8253*
	X_4	5.59	4	0.2323*
X_2	X_3	7.39	4	0.1166*
	X_4	2.35	4	0.671*
X_3	X_4	7.09	4	0.1311*
Y_1	Y_2	10.38	4	0.0345*
	Y_3	8.98	4	0.0615*
Y_2	Y_3	3.88	4	0.4223*
Test for multivariate normality				
Doornik-Hansen (X_i)		chi2(8)= 2.469		Prob>chi2 = 0.963*
Doornik-Hansen (Y_i)		chi2(6)= 7.442		Prob>chi2 = 0.281*

* p > 0,05

According to Table 3, the Doornik–Hansen test does not reject the null hypothesis of multivariate normality for all variables.

For all canonical correlation functions, Wilk's lambda and corresponding probability values are obtained. Thus, the test of the null hypothesis that the canonical correlation coefficients are zero is tested. Table 4 shows the results of the significance tests of all canonical correlations (canonical functions).

Table 4. Tests results of significance of canonical correlations

Tests of significance of all canonical correlations					
	Statistic	***df1***	***df2***	***F***	***prob***
Wilks' lambda	0.168419	12	58.498	4.6829	0.000
Pillai's trace	1.24751	12	72	4.2711	0.000
Lawley-Hotelling trace	2.79018	12	62	4.8053	0.000
Roy's largest root	1.93162	4	24	11.5897	0.000
Tests of significance of canonical correlations 1-3					
	Statistic	***df1***	***df2***	***F***	***prob***
Wilks' lambda	0.168419	12	58.498	4.6829	0.000
Tests of significance of canonical correlations 2-3					
	Statistic	***df1***	***df2***	***F***	***prob***
Wilks' lambda	0.49374	6	46	3.2442	0.0096
Tests of significance of canonical correlations 3					
	Statistic	***df1***	***df2***	***F***	***prob***
Wilks' lambda	0.770953	2	24	3.5651	0.0441

According to Table 4, all canonical correlation coefficients are statistically significant, $p < 0.05$. Thus, it is possible to say that the three canonical functions that will be created are statistically significant. In order to generate the functions, it is necessary to calculate the standardized correlation coefficients and canonical loads. Table 5 represents standardized canonical coeeficients and canonical loadings for all canonical functions.

Table 5. Standardized coefficients and canonical loadings for variable sets, canonical correlations

	First Canonical Function		**Second Canonical Function**		**Third Canonical Function**	
U (Labor Market Indicators)	***Std. Coeficients***	***Loading***	***Std. Coeficients***	***Loading***	***Std. Coeficients***	***Loading***
X_1	-0.1666	-0.5733	1.2698	0.783	-0.8622	0.1711
X_2	0.1048	0.5537	-0.1576	-0.3675	-0.1970	-0.3998
X_3	-0.0632	-0.3828	-0.4721	0.4312	1.3293	0.7904
X_4	0.8542	0.9626	0.6592	0.2297	0.1284	0.1409
V (Quality of Life)	***Std. Coeficients***	***Loading***	***Std. Coeficients***	***Loading***	***Std. Coeficients***	***Loading***
Y_1	0.4619	0.7537	0.0999	0.0158	0.9897	0.6570
Y_2	-0.1740	0.5553	1.5135	0.7608	0.1632	-0.3359
Y_3	0.8408	0.8902	-1.0286	0.1488	-0.9397	-0.4305

	First Canonical Function	Second Canonical Function	Third Canonical Function
Canonical Correlation Coefficient (R_c)	0.8117	0.5996	0.4786

The interpretation of standardized canonical coefficients is similar to the interpretation of standardized coefficients in regression. From this point of view, according to Table 5, in the first canonical function, X_4 makes the most important contribution to obtaining the canonical variable U. Similarly, variable Y_3 contributes the most to the formation of the canonical variable V. Canonical loads are preferred instead of standardized canonical coefficients in the interpretation of canonical models.

The loadings are correlations between variables and the canonical variates. For the *u*-variables, X_4 is most closely related to the first canonical function, and X_1 is most closely related to the second canonical function, and X_3 is most closely related to the third canonical function. For the *V*-variables, Y_3 is most closely related the first canonical function, and Y_2 is most losely related to the second canonical function, and Y_1 is most closely related to the third canonical function. The strength of the relationship between the pairs of variates is reflected by the CCA coefficient (*Rc*). For the first function, *Rc* = 0.8117. For the second function, *Rc* = 0.5996. For the third function, *Rc* = 0.4786.

Canonical redundancy analysis is used to decide which of the three obtained functions should be used. Redundancy analysis results for each canonical function are given in Table 6.

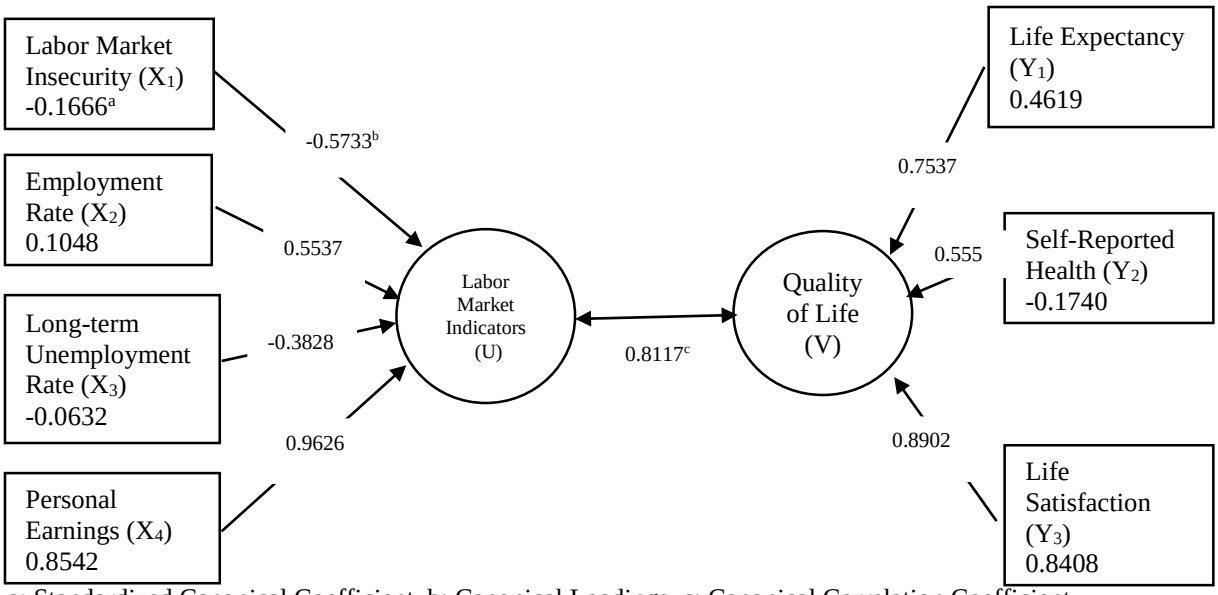
Table 6. Canonical Redundancy Analysis for Canonical Correlations

		First Canonical Function	Second Canonical Function	Third Canonical Function
U (Labor Market Indicators)	*Percent of Variance*	0.4271	0.2467	0.2084
	Redundancy (R_d)	0.2814	0.0887	0.0477
V (Quality of Life)	*Percent of Variance*	0.6000	0.1820	0.1885
	Redundancy (R_d)	0.3953	0.0654	0.0432

Redundancy *(R_d)* is percent of variance in one set of original variables explained by the other set's canonical variable. According to Table 6, the highest value of the redundancy index of the set of U variables was calculated as 28.14% in the first canonical function, and the highest value of the redundancy index of the set of V variables was calculated as 39.53% in the first canonical correlation function. When the second function is examined, it is observed that the redundancy index is 8.87% for the set of U variables and 6.54% for the set of V variables. The third canonical function similarly has an approximate redundancy value of 4% for the set of variables U and V. While the second and third canonical functions are statistically significant in this context, they have practically no meaning due to the fact that they explain a small proportion of the change in the opposite set.

As a result, the canonical correlation model (First canonical function) obtained from CCA is summarized in Figure 1.

Figure 1. Canonical Correlation Model



a: Standardized Canonical Coefficient, b: Canonical Loadings, c: Canonical Correlation Coefficient.
Source:

As a summary of all findings, according to the canonical correlation model (Figure 1) the variable that contributes the most to obtaining the labor market canonical variable is personal earning (0.8542). At the same time, there is a negative correlation between labor market indicators and labor market insecurity (-0.5733) and long-term unemployment rate (-0.3828), and there is a positive correlation between employment rate (0.5537) and personal earnings (0.9626). The life satisfaction (0.8408) variable contributed the most in obtaining the canonical variable of quality of life. There is a positive correlation between quality of life and life expectancy (0.7537), self-reported health (0.555) and life satisfaction (0.8408). There is a strong positive relationship between labor market indicators and quality of life canonical variables (Rc=0.8117). In other words, as the labor market indicators improve, quality of life will also improve.

5.Conclusion

The current study aims to eliminate an important gap in the literature in terms of being the first study to examine the relationship between labor market indicators and quality of life by utilizing the canonical correlation method for OECD countries. As a result of the analysis carried out, it is possible to say that 3 important findings were reached. First, the results show that two canonical groups are formed. The first of these groups is labor market indicators, while the second is quality of life indicators. When the labor market indicators are examined, it has been observed that the variables “job-related earnings” and “employment rate” have a positive effect on the labor market variable, while the variables “labor market insecurity” and “long-term unemployment rate” have a negative effect on labor market indicators. It has also been determined that the most dominant variable for the labor market indicators variable is “job-related earnings”. This result essentially confirms a finding that has been repeated frequently in the studies conducted to date. Accordingly, income is the most important indicator of the labor market in terms of enabling the individual to express himself, to be present in social life and self-realization. Of course, the employment rate, the unemployment rate and the labor market insecurity are also among the indicators of the labor market, however, in terms of being one of the characteristics that distinguishes the labor market from other markets, income is both the sole source of livelihood of the

individual and the individual can earn income in a job at the same time due to the fact that it is an asset with time and space constraints. This result indicates that income has a special place among labor market indicators.

Another finding obtained as a result of the study is; the variables of "life satisfaction", "life expectancy" and "self-reported health" constitute the quality of life variable, respectively, and all of the aforementioned variables positively affect the variable of quality of life. Here, too, the striking finding is the dominant character of life satisfaction. Accordingly, the most important indicator of quality of life was determined as life satisfaction. While variables such as education, health, participation in democratic rights can also be an indicator of quality of life, the result obtained is an indicator of how important life satisfaction is from the studies conducted in this context.

The last finding obtained as a result of the study is that there is a strong and same-sided relationship between "labor market indicators" and "quality of life". This result has been confirmed by different studies. Accordingly, improvements in job-related earnings and employment rate, long-term unemployment rate and insecurity in labor markets in a country move together with variables related to an individual's life satisfaction, expected lifespan and self-reported health. In other words, work depends on life and life depends on work.

The current study was conducted only for 2018 and only for 35 OECD member countries. In this sense, it should be taken into consideration that the findings may also be different in the analyses to be carried out through different variables. In addition, in the study, labor market indicators and quality of life were measured within the scope of the variables mentioned above. Another limitation of the study is that different modelling and analysis techniques can be used to analyse the impact of labor market indicators on quality of life indicators. At this point, the fact that the time dimension of the data set is likely to be small did not make it possible to apply panel regression modelling. It should be noted that different results may be obtained with different regression modelling techniques (Structural equation modeling, Panel Data Analysis, etc.).

References

Akar, S. (2014). Türkiye'de İyi Yaşam İndeksi: OECD Ülkeleri ile Karşılaştırma. Journal of Life Economics, 1(1): 1-12.

Alpar, R. (2017). *Uygulamalı Çok Değişkenli İstatistiksel Yöntemler*. Detay Yayıncılık: Ankara.

Ataştöken, G. & Yalçın, E.C. (2020). Eğitimin Emek Piyasası Üzerine Etkisi: OECD Ülkeleri Üzerine Bir Araştırma. Kırklareli Üniversitesi Sosyal Bilimler Dergisi, 4(2), 204-220.

Aydıner Boylu, A. & Paçacıoğlu, B. (2016). Yaşam Kalitesi ve Göstergeleri. Akademik Araştırmalar ve Çalışmalar Dergisi, 8(15), 137-150.

Başol, O & Çıtak, E. (2020). OECD Ülkelerinde İş-Yaşam Çatışmasının Yaşam Kalitesi Üzerindeki Etkisi. Kırklareli Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 9(2): 167-185.

Başol, O. & Yalçın, E. C. (2020). Sendikaların Emek Piyasası Üzerindeki Etkileri: OECD Ülkeleri Üzerine Bir İnceleme. Sosyal Politika Çalışmaları Dergisi, 20(49): 879-898.

Bektaş, H. & Tekin, M. (2013). Finansal Oranlar ve Borsa Performans Oranları İlişkisi: İMKB'de İşlem Gören Bankaların Kanonik Korelasyon Analizi. Marmara Üniversitesi İ.İ.B. Dergisi, 34(1): 317-324.

Bir, J. (2019). Work-Life Balance: From Legal Texts To Real Progress For Working People. https://www.socialeurope.eu/work-life-balance-from-legal-texts-to-real-progress-for-working-people, (02.01.2020).

Campbell, A., Converse, P. E. & Rodgers, W. (1976). *The Quality Of American Life: Perceptions, Evaluations, And Satisfactions.* New York: Russell Sage Foundation.

Dattalo, P. V. (2014). *A Demonstration Of Canonical Correlation Analysis With Orthogonal Rotation To Facilitate İnterpretation.* Unpublished manuscript. School of Social Work, Virginia Commonwealth University, Richmond, Virginia.

Doornik, J. A., & H. Hansen. 2008. An Omnibus Test For Univariate And Multivariate Normality. Oxford Bulletin of Economics and Statistics, 70: 927–939.

Flavin, P., Pacek, A. C. & Radcliff, B. (2010), Labor Unions and Life Satisfaction: Evidence from New Data. Springer Science+Business Media, 98: 435-449.

Gündoğan, N. & Biçerli, M. K. (2013). *Çalışma Ekonomisi.* Eskişehir: Anadolu Üniversitesi Yayınları, Yayın No: 1641.

Güneş, C. (2019). İşgücü Piyasası Durumları Arasındaki Geçişlerin Markov Modelleri ile İncelenmesi. Sosyal Güvenlik Dergisi; 9(2). 335-360.

Işığıçok, Ö. (2011). *İstihdam ve İşsizlik*. Bursa: Ekin Yayınları.

Johnson, R.A. & Wichern, D. W. (2002). *Applied Multivariate Statistical Analysis.* Pearson Education, Prentice-Hall Inc, New Jersey.

Korkmaz, Ö. (2021), Is Labor Productivity Linked to Real Wages? An Empirical Study of the Turkish Manufacturing Sector, Verimlilik Dergisi, 2: 25-48.

Pavot, W., Diener, E. (1993). Review Of The Satisfaction With Life Scale. Social Indicators Research Series, 39: 101-117

Sağır, M. (2016). İşveren Markası Algısı: İnsan Kaynakları Faaliyetleri, Çalışma Ortamı ve Tazminat-Kazanç Boyutları ile Turizm Fakültelerinde Bir Uygulama. Mehmet Akif Ersoy Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 8(14): 415-439.

Sarı, V. İ. & Kındap, A. (2018). Türkiye'de Kentsel Yaşam Kalitesi Göstergelerinin Analizi. Sayıştay Dergisi, 108, 39-72

Sevgi, H. & Başol, O. (2020). Endüstri İlişkilerinin Gelişmesinin Yaşam Kalitesine Etkisi: OECD Ülkeleri Üzerine Bir İnceleme. Çalışma ve Toplum, 3:1541-1556.

Shin, D. C. & Johnson. D. M. (1978). Avowed Happiness As An Overall Assessment Of The Quality Of Life. Social Indicators Research, 5: 475-492.

Thompson, B. (1984). *Canonical Correlation Analysis: Uses and Interpretation (Quantitative Applications in the Social Sciences)*. Sage Publications,Inc, London.

Tüzün, H. & Eker, L. (2003). Sağlık Değerlendirme Ölçütleri ve Yaşam Kalitesi. Sağlık ve Toplum Dergisi,13(2), 3-8.

United Nations (1997). Glossary of environment statistics, Studies in Methods. Series F, No. 67, United Nations, New York. https://unstats.un.org/unsd/publication/SeriesF/SeriesF_67E.pdf.

Walker A. & van der Maesen L. (2004). Social Quality And Quality Of Life. In: Glatzer W, Von Below S, Stoffregen M (Eds) Challenges For Quality Of Life İn The Contemporary World. Kluwer, The Hague, pp 13–32, Springer: Dordrecht.

WHO (1997), Mesauring Quality of Life, https://www.who.int/mental_health/media/68.pdf, (04.12.2021)

Yoshikane, A. (2010). Labor Unions a Key to Happiness, New Report Says. http://inthesetimes.com/working/entry/6512/study_says_labor_unions_impr oves_quality_of_life/, (02.01.2020)