

Gelir vergisi ve işsizlik ilişkisinin dönemsel analizi: Türkiye'ye dair ampirik kanıtlar

Şahin Ay¹, Süleyman Çelik²

^{1,2} Siirt University, Kurtalan Vocational School Public Finance Program, Siirt, Türkiye.

ÖZET

Vergi gelirlerinin artırılması devletler için oldukça önemlidir. Bazı makroekonomik göstergelerin vergi gelirlerini ne denli etkilediği bu doğrultuda incelenmesi gereken önemli konular arasında yer almaktadır. Bu çalışmada Türkiye'de gelir vergisinde meydana gelen değişimlerin işsizlik düzeyinde nasıl bir etki ortaya çıkardığı araştırılmıştır. Çalışmada kullanılan veriler; Hazine ve Maliye Bakanlığı ve IMF online veri tabanlarından alınan 2005-2023 yılları arasındaki verileri kapsamaktadır. Birim kök analizi için ADF birim kök testi, uzun dönem eşbütünlük ilişkisinin tespiti için ARDL sınır testi, değişkenler arasında dönemsel nedensellik ilişkisinin belirlenmesi için Breitung-Candelon Frekans Alanı nedensellik testi ve son olarak bağımsız değişkenin bağımlı değişken üzerindeki etkisinin yönü ve derecesinin tespiti için uzun dönem katsayı tahmincileri kullanılmıştır. Araştırmanın sonucunda gelir vergisinin işsizlik üzerinde kısa, orta ve uzun dönemde etki sahibi olduğu tespit edilmiştir. Ayrıca işsizlikte orta ve uzun dönemde gelir vergisini etkilemektedir. Son olarak uzun dönem parametre katsayı tahmini testlerinden olan OLS, FMOLS ve CCR sonuçlarına göre bütün tahmincilerde gelir vergisi değişkeninin katsayıları istatistiksel olarak anlamlı çıkmış ve gelir vergisi düzeyi ile işsizlik düzeyinin pozitif yönlü etkileşim içinde olduğu görülmüştür. Bundan kaynaklı olarak gelir vergisinde meydana gelen artışlar uzun dönemde işsizliği artırmaktadır.

ANAHTAR KELİMELER

Vergi, gelir vergisi, işsizlik.

A cyclical analysis of the relationship between income tax and unemployment: Empirical evidence for Türkiye

ABSTRACT

Increasing tax revenues is very important for states. Among the crucial topics that require investigation in this context is the impact of certain macroeconomic variables on revenue from taxes. This study investigated the impact of Türkiye's income tax revisions on the country's unemployment rate. From 2005 until 2023, information from the Ministry of Treasury and Finance's and the IMF's online databases was used for the study. The Breitung-Candelon Frequency Domain causality test was used to determine the periodic causality relationship between variables, the ADF unit root test was used to analyze unit roots, the ARDL bounds test was used to determine the long-term cointegration relationship, and the long-term coefficient was used to determine the direction and strength of the independent variable's effect on the dependent variable estimators. As a result of the research, it was determined that income tax has an effect on unemployment in the short, medium and long term. Additionally, unemployment affects income tax in the medium and long term. Finally, according to the results of OLS, FMOLS and CCR, which are long-term parameter coefficient estimation tests, the coefficients of the income tax variable were statistically significant in all estimators and it was seen that the income tax level and the unemployment level had a positive interaction. Thus, raising income taxes eventually results in higher unemployment in long term.

KEYWORDS

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Introduction

Following the Industrial Revolution, a new global order evolved that brought with it new priorities, requirements, and lifestyle choices for individuals. Numerous new business sectors and individuals who will work for them have been required as a result of the rise of various industries. There is now a great deal of competition in the workplace in the following process due to the existence of people who will work in new business lines in the historical process and the fact that these people eventually try to protect their existing positions. Unemployment is not only an economic indicator, but also a sociological and psychological indicator. It is known that unemployment has a relationship with many economic variables. Taxes, which are the most important source of income for states, also have a relationship with unemployment. Specifically, there is disagreement over the impact of income taxes on unemployment. The fact that taxpayers who pay income tax on wages are dealing with income tax tariffs with increasing rates leads to an increase in the tax burden. However, there are some costs that wage earners also impose on the employer. The increase in some obligations, such as insurance premiums paid by the employer on the payroll, leads to an increase in unemployment in some countries. The level of development of countries and tax morale also affect the relationship between the employee and the employer. Again, along with these, some structural changes experienced within the scope of the economic conjuncture affect the tax paying habits of individuals. Individuals who make a vital priority ranking for the income they receive can act together with employers in some cases and lead to a decrease in tax revenues, which will result in the favor of the employer and against the state. The fear of losing your existing employment is a common cause of this circumstance. What tax arrangements should be put in place to lower the unemployment rate is crucial in this situation. Nonetheless, another crucial area that has to be focused on in the same way is the analysis of how employment affects tax revenue growth. This study aims to determine the impact of changes in income tax in Türkiye in the period 2005-2023 on the unemployment level. In this context, after the introduction, the conceptual framework of the subject is included in the second section. The third section provides a literature summary of the studies conducted in this field, while the fourth section includes materials and methods. The fifth section includes an econometric analysis of the research, and the sixth section, the conclusion, summarizes and interprets the findings.

Conceptual Framework

Income taxes are the most significant kind of taxes in modern tax systems. Within the Turkish Tax System, income is subject to two distinct tax types: corporation tax and income tax. There are variations in this scenario in certain nations when the tax systems of other nations are examined. In certain nations, income taxes is governed by a single legislation with distinct provisions for taxing the incomes of natural and legal persons. However, in Türkiye, there are two distinct laws, the Income Tax law and the Corporate Tax Law (Öncel et al., 2017, p. 34).

The Income Tax System in force in Türkiye is a system that was taken verbatim from the German Tax System and put into effect in 1950. There are tax types such as dividend tax, which was collected on various trade and artistic activities before 1950, tithe tax, which is collected from agricultural products, and profit tax, which was replaced by dividend tax in 1926 and is collected from people interested in trade and agriculture. Income Tax Law No. 193, which came into force in 1961, is still in force today (Pehlivan, 2013, p. 151, 152). Taxation of income, which is the best indicator of the ability to pay taxes, is fulfilled by the Income Tax Law (Üyümez and Gümüş, 2016, p. 2010).

In the first article of the Income Tax Law, the expression income is explained as follows. Income is the net amount of earnings and income earned by a real person within a calendar year. In

Article 2 of the same law, earnings and revenues subject to income tax are listed under seven different headings. These are respectively; in the form of commercial earnings, agricultural earnings, wages, self-employment earnings, real estate capital income, movable capital income and other earnings and income (Income Tax Law No. 193). It is acknowledged that, for the purposes of the applicable laws, income derived from labour is referred to as a wage, income derived from labour and capital combined is referred to as earnings, and income derived from capital alone is referred to as income. It should be noted that among the income components, wages and self-employment earnings are considered labour income, real estate capital income and movable capital income are considered wealth income, and commercial and agricultural profits are considered enterprise income (Bilici, 2019, p. 13). Within the scope of income tax, the income obtained from the relevant partnerships is also subject to income tax, since the dividends of the partners of the general partnership, ordinary partnership partners, ordinary limited company partners and the limited partners of the limited company whose capital is divided into shares are considered as the personal income tax of the partners (Şenyüz et al., 2017, p. 9). Even though it is well recognised that income taxes play a significant role in GDP, Türkiye's position is clearly not favourable when compared to other nations. Türkiye has the lowest income tax rate among OECD countries between 1965 and 2016, with the lowest rates being found in Chile, Slovakia, and Mexico (OECD, 2019).

Income tax is one of the important elements in the issue of taxes on employment and similar financial obligations, which cause debates whether they can be counted as one of the causes of unemployment. Given that income taxes account for a sizable portion of all taxes and are the state's primary source of revenue, the tax wedge issue is quite critical.

Full employment is the situation in which all production factors, expressed as labor, capital, land and enterprise, are used in production and are not idle in an economy. The labor factor, which is among the production factors, has a different structure than other factors. It is not feasible to include the days that were not worked in the following method because labour is dependent upon the worker. The inability to sell labour results in unemployment, which in turn produces a host of socioeconomic issues (Dinler, 2007, p. 471, 472). Fighting unemployment is a very important phenomenon within the scope of the responsibilities of states. When the unemployment problem is wanted to be solved within the scope of tax policies, the economic function of the tax is fulfilled. The current employment level in the country is among the basic economic indicators. In order to solve the unemployment problem, all monetary and fiscal policies must work in harmony, as well as tax regulations (Hotunluoğlu and Arslaner, 2016, p. 1638).

Literature Summary

Kömürcüler (2008) in his study covering the years between 1923 and 2007, stated that reducing the tax burden in Türkiye would reduce unregistered employment in the context of the payable tax burden. However, when the tax burden on wages was examined, it was determined that Türkiye ranked first among OECD countries, but was close to the average of EU countries. Again, in his study, he concluded that reducing the tax burden on the minimum wage in EU countries increases employment and reduces the unemployment rate.

According to Bozdağlıoğlu's (2008) research, lowering income tax and corporate tax rates as well as offering tax exemptions for all earnings transferred to investments are necessary to increase employment and decrease unemployment.

Campbell (2010) used the Engle-Granger causality test to examine the income tax determinants with annual tax sets for Barbados between 1976 and 2008. He concluded that the unemployment rate negatively affects income tax.

Lehman et al. (2013) investigated the connection between unemployment and the amount of wage taxes in OECD nations from 1998 to 2008. It has been determined that a progressive tax

burden results in higher unemployment.

Hassan et al. (2016) found that rises in unemployment had a negative impact on tax collections based on their research using the ARDL model in two separate Indian states between 1984 and 2014.

Hotunluoğlu and Arslaner (2016) used panel data analysis for 81 Turkish provinces between 2008 and 2013 to investigate the relationship between unemployment rates and tax collections. They come to the conclusion that tax revenues are negatively impacted by a simple increase in unemployment rates. Additionally, it has been said that unemployment has a negative impact on tax revenue.

Andrejovska and Pulikova (2018) concluded that there is a negative relationship between tax revenues and unemployment rate in their study where they used three regression analysis methods and analyzed 28 European Union countries.

In Çalcalı and Altiner's (2019) study on the macroeconomic factors influencing tax collections in OECD nations, 16 member states were examined between 1991 and 2015. They came to the conclusion that tax revenues are unaffected by unemployment after employing the Durbin-Hausman cointegration test in their investigation.

Öztürk et al. (2020) examined the effects of major economic variables on tax revenues in Türkiye in their study. The period between 1980-2017 was examined with time series analysis. It has been concluded that unemployment reduces the income tax base and has negative effects on consumption, and therefore unemployment negatively affects tax revenues.

Ezejiyor and Ezekwesili (2022) examined the relationship between tax revenues and unemployment rates in Nigeria in their study. Despite the fact that the data only spans the years 2000–2019, regression analysis and E-View 9 were used to get the conclusion that rising tax revenues in Nigeria were accompanied by rising unemployment rates.

Douglass (2023) examined the relationship between income tax rates and unemployment levels during the economic recession. In his research on 50 different states in the USA between 1980 and 2018 using panel data analysis, they concluded that there is a negative relationship between the income tax rates of the states and unemployment rates. Certain states have been reported to have lower unemployment rates when they have higher income tax rates.

In addition to this, analyses of OECD and EU member states as well as research performed especially for Türkiye are available, all of which attempt to ascertain the connection between unemployment and the tax wedge.

Materials and Methods

This section provides information about the purpose of the study, the sample used in the research, the source of the data, empirical methods and limitations of the research.

Purpose and Type of Research

The main objective of this study is to analyse the relationship between the unemployment problem, which is among the most fundamental macroeconomic agenda of every country, and the income tax collected within the framework of empirical evidence obtained by using empirical methods. As a result of the review of the empirical literature, no research on this subject has been found. Therefore, the research has a unique value as it is the first in the empirical literature.

Population and Sample of the Research

In the study, Türkiye's monthly time series data for the years 2005M1-2023M12 are used as the sample.

Data Collection and Method

The data used in the study are obtained from the IMF and Ministry of Treasury and Finance (HMB) online database. Gauss 6.0 and Eviews 9.0 software packages were used in the estimation of the empirical model. ADF unit root test was used for unit root analysis, ARDL bounds test was used to determine the long-run cointegration relationship, Breitung-Candelon Frequency Domain causality test was used to determine the periodic causality relationship between variables and finally, long-run coefficient estimators were used to determine the direction and degree of the effect of the independent variable on the dependent variable.

Limitations of the Research

The research was conducted only for Türkiye and covers the period 2005M1-2023M12, which constitutes the limitations of this study.

Results

Under this heading, the methodology of the empirical tests applied is presented and the results of the analyses are evaluated and interpreted through tables.

Within the scope of the research, the data and variable information of the study should be determined at the first stage. Therefore, the variable information in the empirical model is summarised in Table 1.

Table 1 Data and variables used in the model

Variable	Description	Term	Source
UNP	Unemployment Rate	2005M01-2023M12	IMF
IT	Amount of Income Tax Collected	2005M01-2023M12	HMB

Unemployment rate is used with its natural values and collected income tax data are used with their logarithmic values. The variables are seasonally adjusted. The empirical model constructed in this direction is functionally as follows:

$$UNP = f(IT) \quad (1)$$

$$\text{Model: } UNP_t = \beta_0 + \beta_1 IT_t \quad (2)$$

Unit Root Test Results

The unit root test is a statistical test used to determine the stationarity of time series. If a time series has the property of stationarity, it means that the changes in the series are fixed around a certain mean over time and the changes are not random. However, if a time series has a unit root, the changes in the series continue to increase or decrease over time, indicating that the series does not have the property of stationarity.

Unit root tests used in econometric studies measure the stationarity levels of variables. It is important to perform these tests, that is, to know whether the series have unit roots or not, since it causes the results to be interpreted deviated or inconsistent. In this context, ADF (Augmented Dickey Fuller) unit root test was used in the study. The hypotheses of the ADF unit root test are formed as follows (Çelik et al., 2020, p. 94):

$$H_0; \alpha \geq 0 \text{ contains unit root.}$$

$$H_1; \alpha < 0 \text{ does not contain unit root.}$$

The ADF test usually uses the following regression model to test for the presence of a unit root:

$$\Delta y_t = \alpha + \beta t + \gamma y_{t-1} + \delta_1 \Delta y_{t-1} + \delta_2 \Delta y_{t-2} + \dots + \delta_{p-1} \Delta y_{t-(p-1)} + \epsilon_t \quad (3)$$

Here, y_t the values of the time series and Δy_t denotes its first difference. The test tests the significance of the parameter γ to determine whether the series contains a unit root. If this parameter is not statistically significant, i.e. the null hypothesis is rejected, the series is considered stationary.

Table 2 Unit root test results

Level	Variables		ADF	First Differences	Variables		ADF
	Fixed	UNP			-1.599 (0.48)	UNP	
IT			2.352 (0.99)	IT		-20.566 (0.00)***	
Fixed + Trend	UNP		-1.309 (0.88)	UNP		-10.309 (0.00)***	
	IT		0.981 (0.99)	IT		-20.874 (0.00)***	

Note: Series are seasonally adjusted. $p < 0.01$ ***.

According to the results of the ADF unit root test in Table 2, it is determined that both series contain unit root in both the model with constant term and the model with constant term and trend, i.e. the null hypothesis is accepted. Therefore, the alternative hypothesis is rejected. However, when the first differences of the series are taken, it is observed that the series become stationary in both the constant and constant+trend model, so the alternative hypothesis is accepted and the null hypothesis is rejected.

ARDL Bounds Test Results

The ARDL (Autoregressive Distributed Lag) bounds test is a statistical test used to assess the appropriateness of the ARDL model. The ARDL model is a regression model that examines the effects of the dependent variable and independent variables on each other. The ARDL bounds test is used to select the highest order lags in the ARDL model. This test is important to detect the existence of a long-run relationship between independent variables. The test uses the F- test to identify the best-fit model and this test also includes the estimated AR and MA terms to assess the stationarity properties of the model. The ARDL bounds test was developed by Pesaran et al. (2001) and is frequently used in the literature because, firstly, the series of variables can be used at both $I(0)$ and $I(1)$ stationarity levels (Pesaran et al., 2001, p. 290). Secondly, it gives more significant results than Engle-Granger test in terms of Error Correction Model (ECM) (Narayan and Narayan, 2005, p. 429). Thirdly, it can give significant results when tested with small sample size or small observations. The fourth and last one is that it can be used in the coefficient parameter estimation that shows the elasticity of the variables along with the existence of cointegrated relationship between the variables in the long run (Narayan and Smyth, 2006, p. 337).

The ARDL test derived by Pesaran et al. (2001) and interpreted asymptotically in the long run with the help of F statistic at 1%, 5% and 10% significance levels is analysed by comparing the critical value. Accordingly, if the F statistic value obtained for the variables is greater than the upper limit of the critical value, it indicates the presence of cointegration. Otherwise, it is concluded that there is no cointegration.

Table 3 ARDL bounds test results

		F Statistic
		11.067
Critical Value	$I(0)$	$I(1)$
1%	4.94	5.58
2.5%	4.18	4.79
5%	3.62	4.16
10%	3.02	3.51

According to the findings in Table 3, the existence of a long-run cointegrated relationship between unemployment and income tax variables was analysed. The calculated F statistic was found to be 11.067. Since this value is greater than 4.16, which is the upper limit of 5%

significance level, it is concluded that there is a statistically significant relationship between unemployment and income tax variables in the long run, that is, there is a cointegrated relationship.

Hacker-Hatemi-J Bootstrap (2006) Causality Test Results

Hacker-Hatemi-J Bootstrap (2006) Causality Test is a statistical test method used in econometric literature to determine causality relationships. This test aims to improve the Granger causality test in order to confirm or reject causality relationships. The Granger causality test is based on the ability of one variable to predict another variable. However, the Granger test has some limitations in identifying bidirectional causality relationships. To address these limitations, Hacker, Hatemi and J developed the Granger causality test using the bootstrap method.

The Hacker-Hatemi-J Bootstrap Causality Test includes the following basic steps:

- Firstly, the standard Granger causality test is applied to determine the bidirectional causality relationship.
- Then, multiple samples are drawn from the original data set using the bootstrap method and Granger causality test is applied on these sample sets.
- This step is repeated many times and the test results on various sample sets are analysed.
- Finally, the distribution of the original Granger test statistic is determined by using the bootstrap distribution and the causality relationship is inferred by comparing this statistic value with the critical values.

The Hacker-Hatemi-J Bootstrap Causality Test is widely used to improve the reliability of the Granger causality test and to more accurately identify bidirectional causality relationships. Although the Hacker-Hatemi-J (2006) causality test is based on the Toda-Yamamoto (1995) (TY) causality test, it differs from the TY causality test in some aspects. Hacker-Hatemi-J (2006) solved the problems of ARCH effect and non-normal distribution of residuals in the test statistic distribution by developing a bootstrap simulation based on resampling with the contributions of Efron (1979). Thus, the table critical values give more reliable and robust results (Coşkun et al., 2023, p. 368).

When Table 4 is analysed, it is observed that there is causality from income tax to unemployment asymptotically at 5% and 10% significance levels and again at 5% and 10% significance levels according to the test statistic results. There is causality from unemployment to income tax asymptotically at 1%, 5% and 10% levels of significance and again at 1%, 5% and 10% levels of significance according to the test statistic results.

Table 4 Hacker-Hatemi-J Bootstrap Causality test results

Direction of Causality	MWALD	%1	%5	%10
(IT) \neq (UNP)	27.670 (0.012)**	29.705	22.953**	19.810*
(UNP) \neq (IT)	34.439 (0.001)***	27.157***	21.787**	18.876*

Note: The \neq notation indicates the null hypothesis of no causality. $p < 0.01$ ***, $p < 0.05$ **, $p < 0.10$ *. Bootstrap number is 10,000.

Breitung-Candelon Frequency Domain Causality Test Results

Breitung-Candelon Frequency Domain Causality Test is a test method used in econometric literature to determine causality relationships. This test aims to detect the causality relationship between time series by analysing them in the frequency domain. While traditional causality tests are usually conducted in the time domain, this method developed by Breitung and Candelon evaluates causality relationships in the frequency domain. In other words, it examines the correlations between the frequency components of time series between different periods. This test consists of two basic steps (Breitung and Candelon, 2006):

- In a first step, cross-correlation functions between both time series are calculated. These functions measure the relationship of the frequency components between the series.

- In the second step, a test statistic is calculated based on the obtained cross-correlation functions. This statistic is used to determine the existence of a causal relationship between the series.

Traditional causality tests analyse the causality between variables in one dimension. Breitung and Candelon (2006), on the other hand, examine the causality relationship in a cyclical manner as long, medium and short term, unlike traditional tests. Therefore, it stands out as an advantageous method in this respect. In addition, this method minimises and prevents information loss (Breitung and Candelon, 2006, p. 363).

As a result of the cointegration test for the model, cointegration was detected and the causality test developed by Breitung and Candelon (2006) was used to analyse the causality relationship between the series. The periods for causality are shown in Table 6, where 2.00 and 2.50 are the short-term frequencies, 1.00 and 1.50 are the medium-term frequencies and 0.01 and 0.05 are the long-term frequencies (Coşkun et al., 2023, p. 369). According to the results of Table 5;

- Causality was found from IT to UNP in all periods, short, medium and long term. In other words, income tax has causality on unemployment in all periods.
- While there is causality from UNP to IT in the medium and long run, there is no causality in the short run. In other words, while unemployment does not have a causal effect on income tax in the short run, it has a causal effect in the medium and long run.

Table 5 Breitung and Candelon (2006) Causality test results in the frequency domain

	Long Term		Middle Term		Short Term	
λ_j	0.01	0.05	1.00	1.50	2.00	2.50
(IT) \neq (UNP)	7.235***	2.743*	6.194***	0.256	4.471**	0.187
(UNP) \neq (IT)	12.700***	12.474***	7.895***	1.562	1.792	0.250

Note: $p < 0.01$ ***, $p < 0.05$ **, $p < 0.10$ *. Critical values are 4.99 for 0.01, 3.15 for 0.05, 2.39 for 0.10.

Parameter Estimation Results

After determining cointegration and causality between the series, it is very important to accurately estimate the long-run coefficients of the parameters. Because these coefficients determine the size and direction of the relationship between variables. Therefore, correctly estimated parameter coefficients are of vital importance in the construction and analysis of the model. Three main methods are generally used for the estimation of parameter coefficients:

Canonical Cointegrated Regressions (CCR): This method estimates the parameters by taking into account the existence of cointegration relationship. CCR ensures that the parameters are estimated correctly based on the cointegration relationship.

Least Squares (OLS): OLS is a classical regression analysis method and is used to estimate parameters. But if cointegration is present, it might not account for structural restrictions like the cointegration connection and produce false results.

Fully Modified Least Squares (FMOLS): FMOLS modifies the OLS method by taking into account the presence of cointegration relationship. In this way, if there is a cointegration relationship, parameter estimation can be done more consistently and effectively.

Among these methods, CCR and FMOLS provide more accurate and reliable parameter estimates by taking into account the cointegration relationship. Therefore, they are generally preferred in cointegration analyses and in the examination of long-run relationships.

Table 6 Parameter estimation results

Variables	OLS		FMOLS		CCR	
	Coefficient	Probabilitiy	Coefficient	Probabilitiy	Coefficient	Probabilitiy
IT	0.438	0.00***	0.538	0.03**	0.543	0.04**

Fixed Term	3.707	0.00***	2.150	0.59	2.073	0.61
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Note: p<0.01 ***, p<0.05 **.

When the results in Table 6 are evaluated;

- According to the OLS method, if (IT) increases by 1%, (UNP) increases by 0.438 units.
- According to the FMOLS method, if (IT) increases by 1%, (UNP) increases by 0.538 units.
- According to the CCR method, if (IT) increases by 1%, (UNP) increases by 0.543 units.

Summary and Conclusion

Since taxes are the main source of funding for states, new research is continuously conducted to support tax increases. It is crucial to understand which variables influence the different tax kinds, how much of a change each variable has, and how those changes, whether positive or negative, are represented in tax collections. Tax revenues impact economic dynamics in the same way that economic variables influence tax revenues. In this study, it was aimed to empirically examine the relationship between income tax, which has an important place in the Turkish Tax System, and unemployment. How the change in unemployment over the years was reflected in income tax collection has been a reference for the study. In this context, what makes the study unique is that, contrary to the general trend in the literature, it examines the effect of income tax on unemployment.

According to the study's objectives, the impact of Türkiye's income tax modifications on the country's unemployment rate was examined. In this instance, the ADF unit root test was used in the statistical part of the study to determine the unit root levels of the variables, and it was found that the series remained stationary when the initial differences in the series were determined. The income tax and unemployment variables were found to have cointegration, based on the outcomes of the ARDL bounds test, which was used to identify the cointegration relationship between the series of data. Hacker-Hatemi-J causality test was applied to check the existence of a causality relationship between the series. According to the Hacker-Hatemi-J test, which gives bidirectional results both asymptotic and bootstrap, findings were obtained regarding the existence of causality from income tax to unemployment and from unemployment to income tax in the long run. Additionally, Breitung-Candelon Frequency Domain Causality Test was applied to test the periodic relationship. The results show that income tax has an impact on unemployment in the short, medium and long term. Additionally, unemployment affects income tax in the medium and long term. Finally, according to the results of OLS, FMOLS and CCR, which are long-term parameter coefficient estimation tests, the coefficients of the income tax variable were statistically significant in all estimators and it was seen that the income tax level and the unemployment level had a positive interaction. In other words, increases in income taxes increase unemployment in the long run.

One of the main persistent macroeconomic issues facing the Turkish economy is unemployment, hence policies targeting this issue are crucial. In addition to the direct influences on unemployment, it is important to consider elements that have an indirect impact. Policy makers should therefore consider the empirical results of the study, which show that income taxes have an impact on unemployment over the short, medium, and long terms, to be significant. The study's proposal is to take these results into account when deciding on income tax laws presented in this context.

Declaration of Author Contributions

The authors declare that they have contributed equally to the article. All authors declare that they have seen/read and approved the final version of the article ready for publication.

Declaration of Conflicts of Interest

All authors declare that there is no conflict of interest related to this article.

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Extended Abstract

Devletlerin en önemli gelir kaynağı durumunda olan vergilerin, işsizlik ile ilişkisi mevcuttur. Özellikle gelir üzerinden elde edilen vergilerin işsizliği etkileyip etkilemediği tartışmalara konu olmaktadır. Ücret üzerinden gelir vergisi ödeyen mükelleflerin artan oranlı gelir vergisi oranları ile muhatap olmaları vergi yükünün artmasına neden olmaktadır. Bununla birlikte ücretlilerin işverene de yüklemiş oldukları bazı maliyetler bulunmaktadır. İşverenin bordro üzerinden ödediği sigorta primi gibi bazı yükümlülüklerin artması bazı ülkelerde işsizliğin artmasına sebep olmaktadır. Ülkelerin gelişmiş düzeyleri ve vergi adaleti çalışan ve işveren arasındaki ilişkiyi de etkilemektedir. Yine bunlarla beraber ekonomik konjonktür kapsamında yaşanan bazı yapısal değişiklikler bireylerin vergi ödeme alışkanlıklarına etki etmektedir. Bu çalışmada Türkiye'de gelir vergisinde meydana gelen değişimlerin işsizlik düzeyinde nasıl bir etki ortaya çıkardığı araştırılmıştır. Çalışmada kullanılan veriler; Hazine ve Maliye Bakanlığı ve IMF online veri tabanlarından alınan 2005-2023 yılları arasındaki verileri kapsamaktadır. Birim kök analizi için ADF birim kök testi, uzun dönem eşbütünlük ilişkisinin tespiti için ARDL sınır testi, değişkenler arasında dönemsel nedensellik ilişkisinin belirlenmesi için Breitung-Candelon Frekans Alanı nedensellik testi ve son olarak bağımsız değişkenin bağımlı değişken üzerindeki etkisinin yönü ve derecesinin tespiti için uzun dönem katsayı tahminleri kullanılmıştır. Araştırmanın sonucunda gelir vergisinin işsizlik üzerinde kısa, orta ve uzun dönemde etki sahibi olduğu tespit edilmiştir. Ayrıca işsizlikte orta ve uzun dönemde gelir vergisini etkilemektedir. Son olarak uzun dönem parametre katsayı tahmini testlerinden olan OLS, FMOLS ve CCR sonuçlarına göre bütün tahminlerde gelir vergisi değişkeninin katsayıları istatistiksel olarak anlamlı çıkmış ve gelir vergisi düzeyi ile işsizlik düzeyinin pozitif yönlü etkileşim içinde olduğu görülmüştür. Bundan kaynaklı olarak gelir vergisinde meydana gelen artışlar uzun dönemde işsizliği artırmaktadır. Türkiye ekonomisinin önde gelen kronik makroekonomik problemlerinden biri olan işsizlik sorununa yönelik politikalar önem arz etmektedir. İşsizlik üzerinde doğrudan etkiye sahip unsurlar dışında dolaylı etkiye sahip faktörlerinde göz ardı edilmemesi gerekmektedir. Bu sebeple, çalışma kapsamında ampirik olarak gelir vergisinin kısa, orta ve uzun dönemde işsizliği etkilediği bulguları politika yapıcıları açısından önemli olduğu düşünülmektedir. Bu kapsamda gelir vergisi politikalarının belirlenmesinde söz konusu bulguların dikkate alınması çalışmanın önerisi olarak sunulmuştur.