

Substitution Effects Of Tax Burden Alterations Throughout Post-Taxing On Employment: Turkey Case

Dr. Ahmet Niyazi ÖZKER*

*Bandirma Onyedi Eylul University, Faculty of Economics and Administrative Sciences, Public Finance Department 10200-TÜRKİYE niyaziozker@yahoo.com, ORCID ID: 0000-0001-5313-246X

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ABSTRACT

This study aims to question the changes in the tax base in Turkey over the last forty years and the scale effects of the tax burden effects related to these changes. Since tax changes are also associated with deficits in the public sector borrowing requirements, and this phenomenon causes tax increases, it is understood that each increase in tax burdens over the years creates significantly different effects, primarily on employment. These differences were discussed through two main factors, the income effect and the substitution effect, and our study strengthened the meaningfulness of detecting a common effect, especially at the employment level, where the income substitution effect comes to the fore. In this context, the possible effects of current tax burden changes on Turkey's employment and labour supply potential stand out with their income substitution effect in a structure supported by other social policies. This impact scale is also affected by other macro variables that can be expressed with different values and further increases the effectiveness of the tax burden in a structure where possible inflation rates are also effective. In this context, it is thought that in addition to tax increases due to public borrowing requirements, which we consider independent variables, changes in the tax burden. This fact, our main topic, constitutes an essential basis for understanding the increase in employment, labour force participation and labour market values. It has been seen as a critical goal to question whether the increases in employment rates and the positive impact on employment volume in Turkey are linked to a labour demand that may arise in association with the increasing tax burden. However, it is observed that the rising tax burden affects unemployment rates, employment volume and labour supply, but the process has different effects with a fluctuating and highly variable structure.

KeyWords: Employment, Fiscal Policies, Public Sector Borrowing Requirement, Substitution Effects, Tax Burden.

JEL Codes: H21, H24, H83.

1. INTRODUCTION

Changes in the tax burden regarding tax practices constitute an important focal point for the change of macro variables related to economic and financial practices, and this phenomenon emerges as an essential structural macroeconomic change phenomenon. The phenomenon of unemployment that occurs after changes in the tax burden is a crucial element at different impact levels and needs to be understood. Understanding and analysing target growth trends regarding economic growth trends is closely related to changes in tax practices by creating an interactive change effect with these economic change trends. In this context, understanding the changes in the tax burden as a macroeconomic phenomenon and determining the post-tax impact levels is a meaningful analysis subject in evaluating their effects on economic growth (Balasoiu et al., 2023: 2). Therefore, understanding the impact values of the tax burden as a scale effect is an important goal, especially for developing economies. Although this situation also encounters different values in employment and labour supply in emerging economies, social values and the position of non-governmental organizations should also be considered a priority regarding tax burden and practices. This may lead to different behaviours regarding the tax burden, which is related to tax burden alterations, as less GDP in developing countries than in developed countries may cause income substitution effects, affecting employment levels (Petru-Ovidiu, 2015:

96-97). In addition, the effects that arise in the post-tax situation may lead to significant social and economic consequences, and implementing post-tax and new taxes on employment may decrease some factorial demands. The employment rate manifests itself with different levels of impact, especially when the values of factor inputs are low. In this respect, it is crucial to understand the difference between an increase in employment as an income effect or an increase in idleness and work motivation, which can be expressed as a substitution effect (Davidescu & Strat, 2015: 183).

The concept of "substitution effect" is a crucial aspect of public finance and public economic theory that highlights the impact of consumers' purchasing decisions on market trends and prices. Especially in a process where price and income elasticities are in question, tax burden variability, an essential phenomenon in understanding the behaviour of consumers and producers in tax policies, is also reflected in the markets as employment choice variations are directly related to consumer demand alterations. Any increase in the tax burden that may be affected by the tax alterations occurs as an indicator of a substitution effect that may lead to fewer lost welfare alternatives (Davidescu, 2022: 178-179). In other words, a higher tax burden from a tax increase creates a structural cycle in which consumers can increase their demand for desired alternatives while reducing employment levels, especially in Turkey. However, how much will reflect in people subjected to employment is a significant problem in understanding labour supply alterations. Although this may vary depending on the wage elasticity of the labour, the issue of a situation, even if it may also reflect on the producers after the tax increase that may have a more significant impact on consumer demand, is always a valid process. Primarily, creating an impact mechanism based on the tax burden on changes in the exact rates of increase or decrease in the employment rates of all consumers in the labour supply creates an essential result for evaluating whether tax policies are fair regarding these relevant concepts (Ergüder, 2016: 1389). In this regard, it is necessary to investigate whether consumers, especially those subject to the employment process, have demand variability regarding the after-tax situation in the employment demand of the persons in question. This situation also makes it meaningful that it is necessary to know how much employment preferences will be affected in the said period compared to the pre-tax situation due to the increasing tax burden variability in the last period of Turkey. Therefore, a meaningful analysis of why individuals or groups subject to employment choose to work or be idle in Turkey via the scale effects on employment is crucial to Turkey (European Commission, 2023: 22-23).

2. REVIEW LITERATURE

A meaningful current study on the effects of tax burden and progressiveness values at the global level is by Diamond & Saez (2011) and Saez et al. (2012). Also, Stiglitz (2000) presented these studies as, in many respects, providing an essential theoretical, empirical framework for subsequent studies, which determine the thematic description of the tax burden. The studies of Amoh (2019), Blakely et al. (2020), and Arias (2021) revealed meaningful findings based on the analysis of factorial inputs of the tax burden effects on a sectoral basis. They also determined the effects of the relationship between the increase in tax capacity and the tax burden. These studies have revealed the macroeconomic and significant effects of personal tax burden changes and the employment-GDP effect with meaningful findings. The studies of Campos & Júnior (2021) confirm these effects, which were determined to be created by the tax burden based on macro factors. In particular, the analysis results of these studies on sectoral tax burdens have significantly contributed to the empirical analysis approach framework of the analyses.

Nghiem et al. (2013), and Piketty et al. (2014) These two studies, which contain essential findings in the analysis of the optimal taxation of top labour incomes phenomenon, determined that the determined values have a significant impact in terms of labour incomes and labour supply. Studies conducted by Jaimovich & Rebelo (2017), and OECD (2019), which are close to these studies, the effect of external shocks on tax Burden and nonlinear effects of taxation on growth, offer a meaningful perspective for our research, which we are working on with comprehensive studies.

Martinez et al. (2023) research study has provided a meaningful basis for understanding global tax standards and the empirical determination of the breaking points of the impact level of factors such as economic growth-oriented employment. In addition, these findings appear to have gained currency, which is also confirmed by the approach of heterogeneous effects of income tax changes on growth and employment in the study by Zidar (2019) and Rogers & Philippe (2019).

On the other hand, the analytical research by Romer & Romer (2014) is still as crucial as actual. Pratomo (2020) presented another research study, which provided an essential basis for rational interpretations in understanding the relationship between employment and tax burden, combining the findings of evidence from the Interwar regarding the incentive effects of marginal tax rates.

The first of the studies he conducted within the framework of current studies on employment in Turkey is the meaningful study conducted by Demir (2013), on the impact of the tax burden on employment and economic growth in Turkey. In addition, Demir & Sever's (2016) study on the tax burden on OECD countries also reveals meaningful findings regarding economic growth and employment. Demir's (2013) study deals with the objective and subjective aspects of the Tax Burden in Turkey, as does Saraç's (2015) study, this research deals with the effects of national income on the tax burden via the ARDL limit test. These studies on this approach

have contributed critically to Turkey-related research. In addition to Edizdoğan & Çelikkaya's (2012) study on the economic analysis of taxes as related to each other has been crucial place.

These determinations have been supported by Inaltong's (2012) studies on tax burden and the comparison of Turkey and Ince & Beşel (2016), and Çanakçıoğlu & Görçün (2022) on the effect of external shocks on tax burden. Çelikay (2017) study examining the tax burden and its relationship with economic growth and tax put forth crucially determined data. Domaniç's study (2021) on tax competition and tax burden in Turkey presented findings that support these other findings with meaningful findings based on the tax burden and the employment relationship. Özpence & Mercan (2020) and Aydın (2018) discussed the relationship between tax burden and economic growth related to energy in Turkey. Özker (2023) on the global locations of the tax burden in Turkey after 2015 and Serin & Demir (2023) on tax capacity and tax effort in Turkey research have taken a crucial place in current research about Turkey's fiscal dynamics of employment. In addition, the findings of these studies were supported by empirical studies conducted by Şen et al., and Şeren & Saraç (2023), Akkoc et al., (2023) based on employment and tax burden. In these research studies, an analysis of the tax burden variability of the inflation progression process between 2006-2022.

3. CHANGES IN TAX BURDEN IN TURKEY AND SUBSTITUTION EFFECT COURSE OF DIFFERENCES IN EMPLOYMENT VOLUME

The tax burden phenomenon in Turkey undoubtedly creates a significant tax burden authority compared to the Gross Domestic Product. This effect also adds a significant real value to the tax burden variability that can be expressed in different values, and it is observed that it also constitutes the justification for possible new tax practices and tax rate changes (Akkoc et al, 2023: 326). The most important of these reasons is understanding the possible substitution effects of increasing taxes and the existing substitution effects on possible labour force and non-employment energy. This structural change in the tax burden in Turkey also creates a specific scale effect with the impact of national income change, and this scale authority turns into a meaningful position, especially with its impact on the Public Sector Borrowing Requirement (PSBR). This fact can be commented on in terms of the effects of tax change, tax burden change, and its implications for employment.

It has been observed that tax burden options depending on the tax variable in Turkey have had different effects on a significant margin in the recent period (OECD, 2021: 14-15). This impression also brings to the agenda the effects of other macro variables depending on the tax burden and other taxes depending on the tax burden, especially property taxes, taxes on goods and services, and social taxes. It also includes taxes that may be collected under the name of security. Undoubtedly, all these features also provide a scope that frequently brings up personal income tax and taxes on business profits. The important thing here is understanding the values obtained by comparing them with their countries, not specifically, but based on tax burden. In understanding the substitution effect on personal income tax, it is revealed that these changes in the tax burden often bring to the agenda the impact of increases in expected tax values, although they have been measured with meaningful features and recent impact values. Table 1 below also shows the change in tax structure dynamics due to the structural change of taxes in Turkey in the recent period and the change process after 2020:

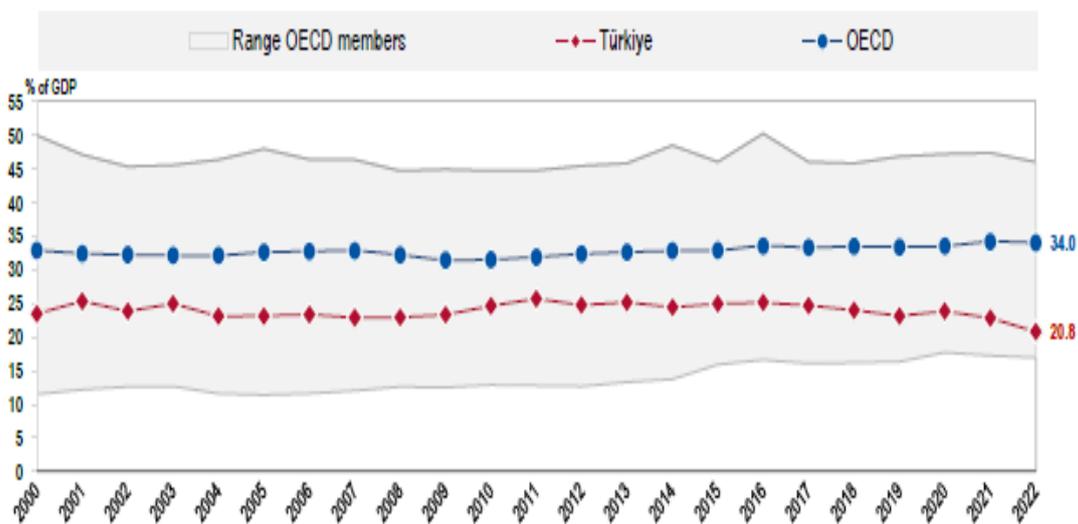
Table 1. Recent Outlook of Tax Structure in Turkey and Changes in Tax Structure Dynamics

Tax structure	Tax Revenues in national currency			Tax structure in Türkiye			Position in OECD		
	Turkish Lira, millions			%					
	2020	2021	Δ	2020	2021	Δ	2020	2021	Δ
Taxes on income, profits and capital gains ¹	263 898	397 629	+ 133 730	22	24	+ 2	31st	30th	+ 1
<i>of which</i>									
<i>Personal income, profits and gains</i>	158 842	219 656	+ 60 814	13	13	-	34th	32nd	+ 2
<i>Corporate income and gains</i>	105 057	177 973	+ 72 916	9	11	+ 2	14th	15th	- 1
Social security contributions	357 677	473 450	+ 115 773	30	29	- 1	20th	20th	-
Payroll taxes	-	-	-	-	-	-	30th	30th	-
Taxes on property	53 548	70 179	+ 16 632	4	4	-	20th	21st	- 1
Taxes on goods and services	517 288	696 341	+ 179 054	43	42	- 1	4th	5th	- 1
<i>of which VAT</i>	230 761	385 343	+ 154 582	19	23	+ 4	23rd	12th	+ 11
Other	12 218	17 357	+ 5 138	1	1	-	9th	8th	+ 1
TOTAL	1 204 629	1 654 956	+ 450 327	100	100	-	-	-	-

Source: OECD (2023). *Revenue Statistics 2023 – Türkiye*, Paris: OECD, Centre for Tax Policy and Administration, Paris: OECD Publications, 2023.

As seen in Table 1 above, it is observed that it is not possible to talk about a very significant change in the tax burden changes in Turkey, especially after 2020. However, when we look at previous periods in terms of our study, it is most possible to say that tax burden differences constitute an important impact mechanism in this study. It is observed that this impact mechanism also means a significant change in tax burden due to the increase in social security and contributions, which can be expressed in different values, and the increase in indirect taxes, especially value-added tax. In terms of personal income taxes, straightforward taxes, personal income tax and value-added tax were taken together as a value (Rödl & Partner: 2022). The changes in the average tax burden after 2020 did not create a severe employment impact, but with the increases in taxes on business profits and capital gains, the percentage change in tax rates increased.

By creating a more effective meaningfulness value, the substitution effect has turned into a scale effect that creates awareness. In this context, it is understood that it is possible to talk about the increase in the tax burden depending on GDP per capita concerning employment. This inference also reveals that the impact mechanisms that create different impact mechanisms generate a change in the tax burden and a substitution effect since it increases not with the imposition of new taxes but with the impact of changes in tax rates. Therefore, in terms of the substitution effect on employment in Turkey, the course of the tax burden undoubtedly gains a real meaning as a crucial proportional value of GDP, and this real meaning, especially with the tax burden per capita, is more relevant to understanding the change values of Turkey's average tax burden (Tekgüç & Eryar, 2023: 2). It gains meaning with an approach. This significance is interpreted as a scale effect, as seen in Table 1 above, where all kinds of structural values, especially those related to ongoing fiscal balance values, create a higher substitution effect, especially as tax change values, with a distorting impact on income distribution. Chart 1 below also expresses the percentage change values of tax burden changes in Turkey, covering the periods subject to our study in Turkey and the process of comparing these values with the average tax burden within the scope of the OECD:



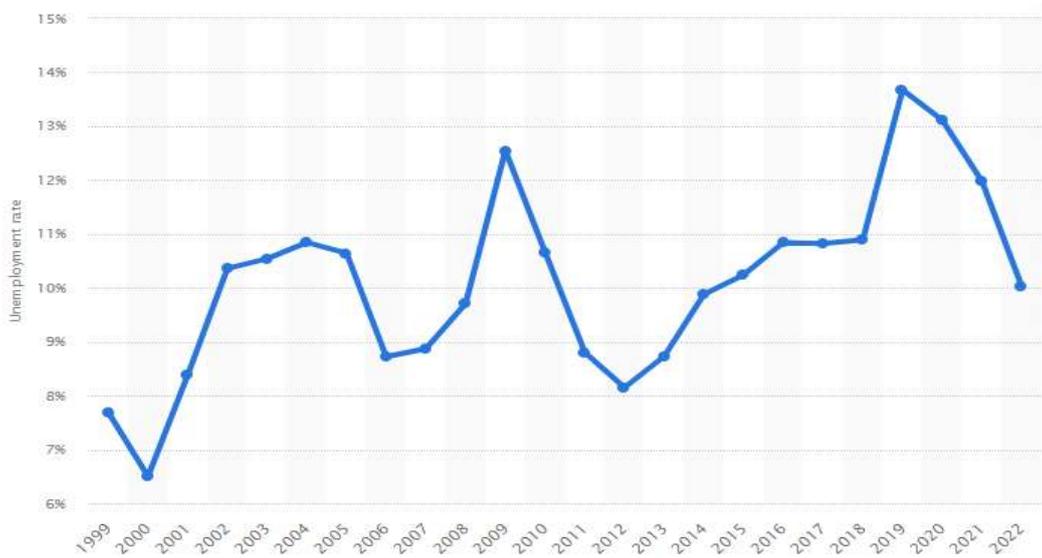
Source: OECD (2023). *Revenue Statistics 2023 – Türkiye*, Paris: OECD, Centre for Tax Policy and Administration, Paris: OECD Publications, 2023.

Graphic 1. The Course of the Tax Burden in Turkey and its International Comparative View

As seen in Graphic 1 above, in the period subject to our study, to understand that the percentage variability level of tax burden changes is not stable, especially in terms of the periodic values. that is the subject of our study; it is essential to monitor it as a subject to change with small percentage values and interpret it regarding employment. In this respect, in terms of interpreting the substitution effects on employment, this approach, especially in our analysis, means that the tax burden change rates indirectly express the practical tax values for tax-related financing regarding closing the Public Sector Borrowing Requirement (PSBR). In other words, understanding the possible effects of tax changes that can be used in financing the deficits in a process where the Public Sector Borrowing Requirement (PSBR) are also in question has a meaningful place in our model in terms of evaluating the tax burden change values in this direction. However, a changing trend between 20% and 24% among the average values is among the change values that can be considered stable among the values subject to our study. However, especially when looking at the OECD average tax burden variability scale range, it represents a significant tax burden stability between 35% and 34%.

This also means that unemployment rates within the OECD are lower than unemployment rates and positively impact OECD average employment values (World Bank, 2022: 24-25). It is possible to say that the tax burden range in Turkey between up to 20% and the upper limit of 24% creates an employment substitution effect, albeit small in real terms. Despite all this, it is possible to talk about a structure in which the tax burden values

in Turkey are well below the OECD average, and this situation also affects employment as the tax burden in Turkey is felt heavy, the national income is also low. This phenomenon has significantly impacted the employment substitution effect, on which unemployment values are primarily based in Turkey. This is because, in addition to the socio-economic distribution in income level, income expectations and the actual loss of real purchasing power. This meaningful justification based on Turkey is another aspect of the negative impact of deviations in some values, especially regarding consumption, on unemployment rates through the substitution effect, even though there is no significant change in the tax burden change values. Chart 2 below shows the alteration effects, which reveals a more meaningful expression of the substitution effect on employment through unemployment rates, especially when the tax burden changes and the PSBR are also effective:



Source: STATISTA (2024). *Turkey: Unemployment rate from 1999 to 2022*, Economy & Politics International, <https://www.statista.com/statistics/263708/unemployment-rate-in-turkey/> (Accessed April, 08.2024).

Graphic 2. Periodic Change of Unemployment as a Tax Burden Substitution Effect in Turkey

Graphic 2 shows above that these significant negative impact values on unemployment have occurred and that this situation, especially regarding the deviations in some personal income taxes related to the consumption of goods and services rather than sectors, has created a situation where it turns into a substitution. This relationship also reveals how it creates values that turn into significant fluctuations and unemployment rates, primarily covering our discussed periods.

These occur as a negative employment increase that can be interpreted as the opposite of unemployment rates. Namely, this phenomenon affects the taxpayer, who has a significant adverse employment effect in Turkey, whose destination has long turned into a concrete tax substitution effect (Aydın, 2018: 794). In particular, a situation in which increases in unemployment rates favour idleness in response to the desire for more employment or are a cause of unemployment with macro dummy variables such as other current account deficits turned into a significant increasing trend, especially after 2003 and 2004.

Deviations in purchasing power, with the effect of increasing inflation rates during these years, create a substitute for unemployment with decreased inflation rates, including the inflation rates decreasing further in 2009 (Akkoc et al., 2023: 332-333). Still, this decrease became an increasingly significant unemployment substitution effect due to the Public Sector Borrowing Requirement (PSBR), a process related to the current account deficit level and the increased tax rates following the new tax rates and practices. Concerning the following years, even if the budget balances in Turkey had a more stable structure after 2012 and did not create a significant employment substitution effect based on extreme unemployment, the exchange rate increased until 2017 and 2018, which had a considerable substitution effect.

Significantly, during the Corona-19 pandemic after 2019, unemployment rates increased, although lower than in previous years, which carried over to the present years as the substitution effect. In other words, it is possible to see that unemployment rates decreased after the Corona-19 pandemic and the inflation rates increased after 2021-2022, following deviations in national income, but the negative substitution effect on employment decreased further, as did the scale effect.

4. EMPIRICAL APPROACH METHOD AND FINDINGS

The relationship between tax burden and employment substitution as substitution is examined by considering various factors, including the Public Sector Borrowing Requirement (PSBR). The study selected time-series-

based variables, such as tax burden and the percentage change in the Public Sector Borrowing Requirement (PSBR), as factorial independent variables to represent Turkey's average. NARDL - Nonlinear Bounds Testing Approach the Data Analysis approach was employed to investigate the impact of changes on the tax burden, which served as the dependent variable.

In addition, determining "Threshold Effect" values for the model necessitated evaluating the significance of the analysis results. Therefore, each value deviated from the positive and negative effect values that had been this research's priority; it was tested as related to the findings of this model's meaningfulness in the scope of the Threshold Effect. NARDL- Non-linear Bounds Testing Approach to analysis was motivated by the nonlinear time series choice desire to account for the diverse effects over time. The model's reliability was ensured with stationarity tests on all dependent and independent variables, with significance levels at "p < 0.05" level choosing the primary differences for all-time series.

A panel data analysis framework was developed based on a similar model, and the prediction values were interpreted using Vector Autoregression (VAR) scale values, generalising univariate AR modelling. The significance of the standard deviation values compared to R-square values that may arise due to the VAR test was confirmed. Table 2 presents below, the meaning expressed of dependent and Independent Model Components in The Model:

Table 2. Expresses of Dependent and Independent Model Components in The Model

(EMP_RT)	Employment Percentage Change Values (as annually)
(PSBR)	Percentage Change Values in Public Sector Borrowing Requirement (as annually)
(TAXBR)	Percentage Change Values in Tax Burden (as annually)

The Philips-Perron unit root test results, based on the probability values of primary degree differences on the Philips-Perron platform, were used in our model. The results presented in Table 3 below specifically show the results of the Philips-Perron test to determine that stationarity was achieved using variables in our model:

Table 3. Phillips-Perron Unit Root Test Results Table as Primary-Differences

		At Level: At First Differences*		
		d(EMP_RT)	d(PSBR)	d(TAXBR)
With Constant	t-Statistic	-6.0040	-5.6010	-23.1334
	Prob.	0.0000 ***	0.0000 ***	0.0001 ***
With Constant & Trend	t-Statistic	-7.5918	-5.5249	-25.5321
	Prob.	0.0000 ***	0.0000 ***	0.0000 ***
Without Constant & Trend	t-Statistic	-5.9325	-5.6749	-9.3232
	Prob.	0.0000 ***	0.0000 ***	0.0000 ***

*Null Hypothesis: the variable has a unit root

In this context, it is possible to write the following estimation command and NARDL estimation equation for our meaningful install findings as follows:

Estimation Command:

ARDL EMP_RATE PSBR_POS PSBR_NEG TAXBR_POS TAXBR_NEG @

Estimation Equation:

$$\begin{aligned}
 &+ C(1)*EMP_RATE(-1) + C(2)*EMP_RATE(-2) \\
 &+ C(3)*EMP_RATE(-3) + C(4)*EMP_RATE(-4) \\
 &+ C(5)*PSBR_POS + C(6)*PSBR_POS(-1) \\
 &+ C(7)*PSBR_POS(-2) + C(8)*PSBR_NEG \\
 &+ C(9)*TAXBR_POS + C(10)*TAXBR_POS(-1) \\
 &+ C(11)*TAXBR_POS(-2) + C(12)*TAXBR_POS(-3) \\
 &+ C(13)*TAXBR_POS(-4) + C(14)*TAXBR_NEG \\
 &+ C(15)*TAXBR_NEG(-1) + C(16)*TAXBR_NEG(-2) \\
 &+ C(17)
 \end{aligned}$$

To monitor the side effects of the effect changes in the model and check whether existing errors create other errors, The Threshold Regression test scenario in Table 4 below was created, and similar test scenarios were checked, as were the priority rankings of those with fewer effects:

Table 4. Threshold Regression Test Scenario and Test Scenarios' Priority Rankings

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EMP_RATE(-6) < 67 -- 12 obs				
PSBR	0.086956	0.057754	1.505628	0.0452
TAXBR	0.736427	0.230770	3.191167	0.0039
C	49.26758	4.934500	9.984310	0.0000
67 <= EMP_RATE (-6) < 68.290429 -- 17 obs				
PSBR	0.198716	0.048985	4.056688	0.0005
TAXBR	0.077516	0.159362	0.486417	0.00311
C	62.82862	3.114555	20.17259	0.0000
68.290429 <= EMP_RATE (-6) -- 5 obs				
PSBR	2.211175	0.428627	5.158740	0.0000
TAXBR	-0.888382	0.336982	-2.636287	0.0145
C	82.23857	6.968465	11.80153	0.0000
Variable chosen: EMP_RATE (-6)				
Dependent Variable: EMP_RATE, Selection: Trimming 0.15, , Sig. level 0.05				
Threshold variables considered: EMP_RATE(-3) EMP_RATE(-4)				
EMP_RATE(-5) EMP_RATE(-6)				
Non-Threshold Variables:				
@TREND	0.104988	0.021344	4.918962	0.0001
R-squared:	0.903531	F-statistic	24.97613	
Adjusted R-squared:	0.867355	Prob(F-statistic)	0.00000	

It is observed that analysed in Table 4 above the significance of the values and probability values in the Threshold Regression analysis confirms the significance of the dependent variable, which affects positive and negative trends. In addition, Table 5 present the Unrestricted "Cointegration and Adjustment Coefficients" values we have determined below:

Table 5. Unrestricted Cointegration and Adjustment Coefficients

EMPRT*	PSBR*	TAXBR*	
0.261907	0.298734	0.668662	
0.631117	0.147278	-0.519614	
0.846187	-0.191591	-0.293745	
*Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I)			
D(EMPRT)**	0.101224	-0.190095	-0.061110
D(PSBR)**	-0.785328	-0.491402	0.023068
D(TAXBR)**	-0.194484	0.199166	-0.057803
**Unrestricted Adjustment Coefficients (alpha)			

In light of these determined Table 5 above, the econometric model expansion of the NARDL model, which is evaluated based on the ARDL model, can be written as follows in the framework below:

$$Y_t = \beta_0 + \sum_{k=1}^m \beta_{1k} Y_{t-k} + \sum_{i=0}^n \beta_{2i} X_{t-i} + \beta_3 ECT_{t-1} + e_t \tag{1}$$

$$EMP_{RATEpvr_t}^- = \sum_{i=1}^p \Delta EMP_{RATEpvr_i}^-$$

$$= \sum_{i=1}^p \min(EMP_{RATEpvr_i}^0, 0) \dots \dots \dots \tag{2}$$

$$EMP_{RATE_t}^+ = \sum_{i=1}^p \Delta EMP_{RATEpvr_i}^+$$

$$= \sum_{i=1}^p \max(EMP_{RATEpvr_i}^0, 0) \dots \dots \dots \tag{3}$$

In this context, Table 6 below presents the following determinations with the scale effect values and non-linear lag coefficient effect values on the dependent variable, the employment rate EMP_RATE, where the lag values within the framework of the NARDL model included. Statistically determined are also included in Table 6 below in terms of periodically significant scale effect values:

Table 6. Scale Effect Values and Statistical Findings in NARDL

Variables	Zero Latency	Latency	1. Latency	2. Latency	3. Latency
EMP_RATE		1.047451 (0.189450)	- 0.438302 (0.315672)	-0.313721 (0.299030)	0.393290 (0.216912)
PSBR_POS	-0.222767 (0.142445)	0.196999 (0.141524)	0.197946 (0.146459)		
PSBR_NEG	0.167781 (0.065359)				
TAXBR_POS	0.619514 (0.232799)	-0.952714 (0.344135)	0.381048 (0.282787)	-0.526432 (0.255632)	0.562309 (0.252949)
TAXBR_NEG	-0.699163 (0.268631)	0.916304 (0.320143)	-0.319354 (0.264756)		
C	20.36910 (13.18850)				
Scaled Coefficients**		1.0439839	-0484994	-0.986343	-1.464879
Variance Factors**	Inflation	0.0254849	0.075684	0.126384	2.254748

Other Decisive Statistical Findings

Normalized Restriction (= 0), Restrictions are linear in coefficients:
 Value: Std. Err.:
 C(3) - 2*C(4) -0.726096 0.525651

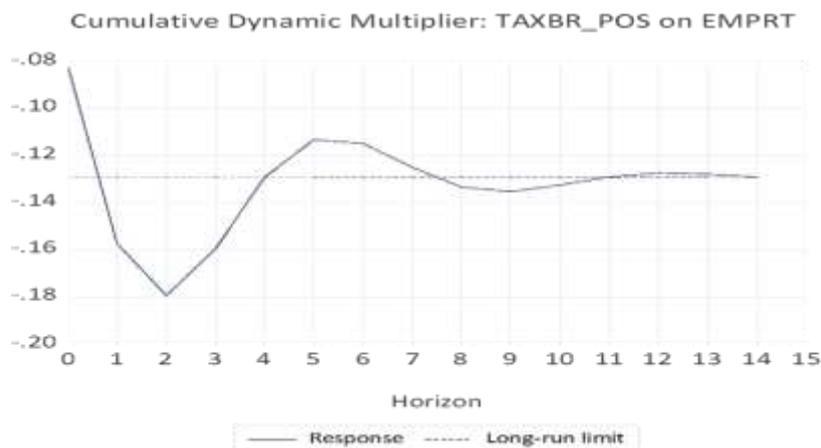
R-Squared	0.84173	Adj. R-Squared***	0.77098	Wald Test: Equation,	-20.36672
CointEq(-1)*	-0.529465 (0.424934)	F-statistic	11.6693	NARDL: Probability	(6.718112) 0.000000

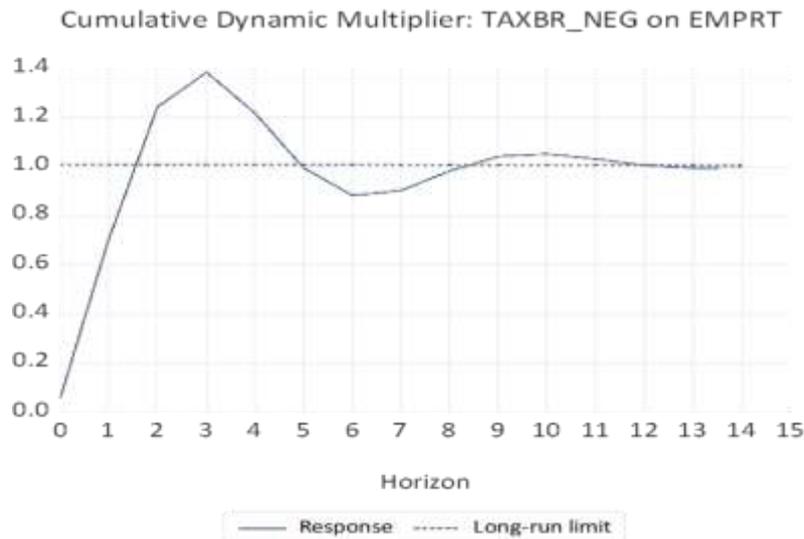
* Depended Variable

** For Depended Variable

***Adj.R-Squared: Adjusted R-squared

As seen in table 6 above, it relates to the tables with the feature that employment rates in Turkey are positively affected by the variability of employment rates as the dependent variable "EMP_RATE 1.047451" It reveals that labour supply is significant with a mutually positive trend. The existence of this short-term positive effect is remarkable. "EMP_RATE -0.438302", where the negative effects continue with delays, albeit on a small scale; "EMP_RATE-0.313721". However, it reveals that it has a positive effect, albeit small, in the medium term. However, it is observed that each unit increase in the public sector borrowing requirement - PSBR has a short-term decreasing effect on employment as a substitution effect on employment rates as "PSBR -0.222767" in the current period., it positively affects employment with its positive effect with small scale effect values "PSBR 0.196999"; PSBR as "0.197946". But, it should be emphasised that the variable that constitutes the focal point of our research, especially in terms of the tax burden. Chart 3 below presents the long-term impact variability of tax burden on employment variability as the positive limits:





Graphic 3. Long-term Impact Variability of Tax Burden on Employment Variability

Graphic 3 above demonstrates the long-term impact of tax burden variability on employment variability in positive, meaningful limits. However, it is also crucial that comments in the short term, which is essential for Turkey and unit scale values. Although these impact values create a small positive substitution effect for employment rates in the current period as "TAXBR_POS, 0.619514", albeit in the short term, the next delay is positive, this impact scale is "TAXBR_POS, -0.952714; It reveals that it turns into a substitution effect on employment, which turns into negative impact values as "TAXBR_POS, 0.381048" and "TAXBR_POS, -0.526432" and eliminates the positive limit values. When the subject is considered in terms of negative limit values of the tax burden within the framework of our non-linear model, it is seen that it creates a negative substitution effect on employment rates as the values "TAXBR_NEG, -0.699163; TAXBR_NEG, 0.916304" and "TAXBR_NEG -0.319354". The position of primary delay impact values with positive impact values can be explained by the fact that the reflection of primary delays on consumption cannot be fully felt with both negative and positive tax burden impact values TAXBR_POS, 0.381048; TAXBR_NEG as 0.916304".

5. DISCUSSION

Understanding the recent significant differences in tax burden variability in Turkey, especially its potential effects on employment, is very important. This importance creates a vital debate in Turkey concerning increasing unemployment rates and indirectly enables us to understand the impact of public debt on taxation. In this context, evaluating different fiscal values and examining the relationship of macroeconomic indicators in the context of tax burden leads to essential comments on the employment level in Turkey. In addition to the substitution effect, understanding the extent to which this effect affects unemployment is also critical in solving unemployment problems in Turkey. This observation constitutes a critical development area for developing countries such as Turkey because it plays an essential role in the theoretical framework of short- and long-term discussions.

Theoretical Implications Framework:

It is a fact that different values affect unemployment rates, especially in developing countries such as Turkey. Each country's structural values and macroeconomic balances are essential in determining the factors affecting unemployment rates. When the issue is considered theoretically, it is seen that this theoretical approach also brings theoretical application frameworks that differ according to country. Therefore, measuring these effects is considered within a framework where landing values are experiencing more fiscal imbalances in countries such as Turkey and where these imbalances directly affect the central government budget at the level of the current account deficit. It can be seen that the central government budget is particularly negatively affected, and this situation reveals a situation that should be questioned in these countries, including the substitution effects of increasing tax burdens with public financing approaches. In the theoretical context, especially in countries such as Turkey, significant tax burden effects encourage more idleness rather than increasing employment, increasing unemployment through a substitute employment effect. In terms of income effect, it is theoretically emphasized that approaches to the positive impact of employment are not very meaningful with the increasing tax burden in developing countries. Instead, they create an expanding effect on unemployment rates. In this context, increasing tax burdens in tax theory have different values, especially in developing countries like Turkey. The tax burden effect is far from fair, negatively affects income, and creates more idleness. Theoretically, questioning these values in Turkey is also an important reason to question approaches that suggest that they increase the idleness effect or unemployment rates rather than the income effect. These discussions will not only make significant contributions to the solution of Turkey's unemployment problem

but will also allow the internal dynamics of other developing countries to be questioned. A more in-depth examination of Turkey's tax and employment policies' interactions in this context may help many global countries address similar problems. In addition to these analyses, it is also a significant trend to understand in which areas the differences arising from the total employment rate may vary. Examining this trend will provide an understanding of the response values in areas such as consumption expenditures and social and welfare level accounts. Therefore, measuring the effects of these issues on the welfare economy shows that all kinds of values find a place as a meaningful value in the process.

Current Implications of Determinations:

The relationship between tax burden and employment should not be considered only in terms of a single tax burden, especially in developing countries. In practice, the trends observed in addressing this issue are striking. With a correct approach, it can be seen that other variables affecting the tax burden indirectly affect it, especially with the increase in public financing justifications for public needs. Especially for developing countries, there is a tendency to increase tax rates as the public sector borrowing requirement rises, increasing the tax burden. Developing countries, especially Turkey, have experienced increased tax rates as the public sector borrowing requirement has increased, increasing the tax burden. This means that the tax burden expands as the financing need increases. This increase has resulted in an expansion of the tax spectrum rather than individuals paying higher tax rates. In terms of practices, a fair tax system and reforms aimed at equitable distribution of the tax base are necessary to eliminate the negative effects of the tax burden. Nowadays, preventing increasing tax burdens has become a severe problem for almost all countries. There is a general acceptance that, in particular, the tax base is not spread relatively, and the tax burden negatively affects employment rates. In practice, trying to explain increasing unemployment rates only with the tax burden and public sector borrowing requirement indicates an incomplete analysis of employment. In a structure where the impact of inflation is higher and in an economic system where deviations in purchasing power occur along with inflation, it is inevitable that the tax burden will increase or harm employment rates. This structural approach shows that the issue cannot be explained solely based on financial balance values. In practice, a trend is observed in which more comprehensive structural changes are demanded, especially with the increasing expectations of fiscal reform. Setting different targets in fiscal expectations can create a trend that can positively affect unemployment rates. Particularly in the long run, structural changes can increase the level of welfare and contribute to a fair income distribution, as well as their effects on unemployment. Therefore, it is extremely important to establish and control appropriate policies and practices. Adopting a structural approach in practices will be essential in preventing tax system injustice and reflecting the tax burden on employment rates. Deviations from the global nature of financial practices have negative effects not only at the national level but also on the global scale.

Limitations and Future Research Directions:

It should be acknowledged that the limits encountered while researching the impact of tax burden and public borrowing requirements on employment, especially current values, play an essential role in the emergence of research. These values can have a significant impact potential by associating them with various components in future applications. In other words, applying different values and the economic policies countries adopt according to economic growth trends affects tax perception and fiscal balances in various ways. It is crucial to consider the tax-based impact of employment by associating it with a tax-based fiscal impact value. However, a general acceptance that each fiscal value ultimately creates a specific tax increase effect should not ignore the possibility of a base expansion that could further reduce the application and rates of tax values in the future. This structure highlights that other research can consider the substitution effect on unemployment from a broader perspective, although it faces limitations, especially when different values are considered. This obligation also reveals the importance of different perspectives in any research, where various countries encounter different findings and can be regarded as a reason for standard deviations in the process. However, this deviation should not be interpreted as a shortcoming or a negative framework in examining financial relations regarding unemployment rates at the global level because countries' implementation of different welfare policies for different unemployment rates continues meaningfully by associating per capita national income with varying impact values. For this reason, the direct association of tax policies and practices in each country's unique tax system with the tax burden should be questioned again, and future research should not ignore the areas in which the substitution effect on unemployment and employment can be interpreted. It should not be forgotten that, in addition to the income effect, employment substitution effects on unemployment and idleness preferences are shaped by cultural differences. These different approaches affect unemployment and employment rates. As a result, examining multiple components and variables that can be expressed with other values to explain unemployment in models creates a more helpful basis, which is a critical necessity for future research. In this context, it is seen that the substitution effect regarding financial values manifests itself in situations such as an increase in income and labour supply or a tendency to work more.

6. CONCLUSION

Regarding income impact in Turkey, it is theoretically confirmed that the emphasis on the positive effects of employment is not compatible with increasing tax burdens but causes an increase in unemployment rates. In this context, it can be stated that the increasing tax burdens in tax theory have different values, especially in developing countries such as Turkey, and are far from a fair tax burden, negatively affecting income and increasing unemployment due to the idleness effect. The employment phenomenon in Turkey is changing under the influence of factors such as the tax burden, the direct substitution effect and some other debt components. In this context, it should be emphasized that increasing tax burdens are affected by various aspects. It is understood that this critical effect, creating a tax burden authority that can be expressed with different values, is accepted as the main reason for the tax change process in Turkey and the recent increase in the tax burden. Therefore, in a process where the increasing need for public financing and taxes come to the fore due to this need, doubts about tax justice created by differences in the tax burden base also come to the fore. Moreover, they found a place in the process for a reason that negatively affects the substitution effect. In practice in Turkey, a trend is observed in which more comprehensive structural changes are demanded, especially with increasing financial reform expectations. Setting different targets in fiscal expectations may create a substitution effect trend that may positively affect unemployment rates in Turkey. Especially in the long run, structural changes can increase the level of welfare and contribute to fair income distribution and their effects on unemployment. Therefore, establishing and controlling appropriate policies and practices reveals that it is crucial for the positive expectations on employment in Turkey in the recent period. Adopting a structural approach in practices, preventing tax system injustice and reflecting the tax burden on employment rates reveals that the tax burden will be fundamental in establishing a positive employment substitution relationship. In addition, it is understood that deviations from the global nature of financial practices negatively affect Turkey at the national and international levels. Therefore, bringing together different approaches, evaluating them on a common platform, and establishing a harmonious standard can make tax practices fairer and more practical internationally, primarily as a positive substitution effect for increasing taxes. In this context, the substitution effect is a climacteric process and requires understanding to what extent the welfare levels of economic behaviour are directly affected by the results of tax changes and to what extent they deviate from the scale effects of fair taxation values based on Turkey.

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Annex:

Annex 1. Cointegrating Equation and Log-Likelihood Results

1. Cointegrating Equation Log-Likelihood: -167.9371		
Normalized cointegrating coefficients (standard error in parentheses)		
EMPRT	PSBR	TAXBR
1.00000	1.140612 (0.363676)	2.553052 (0.773295)
Adjustment coefficients (standard error in parentheses)		
D(EMPRT)	0.0265113 (0.040067)	
D(PSBR)	-0.2056832 (0.078292)	
D(TAXBR)	-0.0509363 (0.040741)	
2 Cointegrating Equations		
Log-Likelihood: -164.8806		
Normalized cointegrating coefficients (standard error in parentheses)		
EMPRT	PSBR	TAXBR
1.00000	0.00000	-1.691787 (0.58356)
0.00000	1.00000	3.721544 (0.85823)
Adjustment coefficients (standard error in parentheses)		
D(EMPRT)	-0.0934615 (0.103642)	0.0022422 (0.050519)
D(PSBR)	-0.5158158 (0.198748)	-0.3069776 (0.096876)
D(TAXBR)	0.0747601 (0.105224)	-0.0287665 (0.051293)