ACTA SCIENTIAE

ISSN: 2178-7727

Alterations In Macro-Fiscal Balances In G7 Countries And Their Cointegration Scales Impact On Economic Growth

Dr. Ahmet Niyazi ÖZKER

Bandirma Onyedi Eylul University, Faculty of Economics and Administrative Sciences, Public Finance Department 10200-TÜRKİYE

ABSTRACT

This study aims to examine the financial balances among the G-7 countries, especially developed countries, with a panel data model as a change process and to reveal possible panel effect values on economic growth trends. Especially from the perspective of macroeconomic balances, the macro-fiscal balances of the G7 countries have recently entered a period of significant negative change, with the economies being negatively affected and the structure frequently bringing stable growth problems to the agenda. Therefore, mainly when macroeconomic imbalances exist, and these balances are evaluated based on Gross Domestic Product (GDP), it is also critical to emphasize the medium and long-term balance relationship of macroeconomic balances, especially with cointegration panel data analysis. More importantly, the relationship between the changes in the fiscal balances in question-based on these countries and economic growth reveals that it makes sense for a process in which primary budget deficits are also in question due to public expenditure effects on budget revenue-expenditure balances. It also expresses the significance of a structural economic change process in which the current account deficit process, which creates macro-financial impact values, directly affects the determinations on a GDP basis in the relevant period we take as a basis. With an integrated approach, it is also understood that these determinations provide a basis for determining the dynamics of the correlations between fiscal stability performances and economic growth in the context of G7 countries. These are accepted as critiques and practical dynamics determined to promote stability and create effective strategies for G7 countries intended to catch the aimed fiscal balances that affect economic growth objectives. It is also understood that this phenomenon means creating a process of decisions based on a macroeconomic change process and growth targets for economic expansion, with a set of factors including economic and political preferences in the global economic environment.

KEYWORDS: Economic Growth, G7 Countries, Gross Domestic Product-GDP, Macro-Fiscal Balances, Tax Revenues.

INTRODUCTION

In G7 countries, structures aimed explicitly at the formation of fiscal balances are handled within the scope of public debt, tax revenues, and expenditures in terms of macro-fiscal balances; at the same time, current account deficit positions, another macroeconomic variable, are also included in this process reveals a structural unity of influence. A cointegration approach to economic growth, especially regarding macro-fiscal balances, means statistical determinations that one or more long-term dynamics have a relationship. In comparison, at least two or three long-term dynamics have a relationship. In terms of economic growth, G7 countries—the United States, Canada, the United Kingdom, Germany, France, Italy, and Japan—make important decisions regarding global economic policies, and these decisions explain the existence of some determinations regarding economic growth with cointegration analyses. In this context, cointegration analyses, time series, and panel data analyses show that improvements in macro-financial balances generally affect economic growth positively. In the study, budget deficits, public revenues that can stimulate the economy, and tax revenues based on gross domestic product are considered essential indicators of macro-fiscal balances. Maintaining fiscal discipline in G7 countries directly relates to policymakers optimizing tax and spending policies to support economic growth (IMF, 2015: 17). Correct evaluation of the results due to cointegration effects increases the meaningfulness of this process. In this respect, understanding the impact of the economic variables expressed in the study reveals that they should be evaluated within the framework

ISSN: 2178-7727

of a vital cointegration in G7 countries. This obligation also shows that, in determining economic policies, the aim is to compare structural values and determine priorities in interpreting impact values despite countries' development differences. In this way, the impact of macro-fiscal balances on economic growth in G7 countries can be addressed within the framework of a healthier and more sustainable economic policy via empirical determinations (Magkonis & Tsopanakis, 2014: 348-349).

The aim here is to evaluate the impact of these dynamics on economic growth, especially within the framework of impact values that can be expressed in terms of macro-fiscal balances, including the effects of macro-fiscal indicators. Therefore, public debts and tax revenues on a central government basis and the current account deficit on economic growth, it is necessary to put forward suggestions regarding economic growth macro, especially macro-fiscal policies, in which policy recommendations will be expressed in terms of G7 countries (Gürdal et al., 2021: 322). This empirical framework allows us to address the issue from a longer-term perspective, reveal the additional connections between cointegration analyses and economic growth regarding macro-fiscal balances, and understand the level of mutual cointegration impact values within the scope of macro-fiscal policies. In other words, this formation location concerning the rational expectations to emphasize the inevitability of understanding the impact analysis of the primary dynamics that direct this phenomenon needs the correlations analysed. In addition, this approach allows us to address the issue from a longer-term perspective, reveal the additional connections between cointegration analyses and economic growth regarding macro-fiscal balances, and understand the level of mutual cointegration impact values within the scope of the fiscal policies. In this respect, in line with the findings that can be revealed through comparative analyses and panel data analyses, the similarities and differences between G7 countries are examined, and significant findings are pointed out to determine macro-fiscal policies (The World Bank, 2017: 46-47). Within this structure, which also includes policy recommendations, the meaningfulness of evaluating the mutual impact values of policies that support economic growth within the relation scope of holistic economic-fiscal policies also emerges at this point. This significance reveals that considering economic policies, other macro-financial and economic balances, and multiple analyses integrated into these policies is an essential critical approach.

LITERATURE REVIEW

"The Macro-Econometric Multi-Country Model" study conducted by Deutsche Bundesbank (2000) covering many countries on the impact values of economic growth and financial elements has revealed important findings as one of the first model studies directly related to G7 countries. It should emphasise that Cottarelli and Schaechter's (2010) research is among the leading studies on this subject, and Mirdala's (2013) "Fiscal Imbalances and Current Account Adjustments in the European Transition Economies". The studies emphasize the impact of economic growth and fiscal balance values, especially in a process covering the long economic period within the G7 countries regarding changes in fiscal balances. Chen (2014), in his study, reached essential findings based on G7 countries by presenting a meaningful econometric model in which the permanence of the balance positions of fiscal sustainability was tested for G7 countries. In his study, Alexis (2014) reached basic findings in terms of fiscal balances and economic growth of countries with a meaningful econometric approach. The dynamics of fiscal balance positions, which will form the basis of G7 countries, were tested based on selected countries. Additionally, the empirical study titled “Co-ordination in Tense Times: Issues for the G7” by Delatte et al (2017); Schüler et al (2017) study titled "Coherent Financial Cycles for G-7 Countries: Why Extending Credit Can Be an Asset" and Schüler's (2018) study titled "Detrending And Financial Cycle Facts Across G7 Countries: Mind A Spurious Medium Term", the economic growth relationship between taxes and public debts based on econometric time series has presented meaningful findings for today in terms of scale effect values dynamics. Other studies that shed light on our study include Borio's (2017) "Financial Stability, in Challenges for Global Macroeconomic Stability and the Role of the G7" and Guleryuz's (2017) "Fiscal Sustainability in the G-7 Countries". Barret's (2018) study titled "Interest-Growth Differentials and Debt Limits in Advanced Economies", which follows this study, has an important place in terms of clearly revealing the relationship between macroeconomic balances and financial dynamics. In these researches, a country-by-country basis Coordinated Approach to Foster Sustainable Growth and Financial Stability was revealed depending on the tax revenues central

ISSN: 2178-7727

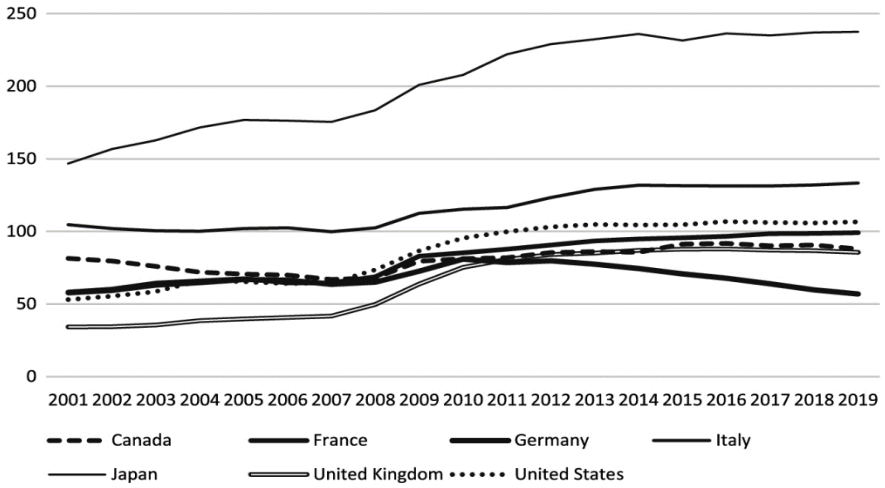
government debts alterations. Siddiqui's (2017) "Austerity as A Tool of Fiscal Consolidation: Theoretical and Empirical Perspective" named research; Wong et al (2018) “Real Exchange Rate Return and Real Stock Price Returns: An Investigation on The Stock Market of Malaysia" named academic studies, and Yousefi'nin (2019) “Public Sector Balance Sheet Strength and the Macro Economy” named studies pointed on questioning the economic growth effect of public debt limits and financing, meaningful findings that shed light on our study. In particular, Habibi and Lee's (2019) study titled "Asymmetric Effects of Exchange Rates on Stock Prices in G7 Countries", as well as Humpe and McMillan's (2020) "Macroeconomic Variables and Long-Term Stock Market Performance: A Panel ARDL Cointegration Approach for G7 Countries", and Koshima et al's (2021) "The Cost of Future Policy: Intertemporal Public Sector Balance Sheets in the G7" research work and Koşaroğlu's (2021) "Comparison of Macroeconomic Performances of E7 Countries with ENTROPY and ARAS Methods" The values determined in his study titled, are critical in terms of the impact values of exchange rate fluctuations the relationship between financial balance change and economic growth determined in these studies on GDP based on G7 countries are still up to date. Belhoula et al.'s (2023) study on "Impacts of Investor's Sentiment, Uncertainty Indexes, and Macroeconomic Factors on The Dynamic Efficiency of G7 Stock Markets"; Özker's (2022) study on "Recent Deflection Effects of Macro Components in G7 Countries and Findings" in the studies titled "Contractionary Monetary Expansion Fact" and Üçler'in (2024) “Comparison of G-7 Countries' Macroeconomic Performance with SD and MABAC Methods” titled studies are studies that reveal the relationship between alterations in macro-fiscal balances in G7 countries and cointegration and current findings have supported our research's framework.

ALTERATIONS IN THE BASED FISCAL BALANCES IN G7 COUNTRIES AND THE ECONOMIC GROWTH

It also reveals a significant change in the process of change in central government debt, calculated as a percentage of Gross Domestic Product (GDP), with the increasing trends in central government debt rates during the relevant years in our analysis. It is noteworthy that these trends differ among G7 countries. While there are more significant increases in borrowing rates in countries such as France and Germany, different borrowing trends are observed in some countries such as Italy. The fiscal balances and borrowing trends of each G7 country are critical to understanding their relationship to economic growth. Analysing these trends in detail is meaningful in terms of the effects of an important change trend in understanding the effects of central government borrowings on macroeconomic balances (Sutherland & Hoeller, 2020: 8).

For G7 countries, central government borrowing has a significant position, especially with its impact values that can be expressed as the ratio of tax revenues to Gross Domestic Product (GDP). In this context, it is meaningful to emphasize that the most important increase was in Japan, especially in government borrowings, and then the same issue (Égert, 2012: 14-15). Although it has increased significantly, especially in the United States, it is also worth emphasizing that the control and stable position continues in France and Germany. It is understood that it increases at different levels without experiencing any deviations and reveals a positive correlation. On the other hand, it should be emphasized that the most important reason for the increase in government debt, especially in Japan, is the global partnership agreements aimed at increasing investment volumes based on the increasing foreign trade volume, especially after 2009 (Fratzscher et al., 2011: 688). In addition, the position of stable central government borrowing, especially in Canada, is also more remarkable. In the Graph 1 below, it is also possible to follow the development of the proportional values of central government borrowing as a percentage of the GDP of the G7 countries in the context of the G7 countries:

ISSN: 2178-7727



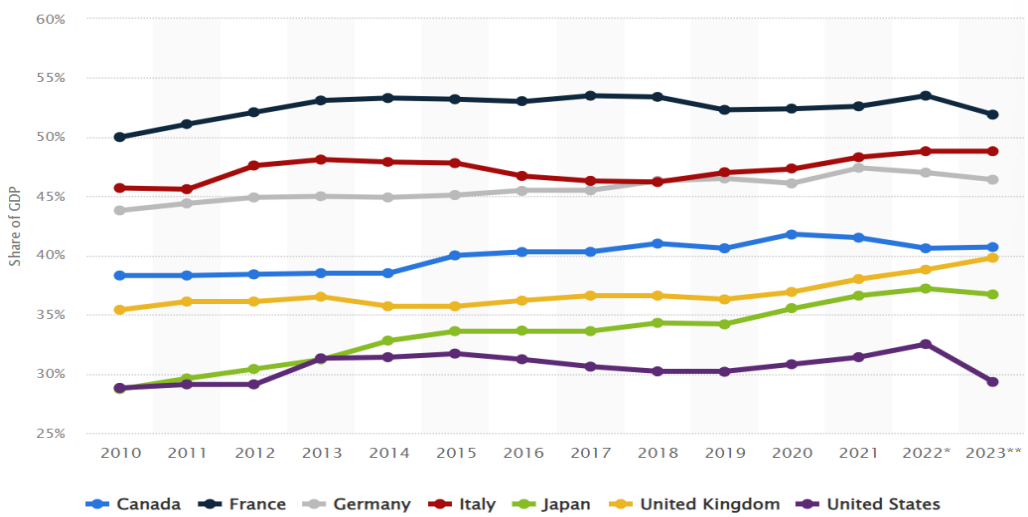
Source: Noritaka Maebayashi and Jumpei Tanaka (2022). "Limited Asset Market Participation and Fiscal Sustainability", *Journal of Economics*, 137(4), p.2. DOI:10.1007/s00712-022-00776-w.

Graphic 1. Changes in Central Government Debt in G7 countries - GDP (%)

As seen in Chart 1 above, especially the central government's debt changes values entered a significant increasing trend in almost all G7 countries after 2010, but while it continued in a more controlled and more stable position in some countries, there was a further increasing debt trend in some countries. It is observed that it constitutes a significant part of GDP. As we mentioned before, this increase, especially in Japan, reveals that the growth trends in GDP enter a different trend and create a more significant increase effect. It is understood that in the periods after 2019 and 2020, it is inevitable that the borrowing requirements in almost all countries will increase, resulting in an increasing trend in central government borrowings due to the impact of the Coronavirus-19 process (Grint, 2020; Azar et al., 2023: 144-145). It should be emphasized that the growing public borrowings, especially regarding tax revenues, are in the process with a significant impact value, creating a significant effect, scale effect and growth effect in terms of the proportional position of tax revenues based on GDP and the tax burden (Fitrah et al., 2023: 4).

Therefore, considering both the impact values of the increases based on GDP as a dependent variable and the independent variables used in the model, along with the increasing trend in tax revenues in response to this increase in public revenues, makes it inevitable that the impact values of the rise in debt rates on a GDP basis are significant as an influential independent variable. On the other hand, when considering the issue based on current account deficits, it should be emphasized that the effect of the current account deficit level, especially the formation of a different trend, is not included in the model as a different value (Chen, 2011: 196-197). Especially in countries such as France and Germany, creates an economic growth effect equivalent to a meaningful effect mechanism and creates a gross growth effect based on GDP, in terms of the main primary objectives of our study is essential (European Parliament, 2023: 2). In this context, it is useful to emphasize the increase positions in public revenues based on G7 countries. It is possible to follow the change in weighted tax revenues as public revenues in the G7 countries as a proportional percentage of GDP in Chart 2 below:

ISSN: 2178-7727

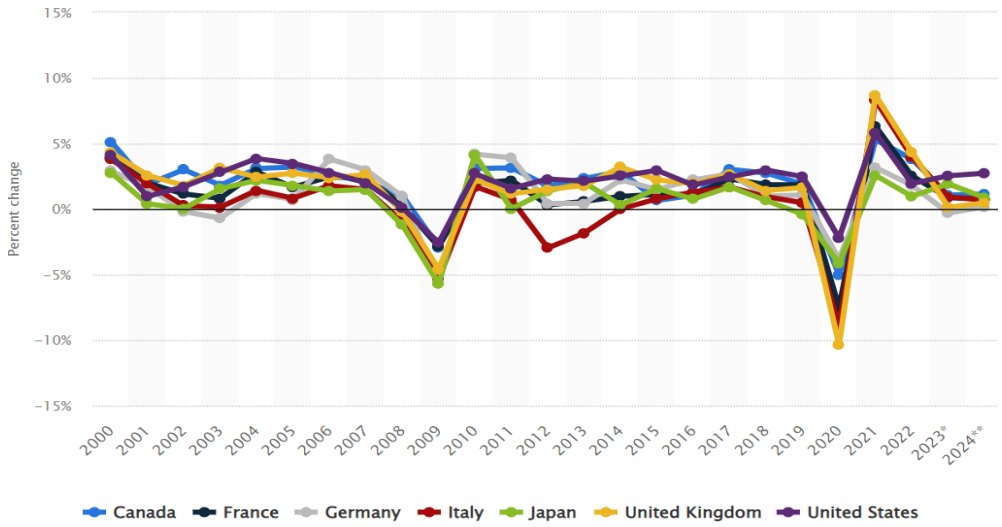


Source: Einar H. Dyvik (2023). *Government Revenue of G7 Countries as Share of GDP 2010-2023, By Country*, Statista - Oct 20, 2023, https://www.statista.com/statistics/1370940/g7-government-revenue-share-gdp/ (Accessed May, 12.2024).

Graphic 2. Government Revenues of G7 Countries in 2009-2023 (as Share of GDP by Country)

Looking at Chart 2 above, it would be more accurate to state that there is no significant increase trend in public revenues based on G7 countries and that this increasing trend generally continued in a stable situation in the relevant period rather than an increase in public revenues. It is possible to observe that the current public revenues in almost all G7 countries - especially France and Italy - continued at an approximately stable level on a GDP basis after 2009. This also means an increasing tax burden rate, although there is no increase in public revenues, as the GDP shrinks, which is an important structure in the Corona 19 process. Even though this tax rate has shown an increasing trend in 2022, especially in the USA, it also indicates a significant deviation effect in the public revenues of the relevant economy in 2023, with a significant decrease in 2023. However, the structure of public revenues in Germany, which can be considered the most stable, continues to be in a more stable position, especially with the rates of public revenues currently around 40%, with a difference of approximately 2%. In Japan, as we mentioned before, there was a significant increase trend after 2015 regarding the increase in public revenues at the same level parallel to the increase in central government borrowing revenues, and this increase trend reached 2023 with a continuous increase trend, and the increase in public revenues on a GDP basis in Japan It is seen that it shows the highest significant increase trend in terms of public revenues among the G7 countries (OECD, 2023: 75). In this context, it should be emphasized that the effect of this increase in public revenues on gross domestic product and economic growth creates a significant level of impact and positively affects the average of G7 countries. It can be said that this public revenue multiplier, as well as the tax multiplier, further affects the impact on global gross domestic product in the model, creating a significant positive impact on GDP as an average of G7 countries. In this respect, it is observed that the variability in the increase in GDP rates especially for the G7 countries is subject to significant changes in the relevant period, but a very similar trend continues within the G7 countries. In Chart 3 below, the percentage changes in GDP rates for the G7 countries in the relevant period can be monitored:

ISSN: 2178-7727



Source: Einar H. Dyvik (2024). *Gross Domestic Product Growth Rates of G7 Countries 2000-2024*, Statista - Apr 29, 2024, https://www.statista.com/statistics/1370599/g7-country-gdp-growth/ (Accessed May, 19.2024).

Graphic 3. Alterations for Growth of Gross Domestic Product Rates in G7 Countries 2000-2024 – GDP (%)

As seen in Chart 3 above, it is understood that the proportional changes in GDP in the G7 countries, although they remain in a particularly stable position, were subject to significant deviations in 2009 and 2020. Our study shows that the impact values of these deviations, as impact values on GDP rates, reveal a reverse correlation effect that is directly affected by central government debts in response to changes in tax revenue rates. The issue that attracts more attention, especially regarding the UK, is that, while the UK and Japan shrank by around -5% in 2009, it is observed that the contraction in 2020 was around -11% in the year covered by the Corona19 Process. This deviation in the contraction event in 2020, especially in the United Kingdom and then reveals a recovery period of rapid economic growth, with a peak economic growth in 2022 (Keleş, 2023: 730). Accordingly, it is seen that a significant deviation value was experienced in Italy in 2011 and 2012, and therefore it is significant in terms of revealing that the independent variables we used as the model in our study have a reverse regressive correlation with the dependent variable. Again, in this context, it is observed that the downward trend of GDP, especially in the United States in 2009, decreased by approximately 3% during the Corona-19 period in 2020. However, with a significant economic recovery in 2021 and 2022, it reveals that it has reached a stable growth trend of 3% after 2022, in a major economic growth trend. The striking meaning of this dependent correlation relationship, especially in the model, has found its place in the process as an approach that causes significant deviation values that also affect the average of G7 countries and the difference in the scale effect of the combined cumulative effect values within the G7 countries (Altıntaş, 2023: 178-179). Our model shows that the variability related to GDP as the dependent variable is included in the process as an important reason for the deviation values in the scale effects

EMPIRICAL APPROACH AND METHODOLOGY

It was aimed to create a model based on panel data analysis in researching a GDP-based economic growth trend for G7 countries, and two impact dynamics were taken as independent variables in practice based on two main variables. In addition to taking GDP values as a dependent variable, it is aimed at creating our Panel Data model based on independent dynamics, the proportional increase in tax revenues on a GDP basis, and the proportional increases in the borrowing revenues of the central government. This choice was also considered to test the accuracy of the model by including the unit root test analyses of the series in question for each of the G7 countries in our panel data analysis. It should be emphasized below that our analysis framework was created with the analytical structure of the central theme for panel data analysis:

$$Y_{it} = \alpha_{it} + \beta_{it}X_{it} + \mu_{it} \qquad i = 1,\ldots,N \; ; \qquad t = 1,\ldots,T$$

ISSN: 2178-7727

……..(1)

In the Panel Data analysis we created, it can be said that the coefficients that vary depending on the time series for the units are considered within the scope of the fixed effects model, under a certain assumption:

$$Yit = \beta_0 + \beta_1 X_{it} + \gamma_2 D_{2i} + \gamma_3 D_{3i} + \ldots\ldots + \gamma_n D_{ni} + \mu_{it}$$

$i = 1,\ldots,N\ ;\quad t = 1,\ldots\ldots T$

.(2)

In addition, "Longitudinal" Pooled Data approaches with data obtained within the framework created by combining time series and cross-sectional data are also within the scope of the basic framework of our analyses. Unit and time effects in the random effects model within the framework of "Pooled Data" are included in the analysis as a component of the error term within the framework of the random variables model:

$$v_{it} = \varepsilon_{it} + \mu_{it} \qquad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (3)$$

With these differences, the random effects model can be created as follows:

$$Y_{it} = \beta_0 + \beta_1 Xit + \beta_2 X2_{it} + \ldots + \beta_{ki} X_{kit} + u_{it} + \mu_{it} \qquad \ldots\ldots\ldots\ldots \quad (4)$$

The statistical significance of the difference between the parameter estimators of the random effects model and the fixed effects model parameter estimators was discussed within the framework of the "Hausman Test" criteria below:

H_0: There is no correlation between explanatory variables and unit (time) effects.

H_1: Explanatory variables and unit (time) effects are correlated.

The autocorrelation test approach within the framework of the variables in the model is based on the following hypotheses within the framework of the alternative "ε_{it}" approach without correlation regarding equal cross-sectional units:

$$H_0 : \rho_{ij} = \rho_{ji} = core\,(\varepsilon_{it}, \varepsilon_{jt}) \qquad i \neq j$$

$$H_1 : \rho_{ij} = \rho_{ji} \neq 0$$

Under the assumption that "μ_i" is accepted as the fixed effects parameter in our model, the null hypothesis will be **$H_0 : \acute{\rho} = 0$**. In this context, our Panel Data Model, which we are based on, is more clearly:

$$y_i = Z_i\delta + \mu_1 l_T + v_i \qquad \ldots\ldots\ldots\ldots\ldots\ldots \quad (5)$$

K

y_{it} □ □ □ □□j x jit □ □i □ □it   j = 1,2,3,..., K , i = 1,2,3,...,, N and t = 1,2,3,...,T ....

(6)

J□1

To explain the one-way random effects model:

K

y_{it} □ □□j x jit □□□ i □ □it   j = 1,2,3,..., K , i = 1,2,3,...,, N and t = 1,2,3,...,T

...(7)

J□1

Instead of taking "□ i" in Equation 7 as a fixed effect, it can be taken as a random variable with an average of "□□□In this case, the unique segment of each unit can be explained as follows:

□□□

i = 1,2,3,..., N ………………………………………… (8)

First, we analysed the probability responses of the unit root tests, stationarity analysis and significance levels of the dependent and independent variables we used in our model. Unit root tests were performed based on the Levin-Lin-Chu Unit-Root test. It is possible to see the results of the stationarity test analysis in Table 1 below, within the scope of the Levin-Lin-Chu Unit-Root test:

ISSN: 2178-7727

Table 1. Levin-Lin-Chu Unit-Root Test for Variable Series in The Model

gdp_	Statistic	p-value
Unadjusted t	168	
Adjusted t*	317	0.0000
taxrvgdp	Statistic	p-value
Unadjusted t	-7.1786	
Adjusted t*	-2.3127	0.0104
cngvdb	Statistic	p-value
Unadjusted t	-5.8014	
Adjusted t*	-0.8304	0.0032
cacbı	Statistic	p-value
Unadjusted t	-5.5135	
Adjusted t*	0.1325	0.0027

Ho: Panels contain unit roots — Number of panels = 7
Ha: Panels are stationary — Number of periods = 41
Asymptotics: N/T -> 0 — ADF regressions: 1 lag
LR variance: Bartlett kernel, 11.00 lags average (chosen by LLC)

As can be seen from the probability values in Table 1 above, it is understood that the series representing the variables are stationary as the probability values are less than “0.05”, as <0.05. The Cross-Section Independent test was conducted to determine how the variables were related to each other and possible common factors common to all variables in Table 2:

Table 2. The Cross-Sectional Independence Test Results

Frees' test of independence	cross-sectional =	0.326, 4.97548	Pr =
Pesaran's test of independence	cross-sectional =	18.766, 0.00912	Pr =
Friedman's test of independence	cross-sectional =	73.740, 0.39592	Pr =

In Table 2 above, the Cross-Section Independence test reveals that panel data is a factorial structure in which all factors in the model are related to each other. In the pooled panel linear regression model, intended to define and analyse time-dependent heterogeneity within the panel linear regulation model's scope and avoid a specification error.

In terms of the reliability of the estimates, the pooled panel data regression analysis results are presented below in Table 3:

ISSN: 2178-7727

Table 3. Pooled Linear Regression Estimation Results

Lineer Regression							
gdp	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
taxrvgdp	.013	.019	0.71	.000	-.024	.051	
cngvdb	-.012	.004	-3.03	.003	-.019	-.004	***
cacbl	.026	.052	0.51	.005	-.076	.128	
Constant	3.544	.677	5.23	0	2.211	4.876	***

Mean dependent var	3.263	SD dependent var	2.434
R-squared	0.435	Number of obs	287
F-test	3.448	Prob > F	0.017
Akaike crit. (AIC)	1321.761	Bayesian crit. (BIC)	1336.399

*** *p<.01, ** p<.05, * p<.1*

gdp = 3.544 + .013*taxrvgdp - .012* cngvdb + .026*cacbl

As seen in Table 3 above, pooled panel data regression analyses show that, in addition to the R-square values (R-square 0.635) being significant, increases in tax revenues (taxrvgdp 0.013) and changes in the current account deficit balance (cacbl 0.026) also have a positive contribution value. The analysis values for understanding and analyzing the fixed effects model (fe) in selecting the final predictive model are presented in Table 4 below:

Table 4. The Fixed Effects (fe) Model Regression Analysis Results

gdp	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
taxrvgdp	.015	.013	1.16	.000	-.01	.04	
cngvdb	-.009	.003	-3.18	.002	-.014	-.003	***
cacbl	.009	.035	0.25	.005	-.06	.078	
Constant	3.313	.458	7.24	0	2.411	4.214	***

Mean dependent var	3.263	SD dependent var	2.434
R-squared	0.639	Number of obs	287
F-test	4.346	Prob > F	0.000
Akaike crit. (AIC)	1042.006	Bayesian crit. (BIC)	1056.644

*** *p<.01, ** p<.05, * p<.1*

gdp = 3.313+ .015*taxrvgdp - .009* cngvdb + .009*cacbl

After analyzing the fixed-effects model (fe), Random Effects were analyzed to the results of the Random effect values (re) model:

Table 5. The Random Effects (re) Model Regression Analysis Results

gdp	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
taxrvgdp	.015	.012	1.24	.216	-.009	.04	
cngvdb	-.009	.003	-3.32	.001	-.014	-.004	***
cacbı	.011	.035	0.31	.753	-.057	.079	
Constant	3.306	.536	6.16	0	2.255	4.357	***

Mean dependent var	3.263	SD dependent var	2.434

ISSN: 2178-7727

Overall r-squared	0.635	Number of obs	287
Chi-square	14.201	Prob > chi2	0.063
R-squared within	0.052	R-squared between	0.051

*** p<.01, ** p<.05, * p<.1

gdp = 3.306 + .015*taxrvgdp - .009* cngvdb + .011*cacbl

In the Hausman test for the selection of appropriate modeling, the following significance values are presented within the framework of the hypotheses:

Ho: $E(u_{it} / X_{it}) = 0$ or $E(\mu_i / X_{it}) = 0, E(t/X_{it}) = 0$ ……..….(9)

Fixed effects model (fe) is considered valid for correct analysis if the following equations are in place:

H_1: $E(u_{it} / X_{it}) \neq 0$ or $E(\mu_i / X_{it}) \neq 0, E(\lambda_t/X_{it}) \neq 0$……..…….(10)

Considering features related to the models, in Table 6 below, the Hausman Specification analysis test was also carried out to determine whether a Random effects model approach or a Fixed effects model is suitable:

Table 6. Hausman (1978) Specification Test

	----Coefficients----------			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
taxrvgdp	fe	re	Difference	S.E.
cngvdb	.0273863	-.0128509	.0145354	.2593276
cacb1	-.0118985	-.0129133	.0010149	.0032624
	.1782081	.1096409	.0685672	.0292914

b = consistent under H_o and H_a; obtained from xtreg

B = inconsistent under Ha, efficient under H_o; obtained from xtreg

Test: H_o: difference in coefficients not systematic

chi2(2) = (b-B)'[(V_b-V_B)^(-1)](b-B)

= 6.07

Prob>chi2 = 0.0481

As seen in Table 6 above, our model meets the conditions of H_1: $E(u_{it} / X_{it}) \neq 0$ or $E(\mu_i / X_{it}) \neq 0, E(\lambda_t/X_{it}) \neq 0$ within the scope of the Hausman test, so the analysis within the scope of the fixed effects **(fe)** model has been taken into consideration in Table 7:

Table 7. The Fixed Effects (fe) Model Regression Analysis Results

gdp	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
taxrvgdp	.015	.013	1.16	.004	-.01	.04	
cngvdb	-.009	.003	-3.18	.002	-.014	-.003	***
cacbl	.009	.035	0.25	.005	-.06	.078	
Constant	3.313	.458	7.24	0	2.411	4.214	***
F-test 4.346			Prob > F	0.000			

*** p<.01, ** p<.05, * p<.1

gdp = 3.313+ .015*taxrvgdp - .009* cngvdb + .009*cacbl

The Breusch Pagan Test was used to determine the Heteroscedasticity values, and the unbiased and consistency of the regression estimates based on the values within the framework of OLS estimators of the findings are expressed in Table 8 and 9:

ISSN: 2178-7727

Table 8. Breusch-Pagan Test Results to Determine the Heteroscedasticity Values

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity:
Ho: Constant variance
Variables: fitted values of gdp
chi2(1) = 14.42
Prob > chi2 = 0.0001

Table 9. Results of Test for Heteroskedasticity Values Based on G7 Countries

Summary of e[country,t]			
Country	Mean	Std. Dev.	Freq.
ABD	0.365	2.183	41
CAN	0.051	2.273	41
FR	-0.031	2.018	41
GER	-0.222	2.108	41
ITL	-0.036	2.894	41
JP	-0.040	1.793	41
UK	-0.086	2.708	41
Total	-0.000	2.293	287

W0 = 0.72824140	df(6, 280)	Pr > F = 0.62720015	
W50 = 0.77616528	df(6, 280)	Pr > F = 0.58921475	
W10 = 0.76082314	df(6, 280)	Pr > F = 0.60130276	

As determined in Tables 8-9 above, Brown, Leven and Forsythe tests were performed, and it was determined that H_0: no heteroscedasticity but H_1: heteroscedasticity. Since the values of "W0 = 0.72824140", "W50 = 0.77616528" and "W10 = 0.76082314" are greater than 0.05, as > 0.05, H_O cannot be rejected, and there is no heteroscedasticity. It has also frequently revealed that the variations in tax systems and increases in public revenues are meaningful, especially with different impact values, in response to the different development levels of countries regarding each macro value, which can be expressed explicitly as the subject of discussions.

In Table 10 below, Fixed-Effects Panel Data Regression Results for the Final Model and significance values are presented within the framework of the model we established:

Table 10. Fixed-Effects Panel Data Regression Results for the Final Model*

gdp = taxrvgdp + cngvdb + cacbı

Sample Size	=	287	Cross Sections Number	=	7
Wald Test	=	11.1996	P-Value > Chi2(3)	=	0.0007
F-Test	=	3.7332	P-Value > F(3 , 277)	=	0.0014
R2 (R-Squared)	=	0.0465	Raw Moments R2	=	0.6397
R2a (Adjusted R2)	=	-0.0554	Raw Moments R2 Adj	=	0.6280
Root MSE (Sigma)	=	2.4858	Log Likelihood Function	=	-643.7008

- R2h= 0.0165 R2h Adj=-0.0154 F-Test =	1.59	P-Value > F(3 , 277)	0.1931	
- R2v= 0.0852 R2v Adj= 0.0555 F-Test =	8.79	P-Value > F(3 , 277)	0.0000	

ISSN: 2178-7727

gdp	Coef.	Std. Err.	T	P>|t|	[95% Conf.	Interval]
taxrvgdp	.0556513	.1384907	0.40	0.008	-.2169765	.3282792
cngvdb	-.0124558	.0059778	-2.08	0.038	-.0242235	-.0006882
cacbı	.1833989	.0677033	2.71	0.007	.0501205	.3166772
_cons	2.220339	4.402982	0.50	0.614	-6.447218	10.8879

*Driscoll Kraay (1998) Estimators

gdp = 2.220339 + .0556513*taxrvgdp - . 0124558* cngvdb + .1833989*cacbl

As seen in Table 10 above, it is understood that a unit increase in the average tax burden of G7 countries creates an increased effect of "0.0556513-taxrvgdp" on GDP. However, if central government borrowings increase by one unit as an independent variable, GDP is negatively affected, subject to a unitary contraction of "- 0.0124558- cngvdb". On the other hand, it is observed that with each unit increase in current account balances, GDP is affected positively and creates a positive growth effect on GDP with a value of "0.1833989-cacbl".

DISCUSSION

Understanding the most important features and impact values on a gross domestic basis for G7 countries makes sense, especially based on creating a negative correlation with the increases in tax revenues and public financing and borrowing of the central government budget, which is the subject decision. In other words, it is observed that creating a significant impact value with percentage changes in a structure that includes current account deficit balances covering the same period is also subject to different discussions.

Theoretical Implications:

Despite all this, it is observed that an important value that can be subject to analysis reveals the inevitability of understanding the configuration effect on the target Gross Domestic Product increases, especially on economic growth. The integration between these variables, especially with its economic growth-oriented structure, also means that GDP is shaped by common impact values within the framework of global economic development, especially in G7 countries, where all balance forms related to countries in fiscal balances and their position in the process with economic growth are directly related to primary budget deficits. It reveals the variability of macro-financial balances, an important factor that has been considered, especially recently. Especially in the recent period, the change values of macro-fiscal balances in G7 countries, the different integration effects of the budget deficits arising from different countries and the scale of impact created by the central government budget on public debt values have become an important topic of discussion. In this context, it is noteworthy that it is inevitable to understand the integration effects of the values subject to analysis on economic growth as a result of the targeted GDP increases. The integration between these variables means that all balance forms related to countries, especially the G7 countries, with their economic growth-oriented structure, are shaped by their role in fiscal balances and common impact values within the framework of global economic development. Their position in the economic growth process is directly related to primary budget deficits. In the theoretical framework, it is also seen that this approach brings to the fore the understanding of the impact values based on the net tax burden of tax revenues, mainly public revenues, especially in understanding the impact values on GDP. In addition to the fact that the variations in the tax burden basis, especially the proportional impact values on direct economic growth and GDP, create a significant economic growth effect in real values, the negative existence of the structure in which the financing need arising from the central government budget deficits in the same process arises, especially based on borrowings, is associated with the public revenues that can be obtained. On the other hand, theoretically, it should be emphasised that the positive impact levels of current account deficits, especially when exports increase, also create a positive process effect with the twin deficit effect.

Practical Implications:

It is understood to affect economic growth by turning into a negative and inverse integration relationship. This theoretical approach has also revealed a meaningful structure that forms the theoretical basis of a twin deficit phenomenon, in which the deficits in the central government budget are directly affected by the

DOI: 10.57030/ASCI.25.2.AS13

ISSN: 2178-7727

current account deficits in the same period. This fiscal phenomenon can allow the scale of impact on the central government budget to be negatively reflected. In this context, the impact of macro-financial variations on economic growth can be seriously evaluated by evaluating inflation by including inflation values in an inflation-free process. This analysis emerges with an important contribution to the theoretical understanding of economic growth trends with a real GDP effect, which takes place as important macro-fiscal variables. In terms of G7 countries, it is understood that the effectiveness of these three variables, which we have taken as a basis in our study, especially as Macro fiscal variables, is a subject that can be expressed with different values in practice. In this context, each value that may arise, especially in practical applications, will profoundly affect increasing tax and public revenues.

Indeed, it aims to restrict increases in public expenditures with a specific control mechanism, thus significantly decreasing the central government budget borrowing values. It seems that the intention is to develop the existence of these effects simultaneously. These effects are severe in the G7 countries, where the change values of macro-fiscal balances and budget deficits differ from the integration and central government budget debt values. Besides, this approach is practised in a direct relationship with other borrowing trends and market financial balances and is directly affected by different levels of development. It also reveals that it has a different meaning with varying effect values. This structure also constitutes a critical infrastructure for questioning the periodic value of obtaining public income through borrowings that can be evaluated mainly through tax revenues and the strengthening of public financing policies by the central government. The emergence of central government borrowing needs relating to budget deficits reveal the understanding of an incomplete and insufficient phenomenon. Especially when it comes to financing the gross expenditures of public revenues, the differences in tax systems are also affected, and that is far from creating a common fiscal policy consensus within the retrospectives of its different policies. In practice, economic growth has resulted in a better understanding of the princesses' essential characteristics and a more meaningful use of tax revenues. On the other hand, with the increasing need for public revenue, monetary emission values have increased. However, it tends to negatively affect the budget deficits, both indirectly and indirectly, with the effect of a significant price increase, as the accurate money balances related to the factual money bases are subject to public borrowings.

Limitations and Future Research Directions:

Regarding the findings we determined in our analysis, analysing all the macroeconomic impact values in question will undoubtedly create a critical approach and a more macro framework for the G7 countries to include other macro variables in the analyses. This framework also reveals that the issue we are dealing with will become more meaningful by understanding its effects on economic growth and its severe impact by acting on only a limited number of independent variables, especially in determining some future borrowing policies. Further expanding these macro variables will guide future research relations within our determinations. On the other hand, in our analysis, in which we specifically consider these tax revenues, changes in central government borrowing trends and changes in current account deficit balances, the effect of tax revenues on economic growth is in absolute harmony with the correlations provided by the added values created as a result of all output values related to the sectoral productive efficiency approach to economic growth.

It also brings to the agenda the emphasis that it should have found its place in the process as another justification for central government borrowings, with the aim that tax policies can support sectoral developments and that it is practical to influence production trends with the effect of tax incentives. It is observed that the increasing public financing need has resulted in turning into a central government borrowing trend, especially in the medium and long term. In addition to all these, in all future research, understanding the impact values of medium—and long-term central government borrowing and comparing these impact values with the real variations based on tax revenues constitute the main focus of public revenues. On the other hand, this fiscal political approach will be an influential factor in reducing central government borrowing trends, especially in closing budget deficits. This will certainly have a place in the understanding and analysis of a higher economic growth value by creating a trend. Therefore, it is

ISSN: 2178-7727

understood that it is inevitable that it will create a more meaningful trend, which should be emphasized that revealing the current account deficit effects is important in understanding the macro-fiscal impact values regarding the target economic growth trends for the future and is of significant significance especially as it creates a limited impact that can be expressed in integration analyses. The existence of the negative fiscal impact phenomenon between the budget deficits and the current deficit relationship comes into play as a process in which GDP is negatively affected, and it also means that it creates a sectoral blocking effect on economic growth trends. This recent change phenomenon has brought the necessity of reconciling different policy options and values for these G7 countries with the global level of future financial policies.

CONCLUSION

For G7 countries, understanding the most important characteristics and impact values on a gross domestic product (GDP) basis is meaningful, especially considering the negative correlation between tax revenues and increases in public finance and central government budget borrowing. It is understood that the level of the weighted tax burden that the G7 countries, as developed countries, have reached, especially with the increases in tax revenues, is considered a sectoral financing source that makes a significant contribution to economic growth. Within the scope of these public revenue trends, a balance between the contribution of taxes to economic growth, especially in terms of the added value created, and a level of economic development that causes the tax burden to be felt less is in balance. Therefore, the impact values of tax revenues, other central government borrowing and current account balances within actual economic growth trends that can be expressed based on GDP constitute a meaningful whole, and although this integration expresses different values, especially in terms of fiscal impact values, it is an economic factor for the G7 countries. It reveals that it creates an absolute positive trend effect on growth. Despite all this, even the negative impact level between tax revenues and central government borrowings also shows that the structure in which central government borrowings remain low in a short period reveals a positive contribution value for the G7 countries. On the other hand, each value at the level of current account deficits significantly contributes to reaching a small value where it can have a more positive impact on budget deficits and increasing public financing. This means that current account deficits should be taken under control, and the impact values should be brought to a positive value based on the possible effects of the "Twin Deficits" phenomenon. In this context, it is understood that economic growth contribution values, where all macro-fiscal impact values are positive, precede a process that can be fully expressed as dynamics that reveal meaningful financial-macro-fiscal integrity towards target economic growth trends. This fiscal interaction fact, especially for G7 countries, also shows that it is possible with the effective political macro-fiscal integration transformation intended for higher economic growth.

REFERENCES

Alexis, C. R. (2014). "Assessing Fiscal Sustainability in Some Selected Countries". *Theoretical and Applied Economics,* 18(6-595): 7-22.

Altıntaş, F.F. (2023). "Analysis of the Prosperity Performances of G7 Countries: An Application of the LOPCOW-based CRADIS Method", *The Journal of Operations Research, Statistics, Econometrics and Management Information Systems,* 11(2): 157-182.

Azar, A. F., Bakouie, F., Adeli, M. H., Radfar, R., & Kazemi, M. A. (2022). "Investigation The Relationship Between Social Capital and Public Health in Iran's Legatum Prosperity Index with Canonical Correlation Analysis", *The Iranian Journal of Health Insurance*, 5(2): 143-154.

Barret, P. (2018). *Interest-Growth Differentials and Debt Limits in Advanced Economies*, IMF Working Paper WP/18/82, Washington, D.C: International Monetary Fund (IMF), 2018.

Belhoula, M. M., Mensi, W. & Naoui, K. (2023). "Impacts of Investor's Sentiment, Uncertainty Indexes, and Macroeconomic Factors on The Dynamic Efficiency of G7 Stock Markets", *Quality & Quantity*, 2023: 1-32.

Borio, C. (2017). *Financial Stability*, in Challenges for Global Macroeconomic Stability and the Role of the G7, Fabrizio Saccomanni and Simone Romano (Eds.), Proceedings of a Conference organized by IAI Rome, 27 and 28 March 2017, Series Editor: Natalino Ronzitti Roma: Istituto Affari Internazionali (IAI), Edizioni Nuova Cultura, pp.145-152.

Chen, S. W. (2011). "Are current account deficits really sustainable in the G-7 countries?", *Japan and the*

World Economy, 23(3):190-201. doi: 10.1016/j.japwor.2011.04.002.
Chen, S. W. (2014). "Testing for Fiscal Sustainability: New Evidence from the G-7 And Some European Countries". *Economic Modelling*, 37: 1-15.
Cottarelli, C., & Schaechter, A. (2010). *Long-Term Trends in Public Finances in The G-7 Economies*. Washington, DC: International Monetary Fund (IMF), 2010.
Delatte, A.-L. & Jean, S. (2017). "Co-ordination in Tense Times: Issues for the G7", in Challenges for Global Macroeconomic Stability and the Role of the G7, Fabrizio Saccomanni and Simone Romano (Eds.), Proceedings of a Conference organized by IAI Rome, 27 and 28 March 2017, Series Editor: Natalino Ronzitti Roma: Istituto Affari Internazionali (IAI), Edizioni Nuova Cultura, pp. 27-50.
Deutsche Bundesbank (2000), *Macro-Econometric Multi-Country Model: MEMMOD*, Frankfurt am Main: Deutsche Bundesbank, 2000.
Dyvik, E. H. (2023). "Government Revenue of G7 Countries as Share of GDP 2010-2023, By Country", *Statista* - Oct 20, 2023, https://www.statista.com/statistics/1370940/g7-government-revenue-share-gdp/ (Accessed May, 12.2024).
Dyvik, E. H. (2024). Gross Domestic Product Growth Rates of G7 Countries 2000-2024, Statista - Apr 29, 2024, https://www.statista.com/statistics/1370599/g7-country-gdp-growth/ (Accessed May, 19.2024).
Égert, B. (2012) *Public Debt, Economic Growth and Nonlinear Effects: Myth or Reality*, OECD Economics Department Working Papers, No. 993, Paris: OECD Publishing, 2012.
European Parliament (2023). *2023 G7 Summit: Preparing for A New Global Order?*, Strazburg: European Parliament, 2023.
Fitrah, N., Syamsuddin, R., Azahra, F. F. & Taufiqurrakhman, M. (2023). "The Impact of Corona Virus 19 Pandemic on Some Aspects to Human Life", *Journal Transformation of Knowledge*, 01(01): 1-7.
Fogden, R. (2023). *Changing The Rules of The Game: A Fiscal Framework for Fair Growth*, The Centre for Progressive Policy, https://www.progressive-policy.net/ (Accessed May, 24.2024).
Fratzscher, M., Mehl, A. & Vansteenkiste, I. (2011). "130 Years of Fiscal Vulnerabilities and Currency Crashes in Advanced Countries", *IMF Economic Review*, 59(4): 683-716.
Grint, K. (2020). *The World Turned Upside Down*, https://ilaglobalnetwork.org/the-world-turned-upside-down/?gad_source=1&gclid=EAIaIQobChMIi9-i2JPghgMVpKBoCR3gJwK__nEAAYAiAAEgIa3_D_BwE (Accessed May, 22.2024).
Gurdal, T., Aydın, M. & Inal, V. (2021). "The Relationship Between Tax Revenue, Government Expenditure, and Economic Growth in G7 Countries: New Evidence from Time and Frequency Domain Approaches", *Economic Change and Restructuring*, 54, 305–337. https://doi.org/10.1007/s10644-020-09280-x.
Guleryuz, E. H. (2017), "Fiscal Sustainability in the G-7 Countries", in *Global Financial Crisis and Its Ramifications on Capital Markets*, Ümit Hacioğlu and Hasan Dinçer (Eds.), pp.123-133. DOI:10.1007/978-3-319-47021-4_10.
Habibi, A. & Lee, C. (2019). "Asymmetric Effects of Exchange Rates on Stock Prices in G7 Countries", Capital Markets Review, 27(1): 19-33. https://www.researchgate.net/publication/336374124.
Humpe, A. & McMillan, D. G. (2020). "Macroeconomic Variables and Long-Term Stock Market Performance: A Panel ARDL Cointegration Approach for G7 Countries", *Cogent Economics & Finance*, 8(1), 1816257.
IMF (2015). *Fiscal Policy and Long-Term Growth*, IMF Policy Papers, June 2015, Washington, D.C.: International Monetary Fund, 2015. http://www.imf.org/external/pp/ ppindex.aspx.
Keleş, N. (2023)." Lopcow Ve Cradis Yöntemleriyle G7 Ülkelerinin ve Türkiye'nin Yaşanabilir Güç Merkezi Şehirlerinin Değerlendirilmesi", *Ömer Halisdemir Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 16(3): 727–747.
Koshima, Y., Harris, J., Tieman, A. F. & De Sanctis, A. (2021). *The Cost of Future Policy: Intertemporal Public Sector Balance Sheets in the G7*, IMF Working Paper WP/21/128, Washington, D.C.: International Monetary Fund (IMF) Fiscal Affairs Department, 2021.
Koşaroğlu, Ş. M. (2021). "E7 Ülkelerinin Makroekonomik Performanslarının ENTROPİ ve ARAS Yöntemleriyle Karşılaştırılması", *Dumlupınar Üniversitesi Sosyal Bilimler Dergisi*, 68: 203-221. https://doi.org/10.51290/dpusbe.833885.

Maebayashi, N. & Tanaka, J. (2022). "Limited Asset Market Participation and Fiscal Sustainability", *Journal of Economics*, 137(4): 1-31. doi:10.1007/s00712-022-00776-w.

Magkonis, G. & Tsopanaki, A. (2014). "Exploring The Effects of Financial and Fiscal Vulnerabilities on G7 Economies: Evidence from SVAR Analysis", *Journal of International Financial Markets, Institutions and Money*, 32, 343-367. doi:10.1016/j.intfin.2014.06.010.

Mirdala, R. (2013) *Fiscal Imbalances and Current Account Adjustments in the European Transition Economies*, William Davidson Institute Working Paper Number 1065-November 2013, Michigan: William Davidson Institute, 2013. https://deepblue.lib.umich.edu/bitstream/handle/2027.42/133085/wp1065.pdf?sequence=1.

OECD (2023). *Economic Policy Making to Pursue Economic Welfare OECD Report: Prepared for the 2023 Japan Presidency of The G7*, OECD Report for the G7 Finance Ministers and Central Bank Governors - May 2023, Paris: OECD Publishing, 2023.

Özker, A. N. (2022). "Recent Deflection Effects of Macro Components in G7 Countries and Contractionary Monetary Expansion Fact", *Archives of Business Research*, 10(7): 131-147.

Saccomanni, F. & Romano, S. (2017). "A Coordinated Approach to Foster Sustainable Growth and Financial Stability", in Challenges for Global Macroeconomic Stability and the Role of the G7, Fabrizio Saccomanni and Simone Romano (Eds.), Proceedings of a Conference organized by IAI Rome, 27 and 28 March 2017, Series Editor: Natalino Ronzitti Roma: Istituto Affari Internazionali (IAI), Edizioni Nuova Cultura, pp. 73-90.

Schüler, Y. S., Hiebert, P. & Peltonen, T. A. (2017). *Coherent Financial Cycles for G-7 Countries: Why Extending Credit Can Be an Asset*, European Systemic Risk Board, 2017 Working Paper Series No 43 / May 2017, Frankfurt am main: European Commission European Systemic Risk Board, 2017.

Schüler, Y.S. (2018). *Detrending And Financial Cycle Facts Across G7 Countries: Mind A Spurious Medium Term*! Working Paper Series No. 2138, March 2018, Frankfurt am Main: European Central Bank, 2018.

Siddiqui, K. (2017). "Austerity as A Tool of Fiscal Consolidation: Theoretical and Empirical Perspective", in (Ed.) S. Owsiak Public Finance and the New Economic Governance in the European Union, 116–66, Warsaw: Wydawnictwo Naukowe WN SA., 2017.

Sutherland, D. & Hoeller, P. (2020). *Debt and Macroeconomic Stability: An Overview of the Literature and Some Empirics*, OECD Economics Department Working Papers No. 1006, Paris: OECD Publishing, 2020.

The World Bank (2017). *Measuring and Analysing the Impact Of GVC's on Economic Development*, Global Value Chain Development Report 2017, Washington, D.C.: The World Bank, International Bank for Reconstruction and Development/The World Bank, 2017.

Uçler, Y. T. (2024). "Comparison of G-7 Countries' Macroeconomic Performance with SD and MABAC Methods", *Politik Ekonomik Kuram*, 8(1): 243-255. https://doi.org/10.30586/1411404.

Wong, H. T., Lee, H. A., & Abd. Rahim, D. A. (2018). "Real Exchange Rate Return and Real Stock Price Returns: An Investigation on The Stock Market of Malaysia". *International Journal of Economics and Management*, 12(2), 421-442.

Yousefi, S. R. (2019). *Public Sector Balance Sheet Strength and the Macro Economy*, IMF Working Paper WP/19/170, Washington, D.C.: International Monetary Fund (IMF), 2019.

Annex 1:

Table 1. Least Squares Dummy Variable Model Results (LSDV)

gdp	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
g1	-2.421	2.422	-1.00	.318	-7.189	2.347	
o	0	.	.	.	.	.	***
g3	-.484	1.414	-0.34	.733	-3.266	2.299	
g4	.53	2.424	0.22	.827	-4.242	5.302	
g5	.64	1.648	0.78	.949	-3.759	4.547	
g6	.946	3.639	-0.54	.648	-2.947	5.873	
g7	-.5436	2.064	0.68	.543	-.5.639	3.768	

ISSN: 2178-7727

taxrvgdp	.012	.019	0.61	.005	-.026	.05	
cngvdb	-.012	.004	-3.05	.003	-.019	-.004	***
cacbl	.024	.052	0.45	.003	-.079	.126	
Constant	3.614	.691	5.23	0	2.255	4.974	***

Mean dependent var	3.263	SD dependent var	2.434
R-squared	0.639	Number of obs	287
F-test	1.889	Prob > F	0.003
Akaike crit. (AIC)	1326.675	Bayesian crit. (BIC)	1352.292

*** p<.01, ** p<.05, * p<.1

Annex 2.

Table 2. Median, Overall and Standard Deviation Values of Variables Limit Variability

Variable		Mean	Std. Dev.	Min	Max	Observations	
Country	overall	4	2.003493	1	7	N =	287
	between		2.160247	1	7	n =	7
	within		0	4	4	T =	41
year	overall	2003	11.85283	1983	2023	N =	287
	between		0	2003	2003	n =	7
	within		11.85283	1983	2023	T =	41
gdp	overall	3.263242	2.43401	-10.6	9.6	N =	287
	between		.7621769	2.572683	4.713199	n =	7
	within		2.329106	-10.31554	8.590559	T =	41
Taxrvgdp	overall	32.28189	7.60892	20.2	49.33265	N =	287
	between		8.127968	23.38902	47.09257	n =	7
	within		1.035134	29.09286	35.29286	T =	41
cngvdb	overall	61.50663	39.6168	4.2	183.53	N =	287
	between		34.30423	35.52893	122.5418	n =	7
	within		23.6071	-14.5502	122.4948	T =	41
cacbı	overall	.0681057	2.943413	-5.911057	8.744306	N =	287
	between		2.261157	-2.595594	2.806967	n =	7
	within		2.065413	-4.58308	6.005444	T =	41