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The effects of budget balance and trade openness on economic growth in MINT countries

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Abstract

This research investigates the effects of budget balance on economic growth by using panel data techniques for MINT countries (Mexico, Indonesia, Nigeria, and Turkey) with data spanning the period 1996–2022. Among the panel data techniques, pooled ordinary least squares (POLS), fixed effect (FE), and random effect (RE) techniques were used in this study. The findings of the study demonstrate that budget balance has a positive effect on economic growth. In other words, budget deficits hinder economic growth in MINT countries. Moreover, according to the research findings, increases in trade openness reduce economic growth. MINT countries are import-intensive countries compared to their export capabilities. Therefore, increases in trade openness reduce economic growth. Also, increases in foreign direct investments and labor force participation rates support economic growth. According to the findings of this study, policymakers should strictly adhere to the balanced budget approach in order to achieve stronger economic growth in MINT countries.

Keywords: Economic Growth, Budget Balance, Trade Openness, MINT Countries.
Jel codes: H61, O47, Z18

1. Introduction

A budget is an official document that determines the estimated revenues and expenditures of the public sector for a given period and authorizes the collection of revenues and the making of expenditures. However, especially in developing countries, public revenues do not cover public expenditures. Since the budget reflects the balance between public expenditures and public revenues, the existence of a budget deficit in a country indicates a situation between the two aggregates to the detriment of public revenues. On the contrary, a budget surplus indicates a situation in favor of public revenues.

The budget is an important indicator that enables the monitoring of developments and changes in the overall performance of the economy. In Western societies, the budget has paralleled the emergence of modern nation-states. It can be stated that the Magna Carta of 1215, the Petition of Rights of 1627, and the Bill of Rights of 1689, which are considered the first written texts on the budget in the historical process, are extremely important. Moreover, in 1783, as a result of the American War of Independence, the parliament was given the authority to raise tax revenues and make expenditures on behalf of the American people. Later, with the adoption and establishment of a series of budget principles in the 19th and 20th centuries, the concept of budget became institutionalized all over the world (McCaffery, 1996). The budget balance, a vital macroeconomic variable for all economies today, is depicted in Figure 1 for Mexico, Indonesia, Nigeria, and Turkey (MINT) countries.
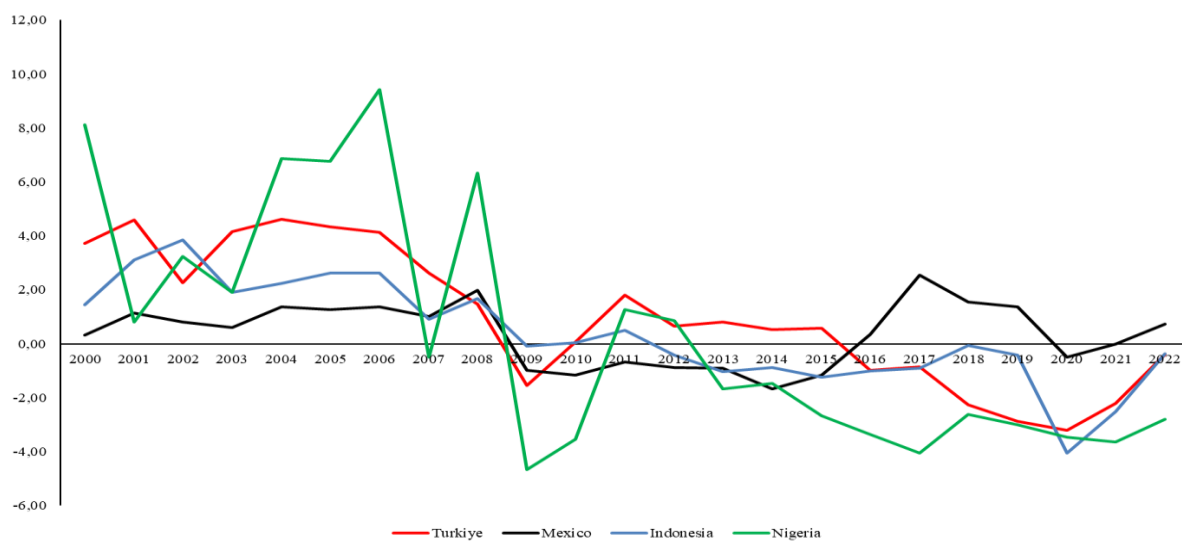

Figure 1. The pattern of budget balance for MINT countries (2000-2022) [Source: IMF, 2023]

Figure 1 clearly shows the effects of two major negative shocks that occurred in the last two decades on the budget balance of MINT countries. The 2008 global financial crisis and the COVID-19 pandemic that broke out in 2020 caused budget deficits in MINT countries. The trade openness that gained momentum in the 2000s also affected the monetary, fiscal, and budget policies implemented in economies. More importantly, trade openness has significantly increased the import-export expenditures of countries and has become one of the main determinants of economic growth. Figure 2 shows the course of trade openness for MINT countries.
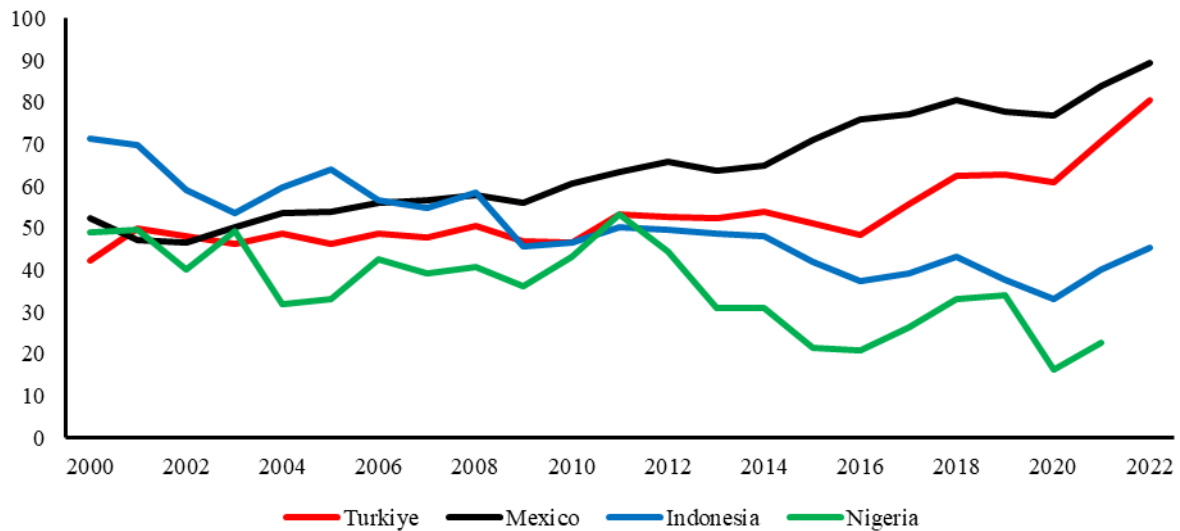
Figure 2. The pattern of trade openness for MINT countries (2000-2022) [Source: Worldbank, 2023]

Figure 2 shows that Mexico and Turkey have shown the fastest growth in trade openness since 2000. In addition, Indonesia and Nigeria's trade openness has fallen back compared to the initial level. It should be noted that MINT countries are not strong countries in terms of technology production and export capacity. It is believed that the increasing trade openness over time is due to high import values.

It is estimated that MINT countries may be among the strongest economies among developing countries in the future (Durotoye, 2014; Asteriou et al., 2016). In this prediction, it can be stated that although they have different backgrounds, they share some cultural or geopolitical commonalities. However, high economic growth rates and expectations undoubtedly play an important role in the prediction that MINT countries can have strong economies. It can be stated that budget balance and trade openness are extremely important for the realization of high economic growth. The aim of this study is to determine the effects of budget balance and trade openness on economic growth for MINT countries. It is aimed at contributing to the literature by analyzing this relationship network for MINT countries. In line with this objective, this research consists of four additional chapters. The next section presents the literature, the third section presents the data and methodology, the fourth section presents the analysis and findings, and the fifth and final section presents the conclusions and recommendations.

2. Literature

Many studies in the literature have examined the relationship between budget balance, budget deficit or surplus, trade openness, and economic growth over different country groups, using different techniques for different variables and different time periods. For instance, Amaghionyeodiwe (2018) examined the relationship between budget deficit and economic performance in Mexico from the period 1990 to 2016. According to the analysis results, there is a negative relationship between budget deficit and gross domestic product (gdp) in the long run. Also, a 1 percent increase in the budget deficit is likely to decrease GDP by 0.157 percent. Istiqomah ve Mafruhah (2022) investigated the relationship between budget deficits and economic growth in Indonesian data from 1981 to 2019. According to the analysis findings, while the budget deficit does not have a significant effect on the economy in the short run, the budget deficit supports economic growth in the long run. Similarly, Umaru et al. (2021) examined the relationship between budget deficit and economic growth in Nigeria using annual time series data from 1981 to 2019. According to the research findings, the growth of national output is positively driven by the persistent budget deficit in Nigeria. Also, Ezeabasılı et al. (2012) examined the budget deficit and economic growth in the Nigerian context, using data over the period 1970–2006. The results indicate that budget deficits affect economic growth negatively. However, Emefiele et al. (2019) tried to answer the same research question and did not find a significant relationship between the budget deficit and economic growth. Moreover, Samirkaş (2014) investigated the relationship between budget deficits and economic growth in Turkiye data from 1980 to 2013. The acquired results did not indicate any significant long-term co-integration correlation between budget deficits and GDP. Oztürk and Sezen (2018) found that budget deficits have a positive effect on economic growth in the short term. On the other hand, it has a negative effect in the long term in Turkey. Furthermore, according to Adak (2010), budget deficits reduce economic growth in the short run in Turkey.

As neoliberal economic policies have been accepted around the world since the 1980s, the importance of trade openness has also increased. The systematic publication of statistical data since the 1990s has enabled us to better understand the effects of trade openness on economic growth. For instance, Khalid (2016) examined the

Turkish economy for the period 1960–2014 and found that trade openness increased economic growth in the short run, while in the long run this relationship did not exist. Satrovic (2019) investigated the effects of trade openness on economic growth, specifically for the Turkish economy, over the period 1970–2015. According to the findings of the analysis, a 1% increase in trade openness reduces GDP by 0.13%. Oladipo (2011) examined the effects of trade liberalization (openness) on economic growth in Mexico using quarterly data between 1980 and 2008. According to research findings, trade openness supports economic growth in the long run in Mexico. Moreover, Omake and Opuala–Charles (2021) investigated the effects of imports and exports on economic growth using data between 1984 and 2017 for the Nigerian economy. According to the findings of the analysis, exports have a significant positive impact on economic growth, whereas imports have a significant negative impact on economic growth. Elijah and Musa (2019) examined the short- and long-run effects of trade openness on economic growth in the Nigerian economy, using 1980–2016 data. The analysis result revealed that trade openness has negatively impacted economic growth in both the short run and long run.

3. Data and Methodology

3.1. Data

This research aims to empirically analyze the effect of budget balance and trade openness on economic growth. In the empirical model, data from 2000 to 2022 are used annually. The most important reason for choosing this time range is that the limits of the data on budget balance, which is the main explanatory variable of the research, started to be compiled in 2000. The names of the variables used in the research, the definitions of the data, and the sources are shown in Table 1.

Table 1. Definition and Sources of the Data

Data	Definition	Sources
growth	GDP growth (annual %)	Worldbank
budget	Primary balance % of GDP	IMF
labor	Labor force participation rate, total (% of total population ages 15+)	Worldbank
trade	Trade (% of GDP)	Worldbank
fdi	Foreign direct investment, net inflows (% of GDP)	Worldbank

3.2. Methodology

In the analysis of the research questions, the panel data method was chosen as the econometric estimation method because it allows analyzing time series of multiple cross-sections or cross-sectional data with multiple time dimensions together. In other words, the panel data method was preferred because it allows for examining the differences between N units over time in the T time period (Greene, 2012). As a natural extension of this choice, it is aimed at benefiting from the advantages of the panel data method over time series and cross-section methods. The basic regression equation of the research for the ordinary least squares estimation method estimator, fixed effect estimator, and random effect estimator can be written as in equation (1):

$$growth_{it} = \beta_0 + \beta_1 budget_{it} + \beta_2 saving_{it} + \beta_3 labor_{it} + \beta_4 trade_{it} + \beta_4 fdi_{it} + \varepsilon_{it} \quad (1)$$

In Equation (1), "i" refers to the cross-sectional dimension of the model (such as households, individuals, firms, and countries), "t" refers to the time dimension, and ε_{it} refers to the error term. In this equation, β includes the slope parameters and is constant.

4. Analysis and Empirical Findings

In this section, the main research question of the study is investigated, and empirical findings are reported in the context of methods previously briefly described in the data and methodology section. As a preliminary data analysis, the descriptive statistics and correlation matrix are reported in Table 2.

Table 2: Descriptive statistics and correlation matrix

	Mean	Maximum	Minimum	Std. Dev	Observations
growth	4.03	15.32	-13.12	3.88	108
budget	0.56	9.43	-4.67	2.71	104
labor	60.23	70.62	45.52	7.11	104
trade	51.11	96.18	16.35	14.45	107
fdi	1.67	3.99	-2.75	1.13	108

	growth	budget	labor	trade	fdi
growth	1				
budget	0.22	1			
labor	0.12	-0.09	1		
trade	-0.21	0.13	0.19	1	
fdi	0.05	0.01	0.01	0.12	1

Note: This table shows the summary of statistics for all observations of the model over the period 2000-2022. Descriptive statistics values and correlation matrix were calculated with the help of the Eviews-12 program.

The correlation matrix was calculated in order to control the possible multicollinearity problem between the explanatory variables. The fact that the correlation coefficients between the explanatory variables are greater than 0.80 in absolute value indicates the existence of a high degree of correlation between the two independent variables, which might cause a multicollinearity problem (Kennedy, 2008). According to the correlation matrix table, no correlation between the explanatory variables is higher than 0.80, which implies that the possibility of multicollinearity is quite low.

The aim of this research is to determine the effects of budget balance and trade openness on economic growth for MINT countries. For this purpose, while economic growth is the dependent variable in the study, budget balance, labor force participation rate, trade openness, and foreign direct investment are independent variables. Table 3 shows the results of the analysis with OLS, FE, and RE estimators to answer the aim of the research.

Table 3: Budget balance, trade openness and economic growth: MINT countries

Dependent variable: Economic growth	OLS		FE	RE
budget	0.361		0.342	0.362
	(0.140)**		(0.141)**	(0.141)**
labor	0.028		0.418	0.029
	(0.546)		(0.250)*	(0.546)
trade	-0.070		-0.071	-0.070
	(0.003)**		(0.038)*	(0.028)**
fdi	0.284		0.671	0.284
	(0.336)		(0.389)*	(0.336)
Constant	8.612		-19.085	8.613
	(3.371)**		(14.593)	(0.169)**
R^2	0.58		0.24	0.58
Observations	100		100	100
Number of Countries	4		4	4

Note: Panel data tests were performed using the Stata 14 program. * Indicates 10% significance level. ** Indicates 5% significance level. *** Indicates 1% significance level.

According to the findings of this study, in which OLS, FE, and RE estimators were used, it was concluded that economic growth positively affects budget balance. In other words, budget deficits decrease growth in MINT countries. Moreover, it was found that trade openness affects economic growth negatively. Finally, consistent with theoretical expectations, the labor force participation rate and foreign direct investment support economic growth in MINT countries.

5. Conclusions and recommendations

For many years, since the dawn of modern economics, the debate has centered on whether fiscal policy should be used as a tool for macroeconomic stabilization. At the center of the debate has been the question of whether government budget deficits or surpluses harm real economic growth and long-term sustainable development. Since the 2000s, the impact of the public budget balance on economic growth has started to be analyzed empirically. In this study, the effects of budget balance and trade openness on economic growth are analyzed in the context of MINT countries. In the study, data from 1996 to 2022 was used, and OLS, FE, and RE analysis methods were preferred among panel data methods.

According to the results of the analysis, it can be stated that budget balance is extremely important for economic growth. In other words, while budget deficits reduce economic growth, budget surpluses support economic growth. At this point, the question of whether public expenditures in MINT countries are efficient or not comes to mind. Policymakers in MINT countries should allocate public resources towards efficient public expenditures instead of inefficient public expenditures. Moreover, another important result of the study is that trade openness reduces economic growth in MINT countries. This result is thought to be due to the fact that MINT countries have import-intensive foreign trade rather than export-intensive foreign trade. Policymakers in MINT countries can implement incentives to encourage exports to support economic growth. They can also support the production of technology-based goods and services in particular. Finally, FDI and labor force participation rates are vital for economic growth. Policymakers can implement a number of policies to increase FDI and labor force participation rates.

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