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Budget Transparency and Fiscal Performance: A Panel Approach for Organization of Islamic Cooperation Countries

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Abstract: Budget transparency refers to the public availability of processes and actions related to the budget process. Since budget transparency will ensure public scrutiny, it is expected to contribute positively to fiscal performance by improving public financial indicators. In this study, the effect of budget transparency on fiscal performance was analyzed using the System Generalized Method of Moments for 21 developing countries of the Organization of Islamic Cooperation in the period 2006-2022. Since there is no consensus on the relationship between budget transparency and fiscal performance, different fiscal performance indicators are used as dependent variables in the study in order to evaluate fiscal performance from a wider range. And the Open Budget Index published by the International Budget Partnership was used for the budget transparency variable. The empirical findings of the study indicate that budget transparency positively affects fiscal performance. In this context, higher levels of budget transparency cause lower public debt, higher primary budget balance, higher tax revenues and public expenditure.

Keywords: Budget transparency, Budgetary institutions, Fiscal performance, Islamic Cooperation Countries, GMM

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Introduction

Budgets are financial instruments approved by legislative bodies and mediate the implementation of government policies (Aydın and Şeker, 2022). Budget plans and programs, which are often poorly understood by households due to their complexity, can sometimes cause governments to hide real budget data (Alesina and Perotti, 1996). However, especially in periods of increasing dissatisfaction with the government, citizens increasingly question where and how the resources collected from them through taxes are used by the government (IBP, 2018), which leads the public to prioritize ensuring budget transparency. The fact that all public activities are open to the public, i.e., carried out in transparency, both ensures the effective distribution of public resources and increases the accountability of the authorities (Karakurt et al.., 2015).

Budget institutions regulate the flow of information between politicians and individuals by ensuring transparency at all stages of the budget process (Poterba and von Hagen, 1999). Budget institutions contain all information and documents related to the budget process (how budgets are prepared, approved, implemented and audited). In other words, these institutions contain the policies, rules and procedures related to the budget process (Gollwitzer, 2011). Although the information gap at all stages of the budget process cannot be completely eliminated due to the complexities in political and bureaucratic procedures, it is minimized with the help of these institutions. Therefore, if budget institutions are weakened, the opportunistic behavior of politicians and rent groups increases and the government's financial performance weakens (Kilishi, 2020; OECD, 2017). On the contrary, the strength of such institutions reduces the information asymmetry regarding public expenditures and revenues, thus increasing accountability for government activities, reducing corruption, making all stages of the budget process transparent and participatory, increasing the efficiency of scarce public resources, ensuring financial stability in the public sector, and creating resources for social development needs (Wehner and De Renzio, 2013; Benito and Bastida, 2009; Debrun and Kumar 2007; Alt and Lassen, 2006; and Hameed, 2005).

Transparency in budget policies is one of the components that directly affects a strong fiscal performance. Because budget transparency eliminates or reduces the problem of asymmetric information regarding the fiscal performance of countries and makes the process more transparent. In this context, transparency in the budget process improves all processes related to public expenditures and public revenues as it reduces the information gap between citizens and politicians. Therefore,

if budget transparency is ensured, the use of budget revenues for political profit or corruption can be prevented, resources are used more for the public good and as a result, households can evaluate fiscal performance more optimally (Kilishi, 2020; Heald, 2012; Rodriguez-Bolivar et al. 2007; Von Hagen, 2005). In addition, transparency reduces corruption and facilitates citizens' control of public policies, thus minimizing moral hazard. In addition, since crimes lead to criminal sanctions and social exclusion, increased transparency can also lead to a deterrent effect on crime rates by increasing the risk of being caught (Albalate, 2013).

Transparency, can reduce corruption through mechanisms such as less taxation accountability, more effective control, and less taxation. In fact, political authorities should indicate tax revenues and where these revenues are spent, tax exemptions and exceptions, and tax deferrals and reductions in their budget reports. This process, which brings transparency, allows the state's public income and expenditure tables to be seen without distortion (Hameed, 2005).

One of the transmission mechanisms that plays a key role in the budget transparency-fiscal performance relationship is the debt effect. Budget transparency brings about stronger public control over debts. Because budget transparency will increase the control pressure on the public, leading to the public avoiding inefficient loans and borrowing for more optimal investments. (Yao et al. 2024; Mourão et al. 2023; Prijaković, 2023). In this context, budget transparency reduces information asymmetry and reduces borrowing costs through the credit channel, which makes borrowing cheaper. Therefore, higher transparency also means lower public debt (Yu et al. 2021)

Budget transparency also indirectly affects fiscal performance. For example, if there is budget transparency, investments increase, which leads to capital flows into the country (Dibo, 2021; Cicatiello et al. 2021). A similar effect can be seen in household demands through the market economy as a result of the resulting distrust. If budget transparency cannot be achieved and this damages the government-citizen trust relationship, individuals believe that resources are wasted and as a result, they may demand more public services and tax reductions. This is one of the mechanisms that will directly negatively affect fiscal performance (Andersen and Nielsen, 2010). Even if it does not turn into a concrete demand, inadequate budget transparency that damages the trust relationship between voters and the government will also negatively affect government performance in the long term. (Cuadrado-Ballesteros and Bisogno, 2022; Schick, 2005).

Budget transparency can affect financial performance by drawing a general framework for countries. Because budget transparency is one of the guiding parameters regarding the structural conditions of countries. Countries with low budget transparency generally have characteristic features such as low income per capita, rigid political regime, dependence on foreign aid and institutions with weak levels of supervision (Renzio and Masud, 2011). This affects capital investments through the credit ratings of countries and indirectly weakens fiscal performance.

Governments aiming to improve budget transparency levels aim to both ensure the trust and participation of citizens and improve their fiscal performance while implementing reforms towards the open budget process. It is obvious that improving the transparency level of a country will provide benefits in many economic, political and institutional areas. Therefore, increasing transparency is an important phenomenon for public financial sustainability. Therefore, in this study, the relationship between budget transparency and fiscal performance in 21 developing OIC member countries for the period 2006-2022 was analyzed using the System Generalized Method of Moments (GMM). The majority of the countries in the sample are countries where public debt and deficits have reached unsustainable levels. For example, according to the International Monetary Fund (IMF, 2024), in the 2000s, the debt/GDP ratio reached 344.3 in Iraq, 163.1 in Lebanon, and 108 in the Kyrgyz Republic. Although the debt-to-GDP ratio has decreased in countries such as Iraq (57.7) and the Kyrgyz Republic (56.2) compared to the 2000s in the 2020s, the debt ratios of countries in the panel remain high. As of 2020, it was 64.1 in Albania, 90 in Egypt, 93.3 in Jordan, 358 in Lebanon, 69 in Malaysia, 73.5 in Pakistan, 73.3 in Senegal, and 80 in Tunisia. Similarly, the primary balance/GDP ratio in the panel countries was negative (deficit) for a long time. For example, according to the IMF, the primary balance has maintained its negative character in countries such as Bangladesh, Benin, Jordan, Malaysia, Morocco and Tajikistan until today, while Tunisia has had a negative primary balance for many years except for 2006, 2008 and 2010. On the other hand, the primary balance showed a positive balance in Algeria and Kazakhstan until 2009, in Cameroon until 2010, in Indonesia until 2012, in Pakistan and Senegal until 2006 and in Turkey until 2016.

This study makes several contributions to the existing literature. These, i) the impact of transparency on financial performance, which is a less researched area as far as we have been able to identify, in contrast to the traditional perspective that generally associates transparency with accountability and participation, ii) the various dimensions of the concept of financial performance have been operationa-

lised and the economic outlook of the panel countries has been covered from a wide range of perspectives, iii) the relationship between budget transparency and fiscal performance in the member countries of the Organisation of Islamic Cooperation, which is the subject of the study, has not been empirically investigated before - as far as we have been able to determine - and will provide an opportunity to see how budget transparency affects fiscal performance in the relevant panel countries

In the introduction part of the study, the relationship between budget transparency and financial performance is discussed with emphasis on transmission mechanisms, and in the literature, section related studies are presented. In the third part, data and method are given, and in the fourth part, empirical findings are presented.

Literature

Recently, budget transparency has attracted much attention and has become one of the important discussion topics in the literature. Although empirical studies have been conducted on budget transparency for different countries to date, the first studies have mainly focused on EU countries (See Von Hagen, 1992; Hallerberg et al., 2001; Milesi-Ferretti, 2004) and Latin America (See Alesina and Perotti, 1996; Alesina et al., 1999; Marcel and Tokman, 2002). On the other hand, many studies have examined how budget transparency affects the fiscal performance of countries, but they have obtained different results due to the use of different country samples and different fiscal performance measures.

Examining financial performance in the context of public debt, Mourão et al. (2023) investigated the effect of budget transparency on debt using local level data in Croatia. According to the authors, as budget transparency increases, local public debt decreases because budget transparency brings about better public control. In addition, increasing transparency reduces information asymmetry between citizens and officials, which can have a positive impact on fiscal performance. Bronić et al. (2022), and Alt et al. (2002) who discussed the budget transparency-fiscal performance relationship in the context of public expenditures, found that the budget transparency index and public expenditures were positively correlated in Croatia and in the American state, respectively. In other words, higher budget transparency makes public goods and services more attractive to voters, which indicates that public spending will increase. In this sense, increased transparency also increases the scale of governments. Blume and Voigt (2013) concluded that there is no relationship between budget transparency and public spending in 12 OECD countries. In 82 countries, De Simone et al. (2019) found that the positive effect of

budget transparency on public spending is stronger in countries with high levels of democracy. Because transparency enables more efficient use of public spending through accountability. However, in non-democratic countries, there is no such effect Among the authors who used primary deficits for fiscal performance, Alesina et al. (1999) found that higher budget transparency was associated with lower primary deficits in 20 Latin American countries. Similarly, Hameed (2005) investigated the effect of budget transparency on fiscal performance in 57 developed and developing countries. According to the regression results of the study using primary budget deficit as the fiscal performance indicator, the primary deficit decreases as budget transparency increases.

There are many studies that focus on more than one fiscal performance indicator. Cuadrado-Ballesteros and Bisogno (2022) investigated the impact of budget transparency on financial performance in 110 countries. According to the study using fiscal performance indicators, budget transparency positively affects the budget balance and tax revenues, and negatively affects public debt. Dibo (2021) investigated the impact of budget transparency on fiscal discipline for 12 emerging market economies. The study used budget deficit and public debt stock variables as fiscal discipline indicators. As a result of the analysis, a negative relationship was found between budget transparency and budget deficit, and a positive relationship was found between public debt stock. According to the authors, the increase in public debt stock together with budget transparency leads to an increase in credibility with transparency, which facilitates borrowing opportunities. On the other hand, cyclical contractions can increase the demand for financing, which can lead to a continued increase in the debt stock. Kilishi (2020) investigated the effect of budget transparency on fiscal performance in Nigeria and Sri Lanka. In the study, primary balance and debt variables were used as fiscal performance indicators and open budget index was used as budget transparency indicator. They found a strong positive relationship between budget transparency and primary balance, but a weak relationship between transparency and debt. Because budget transparency reduces the information gap between voters and politicians, which leads governments to use the budget more optimally. Another channel emerges through fiscal illusion. In addition, the weak positive relationship between transparency and debt may be due to the weak institutional infrastructure of countries in terms of debt. Fomina and Vynnychenko (2017) concluded that budget transparency reduces public debt and increases public expenditures in 36 developed and developing countries. Gerunov (2016) investigated the effect of budget transparency on budget balance, primary balance and public debt in 57 countries. According to the

analysis findings, it was found that there was an insignificant relationship between budget transparency and budget balance but a significant relationship with public debt. According to the authors, decreased budget transparency can lead to waste of public resources, which in turn brings about a debt spiral. On the other hand, since the effect of budget transparency on the primary budget balance is uncertain, transparency may not always ensure a balanced budget, as budget openness also depends on the socio-economic conditions of the countries. Gollwitzer (2011) argued that increased budget transparency leads to higher primary budget balance in 46 African countries. Benito and Bastida (2009) investigated the impact of budget transparency on fiscal indicators using public debt and budget balance as fiscal performance indicators in 41 developed and developing countries. According to the authors, budget transparency positively affects the budget balance. Because budget transparency increases budgetary security by affecting the accountability of politicians. However, no relationship was found between budget transparency and public debt. In contrast, Sedmihradská and Haas (2013) found no relationship between budget transparency and budget deficit and public debt in 18 countries. According to the authors, country group budget transparency indicators and time period are the parameters that can determine these findings. In addition, the sample consists mostly of poor countries and these findings can be expected to be obtained in these countries with weaker borrowing capacity or capabilities.

Data and Methodology

Data

In this study, the relationship between budget transparency and fiscal performance in 21 developing countries of the Organization of Islamic Cooperation was investigated using GMM for the period 2006-2022. The beginning of the time period was selected according to the existence of budget transparency in the study. The Open Budget Index measured by the International Budget Partnership (IBP) was used for the budget transparency variable. The index is calculated by the IBP not annually but generally on an annual basis, namely 2006, 2008, 2010, 2012, 2015, 2017, 2019, 2021 and 2023. This index also reflects 1-2 transparency assessments prior to the year in which it is calculated (Sedmihradská and Haas, 2013; Dibo, 2021 and Engin et al., 2023). For example, the budget transparency value for 2023 can also reflect the budget transparency for 2022. The economic development levels of the member countries of the Organization of Islamic Cooperation are different. While some of the member countries have rich natural resources, others face economic

problems such as high unemployment and insufficient production. In this study, developing countries were preferred for the member countries of the Organisation of Islamic Cooperation in order to ensure the integrity of the economic development of the countries and to evaluate the relationship between budget transparency and financial performance indicators. In this context, the common feature of the countries subject to the study is that they are in the developing countries category in the development classification made by the World Bank.

The dependent variable is fiscal performance. Fiscal performance is a multifaceted concept based on more than one dimension. In order to test the robustness of the model, four indicators for fiscal performance (general government gross debt, primary net lending/borrowing, tax revenues and government expenditure) were used. The variables used in the study are as follows: open budget index, economic growth, unemployment, corruption, population growth are control variables. The variables were obtained from the World Bank's World Development Indicators, International Monetary Fund, Database of Political Institutions, Transparency International, and Ouality of Government Dataset. The definitions and sources of the variables are listed in Appendix 1. In addition, Table 1 includes descriptive statistics for the variables used in the study.

As seen in Table 1, the means of all variables except the primary balance are positive. However, the mean of the public debt variable is 49.726%; the maximum and minimum values of the same data are 349.877% and 3.221%, respectively. The means of the primary balance, tax and public expenditures in the study are -1.071%, 23.208% and 26.332%, respectively. The primary balance has the lowest value of-14.760% and the highest value of 29.011%. It is seen that the lowest value of tax is 5.116% and the highest value is 61.039%. The lowest value of public expenditure is 9.132% and the highest value is 61.094%. The mean of the open budget index is 35.749. In other words, the countries in the study have a low level of budget transparency. The minimum and maximum values of the same variable are 0 and 79, respectively. When the standard deviations of the variables are examined, the variables with the highest standard deviations are public debt, deficit budget index and corruption perception.

Table 1

Descriptive Statistics

Variables	Mean	Median	Standard Deviation	Minimum	Maximum
Debt	49.726	43.854	37.262	3.221	349.877
Balance	-1.071	-1.378	4.116	-14.760	29.011
Revenue	23.208	23.515	9.296	5.116	61.039
Expenditure	26.332	27.472	8.794	9.132	61.094
Transparency	35.749	39	19.057	0	79
Growth	2.315	2.516	4.027	-19.748	33.030
Corruption	22.816	26	16.184	1.3	53
PopGrowth	1.789	1.665	1.435	-2.879	11.794
Unemployment	7.717	6.9	4.438	0.4	19.84

Methodology

In the study, the relationship between budget transparency and fiscal performance was investigated using System GMM. This method was developed by Arellano and Bover (1995) and Blundell and Bond (1998). This estimator is a suitable technique in the presence of unobservable country-specific effects, endogeneity of variables, heteroscedasticity in the data and autocorrelation problems. In this method, the lag of the dependent variable is added to the model and used as an independent estimator (Gujarati, 2004).

The system GMM method is a suitable method for cases where the time dimension of the model is small and the unit dimension is large (T<N) (Roodman, 2006). In the data set of this study, T=12 years and N=21 is smaller than the number of countries. In addition, this method is essentially an instrumental variable method. Instrumental variables with similar moment characteristics are used instead of variables that are likely to have endogeneity problems. On the other hand, in order for the GMM estimator to be consistent, two assumptions must be met simultaneously, namely that there is no correlation between the error terms in the model and that the instrumental variables are valid. AR(1) and AR(2) tests developed by Arellano-Bond (1991) were used to test the autocorrelation. Sargan test was used to test the validity of the instrumental variables. (Yerdelen Tatoğlu, 2013).

The model used in econometric estimation is as follows:

$$Performance_{it}=\alpha Performance_{(it-1)}+\beta_1 Tranparency_{it}+\beta_2 Controls_{it}+\mu_{it}+\varepsilon_{it} \quad (1)$$

In equation (1), countries are shown with the subscripts "i (1,2,3...21)" and the period is shown with the subscripts "t (time period between 2006 and 2022)". $Performance_{it}$ is the dependent variable and represents the fiscal performance of the central government. Fiscal performance is operationalized using public debt, primary balance, tax and public expenditure indicators. Using various measures of fiscal performance in the study allows the fiscal situation of the panel countries to be evaluated on a large scale. In addition, using the primary balance in the study can help to see both the effect of inflation on interest payments and the current real situation of the government since interest payments are a component of the accumulated debt. Tranparency_it represents the budget transparency in the panel countries. The control variables used in the $Controls_{it}$ estimation model in the equation are; The control variables used in the $Controls_{it}$ estimation model in the equation are; economic growth (Growth), corruption perceptions index (Corruption), population growth (PopGrowth), unemployment rate (Unemployment). μ_{it} represents the unobserved heterogeneity and ε_{it} represents the error term. In addition, the coefficient β_1 is a coefficient related to budget transparency. The fact that the coefficient β_1 is positive and statistically significant means that an increase in budget transparency causes an improvement in fiscal performance indicators. The fact that this coefficient is negative and statistically significant shows the opposite results.

Empirical Results

In the study, the effect of budget transparency on financial performance was investigated using four models. In this framework, four financial performance indicators, namely debt (Model I), balance (Model II), revenue (Model III) and expenditure (Model IV), were used as dependent variables. Estimation results are presented in Table 2.

When the diagnostic tests of the System GMM estimator are examined, first-order autocorrelation is present in all models, while second-order autocorrelation is not present. On the other hand, according to the Sargan test result, it is seen that the H_0 hypothesis cannot be rejected in all models, that is, the instrumental variables are valid. Diagnostic tests show that the findings obtained from the System GMM estimator are consistent and effective.

Table 2

Estimation Results

Variebles	**Model I** Debt	**Model II** Balance	**Model III** Revenue	**Model IV** Expenditure
	0.741*** (139.27)			
		0.372*** (15.29)		
			0.775*** (17.99)	
				0.889*** (23.71)
Transparency	-0.050*** (-2.84)	0.018*** (2.74)	0.012** (1.47)	0.028*** (5.36)
Growth	-1.807*** (-23.56)	0.268*** (14.30)	0.213*** (6.79)	0.094*** (3.55)
Corruption	-0.097*** (-6.88)	-0.045*** (-8.38)	0.018*** (3.24)	-0.031*** (-6.14)
PopGrowth	-0.577*** (-4.40)	0.428** (2.17)	0.656*** (7.08)	0.262*** (5.70)
Unemployment	1.433*** (5.94)	0.023 (0.43)	-0.624*** (-3.31)	0.437*** (3.60)
Number of Groups	321	321	321	321
Number of instruments	21	21	21	21
AR (1) (p-value)	-1.152 (0.009)	-1.850 (0.004)	-1.921 (0.004)	-3.231 (0.001)
AR (2) (p-value)	0.699 (0.484)	0.720 (0.471)	0.027 (0.978)	1.727 (0.084)
Sargan Test (p-value)	18.452 (1.000)	19.051 (1.000)	17.868 (1.000)	14.233 (1.000)

***, **, * are statistically significant at 1%, 5% and 10% levels, respectively.

According to the System-GMM estimation results, the lagged values of the dependent variables in all models (Model I, Model II, Model III and Model IV) are statistically significant and positive at the 1% level. In addition, the coefficient values are close to 1. This means that the value of the dependent variable in the previous period has increased almost as much as itself in the following years. Budget transparency is statistically significant in all models. While the coefficient of this variable is negative in Model I, it is positive in the other models (Model II, Model III and Model IV). The increase in the deficit budget index reduces public debt by 0.050 units, increases the primary balance by 0.018, tax revenues by 0.012 and public expenditure by 0.028 units, respectively.

When the control variables are examined; Economic growth is statistically significant in all models. In addition, the coefficient of the variable is negative in the debt, while it is positive in the balance, expenditure and revenue models. In other words, the increase in economic growth decreases public debt by 1.807, while it increases primary balance by 0.268, tax revenues by 0.213, and public expenditure 0.094 units, respectively. Corruption perception is statistically significant in all models this coefficients are positive in model III and others models this effect is negative.

Population growth is statistically significant in all models. A 1 unit increase in population growth reduces public debt by 0.577 units but increases primary balance, tax revenues and public expenditures by 0.428, 0.656 and 0.262 units, respectively. While the unemployment variable is not statistically significant in Model II, it is statistically significant at the 1% level in the other three models. The coefficient of the variable is positive in Model I and Model IV, but negative in Model III. A 1-unit increase in the unemployment rate increases public debt by 1.433, public expenditures by 0.437 units, and decreases tax revenues by 0.624 units.

Conclusion

In this study, the budget transparency-fiscal performance relationship was analyzed using System GMM for the period 2006-2022 on the basis of 21 developing member countries of the Organization of Islamic Cooperation. In this context, four different fiscal performance indicators (general government gross debt, primary net lending/borrowing, tax revenues and government expenditure) were used in the study in order to evaluate the fiscal performances of the panel countries in the study from a broader perspective and to test the robustness of the model.

According to the empirical findings of the study, the open budget index value is negatively related to public debt; and positively related to primary deficit, tax revenue and public expenditures. In this context, we can say that a higher level of budget transparency indicated by the open budget index reduces public debt and costs. In other words, the implementation of open budget policies in countries strengthens the control mechanism of the electorate, which reduces public debt by ensuring optimal borrowing of the public. The negative impact of budget transparency on public debt is similar to the findings of Mourão et al. (2023). There is a positive relationship between budget transparency and primary balance. Primary balance is one of the important indicators that provide optimal information on how much fiscal policies of governments can provide fiscal discipline. Primary surplus, which also means that the budget has a non-interest surplus, shows the capacity of the state to cover its non-interest expenditures with public revenues. In fact, it can be concluded that countries with higher transparency can have balanced budgets and lower fiscal deficits. The existence of a positive relationship between budget transparency and primary balance is similar to the findings of studies such as Alesina et al. (1999) and Hameed (2005).

The relationship between tax revenues and public expenditures and budget transparency is positive. In other words, more transparent governments have higher public expenditure levels and also have higher tax revenues. Accordingly, a higher level of transparency increases the control power of voters over politicians, which leads politicians to make more efforts in the provision and allocation of public goods. Thus, voters' trust in politicians increases, which positively affects voters' motivation to pay taxes. Increasing tax revenues also finance public expenditures, leading to an increase. The existence of a positive relationship between budget transparency and expenditures and taxes is similar to the findings of the studies of Alt et al. (2002), Bronić et al. (2022) and Cuadrado-Ballesteros and Bisogno (2022).

Economic growth is statistically significant in all models, and its coefficient is positive except debt model. In this context, economic growth reduces public debt, improves the primary balance, and increases public expenditures and tax revenues. Corruption perception is statistically significant in all models and its coefficient is negative, except tax revenue model. Therefore, if corruption decreases in these countries, tax revenues will increase and public expenditures will decrease. On the other hand, since the income-expenditure balance can be achieved, public debt and deterioration in the fiscal balance will decrease. The population variable is statistically significant in all models and its coefficient is negative government debt

and in other models are positive. So, when population increase government debt decreases but government expenditure, and tax revenue increase, and primary balance improves. Unemployment is statistically significant in all models except the primary balance model. Unemployment increases public spending and public debt, while decreasing tax revenues.

In summary, this study investigates the relationship between budget transparency and fiscal performance by considering different dimensions. In this context, increasing budget transparency reduces both public debt and fiscal deficits. Therefore, since governments' open budget policy will reduce fiscal deficits and debt burden, the government's solvency will improve. On the other hand, it is seen that a high budget transparency level has a feature that increases both tax revenues and public expenditures. In this context, countries should increase accountability and citizen participation in the entire budget process by improving accessibility and transparency. When governments adopt a transparent budget process - when the visibility of public expenditures and revenues increases - citizens and financial markets have the opportunity to evaluate governments' fiscal performance more accurately. This increases the responsibilities of politicians, reduces corruption and increases the effectiveness of resource allocation. In short, transparency, which is an important step for citizens' participation in political decisions, is one of the most important features of the public administration. Countries need to significantly improve budget transparency to address budget deficit and debt crises. Countries need to work on arrangements to ensure a more transparent budget process at all stages of budgeting. Legal provisions that will ensure more public participation in the budget process should be created and existing provisions should be strengthened.

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Appendix 1.

Variable Description and Sources

Variables	Description	Sources*
Debt	General government gross debt (% GDP)	IMF
Balance	Genel goverment primary net lending/borrowing (primary balance) (% GDP)	IMF
Revenue	Tax revenues (% GDP)	IMF
Expenditure	Goverment expenditure (%GDP)	IMF
Transparency	The Open Budget Index is a systematic measure of the level of central government budget transparency. The index is based on survey data on the content, usability and timeliness of eight key budget documents (key documents, pre-budget statement, government budget proposal, enacted budget, citizen budget, in-year report, mid-year review, end-of-year report and audit report). Countries are divided into five groups according to the index value: 0-20 points indicate insufficient information, 20-40 points indicate minimal information, 40-60 points indicate limited information, 60-80 points indicate importance and 80-100 points indicate comprehensive information provided to citizens.	IBP
Growth	GDP per capita growth (annual %)	WB, WDI
Corruption	The corruption perception index is created from survey data generated by business people, academics and risk experts. The index takes values between 0 (very high corruption) and 100 (very low corruption).	Transparency International
Unemployment	Unemployment, total (% of total labor force)	WB, WDI
PopGrowth	Annual percentage change of the population aged 15-64 from the previous year (%)	WB, WDI

*IMF: International Monetary Fund; IBP: International Budget Partnership; WB: World Bank; WDI: World Development Indicators