KAMU BORÇ YÜKÜ ÜZERİNDE KURUMSAL KALİTENİN ROLÜ: YÜKSELEN PİYASA EKONOMİLERİ İÇİN PANEL VERİ ANALİZİ

Seher GÖKPINAR[*]

Mehmet SONGUR[**]

ÖZET

Kamu borcunun seviyesi, makroekonomik göstergelerin yanı sıra ülkelerin kurumsal kalitesiyle yakından ilişkilidir. Yükselen piyasa ekonomilerinin yapısal ve kronik ekonomik sorunlarıyla başa çıkmada kurumsal kalitenin etkisi giderek daha belirgin hale gelmektedir. Kurumsal kalite, kamu hizmetlerinin kalitesini, kamu borcunun seviyesini ve borçlanılan fonların tahsisini etkileyebilmektedir. Bu çalışmada 20 yükselen piyasa ekonomisinde kurumsal kalitenin kamu borçları üzerindeki etkisi 2002-2020 dönemi için panel veri analizi yöntemleriyle analiz edilmiştir. Çalışmada, kurumsal kalite göstergelerinden biri olan hükümet etkinliğinin artırılmasının kamu borç yükünün azaltılmasında etkili olduğu sonucuna varılmıştır.

Anahtar Kelimeler: Hükümet Etkinliği, Kamu Borç Yükü, Yükselen Piyasa Ekonomileri, Panel Veri Analizi.

THE ROLE OF INSTITUTIONAL QUALITY ON PUBLIC DEBT BURDEN: PANEL DATA ANALYSIS FOR EMERGING MARKET ECONOMIES

ABSTRACT

The level of public debt is closely related to the institutional quality of countries, in addition to macroeconomic indicators. The impact of institutional quality on addressing the structural and chronic economic issues of emerging market economies is becoming increasingly prominent. Institutional quality can influence the quality of public services, the level of public debt, and the allocation of borrowed funds. In this study, the effect of institutional quality on public debt in 20 emerging market economies for the period 2002-2020 is analyzed by using panel data analysis methods. The study concludes that increasing government effectiveness, which is one of the indicators of institutional quality, is effective in reducing the public debt burden.

Keywords: Government Effectiveness, Public Debt Burden, Emerging Market Economies, Panel Data Analysis.

1. INTRODUCTION

Institutions play a key role in economic sustainability and equitable development. Countries with quality institutions can take initiatives to support sustainable development by ensuring the best use of resources (Ma and Qamruzzaman, 2022: 2). Therefore, efficient governments are more successful in cutting inefficient public spending and maintaining fiscal discipline (Heylen et al., 2013). Similarly, countries with strong institutions have higher debt sustainability thresholds (Megersa and Cassimon, 2015: 336). More importantly, a high level of institutional quality mitigates the negative impact of public debt on economic growth performance (De Pascale and Scrocco, 2022).

Institutional quality and accountability enable developing countries to develop more transparent and accountable debt management strategies. Efficient public debt management helps countries to reduce borrowing costs and control financial risks (Melecky, 2012: 218-219). On the contrary, in countries where the rule of law is

weak or government effectiveness is low, the negative impact of corruption on economic growth is greater (Meon and Sekkat, 2005: 83-86). Countries with low institutional quality have higher levels of public debt as they tend to borrow more (Waqas et al. 2021; Megersa and Cassimon, 2015).

High levels of government debt stock have destructive effects on many macroeconomic indicators, such as leading to higher tax increases in the future, raising market interest rates, and preventing the efficient allocation of resources. Public debt can reduce private sector investment by reducing the private sector's access to physical and financial capital, and if public debt is used by governments in inefficient areas, it can lead to a contraction in public sector investment, causing an crowding-out* effect in the economy (Lau, 2019: 328). In addition, rising public debt can limit the capacity of governments to take countercyclical fiscal measures, leading to higher economic volatility, sovereign debt crises, banking or currency crises (Ma and Qamruzzaman, 2022). Unstable macroeconomic environment, weak institutional features and political uncertainty hinder the development and securitization of the domestic debt market (Guscina, 2008: 31). In countries with high levels of domestic borrowing and underdeveloped financial markets, the private sector may face financing constraints as credit rationing may occur as a result of rising interest rates and banks' preference for risk-free government bonds (Presbitero, 2012: 607). Moreover, Waqas et al. (2021) emphasize that a weak institutional quality indicates the presence of an unfavorable economic situation that increases public debt, while a high institutional quality can help improve financial market transparency and reduce public debt.

The problem of high public debt burden poses multifaceted risks for developing countries. In particular, the fragile economic structure of emerging market economies due to high inflation, real exchange rate volatility, and low economic and political stability further reduces their tolerance for the risks associated with borrowing and maintaining high debt levels. Institutional quality enhances countries' ability to cope with existing risks. On the other hand, since higher government efficiency implies better public policy, better public finances and a controlled fiscal deficit, the government efficiency index is expected to have a dampening effect on public debt.

In this paper, we test the hypothesis that government efficiency will reduce public debt in emerging market economies. To this end, this study analyzes the impact of government effectiveness on total public debt burden in 20 emerging market economies for the period 2002-2020 using unit root tests and panel cointegration tests that take into account cross-sectional dependence. In the analysis of the study, CADF panel unit root test developed by Pesaran (2007), Westerlund-Edgerton (2007) panel cointegration test and Augmented Mean Group (AMG) estimator methods were used for long-run coefficient estimates. This study extends existing models with new variables, methods and country cases. In this manner, the objective of this study is to make a valuable contribution to the existing literature. What sets this study apart from others in the field is its examination of the impact of government effectiveness on the public debt burden, utilizing a unique combination of country samples and panel data analysis techniques. This sets it apart from previous works by Tarek and Ahmed (2017), Briceño and Perote (2020), Nguyen and Luong (2021), Nguyen and Nguyen (2022) and Waqas et al. (2021).

The study consists of four parts: The first section presents the introduction and the empirical literature. The second section describes the methodology and empirical framework. The third section presents the empirical results. Finally, the fourth section concludes the study with a conclusion, discussion and policy recommendations.

2. EMPIRICAL LITERATURE

There are many indicators of institutional quality in the literature. Six governance indicators classified by the World Bank Governance Indicator (WGI) are predominantly preferred. Among these indicators, government effectiveness comprehends the quality of public services, the degree of independence from political pressures,

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* Conversely, it is worth highlighting divergent viewpoints within the literature, suggesting that public expenditures and public debts may not crowd out private investments; in fact, they may potentially stimulate private investment (crowd-in). Furthermore, in this approach, the pivotal role assigned to fiscal discipline is subject to criticism. For comprehensive insights into these perspectives, please refer to [Yavuz (2005); Günaydın (2006); Sánchez-Juárez and García-Almada (2016) and Avdimetaj vd. (2021)].

the quality of policy formulation and implementation, and perceptions of the credibility of the government's commitment to these policies (Kaufmann et al., 2010: 3). In the literature, studies on institutional quality indicators basically focus on two points. First, the impact of institutional quality indicators on various parameters, particularly economic growth, has been investigated. The second is studies that investigate the determinants of institutional quality. It is observed that there is a limited number of studies investigating the relationship between institutional quality and public debt. The first part of this section presents studies that investigate the relationship between institutional quality indicators and public debt.

Asiedu (2003) presented a model linking debt relief to the quality of institutions. According to this study, he emphasized that Heavily Indebted Poor Countries (HIPCs) have much weaker institutions than other developing countries and concluded that these countries need to reach a minimum institutional quality to benefit from debt relief. Presbitero (2008) examined 114 low- and middle-income developing countries using the System Generalized Method of Moments (SYS-GMM) for the period 1980-2004. The author investigated whether institutions and policy implementation affect the relationship between external debt and growth. In the study, it is predicted that debt relief will stimulate economic growth in countries with strong institutions and policies. Guscina (2008) analyzed the role of macroeconomic, political and institutional factors in determining the structure of public domestic debt. In this study, he used fixed effects, difference-on-difference, OLS and censored Tobit estimations for the period 1980-2005 in 19 emerging market economies. On the other hand, the author based the institutional factor indicators on the International Country Risk Guide (ICRG) database and used bureaucracy quality and political risk rating indicators. Finally, the study concludes that an unstable macroeconomic environment, low quality institutions and an uncertain political climate hinder the development of the domestic debt market. Heylen et al. (2013) analyzed the evolution of public debt burden during and after the fiscal consolidations implemented in OECD countries between 1981 and 2008. The authors find that the contribution of consolidation programs in reducing the debt ratio increases when governments are more efficient. Tarek and Ahmed (2017) analyzed the impact of governance on public debt accumulation in 17 Middle East and North Africa (MENA) countries for the period 1996-2015 using fixed-effects and random effects methods. They conclude that three of the governance indicators (political stability - absence of violence, regulatory quality and rule of law) are negatively related to debt to GDP ratio. However, the other three governance indicators, namely control of corruption, government effectiveness and accountability, are positively related to the debt-to-GDP ratio. The authors conclude that poor governance leads to higher public debt accumulation. Butkus and Seputiene (2018) investigated whether the debt threshold level depends on government efficiency and trade balance for 152 countries in the 1996-2016 period using the SYS-GMM, ordinary least squares estimator (OLS) and Least squares dummy variable (LSDV) estimation methods. In the study, they found that the government effectiveness indicator is determinant in the debt threshold level. Briceño and Perote (2020) examined the impact of financial, social and institutional factors on the development of public debt in 19 countries in the Eurozone for the period 1999-2018 using two-stage system GMM methods. The authors conclude that government efficiency reduces public debt. Waqas et al. (2021) investigated the relationship between institutional quality indicators and public debt for Pakistan between 1996-2018 using ordinary least squares, quantile regression and robust regression methods. The empirical findings of the study show that indicators of voice and accountability, regulatory quality and control of corruption increase public debt, while indicators of political stability, government effectiveness and regulatory quality have a decreasing effect on public debt. Nguyen and Luong (2021) investigated the impact of fiscal policies and institutional quality on public debt in 27 transition countries for the period 2000-2018 and concluded that government effectiveness positively affects public debt. In addition, Nguyen and Nguyen (2022) investigated the impact of the informal economy and institutional quality on public debt for 19 emerging market economies in the 2002-2017 period. The study finds no effect of political stability and government effectiveness on public debt. Investigating the determinants of institutional quality, Ma and Qamruzzaman (2022) examined the impact

of public debt, economic policy uncertainty and government expenditures on institutional quality in BRIC countries between 1990-2020 using ARDL, NARDL and Fourier Toda-Yamamoto causality tests. The author concluded that in the long run, public debt and uncertain economic policies negatively affect institutional quality, while government expenditures positively affect institutional quality.

Some of the studies investigating the impact of institutional quality indicators on various macroeconomic factors are as follows. Woo (2003) analyzed the impact of a wide range of economic, sociopolitical and institutional factors on public deficits for 57 developed and developing countries in the 1970-1990 period. According to the findings of the study, the impact of sociopolitical polarization on public deficits is lower in countries with better institutions. Sani et al. (2019) investigated the impact of public debt and institutional quality on economic growth for 46 sub-Saharan African countries in the 2000-2014 period using the GMM approach. They found that the indicators with the strongest impact on reducing the negative impact of public debt on economic growth are government effectiveness, control of corruption and regulatory quality. Kasım et al. (2021) analyzed the impact of institutional quality and macroeconomic factors on financial development with linear dynamic panel data methods for the period 1995-2018 in 56 countries of the Organization of Islamic Cooperation. In the study where corruption index and economic freedom index were taken into account as determinants of institutional quality, they found that institutional quality is effective on financial development. Kurt and Akbulut (2022) examined the role of good governance in the impact of budget balance on growth in Turkey and 27 European Union countries for the period 2006-2018 using panel data method. According to the findings obtained from the panel threshold method of the study, which was constructed by taking the arithmetic average of the six governance indicators of the WGI, they concluded that good governance and budget surpluses are determinants of economic growth. Farooq et al. (2023) investigated the impact of public debt and institutional quality on environmental degradation in the economies of the Organization of Islamic Cooperation between 1996 and 2018. The authors found that institutional quality has positive effects on the environment. Nawaz et al. (2014) examined the impact of institutions on economic growth in selected Asian economies for the period 1996-2012. Accordingly, they were concluded that institutions have a more positive impact on economic growth in Asian countries with higher levels of development.

3. EMPIRICAL ANALYSIS
a. DATA SET AND MODEL

For the empirical analysis, the study utilizes data from 20 emerging market countries covering the period 2002-2020[*]. This study uses data on gross government debt, government effectiveness index representing institutional quality, financial development index and general government consumption expenditures. In this context, the model used in this study is shown in equation (1).

$$lnDEBT_{it} = \alpha_0 + \alpha_1 lnIQGE_{it} + \alpha_2 lnGS_{it-1} + \alpha_3 lnFD_{it} + \varepsilon_{it} \qquad (1)$$

Accordingly, $lnDEBT_{it}$, is the public debt burden; $lnIQGE_{it}$, is the government efficiency index representing institutional quality; $lnGS_{it-1}$, is the general government consumption expenditure[**] in the previous period; $lnFD_{it}$, is the financial development index; and ε_{it}, is the error term. The public debt burden may be denominated in either the domestic currency or foreign currencies that they are not authorized to issue. Consequently, the impact of institutional quality on the domestic and foreign public debt burdens might vary. Additionally, fluctuations in exchange rates can also influence foreign currency-denominated public debt.

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[*] Emerging Market Countries: Argentina, Brazil, Chile, China, Colombia, Egypt, Hungary, India, Indonesia, Iran, Malaysia, Mexico, Philippines, Poland, Russia, Saudi Arabia, South Africa, Thailand, Turkey and the United Arab Emirates.
[**] Due to the intertemporal budget constraint, one-period-ahead value is included in the model in line with Barro (1979).

However, due to the challenge of obtaining data on this differentiation, these effects are currently classified as external factors in our analysis. Natural logarithms of all variables have been taken. Gross government debt and financial development indicators are obtained from the IMF database, the government efficiency index (percentile rank)[*] representing institutional quality is obtained from the WGI, and general government consumption expenditures are obtained from the World Bank database.

b. METHODOLOGY

The study utilizes linear panel data analysis techniques to determine the effect of institutional quality on public debt burden. Unlike the econometric techniques used in the literature on the relationship between public debt and institutional quality, methods that take into account horizontal cross-sectional dependence have been used. For this purpose, horizontal cross-section dependence across countries is investigated with the tests developed by Breusch-Pagan (1980), Pesaran (2004) and Pesaran et al. (2008) and the null hypothesis for each test is estimated the proposition "no cross-sectional dependence". Accordingly, Breusch-Pagan (1980) CD_{BP} test is valid when the cross-sectional dimension is fixed and the time dimension goes to infinity ($T \rightarrow \infty$); Pesaran (2004), CD_{LM1} test is valid when the time and cross-sectional dimension go to infinity ($N,T \rightarrow \infty$); Pesaran (2004), CD_{LM} test is valid when the time dimension is fixed and the cross-sectional dimension goes to infinity ($N \rightarrow \infty$). Finally, the $CDLM_{adj}$ test developed by Pesaran et al. (2008) is used. The CD_{BP} test, which is the corrected version of the test developed by Breusch and Pagan (1980), is biased when the group mean is zero but the individual means are different from zero. Pesaran et al. (2008) corrected this deviation by adding variance and mean to the test statistic.

The stationarity of the variables considered in the study is examined within the framework of Pesaran (2007), CIPS panel unit root test and CADF unit root test and is based on the test of the model (2).

$$\Delta y_{it} = a_i + b_i y_{it-1} + c_i \bar{y}_{t-1} + d_i \Delta \bar{y}_t + \varepsilon_{it} \qquad (2)$$

In Model (2), for the variable to be tested for unit root $\bar{y}_t$, is the cross-sectional mean; $(\bar{y}_{t-1}, \bar{y}_{t-2}, \dots)$ is the lagged values of the cross-sectional mean, and $\Delta \bar{y}_t$, is included in the regression model as a dummy (proxy) to take into account the cross-sectional dependence due to the general factor structure. In Pesaran's (2007) CADF panel unit root test, the null hypothesis tests the proposition that "each cross-section series forming the panel contains unit root" (Pesaran, 2007: 267-269). The coefficients b_i in Model (2) indicate CADF statistics. The obtained t-statistics are compared with the critical values presented by Pesaran (2007) to determine whether the series contains a unit root. To test whether the panel data set is stationary, the average of the CADF statistics is taken as in equation (3). The value obtained gives the cross-sectionally augmented IPS (Cross-sectionally augmented IPS-CIPS) test statistic.

$$CIPS = N^{-1} \sum_{i=1}^{N} CADF_i \sim N(0,1) \qquad (3)$$

The CIPS values obtained from equation (3) are compared with the critical values given in Pesaran (2007) to test for stationarity.

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[*] WGI: the governance indicator is measured in standard normal units ranging from -2.5 to 2.5 and in percentage ranking terms ranging from 0 (weak governance) to 100 (strong governance) across all countries worldwide. Percentile rank were used in this study.

The Delta test developed by Pesaran and Yagamata (2008) is used to determine whether the cointegration coefficients of the variables are homogeneous or heterogeneous. Accordingly, it is tested whether the slope coefficients β_i given in model (4) are valid-that is, homogeneous- for all horizontal cross-sections.

$$Y_{it} = \beta + \beta_i X'_{it} + \varepsilon_{it} \qquad (4)$$

In the Delta test, the null hypothesis tests the proposition "slope coefficients are homogeneous $(H_0: \beta_i = \beta)$". For the delta test, two different tests have been developed for large samples ($\hat{\Delta}$ test) and small samples ($\hat{\Delta}$ adj test), which are presented in equations (5) and (6), respectively (Pesaran and Yagamata (2008).

$$\hat{\Delta} = \sqrt{N}\left(\frac{N^{-1}S - k}{2k}\right) \sim \chi_k^2 \qquad (5)$$

$$\hat{\Delta}_{adj} = \sqrt{N}\left(\frac{N^{-1}S - k}{v(T,k)}\right) \sim N(0,1) \qquad (6)$$

In Equations (5) and (6), N is the number of horizontal cross-sections, S is the Swamy (1970) test statistic, k is the number of explanatory variables in the model and $v(T,k)$ is the standard error.

The long-run cointegration relationship between the variables is investigated with the Bootstrap Panel Cointegration test developed by Westerlund and Edgerton (2007). This test is based on the Lagrange Multiplier (LM) test developed by McCoskey and Kao (1998). In the first step of the cointegration test, the error terms (z_{it}) are obtained from the fully-adjusted FMOLS estimator of the cointegration model in equation (7).

$$y_{it} = \alpha_i + x'_{it}\beta_i + z_{it} \qquad ; \qquad z_{it} = u_{i,t} + v_{it} \qquad (7)$$

In the second stage, the LM statistic is calculated as in equation (8):

$$LM_N^+ = \frac{1}{NT^2}\sum_{i=1}^{N}\sum_{t=1}^{T}\hat{\omega}_i^{-2}S_{it}^2 \qquad (8)$$

In (8), S_{it}, denotes the partial sum process of z_{it} obtained from the FMOLS estimator; $\hat{\omega}_i^2$, denotes the long-run variance of u_{it} conditional on Δx_{it}. The null hypothesis tests the proposition that "cointegration exists for all horizontal sections $(H_0: \sigma_i^2 = 0)$" (Westerlund and Edgerton, 2007:168-187). The LM test statistic shows a standard normal distribution when there is no horizontal cross-section dependence in the panel data set. When horizontal cross-section dependence is the most important feature of the panel data set, the LM test does not exhibit standard normal distribution. In such a case, Westerlund and Edgerton (2007) suggest using the critical values obtained from the "bootstrap" method in line with the Sieve approach.

In this study, the Augmented Mean Group (AMG) estimator developed by Bond and Eberhardt (2009), which takes into account the horizontal cross-sectional dependence of the long-run coefficients, is used. The

AMG estimator can also be used for series that become stationary when first order differences are taken. This estimator provides efficient results in cases where there is an endogeneity problem due to the error term. In addition, it provides individual coefficients for each cross-section when cointegration coefficients are heterogeneous, and it also provides panel coefficients when cointegration coefficients are homogeneous. Since the AMG estimator estimates the arithmetic mean of the individual cointegration coefficients by weighting them, it can provide better results than other estimators.

$$\Delta y_{it} = b' \Delta x_{it} + \sum_{t=2}^{T} c_t \Delta D_t + e_{it} \qquad \rightarrow \hat{c}_t \equiv \hat{\mu}_t \tag{9}$$

$$y_{it} = \alpha_i + b' x_{it} + c_i t + d_i \hat{\mu}_t + e_{it} \qquad \hat{b}_{AMG} = N^{-1} \sum_i b_i \tag{10}$$

The obtained dummy coefficients are used as independent variables in the model in equation (10) to include cross-sectional dependencies. Finally, the coefficients of the AMG estimator are calculated by taking the weighted average of the estimated coefficients for each cross-section.

4. EMPIRICAL FINDINGS

For the 20 emerging market economies included in the analysis, the presence of horizontal cross-section dependence in the variables and the model used in the study within the framework of model (1) is investigated and the results are presented in Table 1. According to the findings, although there is no consistency in the variables and tests, the null hypothesis "there is no horizontal cross-section dependence" is statistically rejected at the 1% level in all four tests used for the model. In this case, we can state that there is horizontal cross-section dependence in all variables and the model. Therefore, it would be more appropriate to prefer tests that take into account horizontal cross-sectional dependence in both variables and the model in the following stages.

Table 1. Cross-Section Dependence Test Results

	CD_{BP}	CD_{LM1}	CD_{LM}	CD_{adj}
$lnDEBT_{it}$	440.415 (0.000)***	12.846 (0.000)***	1.655 (0.049)**	-1.702 (0.956)
$lnIQGE_{it}$	368.440 (0.000)***	9.154 (0.000)***	-2.310 (0.010)**	-2.165 (0.985)
$lnGS_{it-1}$	306.884 (0.000)***	5.996 (0.000)***	0.088 (0.465)	-2.932 (0.998)
$lnFD_{it}$	262.378 (0.000)***	3.713 (0.000)***	-1.104 (0.135)	7.538 (0.000)***
Model	747.695 (0.000)***	28.609 (0.000)***	12.716 (0.000)***	13.789 (0.000)***

Note: Values in parentheses indicate probability values. ***, ** and * denote 1%, 5% and 10% significance levels, respectively.

In this study, the CIPS (CADF) panel unit root test developed by Pesaran (2007), which takes into account horizontal cross-section dependence, was used to examine the stationarity properties of the variables and the results of the model with constant are summarized in Table 2. According to the test results, all variables used in the study become stationary when first difference is taken.

Table 2. CIPS Unit Root Test Results

	Level	*Difference*
$lnDEBT_{it}$	-1.569	-2.810***
$lnIQGE_{it}$	-1.543	-4.438***
$lnGS_{it-1}$	-1.791	-3.466***
$lnFD_{it}$	-2.044	-4.765***

Note: Lag lengths are taken as maximum 4. ***, ** and * denote 1%, 5% and 10% significance levels, respectively. Critical values for CIPS test: -2.10, -2.21 and -2.40 for 1%, 5% and 10% significance levels, respectively.

The homogeneity of cointegration coefficients in the study is investigated by Delta test and the findings are presented in Table 3. According to the probability values of the test statistics obtained for both large samples ($\hat{\Delta}$ test) and small samples ($\hat{\Delta}$ adj test) for emerging market economies, the null hypothesis "slope coefficients are homogeneous" cannot be rejected. Accordingly, it is concluded that the cointegration coefficients are homogeneous, which implies that interpretations can be made for the entire panel.

Table 3. Delta Test Results

$\hat{\Delta}$	$\hat{\Delta}_{adj}$
-2.642 (0.996)	-3.051 (0.999)

Note: The values in parentheses are probability values of the test statistic.

The long-run cointegration relationship between the variables in the model is investigated with the Westerlund-Edgerton Panel Cointegration test since there is horizontal cross-sectional dependence and the variables become stationary when they are differenced at first order. Since there is horizontal cross-sectional dependence among the emerging market countries forming the panel, critical values obtained from the bootstrap method are used. The results obtained in this framework are given in Table 4 and the null hypothesis "there is cointegration for all horizontal cross-sections" could not be rejected. Accordingly, it is concluded that there is a long-run relationship between the variables.

Table 4. Westerlund-Edgerton (2007) Panel Cointegration Test

	Emerging Market Countries
LM_N^+	5.442 (0.993)

Note: The numbers in parentheses indicate the probability values obtained from the bootstrap distribution and the reported probability values are obtained from the bootstrap distribution with 10000 replications.

After estimating the cointegration relationship between the variables, the results obtained from the AMG estimator used to estimate the coefficients in Model 1 are presented in Table 5.

Table 5. AMG Estimation Results

	Emerging Market Countries
$lnIQGE_{it}$	-0.409**
	[0.207]
$lnGS_{it-1}$	0.619*
	[0.356]
$lnFD_{it}$	-0.029
	[0.325]
Constant Term	3.672***
	[1.139]
RMSE	0.174
Wald χ^2	6.26
	(0.010)

Note: ***, ** and * denote 1%, 5% and 10% significance levels, respectively. Values in square brackets are standard errors and values in parentheses are probability values. RMSE; Root Mean Squared Error.

According to the findings, the effect of institutional quality on the public debt is negative in the countries analyzed. Therefore, a 1% increase in the institutional quality index decreases public debt by 0.409%. Government expenditures in the previous period have a positive effect on public debt. Accordingly, a 1% increase in government expenditures in the previous period increases public debt by 0.619%. Since the effect of the financial development index on public debt is statistically insignificant, we can state that the financial development index does not affect public debt in the countries we consider.

Table 6. AMG Estimation Results by Countries

	$lnIQGE_{it}$	$lnGS_{it-1}$	$lnFD_{it}$	*Constant Term*
Argentina	0.079	-1.222***	0.181	7.680***
	[0.359]	[0.201]	[0.419]	[1.680]
Brazil	-0.197***	0.796**	0.140*	2.847***
	[1.340]	[0.324]	[0.077]	[1.010]
Chile	-1.178	5.369***	-1.290	-6.891
	[1.340]	[0.499]	[0.928]	[6.494]
China	-0.166	0.075	1.750***	5.321**
	[0.401]	[0.637]	[0.299]	[2.692]
Colombia	-0.470**	1.766***	1.133***	2.137
	[0.224]	[0.502]	[0.163]	[1.492]
Egypt	-0.240***	0.656***	0.115	4.000***
	[0.088]	[0.105]	[0.118]	[0.507]
Hungary	-1.068	-1.140	0.440	12.602***
	[0.850]	[0.732]	[0.270]	[2.405]
India	-0.468*	-0.237	0.583*	7.286***
	[0.244]	[0.402]	[0.326]	[1.529]
Indonesia	-0.287	-1.804***	-0.189	8.425***
	[0.404]	[0.684]	[0.560]	[2.093]
Iran	0.555**	1.078**	0.019	-1.120
	[0.216]	[0.477]	[0.461]	[1.438]
Malaysia	-0.998**	0.554**	1.849***	7.775***
	[0.426]	[0.263]	[0.255]	[2.189]
Mexico	0.065	0.892***	0.677**	2.185**
	[0.212]	[0.328]	[0.291]	[0.939]

Philippines	0.419	-0.303	-2.729***	-0.006
	[0.713]	[0.848]	[1.005]	[3.975]
Poland	0.396	1.252	0.476**	-0.972
	[0.426]	[0.966]	[0.194]	[3.509]
Russian Federation	-0.997**	-0.305	-2.543***	5.728
	[0.403]	[1.010]	[0.746]	[3.501]
Saudi Arabia	-3.359**	1.175	-1.749	11.552
	[1.682]	[1.588]	[1.799]	[8.851]
South Africa	-1.096**	2.762***	-0.338	0.087
	[0.545]	[0.350]	[0.362]	[2.640]
Thailand	-0.242	-1.099	0.882	8.180***
	[0.431]	[0.726]	[0.588]	[2.478]
Türkiye	-0.106	0.686	-2.411	0.498
	[0.752]	[0.613]	[0.403]	[2.962]
United Arab Emirates	1.174	1.428	2.417	-3.879
	[3.724]	[1.238]	[1.580]	[15.462]

Note: ***, ** and * denote 1%, 5% and 10% significance levels, respectively. Values in square brackets denote standard errors.

When we look at the individual country results presented in Table 6, the institutional quality index negatively affects public debt in Brazil, Colombia, Egypt, India, Malaysia, Russia, Saudi Arabia, South Africa and Thailand. Our findings are similar to the empirical results of Briceño and Perote (2020) and Waqas et al. (2021). In Argentina, Chile, China, Hungary, Indonesia, Mexico, the Philippines, Poland, Thailand, Turkey and the United Arab Emirates, the institutional quality index has no effect on public debt. This finding supports the study of Nguyen and Nguyen (2022). In Iran, contrary to the panel results, increases in the institutional quality index increase public debt. This result supports the results of Tarek and Ahmed (2017) and Nguyen and Luong (2021). The reason why individual country results differ is due to structural differences across countries as well as differences in institutional quality and governance practices.

5. CONCLUSION AND POLICY RECOMMENDATIONS

Emerging market economies are vulnerable to internal and external shocks due to numerous structural and chronic problems such as weak financial markets, low savings rates, high interest rates, external deficits, volatile exchange rates and fiscal deficits. Since the 1990s, the Mexican crisis, the Southeast Asian crisis, the Russian crisis, the Argentine crisis, the 2008 global financial crisis, the European debt crisis and most recently the Covid-19 pandemic crisis, which have had both regional and global impacts, have had an impact on many emerging market countries. The importance of sustainable debt levels in dealing with these crises has become more evident.

Strong and well-functioning institutions are at the forefront in formulating and implementing policies against structural and fiscal problems. Government efficiency, in this respect, ensures public fiscal discipline, public debt management, improved quality of public services, and confidence in the establishment and maintenance of independent public fiscal policies. Thus, increased government efficiency helps to create the necessary economic conditions for the multifaceted realization of public debt management, which helps to reduce public debt.

This study investigates the impact of government effectiveness, an indicator of institutional quality, on public debt burden for 20 emerging market countries in the 2002-2020 period. Empirical evidence has shown that higher government effectiveness reduces public debt in a number of emerging market economies. Our findings are similar to the empirical results of Briceño and Perote (2020) and Waqas et al. (2021). Indeed, higher

government effectiveness has contributed to lower public debt by improving the quality of public services and effective public debt management. In some other countries, no relationship was found between government effectiveness and public debt. This finding supports the study of Nguyen and Nguyen (2022). In Iran, the increase in government effectiveness increased public debt. This result supports the results of Tarek and Ahmed (2017) and Nguyen and Luong (2021). In addition, Nguyen and Luong (2021) attribute the increase in government effectiveness to the fact that increased government effectiveness requires more public expenditure to operate and monitor the system efficiently. Butkus and Seputiene (2018) emphasize that some efficient governments may be more willing to meet the needs of voters by financing public consumption expenditures with debt, and therefore, public debt may increase in efficient governments. The increase in government consumption expenditures, which is another independent variable, led to an increase in public debt in line with theoretical expectations. Financial development, on the other hand, has no statistically significant effect on public debt.

Our empirical results provide important policy implications for emerging market economies. To reduce the public debt burden, policymakers should emphasize policies that improve institutional quality and redirect public consumption expenditures to productive areas. To this end, government effectiveness should be enhanced, the quality of public services should be improved, effective fiscal policies should be established, and credibility should be established on the sustainability of these policies. In this way, policymakers can help increase the economy's resilience to domestic and external imbalances by improving government effectiveness.

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