Public Debt and Growth in Lower-Middle-Income Countries

Research Paper

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Introduction

The Covid-19 pandemic has resulted in an unprecedented surge in public debt levels around the world. Even before this public health crisis, rising debt levels had been a growing cause for concern for economists around the world throughout the 2010s. The debates about debt sustainability and its wider implications were invigorated when after the drastic increase in global debt as a result of the Great Recession of 2008, the debt levels, instead of stabilizing, continued to hike. This worrying trend motivated a multitude of researchers to examine the impact of a country's level of public debt on its subsequent growth. There are multiple channels through which high debt may hinder a country's economic development. Specifically, in addition to general concerns around higher fiscal volatility and overall uncertainty, a high level of debt is likely to lead to higher long-term interest rates and inflation.

This paper aims to contribute to this literature by measuring the impact of the initial level of public debt on long-run economic growth in a panel of lower-middle-income countries over the forty years before the global pandemic (1980-2019). Methodologically, the paper follows Kumar and Woo (2015) who conduct a similar analysis for a panel of 38 advanced and emerging market economies from 1970 to 2008.

Most of the available literature regarding the debt levels and their impact on growth focuses on emerging and advanced economies, or low-income countries (LICs) (Essl *et al*. 2019, IMF 2020). However, there is a list of countries that the World Bank classifies as lower-middle and upper-middle-income countries, that often fall beyond the scope of analysis as they are not yet part of the group of emerging markets and are no longer considered among LICs. The purpose of this paper is to examine whether the same impact of debt-to-GDP level on growth as reported in advanced and emerging economies is observed specifically in these lower-middle and upper-middle-income countries.

Following Kumar and Woo (2015), the regression analysis in this paper also includes the variables identified as core determinants of growth by Sala-i-Martin *et al*. (2004). This makes it possible to draw further conclusions regarding what other variables play an important role in the growth rate of this specific set of countries. The estimation methods used in this paper are pooled OLS, country fixed effects, time fixed effects, and two-way fixed effects estimations. The preferred estimation model is two-way fixed effects with standard errors clustered at the country level to avoid violating the independence assumption, as time-series

observations within a country are expected to exhibit serial correlation in the error term. The preferred estimation method, the two-way fixed effects regression, finds that an increase of 10 percentage points in the initial level of public debt-to-GDP level results in a 0.004 percentage point decrease in the subsequent growth of real per capita GDP per year. While the result is significant at the 5% level, this shows that the magnitude of impact is considerably smaller than that generally observed in advanced/emerging economies, which is usually reported as a decrease of between 0.1-0.2 percentage points per 10 percentage point growth in debt. Other variables that have a statistically significant impact on subsequent growth in this analysis are the incidence of a banking crisis and the average fiscal balance.

The rest of the paper is organized as follows: The first section briefly explores the theoretical framework regarding public debt and its effects on growth. The second section presents the data and the model specification. The third section describes the results of the baseline model. Section IV explains the regressions conducted to check for the robustness of the results, and Section V concludes. In addition, appendix 1 provides descriptive statistics and sources of the variables used in the paper. The list of countries in the sample is provided in appendix 2.

I. Theoretical Framework

As mentioned above, there is an extensive body of literature regarding the impact of public debt on growth in advanced and emerging economies. To name a few, Caner *et al*. (2010) observe 79 developed and emerging economies during the period 1980 to 2008; Chercherita and Rother (2012) analyze 12 European economies from 1970 to 2008; Panizza and Presbitero (2012) look at 17 OECD countries from 1980 to 2005. While their results vary slightly due to different model specifications, they all confirm the negative correlation between the debt levels and the real annual growth rate. Notably, Heimberger (2021) applied meta-regression methods to 826 estimates from 48 primary studies and found that on average, a 10 percentage point increase in debt-to-GDP is associated with a decline in annual growth rates of 0.14 percentage points. This result is largely in line with the findings of the papers mentioned in this paragraph. Yet, the analysis focusing on lower-middle-income countries is much more limited.

Generally, public debt accumulates when a country's government spends more than it collects in taxes. Therefore, debt levels are expected to rise when there is a sudden change in a government's expenses, as tax revenue is considerably more difficult to manipulate. As a

result, to close the gap between revenues and expenditure, governments borrow funds and accumulate public debt. To indicate the ability of the government to pay off its dues, public debt is usually measured as a percentage of GDP.

In some cases, public debt may have a positive effect on growth. This happens when the government uses the borrowed funds to invest in projects with a high expected return on investment. However, there are several channels through which debt may have adverse effects. First, Baldacci and Kumar (2010) find that high public debt-to-GDP level may lead to higher long-term interest rates, which in turn may have negative spill-over effects on corporate borrowing costs. The increased credit risk premium in the private sector as a result of high levels of public debt has also been observed by Codogno *et al.* (2003) and Von Hagen *et al.* (2011). Corsetti *et al.* (2013) further explore how a growing likelihood of sovereign default increases the cost of funds in the private sector.

Second, Aizenman *et al.* (2007) showed that high levels of debt may mean lower public infrastructure spending in the future. Dotsey and Mao (1994) confirm that debt levels have a significant effect on the government's spending decisions and argue that it also may increase the probability of future distortionary taxation to finance the tax burden. Woo (2022) also lists higher inflation (also documented by Cochrane (2011)) and decreased capacity for countercyclical fiscal policies, which in turn may result in amplified vulnerability to shocks, among the negative effects of high debt. Barro (1995) shows that high inflation negatively affects growth and investment.

The conventional view, as summarized by Elmendorf and Mankiw (1999), is that in the short run, public debt may stimulate the economy by increasing aggregate demand. However, in the long run, it may crowd out capital and private investment, decreasing aggregate output.

II. Data and Model

The analysis, following the methodology of Woo and Kumar (2015), focuses on exploring the relationship between the *initial* level of public debt and the *subsequent* growth of the real per capita GDP. The paper uses both, the cross-country and time-series dimensions of the data. The time series consists of 40 years from 1980 to 2019, which is divided into eight non-overlapping five-year periods (1980-4, 1985-9, …, 2010-4, 2015-9).

The sample used in this paper consists of 30 countries with an average real GDP per capita of 3,000 to 6,000 USD over the period of 2015-2019. Two countries were further removed from the list due to a lack of available data across the board. Regressions for this paper are run over an unbalanced panel – and the lack of comprehensive data is the biggest constraint of this research paper.

The data was obtained from the World Economic Outlook and Fiscal Monitor databases of the International Monetary Fund (IMF), the World Bank's World Development Indicators and Global Financial Development databases, and the Penn World Table (PWT) version 10.0. For sources of each variable please refer to Appendix 1.

The baseline model is specified as follows:

$$y_{i,t+4} - y_{i,t} = \alpha y_{i,t} + X_{i,t}\beta + \gamma Z_{i,t} + \eta_t + \nu_i + \varepsilon_{i,t}$$

Where:

- $\mathbf{y_{i,t+4}}$ is the logarithm of real GDP per capita of country *i* at the end of the period (*t+4*);
- $\mathbf{y_{i,t}}$ denotes the logarithm of real GDP per capita of country *i* at the beginning of the period (*t*);
- $\mathbf{X_{i,t}}$ is a vector of economic and financial variables which will be listed below;
- $\mathbf{Z_{i,t}}$ is the initial government debt (measured as % of GDP), the variable of interest;
- $\boldsymbol{\eta_t}$ represents time-fixed effects;
- $\boldsymbol{\nu_i}$ represents country-fixed effects;
- $\boldsymbol{\varepsilon_{i,t}}$ represents the unobservable error term.

The variables in the vector X, following Kumar and Woo (2015), are chosen according to the analysis of Sala-i-Martin *et al.* (2004). These variables have been identified as key growth determinants:

- **The initial level of real GDP per capita** – this is accounted for to capture the catching-up process and is also referred to as the convergence rate. Another reason for including this variable as a regressor is to mitigate the concern regarding reverse causality. This refers to the idea that just as high debt may bring about slower economic growth – slow growth may also result in debt accumulation. However, the inclusion of this variable is not a solution to the possible endogeneity problem, which remains a concern. After all, high debt and growth may both be affected by other variables that may be unaccounted for.

- **Human capital** is included to reflect the idea that more human capital, according to Barro (2001), facilitates technology transfer from more advanced countries, thus contributing to growth. Kumar and Woo (2015) use the log of average years of secondary schooling in the population over age 15 in the initial year, taken from Barro and Lee (2011). Due to limited data availability, in this paper, this proxy is replaced by secondary school enrollment in the initial year.
- **Government Size** – measured by government consumption as percent of GDP in the initial year.
- **Trade Openness** – the sum of exports and imports as a percentage of GDP in the initial year.
- **Financial Market Depth** – liquid liabilities as a percentage of GDP in the initial year.
- **Inflation** – CPI inflation in the initial year.
- **Terms of trade growth** – an average of year-on-year growth rates over the 5-year period.
- **Banking Crisis** – a variable that counts the number of incidences of banking crises over the 5-year period.
- **Fiscal Balance** – fiscal balance as a percentage of GDP, averaged over the 5-year period. Kumar and Woo (2015), instead of fiscal balance, include Fiscal Deficit, which, due to lack of data, proved to be impossible for the sample selected for this paper.

To check for the robustness of the results, the following variables are added individually to the baseline specification.

- **Population** – a 5-year average of growth rates.
- **Investment** – Domestic investment in the initial year, % of GDP, the share of gross capital formation at current PPPs.
- **Fiscal Volatility** – Following Kumar and Woo (2015), this is the logarithm of the standard deviation of annual growth rates of real government expenditures over the 5-year period.
- **Age Dependency** – share of people aged 65+ in the working-age population, an average of 5 years.
- **Urbanization** – share of the urban population in total population, an average of 5 years.

III. Baseline Regression Results

The results of the baseline model are reported in Table 1.

Table 1: Estimation Results: Main Model

	Dependent variable:			
	Long-run real GDP per capita growth			
		panel linear		*felm*
	Pooled OLS	Country Fixed Effects	Time Fixed Effects	Two-way Fixed Effects
	(1)	(2)	(3)	(4)
Government Debt, initial	−0.0000	−0.0003*	−0.0000	−0.0004**
	(0.0001)	(0.0002)	(0.0002)	(0.0002)
Real GDP Per Capita, initial	−0.08***	−0.13***	−0.06***	−0.14***
	(0.01)	(0.03)	(0.02)	(0.03)
Secondary School Enrollment, initial	0.0003	0.001**	0.001	0.0005
	(0.0003)	(0.0005)	(0.0004)	(0.001)
Government Size, initial	−0.02	−0.15	0.10	−0.13
	(0.06)	(0.10)	(0.07)	(0.09)
Trade Openness, initial	−0.02	0.005	−0.05***	0.01
	(0.01)	(0.02)	(0.02)	(0.02)
Financial Depth, initial	0.0002	0.001	−0.0003	0.001
	(0.0002)	(0.001)	(0.0003)	(0.001)
Inflation, initial	−0.0001***	0.0002	−0.0001***	0.0003
	(0.0000)	(0.0002)	(0.0000)	(0.0002)
Terms of Trade Growth, average	0.42	0.78	0.03	0.69
	(0.42)	(0.50)	(0.56)	(0.50)
Banking Crisis	−0.02***	−0.01**	−0.02***	−0.01*
	(0.003)	(0.01)	(0.004)	(0.01)
Fiscal Balance, average	0.002*	0.005***	0.0004	0.005***
	(0.001)	(0.001)	(0.001)	(0.001)
Africa	−0.07***			
	(0.01)			
South and Latin America	−0.08***			
	(0.01)			
Asia and Pacific	−0.06***			
	(0.01)			
Observations	100	100	100	100
R^2	0.60	0.54	0.34	0.80
Adjusted R^2	0.54	0.28	0.22	0.66
Residual Std. Error				0.03 (df = 58)
F Statistic	10.01*** (df = 13; 86)	7.43*** (df = 10; 64)	4.36*** (df = 10; 83)	

Note: *p<0.1; **p<0.05; ***p<0.01

This table reports the results of the baseline model. The first column is the standard Pooled OLS regression, the second column includes country-fixed effects, the third column includes time fixed effects, and the fourth column reports the two-way fixed effects model estimates. Robust standard errors are reported in the brackets. In the Pooled OLS, main model is estimated for European countries and geographic dummies are included for other regions. Time dummies are not reported. In the two-way fixed effects estimation, standard errors are clustered at the country level.

The first column reports the standard Pooled OLS estimation results. In this estimation, we see that the *initial government debt* is not only statistically insignificant but that the magnitude of the estimated negative effect is also negligible. The convergence rate reflected by the coefficient of *the initial GDP per capita* is significant across all estimation methods at a 1% level. Pooled OLS estimation also shows that the *initial level of inflatio*n and the *incidence of banking crisis* both have negative effects on subsequent growth and that they are both significant at a 1% level. The baseline model is estimated for the countries in Europe. The regional dummies for *Africa*, *South and Latin America*, and *Asia and Pacific* are also included and are all negative and significant at the 1% level.

The second column reports the results of the regression where country-fixed effects are included. Country-fixed effects capture the characteristics of the countries that are specific to those countries (vary across countries) but do not vary over time. In other words, this model focuses on and extracts the within-country variation in the data. With this specification, *initial government debt* becomes significant at a 10% level; The coefficient shows that an increase of 10 percentage points in the initial level of public debt costs the country 0.003 percentage points in terms of real GDP per capita growth per year. *Initial secondary school enrollment* reflects a positive effect and is significant at a 5% level; the incidence of a banking crisis, with the expected negative sign, is also significant at a 5% level. Notably, the results also show the positive effect of the *average fiscal balance*, significant at the 1% level.

The third column adds time-fixed effects to the baseline regression. These capture global effects that are specific to certain periods but are constant over the countries in the panel. In other words, this specification allows us to consider the possibility that there may have been some global booms or busts that may have affected all countries in the sample similarly and accounts for this effect. Initial government debt, similar to the Pooled OLS estimation, loses significance. The incidence of a banking crisis, and initial inflation results are also similar to Pooled OLS estimates. By contrast, initial trade openness becomes significant at a 1% level and has a negative sign. This finding is consistent with previous literature – For example, Kim (2011) observes that trade openness has negative effects on economic growth in developing countries with a low level of financial development, as opposed to high-income countries where the effect is positive.

The fourth column includes both country and time-fixed effects. In other words, this means that both country-specific characteristics and global trends particular to certain periods are accounted for. For this reason, it is the preferred estimation method in this paper. *According*

to the results, a 10 percentage point increase in the initial public debt level translates to a 0.004 percentage point slowdown in the subsequent growth of real GDP per capita per year. The result is significant at the 5% level. Notably, the impact is weaker than that observed by Kumar and Woo (2015) in their panel of advanced and emerging economies. Other than the *convergence rate* which maintains significance at a 1% level across all estimation methods, only *average fiscal balance* and the *incidence of a banking crisis* are statistically significant.

Fiscal balance has the expected positive sign across all model specifications. A country with a positive fiscal balance has more fiscal space to administer counter-cyclical fiscal policies when needed to mitigate the impact of macroeconomic cycles and maintain a certain level of growth rate despite global fluctuations. Aghion and Kharroubi (2007) and Harmon (2013) have shown the positive effects of countercyclical fiscal policy on growth. The negative sign of the incidence of a banking crisis is also expected. The countries in the given sample are characterized by underdeveloped capital markets. Their financial systems are largely dependent on commercial banks and thus, the incidence of banking crises has significant ramifications for the country's future economic growth.

IV. Robustness Checks

To check for the robustness of results additional variables were also considered. These included population growth rate average over the 5-year period, domestic investment as a percent of GDP in the initial year, fiscal volatility (standard deviation of annual growth rates of government expenditures averaged over the 5-year period), average age dependency ratio, and the average level of urbanization. The results of these regressions are reported in Table 2.

We can see that the columns 1-4 do not yield statistically significant coefficients on the additional variables. They do not affect either the magnitude or the significance of the variable of interest – initial government debt.

In the fifth column, however, we observe that the coefficient for the average level of urbanization over the time period is significant at a 10% level. Including this variable has also changed the value and significance of the variable of interest – initial government debt. With this specification, the coefficient becomes significant at a 1% level. *The result here suggests that a 10 percentage point increase in the initial level of government debt results in the slowdown of subsequent real GDP per capita growth of 0.01 percentage points per year.* In addition, it is notable that inflation and government size become significant at the 10% level.

Table 2: Robustness Checks for Two-Way Fixed Effects

	Dependent variable:				
	Long-run real GDP per capita growth				
	Population, growth rate	Investment, initial	Fiscal Volatility	Age Dependency	Urbanization
	(1)	(2)	(3)	(4)	(5)
Government Debt, initial	-0.0004^{**}	-0.0004^{**}	-0.0004^{**}	-0.0004^{**}	-0.001^{***}
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Real GDP Per Capita, initial	-0.15^{***}	-0.15^{***}	-0.15^{***}	-0.15^{***}	-0.12^{***}
	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)
Secondary School Enrollment, initial	0.001	0.0005	0.001^{*}	0.0005	0.001
	(0.001)	(0.0005)	(0.0005)	(0.001)	(0.0005)
Government Size, initial	-0.13	-0.10	-0.12	-0.11	-0.15^{*}
	(0.09)	(0.09)	(0.09)	(0.10)	(0.08)
Trade Openness, initial	0.005	0.002	0.01	0.004	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Financial Depth, initial	0.001	0.001	0.001	0.001	0.0005
	(0.001)	(0.001)	(0.001)	(0.001)	(0.0005)
Inflation, initial	0.0003^{*}	0.0002	0.0002	0.0002	0.0003^{*}
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0001)
Terms of Trade, average	0.59	0.69	0.84^{*}	0.70	0.64
	(0.56)	(0.49)	(0.49)	(0.50)	(0.47)
Banking Crisis	-0.01^{*}	-0.01^{*}	-0.01^{*}	-0.01^{*}	-0.01^{*}
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Fiscal Balance, average	0.01^{***}	0.005^{***}	0.01^{***}	0.005^{***}	0.01^{***}
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Population, growth rate average	1.14				
	(1.14)				
Investment, initial		0.05			
		(0.07)			
Fiscal Volatility			-0.01		
			(0.01)		
Age Dependency, average				0.002	
				(0.005)	
Urbanization, average					-0.003^{*}
					(0.002)
Observations	100	100	98	100	100
R^2	0.80	0.80	0.81	0.80	0.82
Adjusted R^2	0.66	0.65	0.67	0.65	0.68
Residual Std. Error	0.03 (df = 57)	0.03 (df = 57)	0.03 (df = 55)	0.03 (df = 57)	0.03 (df = 57)

Note: *p<0.1; **p<0.05; ***p<0.01

This table reports the results of robustness checks on the two-way fixed effects estimation. Robust standard errors are reported in the brackets. In all columns, standard errors are clustered at the country level.

Interestingly, the coefficient on urbanization has a negative sign, implying that in this sample the level of urbanization is negatively correlated with growth. This is in line with some of the existing literature looking at the relationship between urbanization and growth, which states that there is no clear linear correlation between the two. For example, Nguyen *et al.* (2018) find that urbanization positively impacts economic growth until it reaches a threshold level of around 68-69%, which is when the impact becomes negative. Turok and McGranahan (2013) stress that the magnitude and the direction of impact depend on institutional settings and the existing urban infrastructure; while Chen *et al*. (2014) posit that there is no correlation between the two at all.

While the above studies point towards an ambiguous relationship, there are some explanations for the negative coefficient as well. One plausible explanation could be that as people move from rural to urban areas in bulk, they are unable to quickly adapt to the urban lifestyle, so much so that their standards of living could fall during the first several years. The urban infrastructure in these countries, as they are lower-income countries, is likely to be inadequate in meeting the needs of a rapidly growing population. In the countries given in the sample, urbanization levels have changed dramatically over the 40 years. Namely, the average urbanization level among the 30 countries in the first period was 41 percent, while in the last period the average stood at around 56% - illustrating that the urbanization level grew by 36% across the board over just several decades. Quick urbanization, especially with insufficient planning from the government, may contribute to congestion and rising unemployment levels in the cities. Further, Kuddus *et al.* (2020) find that urbanization leads to increases in inequality levels and public health problems in urban areas, which may further slow subsequent growth.

Another plausible explanation of the negative coefficient would point to the fact that what much of the countries in the sample experience is urban primacy, rather than merely urbanization or urban concentration. Urban primacy refers to a situation when only one city in the country largely dominates in terms of population and economic activity. This often happens when the most populous city in the country is also its capital, which is true for the majority of countries in the sample. Moomaw and Shatter (1993) and (1996) show that while urbanization has a positive impact on economic growth, urban primacy has a negative effect.

V. Conclusion

As public debt levels have continued to rise throughout the last several decades around the world, more and more economists have begun to question the wider implications of such unprecedented debt levels on growth. While there is extensive literature focusing on advanced and emerging economies, the scope of analysis focusing on lesser developed countries is quite limited. The motivation of this paper is to contribute to this limited body of research and explore whether the observed impact of the initial debt level in lower-middle-income countries is the same as that observed in advanced and emerging economies by Kumar and Woo (2015). To this end, the paper applies their regression model to a sample of lower-middle-income countries with as much precision as allowed by the availability of data.

This paper aims to empirically assess the impact of the initial level of debt on subsequent growth for a panel of lower-middle-income countries over the period of forty years between 1980-2019. The paper replicates the regression model described by Kumar and Woo (2015) and employs four estimation methods to assess the impact. These estimation methods are pooled OLS, country-fixed effects, time-fixed effects, and two-way fixed effects models, with the latter being the preferred method of estimation among the four.

The results show that there is a negative relationship between the initial level of debt and subsequent growth of real GDP per capita. According to the results of the two-way fixed effects model, an increase of 10 percentage points in the initial public debt translates to a 0.004 percentage point slowdown in the subsequent growth of real GDP per capita per year. This effect, although weaker than the one reported by Woo and Kumar (2015) for their sample of 38 advanced and emerging economies (slowdown of real GDP per capita growth of 0.2 percentage points per 10 percentage point increase in the initial level of debt), is significant at 5% level. The incidence of a banking crisis and average fiscal balance are also identified as significant determinants of growth. To check for robustness of the result, several additional variables were considered, but with the exception of the added variable of the average level of Urbanization, they all yield similar results.

Appendix 1. Sources of Variables and Descriptive Statistics

Table 1: Description of Variables and Source

Variable	Description	Source
Real GDP per capita	Logarithm of real GDP per capita	PWT 10.0
Government Debt	Public debt to GDP, initial	IMF, WEO
Human Capital	Secondary School Enrollment, initial year	WB, WDI
Government Size	Share of government consumption in GDP, initial	PWT 10.0
Trade Openness	Sum of import and export shares in GDP, initial	PWT 10.0
Financial Market Depth	Liquid liabilities, % of GDP, initial	WB, WDI
Inflation	CPI inflation, initial	WB, WDI
Terms of Trade Growth	Average growth rate over the 5-year period	IMF, WEO
Banking Crisis	Number of incidences over the 5-year period	WB, GFD
Fiscal Balance	fiscal balance as percentage of GDP, averaged over the 5-year period	IMF, FM
Population	Average of growth rates over the 5-year period	PWT 10.0
Investment	Domestic Investment as a % of GDP, initial	PWT 10.0
Fiscal Volatility	standard deviation of annual growth rates of real government expenditure over the 5-year periods	WB, WDI
Age Dependency	Share of old (65+) people in working-age population, 5-year average	WB, WDI
Urbanization	Share of urban population in total population, 5-year average	WB, WDI

Table 2: Descriptive Statistics for Main Model Variables (Part 1)

	Real GDP PC, initial	Real GDP PC, end	Gov't debt, initial	Secondary Enrolment, initial	Gov't Consumption, initial	Trade Openness, initial
Mean	6 203,938	6 854,650	58,884	59,531	0,214	0,435
S.E.	195,607	213,457	2,613	2,052	0,007	0,023
Median	5 750,377	6 307,399	52,870	65,850	0,202	0,353
S.D.	2 914,484	3 223,124	36,019	26,515	0,099	0,340
Kurtosis	-0,178	-0,217	0,701	-1,013	1,518	16,136
Skewness	0,563	0,545	0,924	-0,464	0,959	2,814
Min	1 347,127	1 381,264	3,060	7,460	0,007	0,000
Max	14 876,966	16 194,156	183,730	104,380	0,573	3,084
Count	222	228	190	167	222	222
NA	18	12	50	73	18	18

Table 3: Descriptive Statistics for Main Model Variables (Part 2)

	Financial Depth, initial	Inflation, initial	Terms of trade, average change	Banking Crisis, Number of incidences	Fiscal Balance, Average
Mean	45,399	53,458	0,001	0,346	-2,646
S.E.	1,742	22,271	0,001	0,060	0,325
Median	41,500	7,072	0,000	0,000	-2,266
S.D.	24,385	301,271	0,012	0,925	3,965
Kurtosis	1,312	87,382	6,536	10,551	1,975
Skewness	1,003	8,819	0,767	3,199	-0,353
Min	6,630	-18,109	-0,053	0	-18,100
Max	135,840	3 373,759	0,066	5	8,938
Count	196	183	216	240	149
NA	44	57	24	0	91

Appendix 2: Country List

The countries included in the sample used for the purpose of this paper are the countries that had average GDP per capita of USD 3,000 to USD 6,000 in the period of 2015-2019. Two countries, Iraq and Uzbekistan were removed due to lack of available data across most variables.

Country List	
Angola	Guatemala
Albania	Guinea
Algeria	Indonesia
Armenia	Iran (Islamic Republic of)
Azerbaijan	Jamaica
Belize	Jordan
Bhutan	Mongolia
Bolivia (Plurinational State of)	Morocco
Bosnia and Herzegovina	Namibia
Cabo Verde	Nigeria
Djibouti	North Macedonia
Egypt	Philippines
El Salvador	Republic of Moldova
Eswatini	Sri Lanka
Georgia	Tunisia

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