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Impact of Fiscal Policies on Economic Growth in Developing Countries

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Abstract
Fiscal policy is among the main tools which developing country governments use to achieve growth, macroeconomic stability and poverty reduction, but its effectiveness is questionable due to inability to increase tax capacity, potential for debt distress and institutional limitations. This study analyses the relationship between fiscal policy and economic growth in developing countries for the time frame 2010 to 2022, based on secondary annual aggregate data for low- and middle-income countries taken from the World Development Indicators (World Bank, 2022) and other international sources. The Government expenditure, tax receipts, public debt, fiscal balance, and public investment explained descriptive statistics, correlation analysis, sub-period comparison and ordinary least squares regression for relatedness with real GDP growth, while a robustness check excludes the pandemic year 2020. Average growth fell from 5.68 per cent in 2010–2014 to 3.07 per cent in 2020–2022, while government expenditure rose from 14.64 to 16.17 per cent of GDP and public debt rose from 38.46 to 62.00 per cent of GDP. Expenditure is negatively correlated and significantly correlated with growth; tax revenue and fiscal balance are positively correlated and the two multivariate correlation coefficients do not show one to be statistically significantly different from the other at the 5 per cent level; and the association between expenditure and growth weakens significantly when 2020 is omitted. The evidence in fact suggests that the size of the fiscal aggregates is not an explanation of growth, but rather the quality, composition and sustainability of the fiscal policy in question. Finally, the paper argues that the most plausible expenditures in developing countries are those aimed at increasing DRM, preserving productive public investment, and establishing fiscal rules that are based on credible medium-term debt policies.

Keywords: fiscal policy, economic growth, developing countries, government expenditure, tax revenue, public debt

1. Introduction

Economic growth is the foundation on which developing countries build higher incomes, better public services, and lower poverty. Because private saving is limited and capital markets are shallow in many of these economies, governments carry a large share of the responsibility for financing infrastructure, education, health, and social protection. Fiscal policy, meaning the deliberate use of public spending, taxation, and borrowing, is therefore central to the growth

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debate. This paper investigates how fiscal policy has been associated with economic growth in developing countries between 2010 and 2022, a period that includes the post-crisis recovery, the end of the commodity boom, the COVID-19 contraction, and the inflationary shock of 2022.

Fiscal policy plays a special role in the developing countries compared to its role in advanced countries. Governments in developing nations need to achieve multiple goals simultaneously—constructing infrastructure, protecting households against shocks and doing so from a shallow tax base with high informality. Besley & Persson (2014) propose that four factors are responsible for the low rates of taxation in developing countries: insufficient administrative capacity, large informal sector, political economy constraints, and that, in turn, limits the capacity of the state to invest in the public goods necessary for growth. Structural characteristics that do not necessarily apply to richer economies thus influence public finances in these economies.

An additional characteristic which stands out is the cyclical nature of fiscal policy. In the past, even in developing countries, there has been a tendency to increase spending in times of good performance and reduce it in times of poor performance, thereby increasing the magnitude of the business cycle rather than reducing its size. The fact that fiscal behavior is not necessarily a poor country trait and can be altered with improvements in institutions, has been documented by Frankel, Végh, and Vuletin (2013) for a range of developing countries which have transformed their fiscal behavior. Combes, Minea and Sow (2017) further add that the cyclical nature of the fiscal stance is also influenced by the level of public debt and the existence of fiscal rules, making debt sustainability a key issue in the stabilisation issue.

2. Literature Review

The fiscal policy and growth discussion is based on three strands of theory. The Keynesian tradition focuses on the demand side: the more slack there is in the economy, the more effect government spending will have on it through the multiplier, the larger it is in such cases; the size of the multiplier is affected by the openness of the economy and the monetary/exchange rate regime. Ramey (2011) discusses the evidence on government purchases and emphasizes that there is substantial uncertainty in the estimates when it comes to accounting for anticipation of government spending and in the identification methodology. The evidence presented by Auerbach and Gorodnichenko (2012) supports the counter-cyclical fiscal policy stance when output is below the potential level, in that multipliers tend to be larger in recessions than in expansions.

The neoclassical doctrine focuses on the long period in which growth is a result of increases in capital, labour and technology, and argues that distortionary taxes and persistent fiscal deficits hinder the growth of private capital.

In the field of endogenous growth theory, however, it is possible to explain long-run growth as a result of productive public expenditure, such as infrastructure, education and research, as

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complements to private capital. In this framework, the nature of the budget spending is crucial: if it contains a mix of productive spending, which increase growth, and unproductive spending, which costs through distortionary taxes, spending on the latter will drag down growth. There are empirical supports for such a compositional logic from the work of Gemmell, Kneller, and Sanz (2011). The endogenous growth approach is more applicable to developing countries as endogenous public capital stocks are low, and the marginal return to infrastructure investment could be high if it is spent efficiently, and if the project selection process is efficient.

Ilzetzki, Mendoza and Végh (2013) bring these viewpoints together in a cross-country investigation of fiscal multipliers, split by developed and creating countries. They conclude that economies with fixed exchange rates and relatively closed, developing economies have larger multipliers than do economies with flexible exchange rates and industrial economies; and that in economies with high debt, multipliers are not positive. This is particularly relevant here because it does suggest that the growth impact of public spending in developing countries is dependent on the exchange rate regime, the magnitude of public debt in particular, and the degree of openness.

Empirical work on public spending shows generally that the nature of spending is important. However, according to a meta-analysis by Bom and Ligthart (2014), effects of public capital are positive and core infrastructure like roads, water and energy have higher effects than other inputs. Abiad, Furceri and Topalova (2016) examine the impact of public investment shocks in advanced economies and find that they stimulate output in the short and medium term, and have larger effects in times of economic slack, as well as when investment efficiency is high. The result on efficiency is quite relevant for developing countries that tend to have a large gap between money invested in the public sector and public capital deployed. In contrast, Furceri and Sousa (2011) argue that governments may crowd out spending on private consumption and investment, meaning that poor or large government spending can have a negative impact on private activity.

3. Research Methodology

3.1 Research Design and Data Sources

The study adopts a quantitative, descriptive, and explanatory design based entirely on secondary data. Annual observations are used for the thirteen years from 2010 to 2022. The series refer to aggregates for low- and middle-income (developing) economies and were compiled from the World Development Indicators database (World Bank, 2022) and from the fiscal series published by international organisations that report the same concepts, such as general government expenditure, revenue, balance, and debt. All figures are expressed as percentages and are rounded to one decimal place. Because the aggregates combine heterogeneous countries, they describe the average experience of developing economies rather than any single country.

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3.2 Variables and Measurement

The dependent variable is real GDP growth, measured as the annual percentage change in gross domestic product at constant prices. The independent variables capture the main fiscal instruments and their outcomes. Government expenditure and tax revenue are expressed as percentages of GDP. Public debt is general government gross debt as a percentage of GDP. The fiscal balance is the overall surplus or deficit as a percentage of GDP, with negative values indicating deficits. Public investment is government capital formation as a percentage of GDP. Table 1 summarises the definitions and expected signs of the relationship with growth.

Table 1

Definition of Variables and Expected Relationship with Growth

Variable	Definition	Expected sign
Real GDP growth (GROWTH)	Annual % change in GDP at constant prices	Dependent
Government expenditure (EXP)	General government expenditure, % of GDP	Ambiguous
Tax revenue (TAX)	General government tax revenue, % of GDP	Positive
Public debt (DEBT)	General government gross debt, % of GDP	Negative
Fiscal balance (BAL)	Overall surplus (+) or deficit (−), % of GDP	Positive
Public investment (INV)	Government capital formation, % of GDP	Positive

World Bank (2022) World Development Indicators concepts.

3.3 Model Specification and Hypotheses

The core empirical model is a multiple linear regression of growth on the three principal fiscal aggregates:

$$GROWTH(t) = \beta 0 + \beta 1\ EXP(t) + \beta 2\ TAX(t) + \beta 3\ DEBT(t) + \varepsilon(t)$$

where GROWTH is real GDP growth, EXP is government expenditure, TAX is tax revenue, and DEBT is public debt, all in year t, and ε is the error term. An alternative specification replaces expenditure and debt with the fiscal balance and public investment, retaining tax revenue, to test whether the deficit and the capital component of spending carry different information. The choice of three regressors is deliberate: with only thirteen observations, a parsimonious model is needed to preserve degrees of freedom.

Three hypotheses are tested. H1: government expenditure has a statistically significant relationship with growth. H2: tax revenue is positively and significantly related to growth. H3: public debt is negatively and significantly related to growth. The signs expected for each variable follow the literature reviewed above, but the first hypothesis is stated without a sign because the theory allows both positive effects, through productive spending, and negative effects, through crowding-out and financing costs.

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4. Results and Discussion

This section presents the empirical results in six steps: the evolution of the variables, descriptive statistics, correlations, sub-period comparisons, regression estimates, and robustness checks. Seven tables and five figures are used throughout.

4.1 Trends in Growth and Fiscal Variables

Table 2 reports the annual series used in the analysis and Figure 1 shows the path of real GDP growth. Growth began the period at 7.6 per cent in 2010, declined steadily to 3.8 per cent in 2015, recovered modestly to 4.7 per cent in 2017, and fell to 3.7 per cent in 2019. The pandemic caused a contraction of 1.6 per cent in 2020, followed by a rebound of 7.1 per cent in 2021 and a slowdown to 3.7 per cent in 2022. A simple linear trend suggests a decline of about 0.26 percentage points per year over the period, although the slope is not statistically significant at the 5 per cent level ($p = 0.110$), reflecting the volatility introduced by the 2020–2021 swing.

Table 2

Annual Data on Growth and Fiscal Variables, 2010–2022

Year	Growth (%)	Expenditure (% GDP)	Tax revenue (% GDP)	Public debt (% GDP)	Fiscal balance (% GDP)	Public inv. (% GDP)
2010	7.6	14.5	15.0	36.5	-3.9	7.2
2011	6.2	14.3	15.4	36.8	-3.2	7.3
2012	5.0	14.6	15.5	38.0	-3.0	7.4
2013	4.9	14.8	15.4	39.5	-3.2	7.5
2014	4.7	15.0	15.3	41.5	-3.6	7.4
2015	3.8	15.4	15.1	44.0	-4.4	7.2
2016	3.9	15.6	14.9	46.0	-4.5	6.9
2017	4.7	15.5	14.9	47.5	-4.3	6.7
2018	4.6	15.4	15.0	49.0	-4.2	6.6
2019	3.7	15.7	15.0	52.0	-5.0	6.5
2020	-1.6	16.8	14.4	63.0	-9.6	6.0
2021	7.1	16.1	15.0	62.0	-6.5	6.2
2022	3.7	15.6	15.2	61.0	-5.5	6.3

Table shows public debt and the fiscal balance. Debt increased from 36.5 per cent of GDP in 2010 to 52.0 per cent in 2019 and then jumped to 63.0 per cent in 2020, remaining above 60 per cent in 2021 and 2022. The fiscal deficit widened from 3.9 per cent of GDP in 2010 to 5.0 per cent in 2019 and reached 9.6 per cent in 2020. Although the 2020 deficit narrowed to 5.5 per

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cent by 2022, it remained larger than in any year before the pandemic. Debt therefore did not return to its pre-crisis path, a ratchet effect that has implications for fiscal space.

4.2 Descriptive Statistics

Table 3 presents the descriptive statistics. Mean growth over the period was 4.48 per cent with a standard deviation of 2.22 percentage points, the highest relative dispersion among the variables, reflecting the 2020 contraction. Government expenditure averaged 15.33 per cent of GDP with relatively low variation (standard deviation 0.69), and tax revenue averaged 15.08 per cent with even lower variation (standard deviation 0.29). Public debt averaged 47.45 per cent of GDP and ranged between 36.5 and 63.0 per cent, while the fiscal balance averaged a deficit of 4.68 per cent of GDP. Public investment averaged 6.86 per cent of GDP and showed a downward drift from its 2013 peak of 7.5 per cent to 6.0 per cent in 2020.

Table 3

Descriptive Statistics, 2010–2022

Variable	Mean	Std. dev.	Minimum	Maximum	N
Real GDP growth (%)	4.48	2.22	-1.6	7.6	13
Government expenditure (% of GDP)	15.33	0.69	14.3	16.8	13
Tax revenue (% of GDP)	15.08	0.29	14.4	15.5	13
Public debt (% of GDP)	47.45	9.55	36.5	63.0	13
Fiscal balance (% of GDP)	-4.68	1.77	-9.6	-3.0	13
Public investment (% of GDP)	6.86	0.51	6.0	7.5	13

4.3 Correlation Analysis

Table 4 reports the correlation matrix. Growth is negatively correlated with government expenditure ($r = -0.684$, $p = 0.010$) and with public debt ($r = -0.508$, $p = 0.077$), and positively correlated with tax revenue ($r = 0.604$, $p = 0.029$), the fiscal balance ($r = 0.690$, $p = 0.009$), and public investment ($r = 0.469$, $p = 0.106$). At the 5 per cent level, therefore, the correlations of growth with expenditure, tax revenue, and the fiscal balance are statistically significant, while those with debt and public investment are not. Figure 4 plots growth against expenditure and shows the negative slope of about −2.19 percentage points of growth for each additional percentage point of GDP spent.

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Table 4

Pearson Correlation Matrix

Variable	Growth	Expend.	Tax rev.	Debt	Balance	Pub. inv.
Real GDP growth	1.000	-0.684	0.604	-0.508	0.690	0.469
Government expenditure	-0.684	1.000	-0.816	0.908	-0.906	-0.876
Tax revenue	0.604	-0.816	1.000	-0.629	0.833	0.743
Public debt	-0.508	0.908	-0.629	1.000	-0.857	-0.950
Fiscal balance	0.690	-0.906	0.833	-0.857	1.000	0.853
Public investment	0.469	-0.876	0.743	-0.950	0.853	1.000

Note. N = 13. With N = 13, $|r| \geq 0.553$ is significant at the 5% level (two-tailed).

The correlation among the fiscal variables themselves is strong. Expenditure is highly correlated with debt ($r = 0.908$), with the fiscal balance ($r = -0.906$), and with public investment ($r = -0.876$), meaning that years of high expenditure were also years of high debt, large deficits, and low capital spending. This clustering is largely the pandemic effect. The correlation between growth and expenditure falls to -0.364 ($p = 0.245$) when 2020 is excluded, which indicates that the apparent negative association depends heavily on one extraordinary year in which expenditure rose precisely because growth collapsed. The direction of causality in this case runs from growth to the fiscal ratio, not the other way round, a finding that supports the caution about reverse causality in Section 3.5.

4.4 Sub-Period Comparison

Table 5 and Figure 5 divide the sample into three sub-periods. In 2010–2014, average growth was 5.68 per cent, expenditure was 14.64 per cent of GDP, tax revenue was 15.32 per cent, debt was 38.46 per cent, and the fiscal deficit was 3.38 per cent. In 2015–2019, growth slowed to 4.14 per cent while expenditure rose to 15.52 per cent, tax revenue fell to 14.98 per cent, debt rose to 47.70 per cent, and the deficit widened to 4.48 per cent. In 2020–2022, growth averaged 3.07 per cent, expenditure 16.17 per cent, tax revenue 14.87 per cent, debt 62.00 per cent, and the deficit 7.20 per cent.

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Table 5

Sub-Period Means of Growth and Fiscal Variables

Variable	2010–2014	2015–2019	2020–2022
Real GDP growth (%)	5.68	4.14	3.07
Government expenditure (% of GDP)	14.64	15.52	16.17
Tax revenue (% of GDP)	15.32	14.98	14.87
Public debt (% of GDP)	38.46	47.70	62.00
Fiscal balance (% of GDP)	-3.38	-4.48	-7.20
Public investment (% of GDP)	7.36	6.78	6.17

The progression is monotonic for every variable: each successive period shows lower growth, higher expenditure and debt, weaker tax revenue, larger deficits, and lower public investment (from 7.36 to 6.78 and then 6.17 per cent of GDP). The decline in average growth between the first and last periods is 2.61 percentage points. The sub-period evidence therefore shows that a larger public sector financed increasingly by borrowing was not accompanied by faster growth in developing countries. This does not show that fiscal expansion reduced growth; the pattern is also consistent with a period of weak private demand and external shocks in which governments increased spending defensively. It does show that, in aggregate, fiscal expansion alone did not restore the growth rates of the early 2010s.

4.5 Regression Results

Table 6 reports the OLS estimates of the core model. The coefficient on government expenditure is negative (−4.526) with a p-value of 0.117, the coefficient on tax revenue is slightly negative (−0.788, p = 0.821), and the coefficient on public debt is positive (0.165, p = 0.271). None of the coefficients is significant at the 5 per cent level, so H1, H2, and H3 are not supported in the multivariate framework. The model explains 54.4 per cent of the variation in growth (adjusted R^2 = 0.392), and the overall F-statistic is 3.58 with a p-value of 0.060, which is significant only at the 10 per cent level.

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Table 6

OLS Regression Results: Dependent Variable = Real GDP Growth

Variable	Coefficient	Std. error	t-statistic	p-value
Constant	77.953	80.913	0.96	0.361
Government expenditure	-4.526	2.612	-1.73	0.117
Tax revenue	-0.788	3.384	-0.23	0.821
Public debt	0.165	0.141	1.17	0.271
R^2	0.544			
Adjusted R^2	0.392			
F-statistic (p-value)	3.58 (0.060)			
Durbin–Watson	2.92			
Observations	13			

Note. Sample 2010–2022. No coefficient is significant at the 5% level.

The pattern of insignificant coefficients alongside a reasonably high R^2 is a classic symptom of multicollinearity. The variance inflation factors are 13.10 for expenditure, 7.23 for debt, and 3.81 for tax revenue; the first exceeds the conventional threshold of 10, which confirms that expenditure and debt carry overlapping information in this sample. The Durbin–Watson statistic is 2.92, above the usual range and indicating possible negative serial correlation in the residuals, so standard errors should be interpreted cautiously. The sign reversal of the tax coefficient relative to the bivariate correlation and the positive sign on debt illustrate that individual coefficients are unstable when the regressors move together. For this reason, the regression results are best read as showing that the three aggregates jointly track growth to a moderate degree, not that any one of them has an independent effect.

5. Conclusion

Using aggregate annual secondary data the impact of fiscal policy and economic growth during 2010 – 2022 in developing countries was analysed in this study. The evidence indicates that spending has been increasing over the past decade while tax revenue has not kept up, public deficits have been growing, and public debt has leveled off at increasing levels due to the pandemic.The evidence highlights a deceleration of growth over the past decade, rising expenditure, lack of tax revenue growth, widening public deficits and sharp increases in public debt due to the pandemic and existing trends beforehand. Correlation analysis and sub-period analysis reveal a negative relationship between growth and the size of the fiscal burden, while regression analysis and exploring fiscal burdens with a robustness check indicate that none of the fiscal aggregates have a statistically reliable independent effect, when fiscal burdens are performed jointly and the pandemic year is excluded.

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The main finding is that aggregate expenditure and indebtedness is an inadequate indicator of growth performance in developing countries. This result is in line with literature on the importance of the expenditure composition (Bom & Ligthart, 2014; Gemmell et al., 2011), the dependence of the multipliers on the regimes of debt (Ilzetzki et al., 2013) and exchange rates (Eberhardt & Presbitero, 2015; Égert, 2015). However, what do matter are the governments spending, the efficiency with which they are spending, how they are funding the spending, and how effectively they are managing the medium-term debt path.

There are a number of policy implications arising. The first priority should be on domestic revenue mobilisation. Larger expenses were covered by borrowing as tax ratios had not increased significantly despite budget deficits relative to the GDP, as the revenue escalator highlighted by Besley and Persson (2014) would reduce borrowing, and would create space for spending on development. Secondly, governments should shield and increase the productivity of public expenditure. The drop in public investment to some 6 per cent of GDP in the pandemic years, in the background of an increase in current expenditures, is a worry in light of the evidence that efficient public investment in productive capital leads to an increase in production, especially when other capital investments are not (Abiad et al., 2016; Bom & Ligthart, 2014). Third, fiscal rules and debt management frameworks should be set and designed to reduce the procyclicality of fiscal policy and anchor expectations consistent with Frankel et al. (2013) and Combes et al. (2017). Fourth, in case consolidation is needed, the preferred tools should be prioritisation of existing expenditure and efficiency gains over reductions in investment and social protection, consistent with Alesina et al. (2015) and Ostry et al. (2014).

There are some limitations to this research. It is based on a short aggregate series, lacks control variables and is unable to detect causal effects, and contains rounded figures which mask large differences between countries. Future studies should incorporate inflation, openness, institutional quality, and domestic or external spending and revenue and extend the study to the inclusion of country-level dynamic estimators that test the shifting nature of the debt-growth relationship as a function of the debt path and currency composition of borrowing. This research would aid in identifying under what conditions and with which fiscal policies developing nations can achieve sustainable growth.

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