

# **Does Government Expenditure Crowd Out or Crowd In Private Investment? Evidence from Developed and Developing Countries**

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**Abstract:** This study examines the relationship between government expenditure and private investment using unbalanced panel data from 136 countries over the period 1990-2022. By employing a fixed-effects panel regression model. The analysis provides robust evidence that government total expenditure does not crowd out private investment. Instead, it has a significant crowding-in effect, particularly in developing countries. The findings show that a one percentage point increase in government expenditure as a share of GDP is associated with a 0.145 percentage point increase in private investment. The study also explores difference between developed and developing economies, revealing that government spending strongly complements private investment in developing countries whereas no significant relationship is found in developed economies. The results support the Keynesian view that fiscal policy can stimulate private investment, especially in economies operating below potential. These findings have important policy implications, particularly for developing nations seeking to boost economic growth through public investment.

## **1. Introduction**

Capital and technological developments are the main drivers of economic growth and development, and private investment is what enables these factors to thrive. On the other hand, fiscal policy, a major part of the economy, directly affects economic performance through government spending and taxation, with large shift capable of significantly influencing national economic growth, employment levels, and inflation rates. Therefore, it is crucial to study the relationship between private investment and government expenditure, both of which are key components of the economy.

The relationship between these two variables has been one of the most debated topics in economic history. The debate began with Adam Smith (1976) and continued through economists like John Maynard Keynes (1936), Martin J. Bailey (1971), Willem H. Buiter (1981), and Alan Artis (1979). One side (the Classical approach) argues that government expenditure reduces or “crowds out” private investment, while the other side (Keynesian) believes it boosts private investment. Some economists even contend that there is no relationship between the two.

The Classical view argues that the economy will naturally reach full employment through flexible prices, wages, and interest rates, and argues that expansionary fiscal policies lead to a crowding-out effect on private investment. As government spending increases, interest rates rise in the loanable funds market, making private investment more costly and thus reducing it. On the other hand, the Keynesian view argues that expansionary fiscal policy crowds in private investment by stimulating economic activity, especially when the economy is operating below its potential. They contend the economy is usually below its potential, in this scenario, the sensitivity of investment to interest rates is low, so the impact of higher interest rates on investment is minimal, allowing government expenditure to boost private investment.

This study analyzes the relationship between private investment and government expenditure using unbalanced panel regression data from 136 countries. It also examines this relationship in the context of both developed and developing countries, providing a more comprehensive understanding of how government spending impacts private investment in different economic environments.

This study is organized into five sections. The second section provides a detailed explanation of the variables used, along with a graphical analysis. The third section outlines the model employed, while the fourth presents the model’s results. Finally, the conclusion is presented in the last section.

## **2. Data**

The study uses unbalanced panel data from 136 countries over the period 1990-2022. After balancing the panel, only 69 countries remained, leading to the decision to use the unbalanced

data. Data sources include the IMF (for government expenditure) and the World Bank's World Development Indicators (for private investment, GDP growth, openness, inflation, and exchange rate). Private investment is proxied by Gross Fixed Capital Formation as a share of GDP due to data availability issues. Confounder variables include GDP growth, openness (measured as the sum of exports and imports as a percentage of GDP), inflation (measured by changes in the CPI), and the exchange rate (against USD).

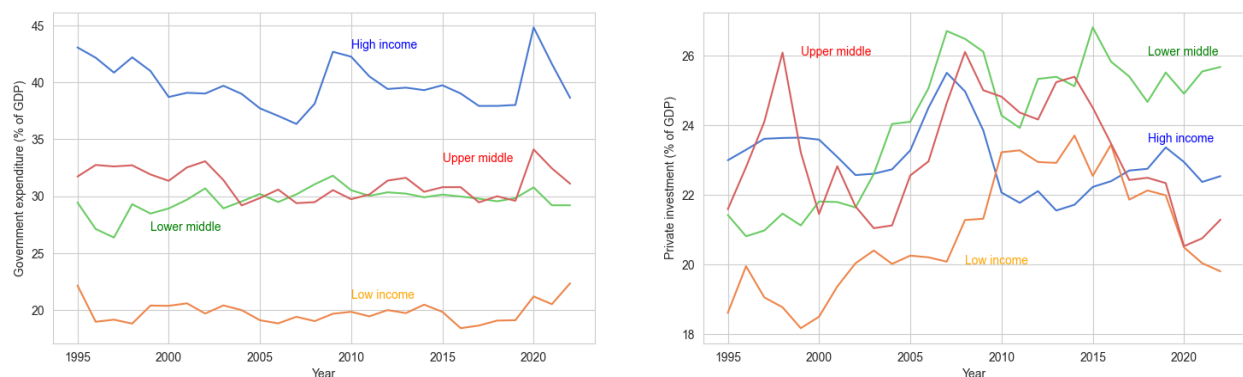
**Table 1. Descriptive statistics**

	Count	Mean	Std	Min	Median	Max
Private investment (% of GDP)	3,950.0	22.7	7.3	1.2	22.0	78.0
Government expenditure (% of GDP)	3,950.0	30.9	13.9	2.1	29.2	204.2
GDP growth	3,948.0	3.4	4.8	-50.2	3.7	82.8
Openness	3,928.0	81.4	49.5	2.7	70.5	442.6
Inflation	3,740.0	10.9	128.6	-16.9	3.7	7,428.7
Exchange rate	3,924.0	625.8	2,672.4	0.0	9.9	42,000.0

Source: IMF, The World Bank, World Development Indicators

One surprising thing about government spending is that wealthier countries actually spend more—around 40 percent of GDP on average. For upper- and lower-middle-income countries, it's about 30 percent and for low-income countries, it's just 20 percent. It is often assumed that developing countries rely more on government intervention, while developed countries are driven by the private sector. However, this assumption does not hold true. When it comes to private investment, the pattern is different. Lower-middle-income countries sometimes invest more privately than high-income countries. But one clear trend is that high-income countries have stable investment levels, while lower-income countries show a lot more ups and downs over time.

**Figure 1. Private investment and Government expenditure (% of GDP)**



Source: IMF, The World Bank, World Development Indicators

### 3. Model

The analysis uses a fixed effects panel regression, which is robust and less sensitive to unbalanced data compared to the first-difference model. The model is specified as:

$$nv_{it} = gov_{it} + grwth_{it} + open_{it} + inf_{it} + lexch_{it} + fe_{it}$$

Where,  $inv_{it}$  – private investment (GFCF, % of GDP),  $gov_{it}$  – government expenditure (% of GDP),  $open$  – sum of export and import (% of GDP),  $inf_{it}$  – inflation (change in CPI), and  $lexch_{it}$  – log of exchange rate (against USD), and  $fe_{it}$  – year and country fixed effects.

When trade barriers are lower, firms gain an advantage in the export sector, which increases investment leverage. Conversely, higher import possibilities – though the use of production inputs from abroad – can enhance domestic competitiveness. However, if domestic producers can compete with foreign producers, capital outflow might happen.

Research on the relationship between private investment and government expenditure often uses inflation and exchange rates as indicators of economic instability and external shocks, as these factors can significantly influence investment decisions.

### 4. Result

The regression results are summarized in Table 2, where three different models are estimated to ensure robustness by adding variables to the regression for the full dataset (covering both developed and developing countries). Across all models, the regression coefficients remain stable, confirming the model's robustness. The main model for the full dataset is the third regression in Table 2.

The findings indicate that government expenditure does not crowd out private investment; instead, it has a crowd-in effect. On average, compared to its mean within year and country, private investment (as a share of GDP) is expected to be 0.145 percentage points higher where and when government expenditure (as a share of GDP) is higher by one percentage point compared to its mean within country and year. Among other variables, GDP growth (0.217) strongly boosts private investment, while exchange rate depreciation is correlated with higher investment. However, inflation and openness show no significant effects.

The results differ significantly between developed and developing countries. In developing nations, government expenditure has a strong positive effect on private investments complementing private capital. In contrast, in developed countries, this relationship is insignificant, possibly due to market saturation or crowding-out effect. Similarly, GDP growth has a substantial impact on private investment in developing economies but is weak in developed ones, reflecting the greater sensitivity emerging markets to growth opportunities. Trade openness benefits developing economies while it has no significant effect in developed countries, possibly

due to their already high levels of trade integration. Inflation shows an unexpected positive association with private investment in developed countries while the impact of exchange rate fluctuations is unclear.

**Table 2. Model result**

Dependent variable: Private investment (% of GDP)					
	(1)	(2)	(3)	Developed countries	Developing countries
Government expenditure (% of GDP)	0.145*** (0.040)	0.159*** (0.039)	0.150*** (0.040)	0.013 (0.074)	0.179*** (0.054)
GDP growth		0.227*** (0.050)	0.217*** (0.056)	0.044 (0.041)	0.232*** (0.048)
Openness		-0.000 (0.017)	0.001 (0.016)	-0.013 (0.020)	0.044** (0.019)
Inflation			-0.000 (0.000)	0.417*** (0.094)	0.000 (0.000)
Log of exchange rate			0.439** (0.180)	0.214 (0.171)	-0.226 (0.245)
Year fixed effect	Yes	Yes	Yes	Yes	Yes
Country fixed effect	Yes	Yes	Yes	Yes	Yes
Observations	3,950	3,926	3,701	1,154	2,547
Number of groups	136	135	133	49	106
R-squared	0.060	0.094	0.092	0.176	0.152

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Classical and Keynesian views differ on the role of interest rates in private investment. The classical view argues that higher interest rates reduce private investment, while the Keynesian view suggest that private investment is not very sensitive to interest rates. The analysis also includes an estimation of the relationship between interest rates and private investment (Appendix 1), which finds no significant effect. This result aligns with the Keynesian perspective, as all models in the study support its view.

## 5. Conclusion

The analysis confirms that government total expenditure does not crowd out private investment; instead, it supports investment growth, particularly in developing economies. This supports the Keynesian perspective, which argues that fiscal policy can stimulate private sector activity by enhancing aggregate demand and reducing economic uncertainty. The impact is particularly significant in developing economies, where government spending on infrastructure, education, and other essential services complements private investment. Conversely, in developed economies, the effect is negligible, potentially due to market saturation or efficient capital allocation mechanisms that make government intervention less necessary.

From a causality perspective, while the study employs fixed effects panel regression to control for country- and time-specific factors, potential endogeneity concerns remain. Reverse causality is possible, strong private investment might lead to increased government revenues, enabling higher spending. However, the results suggest a robust positive association between government expenditure and private investment, particularly in developing economies. Addressing causality further may require instrumental variable approaches or natural experiments.

Additionally, GDP growth plays a crucial role in stimulating investment, especially in emerging markets. Interestingly, inflation appears to be positively associated with private investment in developed economies, contrary to conventional expectations. This may reflect a scenario where moderate inflation signals economic dynamism and expected returns, prompting higher investment. However, exchange rate fluctuations present ambiguous effects, suggesting that currency movements may have complex interactions with investment decisions. Future research should explore how different components of government expenditures such as public consumption, investment, and fiscal balance—impact private investment differently.

### **Policy Recommendations**

1. **Enhancing Public Spending Efficiency** – Policymakers should ensure that government expenditure effectively supports infrastructure, human capital development, and economic stability to maximize its positive effect on private investment.
2. **Targeted Fiscal Policies** – Developing economies should prioritize government spending on sectors that complement private investment, such as infrastructure and innovation, while avoiding excessive deficits that may lead to economic instability.
3. **Macroeconomic Stability** – Given the mixed effects of inflation and exchange rates, governments should adopt policies that stabilize macroeconomic conditions, ensuring a predictable investment climate.
4. **Further Research on Expenditure Components** – Policymakers and researchers should analyze how different parts of government expenditure—public consumption, investment, and fiscal balance—impact private investment to design more effective fiscal policies.

## Appendix

### *Appendix 1. Investment vs Real interest rate*

	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>
	(1)	(2)	(3)
Real Interest rate	0.025 (0.020)	0.016 (0.020)	0.011 (0.020)
GDP growth		0.162** (0.079)	0.164* (0.086)
Openness		-0.014 (0.018)	-0.016 (0.016)
Inflation			-0.000 (0.000)
Log of exchange rate			0.428 (0.295)
Year fixed effect	Yes	Yes	Yes
Country fixed effect	Yes	Yes	Yes
Observations	2,396	2,374	2,255
Number of groups	100	99	97
R-squared	0.002	0.023	0.026

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01