Factors Conditioning the Turning Point of the Public Debt–Growth Relationship

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The Great Recession has led to an unprecedented increase in public-debt-to-GDP ratios across the world, and has prompted numerous studies on the impact of public debt on economic growth. A decade after this global crisis, when debt ratios in many countries were still above their pre-crisis levels, COVID-19 has again increased the pressure on public finances and revitalised the debate on the ability to foster economic recovery by debt-financed government expenditure. Macroeconomic theory provides arguments for both positive and negative impacts of debt on output. The arguments for positive effects are grounded in Keynesian theory, which states that an expansionary fiscal policy increases the level of debt but simultaneously accelerates domestic demand and economic growth. The magnitude of this positive effect depends entirely on the size of the fiscal multiplier. Research on the negative effects of debt points to the Ricardian equivalence hypothesis, debt overhang, the crowding-out effect, etc. Increased government borrowing leads to higher borrowing costs and higher uncertainty about taxes in the future, thus lowering private consumption, investment, and economic growth.

The literature on the public debt–economic growth nexus is extensive. Three strands of research can be distinguished. The first strand is focused mainly on the linear debt effects on growth. The second one investigates a non-linear inverted U-shaped relationship, and estimates the debt threshold level above which the growth-suppressive impact occurs. The scarcest, third strand of studies focuses on heterogeneities in the debt–growth nexus, with the aim of identifying factors on which the effects of public debt on growth may depend. Reviews of empirical results (Rahman et al. 2019; Bentour 2021) provide broad support for the non-linear debt effect; however, they provide no consensus on the debt threshold level at which the positive effect of debt turns into a negative one. The inconsistency of the results raises the need to expand the third strand of studies and examine the factors that determine the level of public debt that still sustains growth. Studies on heterogeneities in the debt–growth relationship focus mainly on institutions, and confirm that countries with better institutions face a growth-inhibiting effect at higher debt-to-GDP ratios (see for the review Abbas et al. 2021; Law et al. 2021). The state of the financial market (Proaño et al. 2014), country risk (Chiu and Lee 2017), economic systems (Ahlborn and Schweickert 2018), trade balance (Butkus and Seputiene 2018; Liu and Lyu 2021), current account balance, and gross savings (Liu and Lyu 2021) have also been proven to be potential explanatory factors of heterogenous public debt effects on growth.

This research contributes to the limited literature on the factors conditioning the turning point of the public debt–growth relationship. Butkus et al. (2021) relate the debt threshold with the size of the expenditure multiplier. According to Keynesian theory, a higher expenditure multiplier leads to a higher positive impact of government expenditure (an increase in public debt) on domestic demand and GDP growth. If conditions necessary for a higher multiplier value are met, namely higher propensities to consume and invest, lower propensity to import, and a lower tax rate, then countries may expect to sustain growth with higher debt-to-GDP ratios. Butkus et al. (2021) estimated higher debt threshold levels for countries with higher ratios of private consumption and investment to GDP, as well as lower ratios of imports and taxes to GDP. This paper complements the results of the aforementioned study and aims to estimate the thresholds of indicators on which the expenditure multiplier depends, which may already imply a risk that public debt will dampen economic growth.

To widen the understanding of whether the conditions that determine the size of the multiplier also determine the debt–growth nexus, we use a methodology that allows for parameter heterogeneity, which means that the growth process is not the same across all periods and countries. Since the literature suggests that, in addition to the debt-to-GDP ratio or quality of institutions, many more possible sources cause heterogeneity in the debt–growth relationship, we can use threshold variables to sort observations based on the fact that they share the same growth regime (model).

In this reasearch, we rely on the structural threshold regression (STR) model developed by Kourtellos et al. (2016) to model parameter heterogeneity. This class of models relies on classifying observations into regimes based on whether the value of a threshold variable we observe is above (or below) a threshold value.

The main advantage of STR is that it allows both endogenous threshold variables and regressors. Our specification is based on the growth models developed in previous contributions related to the analysis of the debt–growth nexus. We augmented it with variables that proxy conditions that determine the size of the multiplier, and investigated the possibility of multiple growth regimes.

Estimation results show that the positive effect of debt on growth is more plausible in countries with favourable conditions for a high expenditure multiplier. Thus, the rising public-debt-to-GDP ratio does not necessarily harm economic growth if the shares of private consumption and investment in GDP are high, while the tax-revenue-to-GDP ratio is low. However, we stress that these results need to be interpreted with caution, as threshold values were estimated for a sample of countries that includes both developed and developing ones. Another limitation is that we do not estimate the joint effect of consumption, investment, tax revenue, and imports on the debt–growth relationship. For example, if two factors are favorable for a higher expenditure multiplier value, e.g., both investment and consumption shares in GDP are high, then one can expect a higher taxes to GDP threshold value. Despite these limitations, we recommend that fiscal policymakers at least monitor the dynamics of consumption, investment, and taxes as a share of GDP, aiming to forecast the effectiveness of expansionary public spending using borrowed funds.

Keywords: economic growth; expenditure multiplier; heterogeneity; public debt.

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