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The causal relationship between debt and growth in EMU countries

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Abstract

New evidence is presented on the possible existence of bi-directional causal relationships between public debt and economic growth in both central and peripheral countries of the European Economic and Monetary Union. We test for heterogeneity in the bi-directional Granger-causality across both time and space during the period between 1980 and 2013. The results suggest evidence of a "diabolic loop" between low economic growth and high public debt levels in Spain after 2009. For Belgium, Greece, Italy and the Netherlands debt has a negative effect over growth from an endogenously determined breakpoint and above a debt threshold ranging from 56% to 103% depending on the country.

JEL classification: C22; F33; H63; O40; O52

Keywords: Public debt; Economic growth; Granger-causality; Peripheral EMU countries; Central EMU countries

1. Introduction

Shambaugh (2012) pointed out that the European Economic and Monetary Union (EMU) countries have faced three interlocking crises (banking, sovereign debt, and economic growth) which together challenged the viability of the currency union. According to this line of thought, these crises connected with one another in several ways: the problems of weak banks and high

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sovereign debt were mutually reinforcing, and both were exacerbated by weak, constrained growth.

Whilst Gómez-Puig, Sosvilla-Rivero, and Singh (2015) focused on the interconnection between banking and sovereign debt crises in EMU countries, in this paper we will pay attention to the interrelationship between public debt and economic growth. The empirical literature on this topic not only presents ambiguous results, but is centred mainly on the possible impact of high debt levels on economic growth, disregarding the possibility of reverse causality running from growth to debt (Ferreira (2009) and Puente-Ajovín and Sanso-Navarro (2015) are some of the few exceptions). However, there are some theoretical reasons for thinking that public debt is likely to accumulate when growth is low (see Bell, Johnston, & Jones, 2015). In this regard, since low growth means lower government revenue, governments may be forced to increase their debt levels to maintain the welfare state, to stimulate short-term demand and to raise long-term growth (Feldstein, 2014).

Therefore, some kind of "diabolic loop" (see Brunnermeier et al., 2011)[1] between high levels of debt and low levels of economic growth may have arisen with the outbreak of the financial crisis in most economies in 2008 (EMU countries among them). An increase in government debt levels both raises government deficits and changes investors' expectations. On the one hand, the rise in the government deficit increases the need to borrow and pushes up interest rates; this, through a "crowding-out" effect on private investment, may undermine economic growth. On the other, the increase in investors' risk aversion may induce a "flight-to-safety" that may favour bonds of countries generally regarded to have a low default risk. In turn, as economic growth decreases, since government revenues also decline, governments are forced to increase their debt levels in order to maintain the welfare state (the economy's "automatic stabilizers" may start to work, meaning an increase in public expenditure in social security transfers, for instance).

The recent European debt crisis indicates open academic questions that policy makers might need answer to. Events of the last few years have led to increasing concern about the possibly adverse consequences of the substantial accumulation of public debt of EMU countries. The debate is currently so hotly contested, because pundits draw widely different conclusions for macroeconomic policy, and in particular pro and contra economic austerity policies.

In this context, the main objective of this paper is to shed some additional light on this challenging avenue of research by applying the Granger-causality approach and endogenous breakpoint tests in order to analyse the evolution of bi-directional causality between sovereign debt and economic growth in 11 EMU countries (both central and peripheral) during a time period that spans from 1980 to 2013. Therefore, we will consider the potential heterogeneity in the bi-directional causality across both time and space (periods and countries).

Although some authors have applied the Granger methodology to examine causality between these two variables for a group of countries member of the Organisation for Economic Co-operation and Development (OECD) by means of panel techniques,[2] to our knowledge the bi-directional causal relationship between public debt and economic growth and its evolution over time has not been examined individually for each EMU country. In particular, in order to compare our results with those of the existing literature, our paper is closely related to those of Ferreira

[1] These authors described the development of a "diabolic loop" between sovereign and banking risk in euro area countries.

[2] Panizza and Presbitero (2014) also investigate causation (not correlation) between sovereign debt levels and economic growth, adopting an instrumental variable approach that captures valuation effects caused by the interaction between foreign currency debt and exchange rate volatility.