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Public finances and long-term growth in Europe: Evidence from a panel data analysis

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Abstract

This paper addresses the question whether public finance reform can affect trend growth in the EU-15. Focusing on time series patterns, we investigate whether there have been persistent trends in economic growth and fiscal variables over the last 40 years. In addition, we estimate a distributed lag model, which 1) indicates that government size measured either with total expenditure or revenue shares, government consumption and direct taxation negatively affect growth rates of GDP per capita, while public investment has a positive impact, and 2) provides robust evidence that distortionary taxation affects growth in the medium-term through its impact on the accumulation of private capital.

JEL classification: C22; C23; H11; O11
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1. Introduction

The European Council set forth the Lisbon Process in order to raise growth rates of output in EU countries. The Council considers “an average economic growth rate of around 3% [as] a realistic prospect for the coming years”.[1] For this purpose economic policy should be geared to foster a knowledge-driven economic expansion through the spread of new technologies and higher human capital, more perfect goods and financial markets in Europe, a more employment-friendly active labour market policy and a modernisation of the welfare state as well as an investment-friendly climate brought about by regulatory changes. Many of the measures envisaged by the heads of states affect not only the regulatory setting but also public finances. In a follow-up to the process initiated in Lisbon, the Commission and ECOFIN Council underscored that the ‘quality’ of public finances plays a crucial role for growth and employment. More specifically, they outlined the necessity to lower the tax burden and particularly the tax wedge for low-skilled

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[1] See Conclusions of the Presidency, page 2.

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workers, make benefit systems more supportive to employment, shift resources towards productive expenditures in health, education and physical infrastructure, and to ensure the sustainability of public finances.

The conclusions of the European Council on the European economic performance in the future leave open which growth model actually best reflects the intentions of the heads of state. If they implicitly assume an exogenous growth framework, then we could expect output to speed up in the short and medium run but then level off again. Conversely, the structural changes which they envisage to make Europe a more integrated, competitive and productive economy may also imply that trend growth rises permanently from currently 2–2.5% to 3% per year.

In this paper we will investigate which growth pattern would be the outcome of policy reforms in the future course of the Lisbon process. Analysing past experiences in European countries should indicate whether public finances have the potential to raise growth rates permanently, i.e. affecting trend growth, or whether one could at best expect a transitory improvement.

Numerous 'Barro-type' regression studies have claimed to find evidence for endogenous growth if diverse policy and institutional variables included in the regressions affect long-term performance. However, these studies mainly exploit the cross sectional variation of very large samples and are not very informative if we want to focus on the European context. Using the standard set-up of these studies, relying on long-term averages of output growth, we would quickly exhaust the degrees of freedom for European countries. Moreover, this approach would not be appropriate since the European sample is rather homogeneous in several of these explanatory characteristics.[2]

As an alternative, a small literature has emerged with a main focus on the time series implications of the two strands of theory. If the policy variable follows a specific time series pattern, economic growth should exhibit the same behaviour under endogenous growth theory. Conversely, the time series properties of the policy-variable do not necessarily have to coincide with output growth according to exogenous growth models. Fiscal variables are a good testing ground for these hypotheses, since distortionary taxation and productive expenditures are assumed to have a permanent effect on economic growth according to endogenous growth theory, whereas they should have only level effects from a neoclassical perspective. We will use these predictions as a basis to interpret the observable pattern of economic growth and public finance developments, which has not systematically been done for Europe. This is the gap in the empirical literature that our study wants to close. In first place, we will analyse the time series properties of output growth and fiscal policy variables in order to determine their degree of persistence. In second place, we will estimate the impact of fiscal policies on trend growth by employing the distributed lag approach.

The paper is organised as follows. Section 2 briefly describes the theoretical background and the shortcomings of the empirical evidence existing in this area. Section 3 describes the data used in the empirical exercise. In Section 4 we analyse the time series properties of real per-capita output growth and public finance variables. This analysis will show that there are persistent developments in per-capita GDP growth and fiscal variables, which are broadly in line with some theoretical predictions on long-term growth. In Section 5 we conduct distributed lag estimations as a more systematic check of the long-term impact of public finances and Section 6 concludes.

2. Theory and existing empirical evidence

Since the mid-1980s the theoretical growth literature has above all tried to endogenise the growth rate of output in the long-run. Earlier growth models, formulated by Solow (1956) and Cass (1965) among others, conceived trend growth largely as a function of factors exogenous to public policy — such as technological progress and population growth. Endogenous growth theory pioneered by the work of Romer (1986, 1990), Lucas (1988), Barro (1990) and Rebelo (1991) among others, points out mechanisms by which policy variables cannot only affect the level of output, but also steady-state growth rates. Barro (1990) constitutes one of the first attempts at endogenising the relationship between growth and fiscal policies. He distinguishes four categories of public finances: productive vs. non-productive expenditures and distortionary vs. non-distortionary taxation. We present a simple sketch of the Barro model in order to show that both productive public expenditure and distortionary taxation can affect long-run output growth. We assume that the population of consumers is normalised to one. Consumers both consume and produce final output according to the following production function:

$$y = Ak^{1-\gamma}g^{\gamma} \tag{1}$$

[2] For a meta-analysis of studies on the effect of fiscal policies on long-run growth see Nijkamp and Poot (2004).