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Revisiting the link between growth and federalism: A Bayesian model averaging approach ☆

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ABSTRACT

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Following the ambiguous results in the literature aimed at understanding the empirical link between fiscal federalism and economic growth, this paper revisits the question using a Bayesian model averaging approach. The analysis suggests that the failure to appropriately account for model uncertainty may have previously led to biased estimates. The results from a sample of 23 OECD countries over 1975–2000 indicate that after controlling for unobserved country heterogeneity, there is no robust link, neither positive, nor negative, between output growth and fiscal federalism. Clearly, widely recognized issues of endogeneity and causality that are typical to the empirical growth literature in general remain unresolved. *Journal of Comparative Economics* **xxx** (xx) (2014) xxx–xxx. ZEW Mannheim, L7 1, 68161 Mannheim, Germany; University of Freiburg, Dept. of Economics, Platz der Alten Synagoge, 79085 Freiburg im Breisgau, Germany; Walter Eucken Institute, Goethestrasse 10, 79100 Freiburg im Breisgau, Germany.

1. Introduction

A couple of decades ago decentralization used to be a matter of marginal importance for public economics scholars and for policy-makers. Countries were constitutionally divided into federal or unitary systems and there were hardly any political or economic initiatives for restructuring. This was the post-World War II period, characterized by rapid growth in public spending. The resulting large government involvement in the economy eventually raised concerns over public sector performance and over its further potential in sustaining permanent economic growth rates. This brought the issue of optimal allocation of fiscal authority between different government layers to prominence in the academic and policy debates. Fiscal federalism remains a complex multi-dimensional phenomenon, but an important trade-off that has attracted much academic attention is whether the growth-stimulating benefits from making decisions at different federal levels are outweighed by their costs.

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In the classic case, fiscal federalism leads to growth by a more productive and possibly smaller public sector through higher preference homogeneity (Oates, 1972) and enhanced inter-jurisdictional competition (Tiebout, 1956; Brennan and Buchanan, 1980). On the other hand decentralized political decisions create inter-jurisdictional spillovers (Musgrave, 1959; Oates, 1972) which negatively affect growth by distorting local tax and fiscal incentives. Other, perhaps less conventional arguments that could go in both directions range from economies of scale (Prud'homme, 1995; Rodriguez-Pose and Ezcurra, 2010) and macroeconomic stability (Ter-Minassian, 1997; Fukasaku and de Mello, 1999; Martinez-Vazquez and McNab, 2006) to fiscal discipline (Rodden, 2006) and governance (Ahmad and Tanzi, 2002; Martinez-Vazquez and McNab, 2003).

The results of the growing empirical literature on the link between fiscal federalism and economic growth are at least as diverse.[1] The reason behind such inconclusiveness is that the impact of decentralization on growth has hardly been analyzed in a systematic manner (Feld et al., 2009). These papers typically analyze different cross-country samples with various measures of fiscal federalism and with diverse, often restrictive, methodologies. Davoodi and Zou (1998); Rodriguez-Pose and Ezcurra (2010); Bodman (2011); Baskaran and Feld (2013) are among those authors who provide evidence for a *negative* relation between federalism and growth, while Yilmaz (2000), Iimi (2005) report opposite results. Woller and Phillips (1998), Thornton (2007) do not find such a robust direct link. Thiessen (2003) tries to link these results together by arguing that the relation is inverse-U shaped, while Enikolopov and Zhuravskaya (2007) maintain that fiscal federalism can potentially enhance growth, but only conditional on good institutions. Empirical studies on individual federal countries such as Australia (Bodman et al., 2009),[2] China (Zhang and fu Zou, 1998), India (Zhang and fu Zou, 2001), Russia (Desai et al., 2005), Switzerland (Feld et al., 2005) or the United States (Xie et al., 1999; Akai and Sakata, 2002; Stansel, 2005; Hatfield and Kosec, 2013) again lead to ambiguous results.

According to Breuss and Eller (2004), the uncertain results of empirical papers may be interpreted as the theoretical trade-off that reflects the various gains and drawbacks of fiscal federalism. We take a different position here. Most empirical estimations have crucial limitations and are not very reliable. In particular, what is surprising is that the empirical literature on fiscal federalism and growth, by definition being a part of the much larger literature on the determinants of economic growth has not sufficiently followed the recent innovations of this larger field. Hence, our aim is to contribute to the understanding of the empirical link between fiscal federalism and economic growth by adopting the methodological refinements of growth empiricism.

The more recent theoretical papers by Brueckner (1999), Brueckner (2006), Treisman (2006), Rauscher (2007), Köthenbürger and Lockwood (2010) and Hatfield (2012) on the impact of fiscal federalism on economic growth study different mechanisms with often opposing conclusions and, therefore, provide only limited foundations for empirical work. This relative absence of guidance from economic theory on channels through which fiscal federalism should affect growth left most researchers to choose their empirical specifications (explanatory variables and functional forms) on an arbitrary basis, or at best using some unknown rule-of-thumb rules. The vast amount of literature on the determinants of economic growth, on the other hand, has identified over 150 (Durlauf et al., 2005) or more variables to have explanatory power and has accordingly developed new methodological approaches of analyzing such large amount of regressors. Ironically, federalism – either fiscal, political, administrative or of any other dimension – has never been well-established among these determinants of economic growth.

In this paper, we closely follow the works of Sala-i Martin (1997), Fernandez et al. (2001), Sala-i Martin et al. (2004) and others to extend the discussion by applying a Bayesian Model Averaging (BMA) approach which provides a coherent procedure to account for both model and parameter uncertainty. BMA also considers a very large set of models by allowing any subset of up to our 25 hypothetical growth determinants to enter the regressions (this totals to 2^{25} or over 33 million different models to deal with). Our estimates are based on a sample of 23 OECD countries over the 1975–2000 period, where fiscal federalism is measured as the share of tax revenues, over which sub-national governments have the autonomy to fully or partly decide upon tax rates or bases. A larger set of variables does of course not make much sense for the OECD sample such that the 25 chosen variables are the possibly relevant ones.

The initial cross-country estimates on the determinants of per capita growth find a negative coefficient for the above measure of fiscal federalism. This result is, however, *not* robust to the inclusion of country fixed effects into the BMA model, or to 5-year averages. The initial result is also sensitive to the exclusion of one influential observation, namely to Switzerland. Robustness tests with more traditional measures of decentralization such as the ratio of subnational-to-total government expenditures, revenues or taxes fully confirm these results. Obviously, similar to most of the related literature the important issues of endogeneity and causality remain unsolved, but the application of the new Bayesian methodology allows us to claim that the results of previous research might have been additionally biased due to over restrictive model specification.

The remainder of this paper is organized as follows. In the next section we describe the data and the analytical framework. Section 3 presents the empirical findings. The last Section 4 concludes.

2. Data and methodology

The first challenge of our empirical estimation is to find an accurate measure of the prevailing degree of fiscal federalism. Many of the previous empirical studies use IMF's Government Finance Statistics (GFS) to quantify fiscal federalism by

[1] See Feld et al. (2009) for a detailed overview of the literature followed by a meta-analysis, and Feld and Schnellenbach (2011) for a summary.

[2] Similar to us, Bodman et al. (2009) applies a BMA approach, however using time-series data.

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