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State fixed investment and non-state sector growth in China

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Abstract

This paper is an empirical attempt to (i) identify whether state fixed capital is a complement or a substitute to non-state sector inputs, and to (ii) quantify the marginal contribution of state fixed capital to non-state sector industrial output at both the national and provincial level in China during the 1978–2000 period.

The main result, based on impulse responses derived from vector auto-regression models, indicates that state fixed capital formation complements non-state sector inputs and positively affects industrial output at both the national and provincial level. The results support the central and provincial governments' policy of sustained state fixed capital formation.

JEL classification: C32; E62; H54; O53

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1. Introduction

Since 1978, China has undergone a decisive shift to a market-oriented economy with both rapid and sustained market-driven growth. Real GDP per capita grew at an average

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rate of 8.1% in the 1978–2001 period (Lin & Liu, 2002). But, China's transition has had its problems, notably with several provinces lagging far behind in terms of per capita income and overall development. Provinces located in Eastern China have succeeded in making their economies more like those of the newly industrialized countries in South-East Asia. In the western and central regions, however, despite considerable progress, economic development has been constrained by an old industrial structure and insufficient provision for physical and social infrastructure. In these circumstances, the central government's effort to enhance the growth potential of interior provinces through state directed investment can be perceived as a means to promote a more balanced growth.[1] However, fuelled by increasing fiscal imbalances and the already huge financial undertakings for improving the physical and social infrastructure, a debate has started on the state's role and capability in promoting economic growth across the board. But, regardless of which course of action one supports, the critical question remains whether state fixed investment in China exerts a positive or negative impact on the development of China's non-state sector, and hence, on overall economic growth.

Despite much disagreement in the literature over the relationship between public expenditure and private economic activities, there appears to be agreement around the idea that public expenditure on infrastructure-related projects does indeed affect private economic activity. Several studies (see Easterly & Rebelo, 1993; Erenburg & Wohart, 1995, among others) argue that public expenditure complements private capital and that public capital is a significant input in the private production process. Other studies (see Ford & Poret, 1991; Holtz-Eakin, 1994; Monadjemi, 1993; among others) obtain different results and essentially argue that public expenditure is a substitute for private inputs.

From a more analytical perspective, studies by Pereira and Roca-Sagales (1999, 2001), and Ligthart (2000), among others, suggest that the single equation model for empirical estimation, often used to analyze the substitutability/complementarity of public expenditure, disregards the possibility of two-way causality, or dynamic feedback, of the variables in the regression. Their studies employ vector auto-regression (VAR) models, which effectively treat all variables as endogenous, hence incorporating possible feedback mechanisms. It is noteworthy that these studies generally suggest that public capital exerts a positive effect on private sector inputs and production.

The objective of this paper is two-fold: (i) to identify whether state fixed capital is a complement to or a substitute for non-state sector inputs, i.e., non-state capital and labor, and (ii) to quantify the marginal contribution of state fixed capital to non-state sector production at both the national and provincial level over the 1978–2000 period.

Based on the theoretical concept developed by Aschauer (1989a,b), these tasks will be accomplished by first performing a co-integration analysis of a multivariate system of equations, and subsequently by using impulse responses associated with the estimated VAR models to identify and quantify the role of state fixed investment. China is characterized by a regional dual development pattern with provinces differing widely in terms of size and population, industrial structure, and policy orientation. Hence, it is imperative to analyze

[1] Because of China's specific administrative system, the terms 'state', 'public', 'non-state', and 'private' are used inter-changeably. Discussions concerning China refer to 'state' and 'non-state', otherwise 'public' and 'private' are used.