

Transport costs, capital mobility and the provision of local public goods

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Abstract

Using a new economic geography model with local governments, this study analyzes the relation between transport costs, capital mobility and the provision of local public goods that improve regional productivity. First, if capital is immobile, the effect of local public goods on regional competitiveness engenders over-provision of local public goods, whereas the interregional spillover engenders under-provision of local public goods. As transport costs fall, the latter effect becomes stronger than the former; consequently, the provision status of local public goods changes from under-provision to over-provision. Secondly, if capital is mobile, capital flows to regions with a larger market (higher productivity) when transport costs are high (low). Such capital mobility changes the local public policy from under-provision to over-provision as transport costs fall.

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1. Introduction

In recent years, the Japanese public sector has been criticized for over-provision of local public goods. Why has the problem of over-investment appeared now? In the contemporary global economy with interregional and international economic integration, the situation surrounding regional economies has changed greatly: transportation costs have decreased, and production factors and goods have become very mobile. Does such an environmental change explain the problem of local public policies?

The relation between factor mobility and a regional policy of providing local public goods has remained a salient issue of public economics and regional economics. Studies of this issue are classifiable into the following two streams. The first current of the literature addresses tax competition. As surveyed comprehensively in [Wilson \(1999\)](#), the taxation of mobile factors engenders under-provision of public goods because higher taxation drives factors out of other countries (regions). In addition, [Keen and Marchand \(1997\)](#) indicate that public goods for production can be over-provided. Secondly, since [Tiebout \(1956\)](#) focused attention on the efficiency of provision of public goods with interregional mobile factors, numerous studies have examined factor mobility. For instance, [Wellisch \(1994\)](#)

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demonstrates that competition between decentralized regional governments makes the provision of public goods efficient (inefficient) if households are (not) perfectly mobile. Recently, [Brueckner \(2004\)](#) discusses the trade-off between Tiebout's efficiency and tax competition's inefficiency. That study unites the two streams.

Although various studies have used multi-regional models that include mobile factors and goods, they have only inadequately treated the "spatial" matter. Those studies have not explicitly considered transport costs, which define space and distance. The effects of transport costs on local public policy are divisible into the following two types. First, in the context of local public policy, transport costs influence the economic independence of regions and thereby determine the interregional spillover of local public goods, which affects local governments' policies. Secondly, transport costs affect the location of economic activities, as discussed especially in the so-called new economic geography. That is, when transport costs are sufficiently high, economic activities become distributed among regions to reduce the transport cost burden; when transport costs are sufficiently low, they concentrate in some regions to derive benefits from agglomeration economies (see e.g., [Fujita et al., 1999](#); [Brakman et al., 2001](#)). Such factor movement imparts structural changes to regional economies (e.g., the formation of cities and rural areas); it also affects local public policies. It is our intention to consider the effects of the decline of transport costs (i.e. the globalization) on the behavior of decentralized regional governments as well as the factor movement, using the framework of the new economic geography.

This paper also relates to the following studies, which discuss the effect of local public policies on the interregional and international location of economic activities. In the context of the new economic geography, [Martin and Rogers \(1995\)](#) examine the effect of local public goods (transport infrastructure) on the international location of firms. They did so within the framework of the improved coreperiphery model originating from [Krugman \(1991\)](#). Then, using a similar model, [Andersen and Forslid \(2003\)](#) study interregional tax competition and equilibrium provision of local public goods. These studies were reviewed systematically in [Baldwin et al. \(2003\)](#), along with related papers. On the other hand, some studies of local public goods and agglomeration have been undertaken outside of the field of the new economic geography. For instance, [Maurer and Waltz \(2000\)](#) discuss the location choice of two mobile oligopolistic firms and the provision of local public infrastructure. [Justman et al. \(2002\)](#) investigate the relation between local infrastructure quality and firms' location patterns. Moreover, in the field of international trade, [Bougheas et al. \(1999\)](#) consider the relation between the provision of transport infrastructure and trade patterns.

In addition, it is noteworthy that local public goods are classifiable into various types: amenities, economic and industrial facilities, transport infrastructure, national defense, and so on. The effects of public goods are different. Therefore, we should notice the type that we emphasize. For instance, [Keen and Marchand \(1997\)](#) describe that local public goods for production are typically over-provided, whereas those for consumers are under-provided. Furthermore, within the category of production, industrial facilities improve industrial productivity, and transport infrastructure improves transport costs. [Martin and Rogers \(1995\)](#) show that the provision of transport infrastructure that improves international transport costs has a negative effect on the country in which the infrastructure is located.

The analysis presented in this paper specifically relates to one type that has been discussed at length in the empirical fields on local public sectors: industrial facilities that improve manufacturing productivity in home regions. [Aschauer \(1989\)](#) investigates the effect of public goods (public infrastructure) upon private manufacturing. Numerous empirical studies have addressed the effect of public infrastructure on the respective productivity levels of manufacturing and non-manufacturing sectors. Laying the groundwork, [Holtz-Eakin and Lovely \(1996\)](#) review past studies and examine the effect of local public infrastructure in a general equilibrium model. In their model, public infrastructure offers "direct, cost-saving effects on the manufacturing sector of the economy." They offered that empirical results are somewhat ambiguous, but are consistent with theoretical results. Using a similar framework, [Anwar \(2001\)](#) elucidates the manner in which public infrastructure affects trade patterns. Combining their ideas and the new economic geography, we can advance theoretical studies of the provision of manufacturing infrastructure.

The remainder of this paper is organized as follows. A basic two-region model with a local public sector is presented in Section 2. In Section 3, we analyze the respective behaviors of regional governments, which pursue Nash strategies in providing local public goods, and discuss the effects of factor (capital) mobility on local public policy. Finally, Section 4 concludes this paper.

2. A two-region model with local public sectors

This model is a variant of those of [Krugman \(1991\)](#) and [Baldwin et al. \(2003\)](#). The economy comprises two regions, $r=1, 2$, which are endowed with capital, K_r , and labor, L_r .

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