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交通

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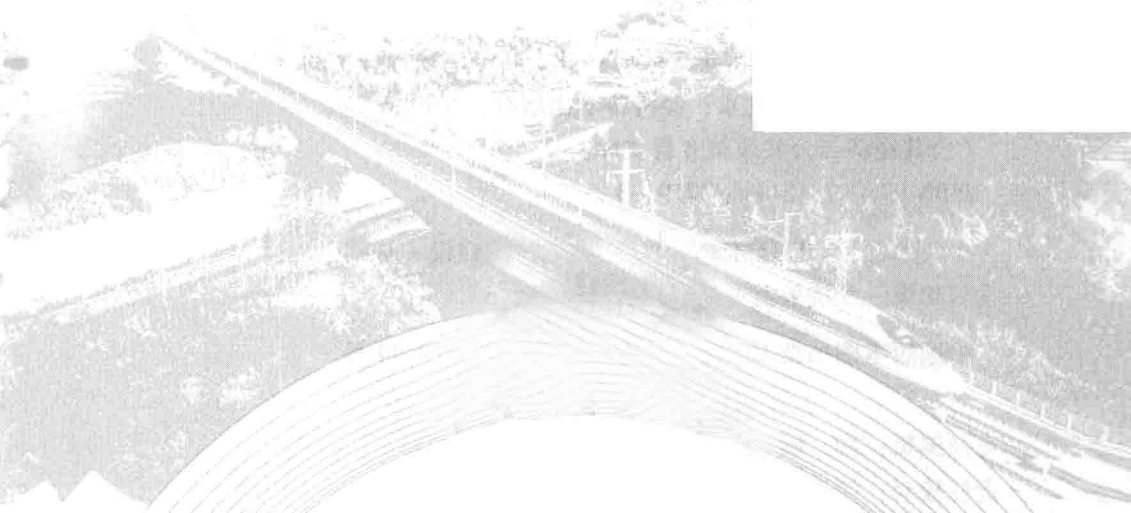

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公共经济与公共政策齐鲁文库

编　委　会

总 序

大地回春，万物复苏，生机盎然。正值满目春意之时，选入《公共经济与公共政策齐鲁文库》第七辑的四位青年学者的著作即将付梓，怎不让人联想到南方的雨后春笋节节生长，北国的老树新芽挂满枝头？怎不令人心怀希望，憧憬未来呢？

这四本专著是山东大学公共经济学科培养的博士以学位论文为基础修改而成的。他们的共同特点是，第一，关注中国公共经济现实焦点问题，聚焦中国经济发展理论重要问题，选题很有意义。第二，分别以基础设施的经济效应和税收负担、税收竞争为研究对象，但选择的研究视角比较新颖。第三，规范分析与实证分析相结合，加之问卷调查和实地访谈，方法比较规范。宋英杰博士的《交通基础设施的经济集聚效应：基于新经济地理理论的分析》，基于新经济地理理论框架，采用线性自由企业家模型等新经济地理理论的前沿模型，结合交通基础设施特征进行理论扩展分析，得出交通基础设施经济集聚效应的长期均衡解析解，并结合空间滞后模型、空间杜宾模型、门限面板模型等实证研究方法对交通基础设施的经济集聚效应进行了研究。李婵娟博士的《我国公共基础设施投资效应研

究——基于区域差异的视角》，针对地区层面公共基础设施投资对产出、就业、私人投资等经济活动的作用机制及影响效果作了系统性研究，研究发现，我国公共基础设施投资在省际区域间存在溢出效应，全国范围的区域外公共基础设施投资溢出效应的作用远远小于本地区公共基础设施投资；公共基础设施投资效应在地区间分布并不均衡且差异较大，总体上东部地区受到公共基础设施投资的带动作用最强；公共基础设施投资水平的区域差异是引起投资效应差异的主要原因，而收入水平、公共服务环境和公共服务质量的差异是引起省际公共基础设施投资差异的重要因素。张晓雯博士的《基于经济增长和收入分配视角的中国税负研究》，针对围绕中国税负问题的议论多是局限于收入一条线索（高培勇，2011），忽视税收为公共支出筹资进而带来间接影响的问题，在税负的直接影响路径下，融合公共支出因素，在“税收——公共支出”框架下分析税负对经济增长、收入分配的影响机制和效果；并在传统经济学分析框架下，纳入行为经济学等相关理论，从税收、公共支出（产品）和个人差异等三大维度，分析税负对居民“税感”的作用路径及影响机制，并构建税负对居民“税感”影响函数，还通过山东济南、淄博两市实地调研，基于所得343户随机、问卷调查数据进行了实证分析。刘洁博士的《中国地方政府间税收竞争机理及效应研究》，力求揭示中国地方政府间税收竞争的形成存在的原因和现实背景；通过构建空间计量模型，采用实证分析的方法，对中国地方政府间税收竞争的行为策略进行检验，探讨中国地方政府间税收竞争的行为路径；从理论模型到实证检验，从对要素流动、经济增长及环境污染的影响等方面分析了中国地方政府间税收竞争效应。

2013年11月召开的中共十八届三中全会通过的《中共中央关于全面深化改革若干重大问题的决定》，勾画了我国面向2020年的全面改革蓝图。《决定》首次指出了“全面深化改革的总目标是完善和发展中国特色社会主义制度，推进国家治理体系和治理能力现代化”和“财政是国家治理的基础和重要支柱，科学的财税体制是优化资源配置、维护市场统一、促进社会公平、实现国家长治久安的制度保障”的重要论断，明确提出了预算改革、税制改革和财政体制改革的基本方向和主要内容。这预示着社会各界关心的新一轮财税改革即将拉开序幕。“改革只有进行时，没有完成时”，需要我们不断研究新知，探寻规律。

衷心感谢吕萍总编和她的团队。她们一如既往的鼎力支持和精心服务使这套文库一直顺利地如期问世。

樊丽明

2014年初春于大有庄

摘　要

经济资源的集聚是一个长期存在并在许多地区不断强化的经济现象。从南北经济二分法的中心—外围结构，到欧洲、东亚等引领全球经济的产业带的形成，再到纽约、东京等世界瞩目的国际化中心城市群的出现，以及中国东中西部显著的集聚差异，可以说，经济集聚支配着当今世界的经济地图。经济资源在不同层面地理空间的集聚过程中，交通基础设施作为传统和公认的集聚影响因素，发挥了特有的作用。但是，传统经济学理论对交通基础设施的研究往往在忽视空间特征的环境中研究其对经济系统的影响，从而导致现实中不断强化的经济集聚趋势与传统理论分析中的一般均衡结论冲突不断。新经济地理理论将空间要素引入经济学均衡分析，开拓了经济学研究的新纪元。但是，新经济地理理论框架下，对交通基础设施在冰山成本构成与融化机制的理论分析，特别是交通基础设施经济集聚效应的理论和实证研究尚不充分。明确经济集聚过程中，交通基础设施的影响机制和影响特征，对于丰富和扩展新经济地理理论，加强新经济地理理论与以交通基础设施等公共产品作为主要研究内容的公共经济学的理论联系，无疑具有重要的理论意义。

实践中，中国当前大量存在地区经济差异与不均衡，经济资源在区域间的集聚趋势也不断强化，由此所产生的一系列社会、经济、政治、环境等方面的问题，其不利影响日渐明显。从理论层面了解区域差异产生的原因、机制、发展趋势及交通基础设施在其中施加的影响，方能找到实践中科学有效的解决思路和对策，真正切

实践行中共十八大所要求的“加强和完善跨区域合作机制，合理布局建设基础设施和基础产业，消除市场壁垒，促进要素流动”目标，对于中国真正实现统筹城乡经济发展，全面建设小康社会具有重要的实践意义。

为此，本书基于新经济地理理论框架，采用线性自由企业家模型等新经济地理理论的前沿模型，结合交通基础设施特征进行理论扩展分析，得出交通基础设施经济集聚效应的长期均衡解析解。并结合空间滞后模型、空间杜宾模型、门限面板模型等实证研究方法对交通基础设施的经济集聚效应进行全面和系统的研究，力求完善交通基础设施经济集聚效应的基本理论，对中国利用交通基础设施供给调控经济资源区域分布提供科学的决策依据。

本书共6章，除第一章绪论外，第2，3章是对理论文献的整理和新经济地理数理模型构建，作为文章实证研究的基础和前提；第4，5章是针对理论分析结论的实证研究；第6章是论文研究结论的总结及对中国现实的政策取向建议。具体作为文章主要内容的第3~6章分别是：

第3章，基于线性自由企业家模型的交通基础设施经济集聚效应的理论分析。本章在对新经济地理理论模型进行梳理的基础上，结合现有理论模型对交通基础设施变量考察的不足以及模型非线性化导致的研究结论分析障碍，构建了包含交通基础设施变量的线性自由企业家模型，在对其进行短期和长期均衡的数理推导中，进一步分析了交通基础设施的经济集聚效应。研究结论认为，交通基础设施是影响本地经济资源分布和经济集聚的重要因素，对经济集聚存在溢出效应和门限效应等，并提出了对应需要细化实证的问题。

第4章，中国交通基础设施经济集聚溢出效应的实证分析。本章将溢出效应分解为交通基础设施的直接性溢出效应和通过本地集聚状态产生的相关性溢出效应，进而采用中国工业企业数据库的相关行业微观数据，使用空间滞后面板和空间杜宾面板等空间计量模型对两种溢出效应进行实证分析。研究发现，交通基础设施对经济集聚兼有直接性溢出和相关性溢出效应，相关性溢出效应要强于直

接性溢出效应。本地区不同类别交通基础设施对经济集聚存在不同的影响，其中高等级公路对经济集聚具有显著的促进作用；铁路和二级公路交通基础设施对本地经济集聚的影响不显著；低等级公路对经济集聚具有显著的负向影响。

第5章，中国交通基础设施经济集聚门限效应的实证分析。本章首先结合理论模型结论以及中国现实状况，对由于中国交通基础设施和经济集聚变量所具有的非线性特征进行考察，进而使用门限面板模型，对中国省级面板数据进行实证分析。研究发现，交通基础设施对经济集聚存在显著的门限效应，交通基础设施对经济集聚的门限效应，在不同区制范围内作用程度不一，呈倒U型趋势扩展；在对不同地区的考察发现，就绝对影响力来看，东部地区交通基础设施的经济集聚影响力始终强于其他地区，但呈现逐步减弱趋势，而与之相反，中、西部地区在门限变量所分不同区制范围内，交通基础设施的影响呈现明显增强的趋势。从门限值个数及其显著性所体现的集聚影响波动性来看，东部和中部地区交通基础设施对经济集聚的影响呈较为明显的多阶段波动趋势，而西部地区交通基础设施对于经济集聚门限数量较少，表现为交通基础设施对经济集聚具有相对稳定的影响。此外，地方政府对待经济集聚的态度和手段存在地区性差异，也对经济集聚产生显著影响。

第6章是研究结论与政策取向。首先系统梳理了交通基础设施经济集聚效应的研究结论，结合当前中国区域发展与交通基础设施供给的现实提出通过交通基础设施供给调控经济资源区域分布的总体原则，进而针对研究结论，分别从交通基础设施区域协同供给、交通基础设施的规模化供给、产品类别的结构化供给以及在不同经济发展阶段的动态供给几方面对应分析其相关的实践政策取向。

本书创新之处体现在以下几方面：

（1）突破传统经济理论在忽视空间特征的环境下研究交通基础设施经济集聚效应的不足，基于新经济地理理论视角，在规模收益递增和垄断竞争市场结构理论假设下，将交通基础设施变量纳入理论模型分析，并引入线性自由企业家模型进行理论分析，取得了交

通基础设施对经济集聚效应的解析解。针对交通基础设施经济集聚效应的考察，在兼顾对本地经济集聚状态影响的基础上，进一步扩展到存在空间特征的跨区域效应的分析，认为交通基础设施对经济集聚存在溢出效应和门限效应等。

（2）经济资源的流动与集聚是邻近地理空间范围内不同地区相互影响的过程，对于由此产生的实证数据的空间自相关问题，传统计量经济学方法难以有效解决。本书在实证研究过程中使用空间计量经济学模型，将交通基础设施与经济集聚变量存在的区域空间自相关特征在实证模型中加以体现，分别采用空间滞后和空间杜宾面板模型进行估计，确保数据实证结论的针对性和准确性。对于实证模型可能存在的非线性特征，采用门限面板估计方法针对性进行处理，确认了中国省级交通基础设施的经济集聚溢出效应和门限效应的存在。

（3）通过空间滞后和空间杜宾模型的分析，分别从交通基础设施的直接性溢出和相关性溢出两种渠道分析了其溢出的作用机制，发现其中相关性溢出强于直接性溢出，且在存在溢出效应的条件下，交通基础设施的产品类别对经济集聚的作用程度显著不同；通过使用门限面板对交通基础设施经济集聚效应非线性特征的考察，发现在不同区制范围内，交通基础设施状况的改善对经济集聚的作用程度不一，呈倒U型趋势扩展。进而提出在交通基础设施供给政策上，应针对其溢出效应、门限效应、产品类别的差异以及动态的经济环境分别采用协同供给、规模化供给、结构化供给和动态供给以有效实现资源的区域优化配置。

ABSTRACT

Economic agglomeration is a long-existing economic phenomenon which intensifies in many regions. Economic agglomeration controls the economic map in current world, which can be reflected from the core-periphery structure of the north and south economy dichotomy to the formation of industrial belt in Europe and Eastern Asia which leads global economy, from the emergence of the world famous international metropolis group like New York and Japan to the remarkable agglomeration difference in the eastern, western and central part in China. Transportation infrastructure, as a traditional and universally recognized factor that may affect economic agglomeration, plays its due role. However, traditional research on the effect of transportation infrastructure on economic system tends to ignore the environment of spatial features, which results in the continual conflict between intensifying economic agglomeration trend and general equilibrium conclusion. New economic geography theory injects spatial factors into economic equilibrium analysis and opens a new era for economic research. However, under the framework of new economic geography theory, theoretical analysis on iceberg cost structure and melting mechanism of transportation infrastructure, especially the theoretical and empirical research of economic agglomeration effect of transportation infrastructure, is far from enough. A good understanding of effect mechanism and effect features of transportation infrastructure in the process of

economic agglomeration is theoretically significant in enriching and extending new economic geography theory and strengthening the theoretical links between new economic geography theory and public economics with transportation infrastructure as its main research content.

In China, regional economic difference and inequilibrium as well as the intensifying agglomeration trend of economic resources among regions result in an increasingly disadvantaging influence ranging from social and political to economic and environmental aspects. A theoretical understanding of the reasons, mechanism, developmental trend of regional differences as well as the effect of transportation infrastructure may help us to find a scientific and effective solution in practice and realize the goal of "strengthen and consummate inter-regional cooperation mechanism, construct basic facilities and industry properly, eliminate market obstacle and promote the flow of element" claimed in the 18th National Congress of the Communist Party of China, which will finally promote the coordinated development in rural and urban areas and build an overall well-off society.

Therefore, this thesis, based on new economic geography theory framework, advanced model like LFE model and features of transportation infrastructure for theoretical extension analysis, gains the long-term equilibrium analytical solution of transportation infrastructure economic agglomeration effect. Empirical research methods such as SLM, SDM and threshold panel model are adopted in order to conduct an overall and systematic study of economic agglomeration effect of transportation infrastructure in an attempt to enrich basic theory of economic agglomeration effect of transportation infrastructure and provide scientific decision-making foundation to supply and adjust regional distribution of economic resources by utilizing transportation infrastructure.

The thesis consists of 6 chapters. The first chapter is a brief introduction of the thesis. The second and third chapter, as the basis and pre-

requisite of empirical study, summarize the theoretical literature and construct new economic geography mathematical model. The fourth and the fifth chapter conduct an empirical study based on theoretical analysis conclusion. The sixth chapter summarizes the thesis conclusion and puts forwards suggestions for realistic policy adoption in China. Specifically speaking:

In Chapter 3, the author conducts a theoretical analysis concerning the effect of transportation infrastructure on economic agglomeration based on LFE model. Based on the summary of new economic geography theoretical model, together with the deficiency of current theoretical model when calculating transportation infrastructure variables as well as research conclusion analysis obstacle resulted from non-linear model, the author conducts linear free entrepreneur model which covers transportation infrastructure variables and further analyzes the economic agglomeration effect of transportation infrastructure after long-term and short-term balanced mathematical calculation. According to the research conclusion, transportation infrastructure exerts an important influence on local economic resource distribution and economic agglomeration and has spillover effect and threshold effect on economic agglomeration. Besides, issues which need to be further analyzed empirically are put forward.

In Chapter 4, the author conducts an empirical analysis on economic agglomeration spillover effect of transportation infrastructure in China. Spillover effect is divided into direct spillover effect and related spillover effect through local agglomeration state. Later empirical analysis on the above two spillover effects is conducted through such spatial econometric modeling as SLM and SDM. Transportation infrastructure has direct and relevant spillover effects on economic agglomeration and relevant spillover effect is more powerful than direct spillover effect. Different types of transportation infrastructure exert different effects on economic agglomeration. High-quality road has a remarkable positive influence on economic agglomera-

tion. Railway and secondary road don't have a remarkable influence on local economic agglomeration. Low-quality road has a remarkable negative effect on economic agglomeration.

In Chapter 5, the author conducts an empirical analysis on threshold effect of transportation infrastructure on economic agglomeration in China. Based on theoretical model conclusion and the current situation in China, the author reviews the non-linear features of transportation infrastructure and economic agglomeration in China. Later empirical analysis of provincial panel data in China is conducted via the use of threshold panel model. According to the research result, transportation infrastructure exerts a remarkable threshold effect on economic agglomeration. Threshold effect of transportation infrastructure on economic agglomeration varies from region to region and extends in a reverted U shape. From the perspective of absolute influence, economic agglomeration influence of transportation infrastructure in eastern region is powerful than that in other regions all along although the influence demonstrates a declining trend. Vice versa, the influence of transportation infrastructure in central and western regions demonstrates an obviously strengthening trend. From the perspective of threshold number and agglomeration effect fluctuation which is shown by its markedness, influence of transportation infrastructure in eastern and central region on economic agglomeration demonstrates an obvious multi-phase fluctuation trend while in the western region, transportation infrastructure exerts a comparatively stable influence on economic agglomeration due to the small number of threshold. Besides, attitudes and means towards economic agglomeration vary from government to government and exert a remarkable effect on economic agglomeration.

The Sixth Chapter is mainly about the research conclusion and policy orientation. The author systematically summed up the research conclusion of the effect of transportation infrastructure on economic agglomeration and put forward the overall principles of supplying and adjusting eco-

nomic resource regional distribution via transportation infrastructure based on the current situation of regional development and transportation infrastructure supply in China. Finally, according to the research result, the author analyzed the related policy orientation in practice from the perspective of regional collaborative supply of transportation infrastructure, scale supply of transportation infrastructure, structural supply of product categories as well as the dynamic supply in different economic developmental phases.

The creative part in this thesis is as follows:

Firstly, the author makes a breakthrough in solving the deficiencies of traditional economic theory in studying transportation infrastructure economic agglomeration without taking spatial features into consideration. Instead, based on the perspective of new economic geography theory and the hypothesis of increasing returns to scale and monopolistic competition market theory, the author introduces transportation infrastructure variables into theoretical model analysis. Besides, the author introduces LFE model for theoretical analysis and the analytic solutions of transportation infrastructure on economic agglomeration effect. Based on the inspection of transportation infrastructure economic agglomeration effect, the author further extends its analysis to inter-regional effect of existential spatial features while taking its effect on local economic agglomeration state into consideration. It is claimed that transportation infrastructure exerts spillover effect and threshold effect on economic agglomeration.

Secondly, the flow and agglomeration of economic resources is the international process of various regions in the neighborhood. It is hard for traditional econometrics to solve spatial autocorrelation issues of empirical data. Regional space autocorrelation features of transportation infrastructure and economic agglomeration are demonstrated by employing econometrics model in the process of empirical study SLM and SDM are adopted respectively in order to ensure the accuracy of empirical data conclu-

sion. As for the possible non-linear features of empirical model, threshold panel estimation is adopted to confirm the existence of spillover effect and threshold effect of provincial transportation infrastructure economic agglomeration in China.

Thirdly, through the analysis of SLM and SDM, the author analyzes the spillover mechanism from direct spillover and related spillover and finds that related spillover is powerful than direct spillover. Under the circumstances of spillover effect, product categories of transportation infrastructure exerts different effects on economic agglomeration. Through the inspection of non-linear features of economic agglomeration of transportation infrastructure by utilizing threshold panel, it is found that in different regions, the improvement of transportation infrastructure may affect the degree of economic agglomeration which extends in a reverted U shape. It is finally proposed that collaborative supply, scale supply, structural supply and dynamic supply should be adopted respectively based on the differences in spillover effect, threshold effect, product categories as well as dynamic economic environment distribution.