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A SPATIAL ECONOMETRIC STUDY ON
SOCIAL CAPITAL AND THE CONVERGENCE

OF REGIONAL ECONOMIC
GROWTH IN CHINA

社会资本与区域经济增长

——基于空间计量经济学的研究

彭文慧 著



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总序

河南大学经济学科自 1927 年诞生以来，至今已有将近 90 年的历史了。一代一代的经济学人在此耕耘、收获。中国共产党早期领导人罗章龙、著名经济学家关梦觉等都在此留下了他们的足迹。

新中国成立前夕，曾留学日本的著名老一辈《资本论》研究专家周守正教授从香港辗转来到河南大学，成为新中国河南大学经济学科发展的奠基人。1978 年我国恢复研究生培养制度以后，周先生率先在政治经济学专业招收培养硕士研究生，河南大学于 1981 年首批获得该专业的硕士学位授予权。1979 年，我校成立了全国第一个专门的《资本论》研究室。1985 年以后，又组建了我校历史上的第一个经济研究所，恢复和组建了财经系、经济系、贸易系和改革与发展研究院，并在此基础上成立了经济学院。目前，该学院已发展成为拥有经济、贸易、财政、金融、保险、统计 6 个本科专业，理论、应用、统计 3 个一级学科博士点及博士后流动站，20 多个二级学科硕士、博士点，3300 余名本、硕、博各类全日制在校生以及 130 余名教职员工的教学研究机构。30 多年来，培养了大批本科生和硕士、博士研究生及博士后出站人员，并且为政府、企业和社会培训了大批专门人才。他们分布在全国各地，服务于大学、企业、政府等各种机构，为国家的经济发展、社会进步、学术繁荣做出了或正在做出自己的贡献，其中也不乏造诣颇深的经济学家。

在培养和输出大量人才的同时，河南大学经济学科自身也造就了一支日益成熟的学术队伍。近年来，一批 50 岁左右的学者凭借其扎实的学术功底和丰厚的知识积累已进入著述的高峰期；一批 40 岁左右的学者以其良好

的现代经济学素养开始脱颖而出，显现出领导学术潮流的志向和实力；更有一大批 30 岁左右受过系统经济学教育的年轻人正蓄势待发，不少已崭露头角，初步展现了河南大学经济学科的巨大潜力和光辉未来。

河南大学经济学科组织出版相关学术著作始自世纪交替之际，2000 年前后，时任经济学院院长的许兴亚教授曾主持编辑出版了数十本学术专著，在国内学术界产生了一定的影响，也对我校经济学科的发展起到了促进作用。

为了进一步展示我校经济学科各层次、各领域学者的研究成果，更为了使这些成果与更多的读者见面，以便有机会得到读者尤其是同行专家的批评，促进河南大学经济学学术研究水平的不断提升，为繁荣和发展中国的经济学理论、推动中国的经济发展和社会进步做出更多的贡献，我们决定出版“河南大学经济学学术文库”。根据初步拟定的计划，该丛书将分年度连续出版，每年选择若干河南大学经济学院在编教师的精品著述资助出版。根据需要，也可在丛书中选入少量客座教授或短期研究人员的相关论著。

感谢社会科学文献出版社历任领导及负责该丛书编辑出版工作的相关部门负责人和各位编辑，是他们对经济学学术事业的满腔热情和高效率的工作，使本套丛书的出版计划得以尽快达成并付诸实施。最后，还要感谢前后具体负责组织本丛书著作遴选和出版联络工作的刘东勋、高保中博士，他们以严谨的科学精神和不辞劳苦的工作回报了同志们对他们的信任。

分年度出版经济学学术文库系列丛书，对我们来说是第一次，如何公平和科学地选择著述品种，从而保证著述的质量，还需要在实践中进行探索。此外，由于选编机制的不完善和作者水平的限制，选入丛书的著述难免会存在这样那样的问题，恳请广大读者及同行专家批评指正。

耿明斋

2013 年 6 月

摘 要

促进区域经济快速增长和协调发展是我国经济发展面临的重要课题，改革开放以来，我国各地区之间存在较大的区域差异，已经严重影响到经济社会发展的质量。传统的研究思路一般基于新古典经济理论框架展开，通过研究区域经济增长的趋同性，以揭示决定区域经济增长的因素并提出相关的政策，或者是从区域经济发展不平衡理论出发，提出干预区域经济发展的具体对策，这些结论对于解决区域发展差异而言效果并不突出，因为不论是以政府手段来替代市场还是运用政策来改变资源要素配置，都易于招致较大的发展机会成本，也会导致新的区域利益矛盾产生。

笔者通过对文献进行梳理分析并细致考察区域经济增长的现实后发现，现有研究大多忽略了不能排除在模型外的社会因素，当区域间的差距是系统性时，即使它们具有相似的技术和偏好也难以收敛到相同的稳态，这就要求重新审视社会因素对经济发展的作用。社会学家最早关注此类现象，并运用社会资本这一工具来进行深入的研究，由于在不同区域存在不同的社会资本结构，人们从社会资本中获得资源的能力及其结果也有不同。外国学者运用社会资本理论来解释了很多区域如意大利、坦桑尼亚以及中东欧和拉美的比较研究等，基本揭示了社会资本与区域经济发展差异的内在关联。相较而言，国内文献主要集中于特定区域社会资本与经济发展的关系研究，而且多是基于案例研究的理论推演，缺乏对社会资本进行度量的详细指标体系构建以及精确的模型估测。特别是，改革开放 30 多年来区域经济发展战略的实施和市场机制的作用，我国各区域经济之间存在密切的要素流动和经济联系，这些都通过空间近邻作用对其他区域带来影响。因此，强调经济发展嵌入社会网络的角度，运用空间计量经济学的方法来研究区域经济增长趋同的问题，探求导致我国区域经济增长差异的因

素，分析促进区域经济增长和区域协调发展的机制，对解决区域经济发展差异并提出相应对策具有重要的意义。

本研究通过对社会资本及区域经济增长趋同的相关研究进行梳理和评析，提出社会资本与区域经济增长趋同研究的总体思路 and 结构。认为由于经济运行并非是线性的独立过程，而与社会结构存在深刻的内在关联，区域经济增长不但依赖于地方资源要素供给的数量和质量，也同时依赖于相邻区域的增长性质，这要求使用空间计量经济学的理论和方法，建立能够纳入社会因素和空间作用的经济模型，以期得到更符合经济运行的结论。本项研究的主体内容如下五点：

(1) 社会资本与工业劳动生产率增长的关系研究。工业劳动生产率的区域差异是区域经济增长中的重要方面，特别是在我国的经济转型过程中探讨促进工业劳动生产率增长意义重大。运用生产偏离法对我国 31 个省份的工业劳动生产率进行分解，考察其时序特征和空间特征，并从理论上论证了社会资本促进劳动生产率增长的机理。选择教育结构、体制结构、产学研结构来代表工业部门的社会资本结构及水平，并以经济集聚、地区等为变量，运用空间经济计量方法实证研究社会资本与区域工业劳动生产率的关系，结果发现职工受教育结构和产学研结构对工业劳动生产率影响较大。

(2) 社会资本与区域农民收入增长的关系研究。城乡二元结构是我国经济发展中的突出特征，这也体现出研究农民收入增长对理解区域经济增长的重要性。对我国农民收入区域差异进行了多角度的分析描述，并基于改革开放以来农村劳动力流动的背景研究了农民家庭社会资本的结构与性质。空间计量实证研究结果表明，微观层面的社会资本对农民收入的影响较小，而社会层面的社会资本对农民收入的影响较大。这表明农民收入增长及其空间结构仍然受国家体制改革进程的制约。

(3) 从社会资本的角度研究外商直接投资对区域经济增长的影响。吸引外资已被证明是促进我国区域经济增长和导致区域差异的重要力量，在从理论上论证了社会资本因素对外资企业经济增长绩效影响的基础上，分类选取外资企业结构维度社会资本、关系维度社会资本和认知维度社会资本三类指标进行实证研究。结果表明，社会资本的空间差异是导致外资行为的重要因素，而这又对区域经济增长产生影响。三类社会资本水平对区

域经济增长的作用机制和效果也存在差异。结构性社会资本中的就业结构社会资本的影响最为显著，而认知性社会资本的影响并不显著。

(4) 社会资本与区域经济增长空间趋同的研究。区域经济增长是否存在空间趋同在实证研究文献中存在不同的研究结论，但多数研究并没有将空间相互作用纳入模型，所得到的结论是不稳健的。通过构建空间权重矩阵，对 1985~2009 年我国 31 个省份的增长数据按每 12 年划分成 14 个滚动时段进行了分析，结果表明，我国区域经济增长不存在 σ 趋同，非条件 β 趋同只在一定时期存在，这与用方差分解法和基尼系数法研究得到的 σ 趋同结果基本一致。而在加入社会资本变量后 14 个时段均存在不同程度的条件 β 趋同现象，这显示了我国区域经济增长的初始条件和改革开放以来区域差别化的开发开放战略对区域经济增长趋同带来了较为深远的影响。

(5) 社会资本视角下区域经济增长的政策研究。回顾了我国区域经济增长政策的制定过程及其效果评价，并从区域经济增长的决定因素转变、评价体系转变和区域协同发展要求转变三方面论述了区域经济增长对社会结构环境的要求。在此基础上提出了投资社会资本促进区域经济增长的政策建议。

本项研究的主要观点及其政策意义在于：

(1) 区域经济增长存在的空间自相关特征，不论是从工业劳动生产率、农民收入还是区域人均收入等指标来看均是如此。即经济增长水平高的省份，其周围省份的经济增长水平也高，表明区域经济单元的经济现象受其相邻地区影响。其政策意义是，制定区域经济发展战略时要以联系的观点看待区域差异和区域联系，将相关区域经济发展的总体目标与个体目标结合起来。

(2) 社会资本强烈地影响区域经济增长，研究我国的区域经济增长差异需要审慎地处理社会因素。通过研究经济行为主体所嵌入的社会结构及其性质，在经济模型中纳入社会资本变量，所得到的实证研究结果更符合经济运行的现实。其政策意义是制定区域经济发展政策时要将促进社会结构变动、经济主体与社会因素相互作用等纳入进来。

(3) 社会资本促进区域经济增长的机制存在复杂性特征，而不同结构的社会资本其区域经济增长绩效也存在差异。总体而言，营造促进社

社会资本与区域经济增长

社会资本产生的良好的社会结构是制定政策的出发点，但对于区域经济增长的不同目标而言需要具体分析，根据社会资本的作用机制来制定相关政策。

(4) 我国区域经济增长趋同总体而言不存在绝对趋同，但存在时段的条件 β 趋同现象，在 1985 年到 2009 年间，随着时间的推移区域经济增长趋同放慢，表明随着改革开放进程和市场化程度的加深，经济发展越来越多地依赖于社会制度环境，特别是我国长期实施差异化区域发展战略导致区域增长的差异越来越显著。

关键词：社会资本 区域经济增长 趋同 空间计量经济学

Abstract

The promotion and coordination development of rapid regional economic growth is the important task of economic development in China; Since reform and opening up, there exist larger regional differences between regions in China, which have seriously affected the quality of economic and social development. Traditional research framework based on neo – classical economic theory, through research on convergence of regional economic growth to uncover factors which determine economic growth and recommend appropriate policies, or from unbalanced development of regional economy theory to put forward specific measures of intervention in the regional economic development. These conclusions for effect of the settlement of regional development disparity are not highlighted, because whether to use government means to replace market or to use policy to change the element configuration, it is easy to incur greater development opportunity costs, and has also led to new regional conflicts of interest.

Through summarizing and analyzing the documents, and meticulous investigation of regional economic growth reality, this article found the existing research has largely ignored social factors which cannot be ruled out outside the model. When the regional gap is systemic, even though they have a similar technology and preference, it is still difficult to converge to the same steady – state; this requires re – examining the role of social factors of economic development. The sociologists focus on these phenomena first and apply social capital this tool to conduct an in – depth study; due to there exists different social capital structure in different regions, people's capabilities of access to resources from the social capital are different and the same thing goes with the results. Social capital is a kind of economic resource existing in personal

communication relationships, and is a social network and mutual trust and mutual profit model produced by the social network. Foreign scholars using social capital theory to explain a number of areas growth such as Italy, United Republic of Tanzania, as well as in the comparative study of Middle and Eastern Europe and Latin America, and so on, basically revealed the internal connection of differences between social capital and regional economic development. In comparison, domestic literature focuses on a specific study on the relationship between social capital and economic development in some regions, and was mostly theory deduction which was based on case studies, lacking of system construction of social capital measurement index in detail, as well as the estimation of precise model. In particular, the 30 – year reform and opening up to the regional economic development strategy and the implementation of market mechanisms, there exists close factor mobility and the economic links between the regional economy, affecting on the other areas through the spatial neighborhood effect. The following aspects have the important significance in solving the regional economic development differences and making the relative countermeasure; emphasizing the economic development embeds in the social network, using Spatial Econometrics to research the convergence of the regional economic growth, exploring the factors of leading to the regional economic growth differences, analyzing the mechanism of promoting the regional economic growth and the regional harmonious development.

Through analyzing and carding the related research on social capital and regional economic growth convergence, this study makes general ideas and structure of social capital and regional economic growth convergence. This article stated that the economic operation is not a linearly independent process, and it is associated with profound internal relation with social structure. Regional economic growth is not only dependent on the quantity and quality of the supply from local resources but also dependent on growth in adjacent areas. This requires the use of spatial econometric theory and methods, constructing the economic growth model to incorporate social factors and spatial effects, in order to be more in line with the conclusions of economic operations. This study has the following five – points:

- (1) Study on the relationship between social capital and industrial labor produc-

tivity growth. Regional differences in industrial productivity were important aspects of regional economic growth, especially significant in the discussion for industrial labor productivity growth in the process of economic transition in China. Applying the production deviation in decomposition of industrial labor productivity in 31 provinces in China (urban) and studying its characteristics of time series and spatial features, this article in theory justifies a mechanism of social capital promotion for labor productivity growth. This article selects the educational structure, institutional structure, the production structure to represent the structure and level of social capital in the industrial sector, and controls over economic concentration and location variables, applies spatial econometric methods to do an empirical study on the relationship between social capital and regional industrial labor productivity. It is found that workers' education structures and production structure have a significant impact on industrial labor productivity.

(2) Study on the relationship between social capital and regional farmers' income growth. Urban – rural dual economic structure is a prominent feature in China's economic development, this also reflects that study on farmers' income growth will help understand the importance of regional economic growth. This article multi – anglely analyzes and describes the regional differences of Chinese farmers' incomes, and studies farmer's family structure and nature of social capital based on the background of rural labor migration after reform and opening up. Space measuring empirical findings suggests that, the micro – level of social capital on farmer's income is less, and the influence of social capital on farmer's income at the level of society is larger, which suggests that peasant income growth and spatial structure remains subject to national reform processes and conditions.

(3) Study on effect of foreign direct investment on regional economic growth from the perspective of social capital. Attracting foreign investment has been shown as an important force to promote China's regional economic growth and regional difference since the beginning of reform and opening up. In theory it has been justified the influence of social capital on growth performance of foreign – funded enterprise structure; on this basis this article classified and selected structural dimensions of foreign enterprise social capital, relations dimension of social capital and cognitive dimensions of social capital to do an empirical re-

search on three types of indicators of social capital. Results suggest that social capital spatial difference is an important factor leading to the foreign investment behavior, which in turn has an impact on regional economic growth. Three levels of social capital's effects on mechanism and effect of regional economic growth vary. Employment structure of social capital is the most significant structure of social capital, and cognitive effects on social capital are not significant.

(4) Research on the social capital and regional economic growth convergence. The existence of spatial convergence of regional economic growth in the empirical study of literature is in a variety of findings, but most of the studies have not incorporated spatial interaction models, so the conclusion is not so sound. By constructing the spatial weigh matrix, the growth data of the 31 provinces from 1985 to 2009 are divided into the fourteen rolling time series method according to every twenty years, and then analyzing them. The results show that the regional economic growth does not exist σ convergence, non - conditional β convergence only exists with a certain period. This is consistent with σ convergence result that is studied by analysis of variance and Gini coefficient. But after bringing the social capital into the model, the fourteen rolling time series exists the different extent conditional β convergence phenomenon. This implies the initial condition of the regional economic growth and the regional differential development open strategy will have profound impact on the regional economic growth convergence.

(5) Research on regional economic growth policies from the perspective of social capital. This article reviewed the policy process and effect evaluation of regional economic growth in China, and dealt with regional economic growth requirements to social structure environment from three aspects: shift from regional economic growth determinants, evaluation system and from regional coordinated development requirement. On this basis this article put forward policy recommendations to invest was social capital for regional economic growth.

The main points of this study and its policy implications are the following:

First, the Spatial autocorrelation characteristics of regional economic growth is all the same, whether it is from the index of industrial labor productivity, or farmers' income or regional per capita income. The provinces with high levels of e-

economic growth their surrounding provinces have high levels of economic growth, and shows that economic phenomena of regional economic units are under the influence of its adjacent areas. Its policy significance is, when making strategies of regional economic development, it should consider regional differences and regional relation, and then incorporate overall objective of regional economic development with individual goals together.

Secondly, for the social capital's strong effects on regional economic growth, it needs to tackle the social factor carefully when studying the differences of regional economic growth in China. By studying social structures and their properties in which the economic agents are embedded and putting social capital variables into economic models, the so – obtained empirical research results would be more in line with economic running reality. Its policy meaning is, when making regional economic development policies, it should incorporate factors of promoting the social structure changes and interactions between economic agents and social factors into the programmes.

Third, there exists complexity in social capital for regional economic growth mechanism, and the same goes with its regional economic growth performance of social capital of different structures. Overall, building good social structures to promote social capital is the starting point of formulating policies, but for different goals require specific analysis of regional economic growth, it should make related policies according to the mechanism of social capital.

Fourth, there is no absolute convergence of regional economic growth convergence in China as a whole, but there are conditional β convergence only exists with a certain period. From 1985 to 2009, as time goes by regional economic growth convergence becoming slower, this shows that with the deepening of reform and opening up process and market – oriented, economic development more and more depends on the social environment; in particular, the long – term implementation of China's regional development difference strategy results to differences of regional growth becoming more pronounced.

Key Words: Social Capital, Regional Economic Growth, Convergence, Spatial Econometrics

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