



产业集群理论模型与 实证研究

(第二版)

The Theory and Empirical Research
on industrial cluster



翁智刚 著

当今世界经济体系中普遍存在产业集群现象，
也被称为“经济马赛克”现象，
产业集群已经成为了伴生在经济全球化浪潮中的
一种新的经济景观。
在全球化经济浪潮中，一国欲获得竞争优势，
不能只依靠少数的全球性大企业，
还需要更多的根植于本地化的产业集群。
产业集群优势在许多地方已经超越低成本优势，
成为吸引外资的重要力量。



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Southwestern University of Finance & Economics Press



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摘 要

当今世界经济体系中普遍存在产业集群现象，也被称为“经济马赛克”现象，产业集群已经成为了伴生在经济全球化浪潮中的一种新的经济景观。在全球化经济浪潮中，一国欲获得竞争优势，不能只依靠少数的全球性大企业，还需要更多的根植于本地化的产业集群。产业集群优势在许多地方已经超越低成本优势，成为吸引外资的重要因素。世界经济合作与发展组织在全球范围内极力提倡并推广地方产业集群发展战略，在许多国家和地区，产业集群也已经或正在成为新的产业发展热点。波特在区域竞争力研究中作出了这样的诠释：一种新的被称为“集群”的生产组织形式正在支配当今世界的经济版图，它使全球经济中持久性的竞争优势根植在远方竞争者无法复制的当地要素——知识、关系与企业战略之中。

产业集群的兴起，从现象上看是一种新的产业组织结构形式的产生；从生产力发展的实质来看，则是因为全球化的社会生产方式以及信息技术的飞速发展带来的产业行为发生了显著

的变化，并导致生产组织形式相应发生了根本性的变革，实现了从所谓的福特制大工业流水线生产向后福特制的网络化敏捷组织形式的变迁。许多区域因为适应了新的生产力发展要求，实现了产业组织形式的创新，因而在参与全球化经济中获得了竞争优势。在这个过程中，现代网络信息技术的广泛应用为企业改变传统协作模式提供了关键的技术支持，在网络信息基础上，供应链及区域一体化协作，虚拟网络组织与产业集群等新的产业组织形式得以更有效地整合外部资源，实现“范围经济”，实现学习、创新与敏捷制造。

一、研究路径与主要内容

产业经济研究主要存在两大主线，其中，哈佛学派结构—行为—绩效（Structure—Conduct—Performance）分析范式，建立在新古典主义经济学基础之上，长期以来一直是产业组织理论的核心与基本分析框架，20世纪70年代以后有学者将其修正为双向动态SCP范式。相对应的，芝加哥学派更加重视厂商的市场行为，认为是市场行为或市场绩效决定市场结构，强调厂商行为分析与减少政府干预。本书在研究过程中，在传统哈佛学派结构主义基础上，有机地吸收了芝加哥学派的行为主义内核，以及新产业组织理论中的逻辑循环与反馈方法，增加了技术、信息、学习、创新及长期博弈等新经济的内涵，从而建立了一个动态的多循环的研究范式框架（参见下图1）。

本书研究主要沿着概念界定——基础文献梳理——产业结构、产业行为与产业绩效（SCP）理论分析——中国产业集群实证研究的逻辑进行展开。全书共分为八章，核心内容部分基本上是按照传统的产业经济学的结构、行为与绩效框架进行层次递进，并将定性理论探讨与定量实证研究有机结合，将产业集群理论与中国的产业集群发展实践分析及政策模型有机结合。

本书主要研究内容如下所述：

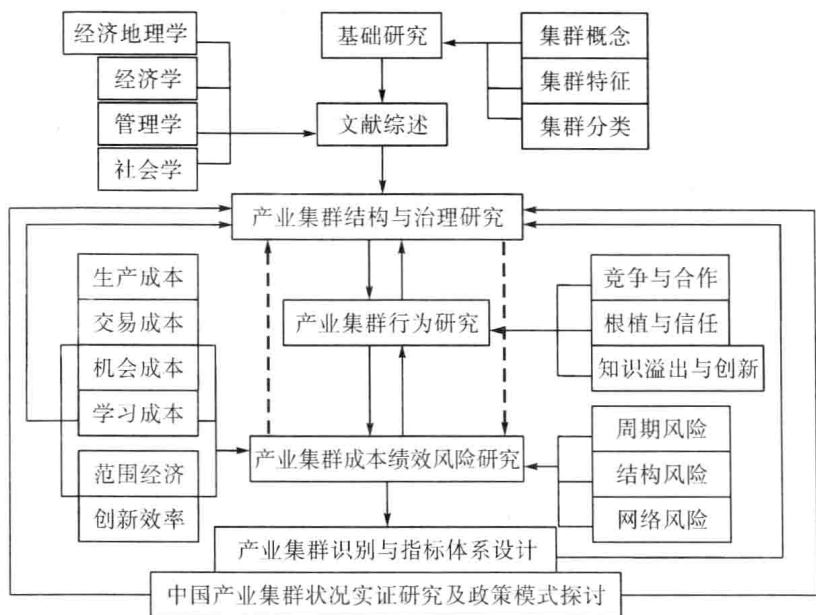


图1 本书研究范式框架图

第一章为导论，介绍本书的选题背景——方兴未艾的产业集群现象和相应的理论研究价值，总结和整理了一些国内外有代表性的理论研究及实证研究成果，设计出了本书的基础研究框架与技术路径，以及主要的研究内容与研究方法，最后是研究创新与局限总结。

第二章是对产业集群研究中的基础问题进行界定与解析，包括对产业集群有代表性的概念进行总结与述评，解析产业集群的属性及特征，然后，根据研究目的对产业集群各种类型进行划分，并对各种产业集群类型特征进行解析。

第三章是综合性的文献综述，对于产业集群，理论经济学、产业经济学、经济地理学、管理学与社会学等学科都有不同的解读，每一学科下面也有不同的流派对其提出各自的主张与看

法。本章主要对理论经济学、经济地理学、产业经济学、管理学与社会学等学科产业集群相关理论研究成果进行了综合分析与述评。其中,经济学方面,主要对传统的古典经济学分工理论、制度经济学交易费用与制度变迁理论,以及新兴古典经济学超边际理论关于产业集群的研究进行了描述与分析;在经济地理学方面,对早期产业区位理论、新古典区位理论与当代产业集群及集聚经济理论进行了描述与分析;在区域经济学及产业经济学方面,主要是对竞争力与战略理论、核心能力理论、全球价值链理论与产业模块理论进行了描述与分析;在社会学理论方面,主要涉及文化、社会网络与社会资本及根植理论的描述与分析。

第四章、第五章与第六章是本书的理论研究主体,分别研究了产业集群的组织结构、产业行为与经济绩效。其中,第四章主要研究产业集群的组织结构及治理。本章在解析产业集群的各种组织结构特征的同时,也分析了各种产业行为和经济绩效可能对产业集群结构的影响,即各种治理结构模式。最后,通过图解的形式对农产品加工产业集群、制造业产业集群及高技术产业集群三种典型的产业集群内部结构进行了解析,分析其内部的商业关系,以及其中大企业、大学、政府与市场中介的影响与作用。

第五章是产业集群行为研究。本章结合了新产业组织理论的技术、信息与长期博弈思想及社会学根植理论,重点分析了产业集群中的竞争与合作行为,信任、权利与资源分配行为,以及学习与创新行为三种富有特色的集群产业行为。其中,对产业集群的合作行为特征,产业集群合作机制的建设与合作规则,产业集群中特殊的社会性根植、信任与权利,以及相应的授信行为进行了深入分析;最后是针对知识经济时代特征,对产业集群内部的知识溢出、学习与创新行为作了一个比较全面

的研究。

第六章是对产业集群的绩效研究。本章将产业集群绩效分为运行成本、静态规模经济与范围经济绩效、动态创新绩效,以及相应的风险四个层面进行研究,从广义视角解析了产业集群运行中的各项成本,如生产成本、交易成本、学习成本与社会成本,以及各种成本间的相互影响与平衡;在对产业集群的各种绩效收益,包括规模经济、范围经济,以及动态的集群创新效率分析基础上,笔者又对产业集群的布局与结构进行了反馈性分析,研究各种绩效对产业组织结构演进的影响。最后,结合产业集群行为特征,对其蕴藏的风险进行了分析,并设计出相应的风险防御机制。

从第七章开始,全书进入应用实证研究部分,也是对理论研究的部分总结与应用研究的展开。笔者在综合相关研究理论成果基础上,分析了各种经典的产业集群的识别方法与技术,结合中国实际情况,设计了一套具有理论性与实践操作性的产业集群识别评价指标体系。

笔者在第八章对中国产业集群进行了实证研究与政策模式探讨,应用反映产业结构的集中度分析,反映市场行为与绩效的区位商 (Location Quotient, LQ) 与专业化水平分析,以及反映产业集群状况的主流的产业空间基尼系数 (Spatial Gini Coefficient) 分析和最新的产业集聚指数 (Index of Industry Concentration) 分析四种方法,对中国当前的产业组织及产业集群状况进行了定量研究。作为补充,笔者结合我国产业发展历史资料对国内产业集群现状的成因进行了历史的追溯,并对我国当前的劳动力与资本的流动及其对产业集群的影响做了分析。最后,对中国主要产业的产业集群现状进行了总结性的描述分析,并对区域经济发展与集群产业发展的政策模式进行了探讨。

二、研究创新

产业集群作为区域经济发展理论的研究热点,许多国内外专家学者都对此做出了重要贡献。在学习、研究和借鉴前人研究成果的基础上,本书的创新主要体现在以下几个方面:

(1) 本书在产业经济学经典的哈佛 SCP (“产业结构—经济行为—经济绩效”) 分析框架基础上,有机地吸收了芝加哥学派的行为主义的科学内核,及新产业组织理论中的逻辑循环与反馈方法,增加了网络、信息、学习与创新等新经济的内涵,从而构建了一个动态的多循环 SCP 研究范式框架。

(2) 本书高度重视中国产业集群的统计分析,并专章研究了产业集群识别与统计指标体系设计,认为这方面的研究是对中国产业集群进行科学研究的基础和前提。本书认为,在中国产业集群研究中,这方面的全面、系统、准确的统计资料缺失,以及对产业集群统计分析工作的忽视,是一个应当引起重视,并尽快予以解决的重大问题,是一项具有长远意义的基础工作。本书全面地总结了关于产业集群识别的基本方法,并构建了一套关于产业集群的评价指标体系,涵盖产业集群基本情况、公共基础设施、资源与能力 4 个维度 39 个指标。

(3) 本书对中国当前产业集群现状进行了多视角的实证研究,并溯源中国产业发展历史,对其做出了合理的解释。在研究数据选用方面,笔者在一部分采用国内通用的产值(增加值)指标的同时,更多的是与国际研究范式接轨,采用更能够反映产业集群特征的劳动力就业人数指标。在分析方法上,不但采用了国际主流的空间基尼系数法,还采用了最新的产业集聚指数法,这样就对中国当前的主要产业集群在宏观层面进行了一个比较全面、科学与系统的描述。

(4) 本书高度重视一个地区的人文社会历史因素对产业集群形成和发展的重大影响作用,提出在研究产业集群与特定地

区的辩证关系时，不仅把这一地区的经济因素作为产业集群形成和发展的基本条件，而且要把区域的人文社会历史因素作为形成产业集群特色的重要影响因素，从而把培育和做强做大产业集群融入一个地区的全面协调可持续发展的总体战略之中。

在理论分析和实证研究中，本书力求科学严谨，但由于研究资源等多种因素的限制，从而使本书的研究存在以下局限：

笔者一直认为城市是产业集群研究的最佳对象，但是，囿于统计数据的缺失，只能够以省级区域作为研究对象，这将在一定程度上影响产业集群特征的描述分析；基于同样的原因，2位数的产业分类方法也显得有些粗糙。如果可能的话，采用企业级统计数据，以城市为研究对象，以3位数产业分类为标准，会得到更好的研究成果。

在中国，毋庸置疑，招商引资及地方产业政策对产业集群的形成与发展起到了重要的影响作用。由于本书的研究视角与技术路线，没有对此进行专门的研究，但这并不表示这些问题不重要。

Abstract

The phenomenon of industry cluster, which is also referred to as “economic mosaic” phenomenon widely exists in today’s world economic system. Industry clusters have become a new economic scenery that follows the tide of economic globalization when one nation should root in local industry clusters rather than a few large international businesses to obtain competitive advantages. The advantage of industry clusters has surpassed the low-cost advantage and becomes the significant drive to attract foreign investment. World Organization for Economic Cooperation and Development is actively advocating and spreading the developmental strategy of local industry clusters. In many nations and regions, industry cluster has been or is becoming the new focus of industrial development. Porter has interpreted in his research on regional competitiveness as followed: a new production organizing form called “cluster” is dominating the world economic territory, which makes persistent competitive advantage in global economy root

in local factors that cannot be duplicated by distant competitors, such as knowledge, relationship and coporation strategies.

The emergency of industry clusters is the product of new industry organizing structure phenomenally; while from the perspective of the essence of productivity development, it is the substantial change of industry behavior that was brought forth by the rapid development of globalized social production methods and information technology. This change led to fundamental reform of production organizing pattern accordingly and realized the transformation from such called Ford's pattern of assemble line production to after-Ford's computerized agility organizing form. Because many regions were adapted to new requirement of productivity development, they realized the innovation of industrial organizing form and thus obtained the competitive advantages when taking part in globalized economy. In this process, wide application of modern network information techonology provides technological support for corporation to change traditional cooperative pattern. Based on network and information, the new industry organizing forms, such as the cooperation of supply chain and regional integration, virtual net organization and industry cluster, can integrate external resources more efficiently. Eventually, it can achive "area economy", learning, innovation and agility production.

I. Research Path and Major Content

There are two major paths existing in industrial economy research, thereinto, the Structure—Conduct—Performance analyzing pattern of Harvard University was based on new classic economism and has been always the core and basic analyzing frame of industrial organization theory. After 70s, it was modified into two-direction dynamic SCP pattern by some scholars. Accordingly, Chicago University

paid more attention to market behavior of manufacturers. They held that market behavior or market performance determines the market structure and stresses behavior analysis and reduction of government intervention. This book is based on traditional structuralism of Harvard University and organically absorbs the behaviorism core of Chicago University and logic circulation and feedback methods of new industrial organizing theory. The book increases the connotations of new economy, such as technology, information, learning, innovation and long-term game so as to establish a dynamic multicirculation research pattern. (as showed in the following figure)

The book will mainly follows the logic of defining concepts arranging basic literatures—analyzing the theories of industrial structure, industrial behavior and industrial performance—practical research of Chinese industry clusters. The thesis can be divided into eight parts. The main content is basically following traditional structure, behavior and performance of industrial economics to carry through gradually. The book organically combines the qualitative analysis of theories and quantitative study of practices, and combines the theories of industry cluster and the practical analysis as well as political molds of Chinese industry clusters' development.

The main content of the book:

The first chapter is introduction to the research context and the value of theoretical study. The author summarizes and puts up some representative results of theoretical and practical research, and designs the basic research frame and technical path as well as major research contents and methods. At last, the author concludes the innovations and limits of the research.

The second chapter defines and analyzes the problems existing in

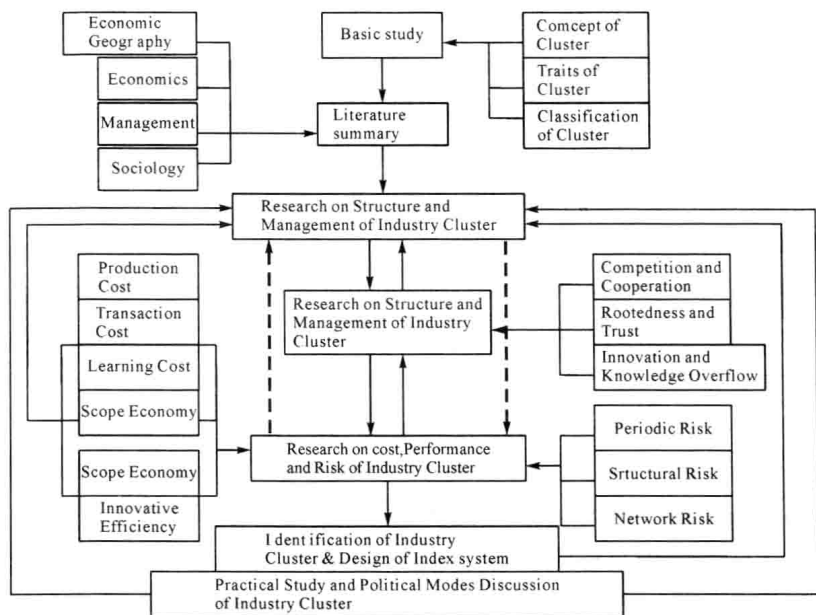


Figure 1 The Dynamic Multicirculation Research Pattern

the research of industry cluster, including summary of representative concepts in industry cluster, interpretation of the qualities and traits in industry cluster, classification of industry cluster according to research purposes and interpretation of different types.

The third chapter is comprehensive literature summary. The author makes different interpretation of industry cluster, Industrial Economics, Economic Geography, Management and Sociology. Thereinto, as for Economics, the author mainly discusses traditional classic Economics including Division of Work Theory, Transaction Cost and System Transformation Theory in System Economics and etc.; as for Economic Geography, the author discusses earlier Industrial Region Theory and modern theory of industry cluster and Convergence Eco-

nomics; as for Regional Economics and Industrial Economics, competitiveness and strategy theory, main competence theory, global value chain theory and industrial module theory are described in the book; as for Sociology, the author analyzes culture, social net, social capital and rootedness theory.

The forth, fifth and sixth chapters are the main body of the book, separately studies organizing structure of industry cluster, industrial behavior and economic performance. The forth chapter mainly studies the structure and organization of industry cluster. The organizing structure characteristics of various industry clusters are analyzed, as well as the possible impacts that different industrial behavior and economic performances have on structure of industry cluster.

The fifth chapter is the research of industrial behavior. In this chapter, combining the techonoly, information, game theory of new industrial organizing theories and rootedness theory of Sociology, the author analyzes three distinctive behaviors in industry cluster including the competition and cooperation; credit, authority and resources allocation; and learning and innovation. Finally, the author makes a relatively thorough study of knowledge overflow, learning and innovation in industry cluster according to the traits of information economy.

The sixth chapter researches the performance of industry cluster. This chapter divides the performance of industry cluster into operational cost, static scale economy, area economy, dynamic innovative performance and corresponding risks. Different types of cost and their mutual effects and balance are analyzed from the broad sense, such as production cost, transaction cost, learning cost and social cost. Based on the analysis of different types of performance income including scale economy, area economy and dynamic innovative efficiency of in-

dustry cluster, the author makes feedback analysis of layout and structure of industry clusters and studies the effects of different performance on the development of industry organizing structure. Finally, the author analyzes the risks of industry cluster and designs the corresponding risk preventing system.

From the seventh chapter, the book comes into the practical research part. Based on combining relative research theories, the author analyzes different identifying methods and technology of classic industry cluster. Combining with the practical situation in China, the author designs a set of identifying and evaluating system for industry cluster with the theoretical and practical significance.

Finally, the author discusses the political module of Chinese industry cluster and applies the four types of analysis which are the centralizing degree analysis reflecting the industrial structure; analysis reflecting the market behavior, Location Quotient of performance, and professional level; the Spatial Gini Coefficient of industry analysis reflecting the condition of industry cluster; and new Index of Industry Concentration analysis, then makes quantitative study on China's current condition of industrial organizations and clusters. As a complementarity, the author analyzes the impact of current work force and capital flow in China on industry cluster. Eventually, the author makes depictive analysis on the condition of China's industry cluster and discusses the political modules of regional economy and industry cluster's development.

II. Innovations in this Research

Industry cluster is the hotspot of regional economic development theory and plenty of domestic and overseas experts have made substantial contribution on this. Based on the research outcomes made by for-

mer experts, the innovation of the book is demonstrated in the following aspects:

1. Based on the classic Harvard University's SCP analyzing frame, the book absorbs the behaviorism's scientific core of Chicago University and increases some new economy connotations such as network, information, learning and innovation, thus establishes a dynamic and multi-circulation SCP research frame.

2. The book highly emphasizes the statistic analysis of China's industry cluster and spares one chapter to study the identifying and statistic index system of industry cluster, considering that study is the foundation and premise to scientific study of China's industry cluster. The author holds that the lack of thorough, systematic and accurate statistic data, as well as the neglect of statistic analysis on industry cluster, are the important problems needing recognition and quick settlement. The author thoroughly concludes the fundamental methods of industry cluster identification and establishes a set of evaluation index system of industry cluster covering 39 indexes in four dimensionality – basic situation, public infrastructure, resources and competence.

3. The author makes multi-perspectives practical study on China's current centralizing condition of industry cluster, traces back to the history of the development of industry cluster and makes reasonable explanation to it. As for data used in research, one part of it uses domestic universal index, while most is consistent with the international research model. As for analyzing methods, the author applies not only the internationally used Spatial Gini Coefficient method, but also latest Index of Industry Concentration method. Therefore, a thorough, scientific and systematic description of China's current industry