

崔新健◎著

基于国家创新体系框架的研究

外资研发中心 的现状 及政策建议

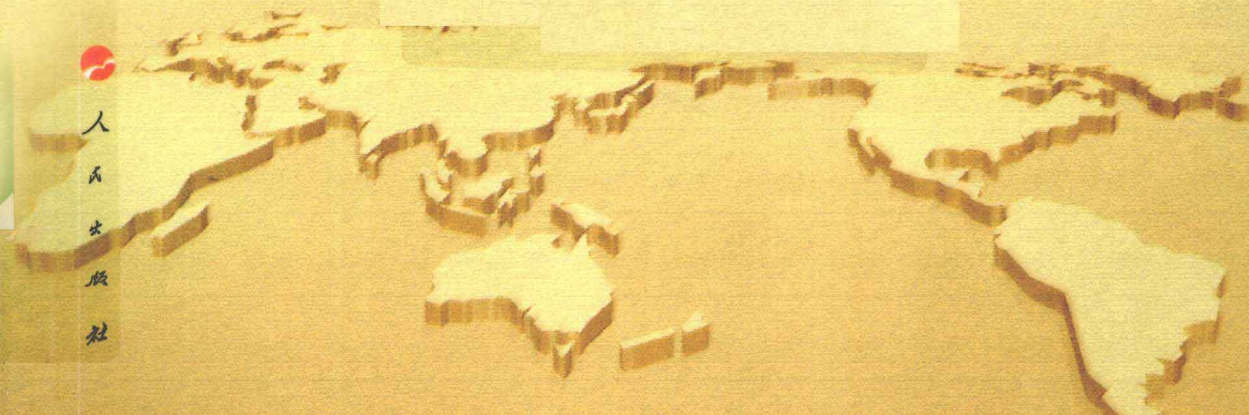
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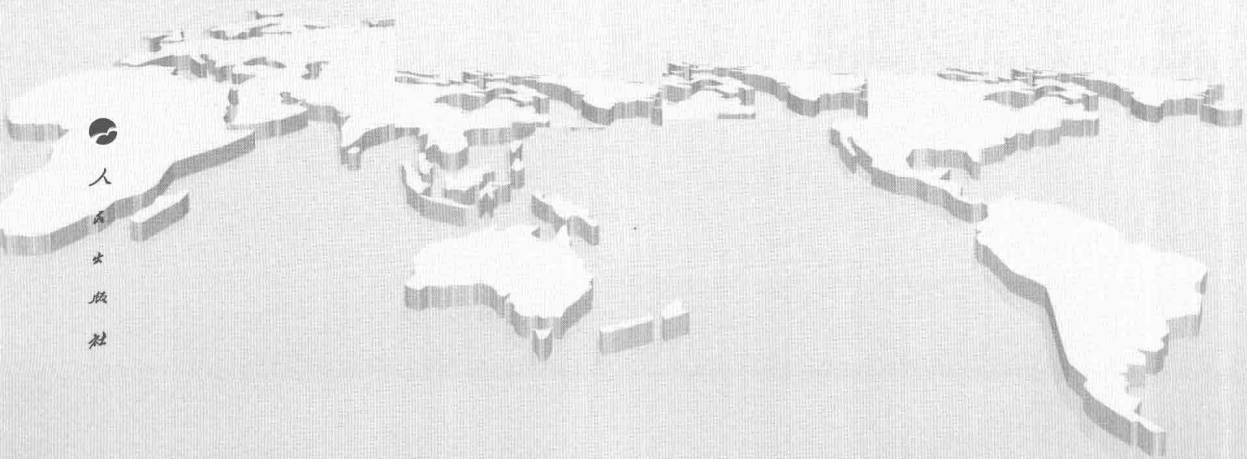


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崔新健◎著

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序

在经济全球化背景下,跨国公司研发活动日趋国际化。跨国公司在我国建立研发中心的数量快速增加,我国已经成为跨国公司研发投资的热点区域。这类外资研发中心的设立对我国企业的研发活动产生越来越大的,并且愈益复杂的影响,与此同时,外资研发中心也构成了我国国家创新体系的一个重要组成部分,成为推动我国国家创新体系发展和演化的重要力量。因而,对在华外资研发中心进行研究是一项重大而紧迫的课题。本书是崔新健教授主持完成的国家社会科学基金项目的最终成果,这一成果首次从国家创新体系视角对在华外资研发中心的现状、特点、效应做了全面的研究并最终提出相应的政策建议。此项研究对于客观评价外资研发中心及其影响,进一步完善我国政府有关的政策法规,提高利用外资的质量,实现党中央提出的“加快建设中国特色的国家创新体系”具有重要的理论价值和实践意义。

本书以跨国研发理论和国家创新体系理论为基础,从宏观、中观、微观三个层面,以及国家、产业、区域、公司创新体系四个视角进行了系统性研究。主要内容包括:外资研发中心的现状和环境、外商研发投资的行业结构和影响因素、外商研发投资的区域分布和决定因素、外资研发中心的运行和绩效、外资研发中心的正负效应、跨国公司与高校的研发合作等。其中最重要的研究是在研发跨国化的背景下如何构造东道国的国家创新体系,并为此构建了“嵌含外资研发中心的国家创新体系研究框架”。该研究框架强调东道国国家创新体系的开放性与外资研发中心的嵌入性这两个重要特征,构建了一个多角度的、动态的研究框架,比较全面和深入研究了外资研发中心对我国企业、产业、区域和国家创新体系的影响。为了保证本项研究的科学性,全书大量采用数据统计分析、评价指标分析、计量经济分析、典型案例分析等,特别是对经济数量模型运用的基础上,提出了一些具有创新意义的研究结论。本书结合中国国家创新体系的现状,对国外学者提出的评价指数的部分指标进行了修正

与剔除,并利用实证研究方法,对外商在华“研发中心”的现状、环境及影响因素进行了全面的定量化测算、分析与比较,为继续研究提供了重要依据。

本书为外资研发中心的研究进行了大量的基础性的资料与数据的收集和调研工作。由于诸多客观原因所限,有关外资研发中心的统计数据匮乏。课题组在研究过程中,对北京、上海等地多个跨国公司研发机构进行了实地调研,专门设计了中文和英文的调研问卷,还通过与有关外资研发中心负责人的访谈和座谈,收集了许多具有参考价值的国内外原始资料,形成了外资研发中心的数据库,这不仅为本研究提供了支撑,而且为推进该领域的进一步研究奠定了基础。

全书围绕着国家创新体系、产业创新体系、区域创新体系、公司创新体系,从鼓励研发 FDI、研发 FDI 获益、建立完善 NIS 这三个方面提出了相应的政策建议。这些政策建议符合我国经济体制改革和发展战略中关于外资研发中心的定位及政策演变趋势,对确保政府不同部门、不同区域、不同层次机构的政策目标与行为的协调一致,具有重要的政策含义。

本书所作的研究可以说是开创性的。也正因此,研究有待长期进行下去,进一步拓展和深入,这正是包括作者在内的同仁未来需要关注的方向。希望作者在这一领域不断推出创新性学术研究成果。

冼国明

南开大学跨国公司研究中心

2010 年 12 月

致 谢

本书是在本人主持的国家社会科学基金项目“外商在我国投资‘研发中心’的现状与政策建议——基于国家创新系统框架的研究”(项目批准号:05BJY008;结项证书号:20090979)基础上,根据匿名评审专家的评议和业内专家的建议进一步完善形成的。本研究曾在《中国软科学》、《财贸经济》、《经济管理》、《经济地理》、《中央财经大学学报》、《武汉大学学报(哲学社会科学版)》、《中国科技论坛》、《科学学与科学技术管理》、《国际经贸探索》、《国际贸易问题》、《Transnational Corporations Review》等国内外著名学术期刊发表中期研究成果16篇,得到许多期刊匿名审稿专家和编辑的宝贵评议和建议,不仅对修改当时投审的期刊论文大有裨益,而且对推进整个项目研究和完善最终成果都有很大的贡献。在此,对这些专家和编辑的学术贡献,表示最衷心的感谢!

本书实质上是一项集体智慧的结晶。从项目申报开始,中央财经大学商学院副教授王生辉博士和副教授柴庆春博士就一起共同认真讨论、撰写申报书,从2005—2009年近五年时间,许多老师、学者、学生为这一项目贡献了聪明才智。参加这一项目研究工作的有中央财经大学王生辉博士、商务部杨正伟博士、北京市国资委李大勇博士、中央财经大学柴庆春博士;以及我指导的博士研究生中央财经大学外语学院副教授陈雨松、中华女子学院讲师高秀娟、中央财经大学外语学院讲师闫书颖、中国工商银行张凯;我指导的硕士研究生官亮亮、许靓、王先忠、张先涛、吉生保、贾宏毅、王丽、刘美蓉;中央财经大学外语学院讲师陈冰和内蒙古财经学院经管学院讲师张宏伟为本书出版做了一些工作。对以上各位及其所有参与过项目的人员表示真挚的感谢!对好友孙学明有关外资研发中心经验和知识及调研的贡献表示感谢!

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本书出版得到北京市重点交叉学科“跨国企业管理”、国家社会科学基金项目、中央财经大学“211 工程”重点学科建设项目的资助。期待并感谢读者对本书提出不同的观点和新的论点，对存在的错失予以批评指正！电子信箱：xinjiancui@cufe.edu.cn。

崔新健

2010 年 12 月于北京

内容摘要

在研发全球化背景下,外资研发中心在我国国家创新体系(NIS)建设完善中发挥着越来越重要的作用。本书以外商在我国投资“研发中心”的现状与政策为研究主题,研究定位符合政策制定者的整合性视角,对于外资研发中心的现状、成因、环境、效应的NIS视域研究,以及基于研究所提出的政策体系战略及政策建议具有全局性和统一性,对我国有效吸收和利用外资研发中心,实现党中央提出的建设创新型国家的目标和“加快建设中国特色国家创新体系”的目标具有重要的意义。

本书由三大部分共八章组成,第一部分“背景与基础”(第1章),主要是构建研究框架;第二部分“现状与成因”(第2~7章),主要是应用研究框架从各种角度对现状与成因的实证分析;第三部分“政策”(第8章),主要是应用研究框架构建政策体系,基于整个研究提出政策建议。具体讲:

第1章研究目标是构建全书的研究框架。研发全球化浓缩了当今全球化趋势下的主题背景;主要概念的界定更为明确地精炼研究术语及范畴;跨国化研发理论和NIS理论奠定了厚实的理论基础,主题背景与理论基础上构建的“嵌含外资研发中心的开放性NIS研究框架”,由NIS的开放性与外资研发中心的嵌入性两理论脉络共同支撑,拓开外资研发中心研究的新视域。

第2章研究目标是NIS视域下的外商投资研发中心的现状与环境。纵向回顾外商投资研发中心发展的时间轨迹;横向呈现外商投资研发中心的空间状态,依据外商投资研发中心910个样本和世界500强投资研发中心385个样本两个调研数据库,从来源地、行业结构、区域分布、设立方式等多维度统计描述外商投资研发中心的截面图景,探究外商投资研发中心的深层特点。从主客观两方面评价外商投资研发中心的环境,中国NIS现状反映了NIS、IIS和RIS的客观环境;调查问卷结果表明外商对环境的主观看法。

第3章研究目标是IIS视线下的外商投资研发中心的现状与环境。外商

研发投资业绩评价指标全面反映外商研发投资的行业结构现状;外商研发投资的潜力评价指标系统表明外商研发投资的行业环境、及预示其变化趋势,分行业评价指标测算、比较及分析客观展现了外商研发投资行业现状与环境。探求行业结构现状的成因从多因素与单因素两种思路同时进行,从多因素思维建模分析外商研发投资的行业决定因素;从单因素思路建模分析外商研发投资行业与市场结构的关系。

第4章研究目标是 RIS 视角下的外商投资研发中心的现状与环境。外商研发投资业绩评价指标全面反映外商研发投资的区域分布现状;外商研发投资的潜力评价指标系统表明外商研发投资的区域环境、及预示其变化趋势,分区域评价指标测算、比较及分析客观展现了外商研发投资区域现状与环境。建模分析外商研发投资的区位决定因素,以探求区域分布现状的成因。

第5章研究目标是 CIS 视点下外资研发中心微观行为的现状。外资研发中心运行及其绩效、关联及其效应是微观行为现状研究的两个重点内容。探究外资研发中心微观行为从两个角度应用三种方法展开,从 CIS 视点分析外商研发中心的运行及其绩效、关联及其效应;从 NIS 视域剖析外资研发中心的关联及其效应;应用文献分析跨国公司研发动机、企业变量、区位变量及研发中心类型之间相互作用动态关系,建立外商投资研发中心类型决策的理论模型;应用调查问卷数据统计分析外资研发中心的微观行为,全面呈现外资研发中心运行、绩效、关联、效应的现实图景;应用案例分析跨国公司在华研发微观行为,由英特尔案例检验和深化理论及实证结论。

第6章研究目标是 NIS 视域下跨国公司与我国高校研发合作的现状。研发合作的客观表象与研发合作的作用机制是展示现状的两个重要维度,客观表象应用数据统计描述跨国公司与我国高校研发合作的发展与特征;作用机制依照双方行为主体之间关联互动及知识流动规律,围绕技术溢出为主线,应用调查问卷数据分析技术溢出对象(高校研发合作伙伴)、技术溢出途径、技术溢出效应、技术溢出障碍。

第7章研究目标是 NIS、IIS、RIS 及 CIS 多角度下外商研发中心的效应。NIS 分析框架揭示了构成系统的行为主体之间存在关联互动及知识流动,突破仅局限于截面研发资源配置的静态分析,外资研发中心嵌入的关联互动会产生实质性长远效应。正效应的动态分析从四个角度展开,NIS 视域的开放效应、IIS 视线的关联效应、RIS 视角的集聚效应及 CIS 视点的示范效应。潜

在负效应分析聚焦于“挤出效应”、“掠夺行为”、“技术锁定”三点。

第8章研究目标是NIS、IIS、RIS及CIS多角度下外商研发中心政策体系的建设和完善。NIS的政策意义及其政府角色定位是政策体系的基石;对应研发资源流入、溢出、吸收三个关键环节,“鼓励研发FDI”、“研发FDI获益”和“建设完善NIS”三个子体系组成政策体系;政策体系现状分析比较所发现的问题是政策建议的焦点;基于对外资研发中心现状的系统性研究,从NIS、IIS、RIS及CIS四个角度聚焦三个子体系提出有效的政策建议。

本书主要建树为,构建外资研发中心现状、成因、环境、效应及政策的研究框架——“嵌含外资研发中心的开放性NIS研究框架”;搜集整理了研究所需的原始数据资料;应用研究框架和数据资料进行了初步研究,形成针对该主题较为系统可行的研究范式;从国家创新体系(NIS)、产业创新体系(IIS)、区域创新体系(RIS)和公司创新体系(CIS)四个角度客观定量化分析了外资研发中心(外商研发投资)三个层面(宏观、中观、微观)的现状及成因;分析了外资研发中心的效应与环境;提出政策体系调整战略及具体政策建议。全书突出特色与创新点联系在一起,主要有:

(1)独特的研究视域。成果基于所构建的“嵌含外资研发中心的开放性NIS研究框架”展开研究,这一研究框架不仅具备适于经济全球化背景的开放性和聚焦外资研发中心嵌入系统的本质性;而且将宏观、中观和微观三个层面的研究纳入一个统一框架中,以及将“外资”与“研发”两条分析主线合二为一。这是一个覆盖国际、国家、产业、地区、企业各个角度的、统一的、动态的研究框架。

(2)新颖的立论资料。国内关于“外资研发中心”数据资料十分稀缺,本研究起始就集中于突破数据资料的限制,投入大量的精力和时间,开展案头调研和实地调研,建立起部分相关数据库。不同以往大多定性或二手资料分析现状、环境、影响因素,分别依据两个调研数据库从主客观两方面评价环境;分别应用问卷数据和典型案例两类资料,对外资研发中心运行与关联进行分析,这样多维度实证分析,不仅能相互印证检验结论,而且通过深化充实得到一些独到的富有价值的结论。研究的可证伪性、可积累性及可应用性无疑更加突显出其学术价值。

(3)研究的客观性和系统性。社会科学研究方法上有所创新和突破难度很大,本书所采用的实证分析方法基本借鉴前人相关学术文献,但是在有的研

究方法上也做了一些融合改进工作,以适用于本书框架和内容。本书实证分析并不是停留在定性描述,或限于统计数据描述及阐释层面,而是建立基于NIS的评价指标体系,对现状、环境、及影响因素进行全面定量化测算、分析及比较。现状研究的客观性具体体现在可重复性、可衡量性和可比较性三点。政策研究不仅需要具有针对性,还必须具备系统性,基于NIS视域,针对利用外商研发投资的现状及其三个政策子体系现状,本书提出政策体系战略性调整方向,从NIS、IIS、RIS及CIS四个角度聚焦三个子体系提出可操作的政策建议。

关键词:外资研发中心 国家创新体系 中国 研发投资 跨国公司
研发国际化

Abstract

In the context of R&D globalization, foreign R&D centers are playing more and more important roles in improving China's National Innovation System (NIS). The theme of this book is the status quo of and the corresponding policies for foreign R&D centers in China, which aims to find out the proper integrative perspective for policymakers. The study on the status quo, formation, environment and effects of foreign R&D centers as well as the overall policy system strategy and policy suggestions drawn from this research, are significant for effectively attracting and utilizing foreign R&D centers, thereby realizing the target set by the Party Central Committee of building innovative country and accelerating the development of national innovation system with Chinese characteristics.

This book is composed of three parts, with eight chapters; Part I "Background and theoretical basis" (Chapter 1) establishes the research framework; Part II "Status quo and formation" (Chapter 2 ~ 7) carries out empirical analyses on the status quo and formation from different perspective under the research framework; Part III "Policy" (Chapter 8) constructs the policy system under the research framework and puts forward policy suggestions. Specifically:

Chapter 1 aims to establish the research framework of the whole book. R&D globalization condenses the theme background among the globalization tendency; transnational R&D theory and NIS theory establish the solid theoretical foundation; the open NIS research framework where foreign R&D centers are embedded, which is constructed in the theme background and on the theoretical foundation, is supported by openness theory of NIS and embeddedness theory of foreign R&D centers and explores the new field of research on foreign R&D centers.

Chapter 2 deals with the status quo and environment of foreign R&D 5

investment in NIS field of view. We follow the time track of the development of foreign R&D centers in the longitudinal direction; we present the spatial distribution of foreign R&D centers in the horizontal direction. Two research databases are applied; one is made up of 910 samples of foreign R&D centers; the other is made up of 385 samples of world top 500's R&D centers. A cross-section of the foreign investment in R&D centers is offered in multi-dimensions, namely, source territories, industrial structure, regional distribution, formation manners and others, which reveals the profound characteristics of foreign R&D investment. We evaluate the environment of foreign R&D investment from both subjective and objective perspectives; the status quo of China's NIS reflects the objective environment of NIS, Industrial Innovation System(IIS), Regional Innovation System(RIS); the results got from questionnaires reveal foreign enterprises' subjective viewpoints on the environment.

Chapter 3 studies the status quo and environment of foreign R&D investment in IIS line of viewpoint. The performance evaluation index system of foreign R&D investment comprehensively reflects the current state of industrial structure; the potential evaluation index system indicates the industrial status quo and environment of foreign R&D investment and forecasts the variation tendency. The measurement and calculation, comparison, and analysis of different industries' evaluation index system objectively unfold the industrial status quo and environment of foreign R&D investment. We follow two different routes to explore the causes of the industrial status quo; we study the industrial determinants of foreign R&D investment through multi-factor modeling analysis; we examine the relations between the industries where foreign R&D investment has entered and the market structure through single-factor modeling analysis.

Chapter 4 studies the status quo and environment of foreign R&D investment from RIS perspective of viewpoint. The foreign R&D investment performance evaluation index system reflects the regional distribution of foreign R&D investment; the potential evaluation index system reviews the regional environment and the variation tendency. The measurement and calculation, comparison, and analysis of different regions' evaluation index system objectively unfold the

regional status quo and environment of foreign R&D investment. We examine the locational determinants by modeling analysis in order to explore the causes of current regional distribution.

Chapter 5 focuses on the micro behavior of foreign R&D centers from Corporation Innovation System (CIS) point of view. The operation and performance of foreign R&D centers as well as the correlation and effects are the two key components of micro behavior study. We carry out the research from two perspectives by three means: we study the operation and performance of foreign R&D centers as well as the correlation and effects from CIS point of view; we dissect the correlation and corresponding effects in NIS field of view. Based on the existing literature, we analyze the interactive dynamic relationships between R&D motives of transnational corporation, enterprise variable, location variable and R&D center type, and establish the decision-making models of foreign investment in R&D centers' type; through conducting statistical analysis of questionnaire data, we study the micro behavior of foreign R&D centers and fully exhibit the actual state of the operation, performance, correlation and effect; through case study, we analyze the micro behavior of foreign R&D centers in China and testify and advance the theory and empirical research results by the case of Intel.

Chapter 6 deals with the current state of the R&D cooperation between transnational corporations and Chinese universities in NIS field of view. The objective phenomena and the acting mechanism of R&D cooperation are the two important dimensions of demonstrating the status quo; the objective phenomena describe the development and characteristics of the R&D cooperation between transnational corporations and Chinese universities based on the statistical analysis; based on questionnaire data, the acting mechanism analyzes the objects (the cooperative partner—Chinese universities), channels, effects and barriers of technology spillover according to the correlative interaction and knowledge flow pattern between the agents of both sides, of which the technology spillover is the main thread.

Chapter 7 aims to study the effects of foreign R&D centers from multi-perspectives of NIS, IIS, RIS and CIS. NIS analysis framework demonstrates the

correlative interaction and knowledge flow between agents, which breaks through the static analysis which is confined to the cross-section of R&D resources distribution. And the correlative interaction caused by the embeddedness of foreign R&D centers will bring about substantial long-term effects. The dynamic analysis of positive-effect is conducted from four perspectives: the open effect in NIS field of view, the correlative effect in IIS line of view, the cluster effect from RIS perspective of view, and the demonstration effect from CIS point of view. The latent negative-effect analysis centers around the crowding-out effect, predatory behavior, and technology lock-in.

Chapter 8 discusses how to build up and improve the policy system of foreign R&D centers from multi-perspectives of NIS, IIS, RIS and CIS. The policy significance of NIS and government's role orientation is the cornerstone of policy system; in correspondence to the three key links of R&D resources, namely, flow in, spillover, and absorption, the policy system is composed of three sub-systems, that is, Encouraging R&D FDI, Benefiting from R&D FDI, and Improving R&D FDI; the problems, which are discovered through analyzing and comparing the status quo of policy systems, are the focal points of policy suggestions; based on the systematic analysis given by the report on the status quo of foreign R&D centers, effective policy suggestions are put forward from perspectives of NIS, IIS, RIS and CIS, focusing on the three sub-systems.

The main achievements of this book are: the research framework of studying the current state, the causes of formation, environment, effects and policy has been set up; the original data necessary for the research has been collected and organized; the initial research has been carried out based on the framework and the data, thereby formulating the feasible research paradigm for this theme; the objective quantitative analysis of the status quo and formation of foreign R&D centers has been conducted from NIS, IIS, RIS and CIS perspectives; the effects and environment of foreign R&D centers have been studied; the adjustment strategy of policy system and the specific policy suggestions have been put forward. The striking features and innovations of this book are:

by the open NIS research framework where foreign R&D centers are embedded. This framework possesses both the openness which fits the economic globalization context and the nature which focuses on the embedding system of foreign R&D centers; it also brings the macro, the meso, and the micro studies under one framework, and combines the two analysis routes of foreign investment and R&D into one. This is a comprehensive and dynamic research framework which encompasses the international, national, industrial, regional and enterprise perspectives.

2) The original argument material. The domestic data about foreign R&D centers is in great scarcity. Since the beginning of this research, we have devoted a lot of time and energy to carrying out both desk and field research, thereby establishing some relevant databases. Different from most of the previous qualitative or second-hand source research which focuses on the state, environment, and influential factors, we evaluate the environment based on two research databases both objectively and subjectively; we conduct multi-dimensional empirical analysis to study the operation and correlation of foreign R&D centers based on both questionnaire data and typical cases, which not only testifies and proves our conclusions but also leads to some original valuable conclusions. The falsifiable, cumulative and applicable nature of this research highlights its academia value.

3) The objectivity and systematicity of this research. Although it is not easy to make innovations or breakthroughs in the research methodology of social science, we still strive to make some adaptations and improvements of existing methodology to fit the framework and content of this research, on the basis of previous relevant academic literature. The empirical study of this research is not confined to the qualitative description or statistical description and explanation; instead, it carries out comprehensive quantitative measurement and calculation, analysis and comparison on the status quo, environment and influential factors. The objectivity of the study on the status quo is embodied in its repeatability, measurability, and comparability. The policy study should be both pertinent and systematic. Based on the NIS field of view, with respect to the status quo of foreign R&D centers and three policy subsystems, this book puts forward the strategic adjustment direction of

policy system and applicable policy suggestions.

Key Words:foreign R&D centers; National Innovation System (NIS); China;
R&D investment; transnational corporation; international R&D