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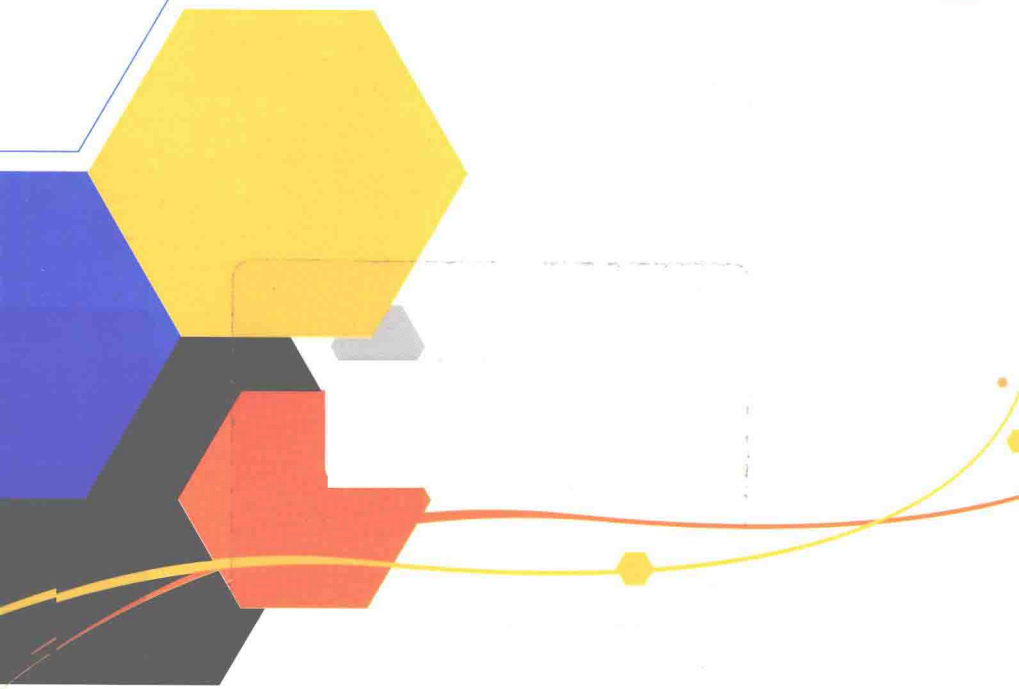
结构演变与效率提升

——基于我国经济的实证研究

余子鹏 著



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序言
Preface

几十年来，经济体制改革释放了人们的生产积极性，扩大了劳动力就业和资本投入；对外实行经济开放，引进了国际资本，引入了先进技术和管理经验。资本投入规模扩张、劳动就业的持续增加和资源耗费量增长是经济粗放型增长的基本特征。经济粗放型增长尽管解决了人们生活需求满足的有无问题，但是，这种增长方式却导致资本低效率，劳动就业低效用、低收入，自然资源高耗费和环境高污染，无法适应劳动力素质不断提升，不能抑制生态环境持续恶化，不能满足人们生活高质量增长。资本、劳动力和自然资源的有限性不可能维持粗放型的经济增长，依靠要素投入增加和资源、能源高消耗的经济发展模式面临增长乏力、低效的困惑。这些都要求转变经济增长方式，由外延粗放型转为内涵集约型模式。

经济增长模式的改变，需要结构优化和产业升级，吸纳先进的生产技术和促进人力资本提高，推动经济效率提升。那么，在几十年的经济发展过程中，我国各地经济的投入结构、产出结构和销售结构等演变，对要素生产效率、技术进步效应、就业等产生了怎样的影响呢？我国主要行业如钢铁产业、农业具有什么特点？生产效率和国际竞争力状况如何，其相关结构具有怎样的特征？这些都是值得研究的。本书试图探索其中的规律，希望对我国当前经济结构转型实践具有借鉴作用。

作　者

中文摘要

改革开放以来，我国利用国内外两种资源和市场，经济持续快速增长，取得了举世瞩目的成绩。然而，依赖外延粗放、规模扩张的经济增长方式渐渐失去发展的冲力。在国际经济景气度下滑，国内经济诸多矛盾凸现状况下，我国经济面临着结构调整和升级的困惑，经济发展必须向依靠内涵增长方式转变，另外，我国不同地区之间经济发展非常不均衡。因此，本书立足于研究我国经济对内外资源、内外市场的依赖状况和相互关系，分析我国各地经济结构及其演变，探索各地经济对外依存度、经济结构演变对就业和经济发展的技术进步效应，及对产业竞争力等的影响，探索我国经济转型和结构演变的特征。

研究的创新点为：第一，从宏观经济的角度运用了生产函数理论、结构分析理论、计量经济分析方法和统计理论，通过资本对外依存度、总体进出口贸易对外依存度和外商进出口对外依存度等指标，综合分析了我国各地经济对外依存度变化；第二，分析了要素效率、结构演变对经济技术进步的效应；第三，探讨了在国际贸易中我国产品的国际竞争力及其影响因素，分析了研发因素等结构变化对我国农业及钢铁等产业国际竞争力的影响。

本书的整体构架如下：

第一，在介绍国内外关于外国投资和对外贸易对经济发展、经济结构效应的研究成果的基础上，回顾了经济对外依存

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度理论、生产函数和技术核算理论、经济结构理论、资本存量计算理论。分析发现：针对我国经济对外依存度、经济结构演变和经济技术进步的研究非常缺少，将产业结构、资源及市场结构演变与技术进步进行综合研究尤其少见。

第二，计算和分析了我国各地经济的资本对外依存度、总体进出口贸易对外依存度、各地外商进出口对外依存度及其相互影响关系。总体上，从东部、中部到西部，外国直接投资占全部投资比例呈一种连续下降趋势。区域内部存在一些差异，如东部地区的河北、山东、广西三地外资比例较低，享有优惠政策的地区外资比例较高；中部地区只有吉林、安徽、江西、湖北四省外资比例较高；西部地区只有四川（重庆）外资比例较高，其余地区的外资比例普遍都低，从时间纵向看，各省（市）的外资比例自20世纪90年代中期开始加速增长，但基数较小。分析外商企业近年来对外贸易依存度，可以发现除河北、广西、海南等省份低于10%以外，东部省份普遍较高，中部和西部地区整体上对外贸易依存度都低于10%。分析我国各地经济资本对外依存度、进出口对外依存度之间的关系，没有发现一致性结论，有11个地区的外资投资比例变化对总体进出口贸易依存度具有影响，其中，北京等4个地区外资投资比例对总体贸易依存度具有负向效应，外资投资比例的提高，降低了这些地区的总体贸易依存度；其他7个地区的外资投资比例对总体贸易依存度具有正向作用，外资投资增加提高了当地的贸易总体依存度。

第三，分析了我国对外贸易产品结构和国际竞争力，发现在主要行业内部，如钢铁产业存在大进大出的现象，在大量出口低技术的产品的同时，大量进口高技术产品，净贸易条件和收入条件呈恶化趋势。具体计算了我国钢铁行业的国际竞争力指数，分析了研发人员、资金等投入对钢铁国际竞争力的影响。发现我国钢铁行业科技研发经费不稳定，机构规模偏小，

缺乏联合攻关意识，对研发机构管理不健全和研发成果保护滞后等问题，造成研发积极性低。政府通过对外贸易减免税等政策鼓励钢铁对外出口，保护钢铁行业稳定生产，缓解钢材供过于求的矛盾，确保钢铁行业的就业。但这种贸易政策延迟了国内低技术、小规模钢铁企业淘汰，降低了企业技术进步、产品结构调整和质量提高的迫切性。

第四，分析了我国各地经济对外依存度状况及差异的原因。东部大部分地区经济对外依存度过大，也反映出其经济结构上的弊端。原料来源和产品销售两头在外，涉及关键技术和价值环节为别人控制，在国内的加工环节在经济中创造的产值低，国内的经营环节少，就业集中而且单一，只需要简单的低技能劳动力，滞后的政策强化了对劳动低成本使用，回避技术研发和创新。中西部的贸易对外依存度近年来逐渐升高，但外商直接投资资本存量比例仍然较低，因为当地的基础设施、政策相对落后，人们思想保守，经营阻碍大，外资进入成本高。相对于外商直接投资，中西部地区的对外贸易发展速度快得多。

第五，在经济结构方面，在2012年，第一产业就业的劳动力比例低于30%的地区只占1/3，处于40%以上地区超过2/3。各地区第二产业就业劳动力比例只有北京等11个地区下降，其中的9个地区，第二产业减少的就业劳动力都被第三产业吸收了。在第二产业就业的劳动力比例增加较多的地区是：浙江、福建和江苏；除少数几个地区外，大部分地区的第三产业就业劳动力比例都提高了10%以上。各地第一产业就业劳动力比例与第二产业就业劳动力比例下降值之间相关系数为0.66，经济相对落后地区迫切发展第二产业的动力较大，第一产业流出的劳动力主要进入了第二产业。劳均资本存量与第一产业就业比例呈明显的负相关关系，与第三产业比例呈正向关系。我国劳动转移依然需要较长时间，其中提高资本存量是

关键。

第六，近二十年来，我国农业国际竞争力逐渐下降，国内农产品需求对外依赖逐年加大。虽然我国农产品对外出口总量在增长，但我国进口农产品金额增长速度更快，而且食品进口占农产品进口的比例达到85%以上。农业是关系国家稳定的战略产业，农产品特别是食品应该主要依靠本国生产供给。但是，城镇化、工业化等进程深化，相比较而言，农业获取资源的竞争力却大大下降。研究了农业资本投入、就业人员总量和质量、研发投入和农产品进出口贸易等对农业的发展和国际竞争力的影响。

第七，分析经济结构、对外依存度变化对技术进步的效应。发现第一产业就业比例下降、第三产业就业比例、劳均资本存量上升促进技术进步。本部分的创新点为研究了经济对外依存度、经济结构演变对技术进步的效应；分析了对外依存度对我国产品国际竞争力的影响；探讨了钢铁行业国际竞争力的研发投入影响。

由于本人精力、能力和时间限制，局限于选取就业比例等几个变量代表经济结构，今后研究应该拓展经济结构的多种表示方法，多角度探索结构的演变对技术进步的效应，并研究结构之间的关系。

关键词：对外依存度；经济结构；研发投入；技术进步；国际竞争力

Abstract

Since the reform and opening, China has taken advantage of resources and markets both at home and abroad. Economy grows rapidly and sustainably, which draws worldwide attentions. However, the economic growth mode dependent on extensive form and scale expansion loses development impetus gradually. Under the international economy sluggish and a lot of contradiction in domestic economy, China economy faces the bewilderment to adjust and upgrade the structure, while economic development must swift to depend on the intensive growth mode. In addition, the economic developments among different regions are very imbalance. Therefore, that studying the dependence of our economy on the resources and markets of the home and abroad and the relationships, analyzing economic structure and its evolution, exploring the effect of economy dependence and economy structure evolution on technique progress of economic growth, meet the present demand for economic development .

This thesis has applied production function theory, structural approach, econometric approach and statistical theory, through index such as capital dependence, total export and import trade dependence and foreign merchant trade dependence, comprehensively analyzing the effect of the change of economic foreign dependence and structure evolution in each regions on economic technique pro-

gress. The international competitiveness and influencing factors of China products in foreign trade have been discussed, and the effects of R&D factors on China Iron - Steel ' s international competitiveness has been analyzed.

Firstly, based on the research findings of effects of FDI and foreign trade on economic development and economic structure from home and abroad literatures, the paper has reviewed economic foreign dependence theory, production theory, economic structure theory and capital stock theory. The analysis has found that the research is lack to the economic foreign dependence, economic structure and technique progress, and that the comprehensive research of combining industry structure, resource and market structure with economic technique progress is very rare.

Secondly, the paper has calculated and analyzed the economic foreign dependence, total export and import trade dependence and foreign merchant trade dependence and their mutual influencing relationships. As a whole, from eastern China, central China to western China, the ratio of foreign capital to total capital shows continuous downtrend. There are discrepancies internal each territory, such as in the eastern China, the proportion of foreign capital of Hebei, Shandong and Guangxi three provinces are very lower, while that of regions enjoying preferential policies are more higher. In central China, the foreign capital proportion only in Jilin, Anhui, Jiangxi and Hubei four provinces are relatively higher, the foreign capital proportion only in Sichuan (including Chongqing) in western China is relatively higher, while the proportion of foreign capital in other regions are all lower. From the lengthways time, since the middle of 90's in 20th century, the proportions of foreign capital start to speed up maybe because the foreign capital bases are less.

Analysis on foreign merchant trade in recent years shows that the proportions in Hebei, Guangxi and Hainan etc., are all lower than 10%. The research on relationships between economic dependence on foreign capital and economic dependence on export& import trade has found inconsistent result, that is, foreign capital proportions influence total trade dependence in 11 regions, among them, foreign capital proportions influence foreign trade dependence negatively in Beijing etc. four regions, increase in foreign capital proportion results in reduce in total trade dependence in these regions, while in other 7 regions, proportions of foreign capital affect total trade dependence positively, which increase in foreign capital proportion enhances the total trade dependence.

Thirdly, the paper has explored foreign trade product structure of China and international competiveness, finding that in major industries, there has existed maximized export and import, while exporting a lot of low-tech products and importing a great of high-tech ones, and net trade terms and income term take a turn for the worse. It has calculated international competiveness index of China Iron & Steel industry, analyzing the effect of R&D staffs and funds on the competiveness. The findings shows that R&D institutes and funds are not stable, while the scale of institutes is little and lack of combination to tackle key problems, management on the institutes is not perfect and research achievements are not protected well, which causes R&D initiative low. The trade tax policies government made encourage Iron & Steel products export, protect the industry production stable, mitigate the contradiction of supply exceeding demands, and assure the employment in Iron &Steel industry. However, the trade policies maybe postpone the elimination of low-tech and less scale enterprises, and lower the urgency to technique pro-

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gress, product structure adjustment and quality improvement.

Fourthly, the thesis has analyzed the causes of economic foreign dependence and discrepancies. Most of provinces in eastern China have higher foreign dependence, which reflects the drawback in economic structures. Because most rude materials and products from and to abroad, and key technique and value links controlled by foreign enterprises, then the values created inland processing production are low, and operating links are short and employment concentrate only in some links, which only need simple, low-tech labor forces, while lagged policies strengthen the employ labor in low costs and shirk technique R&D and innovation. In western and central China, foreign capital proportion and trade dependence rise in recent years but still lower, because the local infrastructures and policies fall behind, while people thought is conservative, operating block is big, then costs of foreign capital entering is higher. With respect to FDI, foreign trades develop faster in western and central China.

Fifthly, in economic structure, the proportion of first industry employment is lower than 30% only in one thirds of regions, in other provinces the proportion is more than 40%. The proportion of second industry employment lowers only in 11 regions such as Beijing etc., among them there are 9 regions in which employment reduced from second industry is absorbed by tertiary industry. The regions that Proportions of employment in second industry increase more are Zhejiang, Fujian and Jiangsu. Except some regions, the proportion of employment in tertiary industry increase by above 10% in most other regions. The correlation between proportion of employment in first industry and the drop-out value in second industry is 0.66 among all regions, which means that the driving force to de-

velop second industry are bigger in backward regions, and surplus labor force from first industry enter second industry chiefly. The relationship between capital stock per labor force and proportion of employment in first industry is negative, while that is positive with proportion of employment in tertiary industry. That means it is a long way to transform the labor force from the first industry and increasing capital per labor is the master key.

Sixthly, in recent twenty years, Chinese agriculture international competitiveness was descending gradually and internal demand for agricultural goods was depending more on outer supply year by year. Though the export account of Chinese agriculture goods increases, the speed of import account of agriculture goods is still larger, and 85% of agriculture goods import is food. Because agriculture is strategic industry relating to state stability, agriculture goods especially foods must mainly depend on domestic production and supply. However, since the process of urbanization and industrialization are deepening, comparatively, the ability of agriculture obtains resources descends greatly. The book has researched the effects of agriculture capital investment, accounts and quality of employment, research and development investment and export and import policies of agriculture trade etc. on the agriculture development and international competitiveness.

Lastly, the paper has analyzed the effect of economic structure, foreign dependence on technique progress. Findings show that the decline of employment proportion in first industry, the increase in tertiary industry and capital stock per labor force promote technique progress. The innovation of this paper are studying the effect of economic dependence, economic structure evolution on technique progress; analyzing the influence of economic depend-

ence on international competiveness; and exploring the effect of R&D input on the international competiveness of Iron &Steel industry. Owing to the limits of own vigor, ability and time, the research choose only employment proportion as the economic structure. From now on, the research should expand various methods to indicate economic structure, explore the effect of economic structure on technique progress from multi-angle, and discuss the relation among all kinds of structures.

Keywords: Economic Foreign Dependence; Economic Structure; R&D Input; Technique Progress; International Competitiveness

目录
Contents

1 绪论 /1
1.1 研究目的和意义 /1
1.2 相关研究回顾与评述 /3
1.2.1 FDI 溢出效应传递渠道及影响因素研究综述 /3
1.2.2 国内对引进 FDI 的效应研究 /10
1.3 对国内外关于 FDI 溢出效应研究的评述 /12
1.4 内容及结构 /13

第一篇 相关理论

2 资本存量的计算方法 /17
2.1 现有关于计算资本存量研究的差异比较 /17
2.2 资本存量计算的理论模型 /18
2.3 对基期资本存量估算方法的补充 /21
2.4 关于外国资本及其存量的计算 /22
2.5 波动误差的处理 /23
2.6 对资本存量计算方法的检测 /23

3 对外依存度理论 /25

4 产业结构变化与经济发展的技术进步关系 /27

5 外资对经济发展效应理论 /29

第二篇 对外依存度变化与经济效率

6 我国各地经济对外依存度的计算与分析 /33
6.1 数据来源及处理 /33
6.2 各地对外依存度的计算与分析 /33
6.2.1 我国各地区资本对外依存度状况 /34
6.2.2 我国各地贸易对外依存度 /37
6.3 我国对外贸易结构及国际竞争力状况分析 /55

7 我国经济对外依存度状况和原因分析 /61
7.1 我国各地经济对外依存度状况 /61
7.2 我国对外依存度持高的原因分析 /63
7.2.1 我国对外开放政策演进 /63
7.2.2 我国投资和贸易政策的影响 /63
7.3 主要结论 /64
7.4 针对我国各地经济对外依存度的建议 /65

第三篇 整体结构变迁与经济效率

8 我国经济结构的变迁 /71
8.1 经济结构变迁的计算 /71
8.2 各地劳动力结构的比较分析 /73
8.2.1 我国各地第一产业就业现状分析 /73
8.2.2 我国各地第一产业就业比例比较 /77
8.2.3 我国各地三大产业就业变化 /77

8.2.4 各地劳动就业结构比例关系 /78
8.3 各地就业结构与人均资本配置的关系 /80
8.3.1 我国人均资本逐年上升及地区间差异 /80
8.3.2 我国各地劳动就业结构与劳均资本存量的关系分析 /82
8.4 本章的结论 /86

9 我国产业结构调整与要素效率关系分析 /88
9.1 相关理论 /89
9.1.1 三次产业的划分 /90
9.1.2 资本存量及基期资本存量的核算理论 /90
9.1.3 生产函数 /91
9.1.4 要素的比较生产率 /92
9.2 数据来源及产业结构分析 /92
9.2.1 产业结构演变——三次产业资本存量和劳均资本存量 /92
9.2.2 产业结构演变——从业人员总数和三次产业从业人数 /94
9.3 三次产业要素效率 /95
9.3.1 三次产业劳均产出和劳动力边际产出 /95
9.3.2 三次产业的资本产出效率 /98
9.3.4 要素效率与产业结构变化之间的关系 /99
9.3.5 结论及启示 /100

10 我国各地经济发展技术进步率核算 /103
10.1 理论和计量模型 /103
10.1.1 理论模型 /103
10.1.2 研究内容及假设 /105
10.2 数据计算 /106

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