

孔宪香 / 著

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CHUANGXINXING GUOJIA JIANSHEZHONG DE

# 人力资本激励制度研究

RENLI ZIBEN JILI ZHIDU YANJIU



中国财政经济出版社

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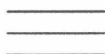
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## 摘要



当今世界，科技创新能力成为国家竞争力的决定性因素。因此，实施创新驱动发展战略，建设创新型国家，建设国家创新体系，制定科技发展战略，以提高本国的技术创新能力，成为世界许多国家的重要发展战略。作为世界上最大的发展中国家，我国的科技创新能力在各国中处于中等偏下的位置，科技创新能力严重不足。在综合国力竞争日趋激烈的形势下，我国创新能力不足将对经济社会发展和国家安全构成严重制约，将影响我国的国际竞争力，影响我国经济发展方式的转变和经济结构的调整。为此，我国做出了“加快建设国家创新体系”、“建设创新型国家”、“实施创新驱动发展战略”的重大战略抉择。

创新能力决定于人力资本存量和为保证人力资本价值实现的制度安排。具有创新能力的人力资本是进行创新、创造活动的载体，是推动我国创新型国家建设的核心要素。一个国家或地区所拥有的人力资本的总量、质量、结构和相应的人力资本的使用、运行机制、制度环境等决定了该国或该地区的创新能力。要提升中国的创新能力，建设创新型国家，制度建设是关键，即中国能

否创造出一种制度环境和体制基础，能否创造出一种创造氛围，鼓励更多的人创新，也就是说，中国能否创造出符合市场需要的激励和鼓励创造、创新、创业的高效机制，是提升中国创新能力的关键。

基于以上背景，本书在技术经济理论、人力资本理论、现代企业理论、制度经济学理论和管理学理论等研究基础上，把人力资本激励制度放到创新型国家建设这一背景下论证二者之间的经济互动关系，从宏观、微观和市场三个层面系统论证能够促进创新、增强中国创新能力的人力资本激励制度；并结合中国实际，为激发各类人力资本载体创业、创新的积极性，构建有利于创新和产业化的良好制度环境，前瞻性地提出能够有利于人力资本成长、提高我国创新能力的激励措施和政策建议，供我国政府及企业在建设有利于创新的人力资本激励制度时参考。因此，本书的研究既具有重要的理论意义和学术价值，也具有较强的应用价值。

从具体的研究内容来看，本书包括6章。

第1章是导论，提出选题的背景、研究的理论意义和现实意义，对相关概念进行界定，并介绍了文章的基本假设、研究思路、研究方法、研究内容及主要创新点。

第2章论述了创新型国家建设中的人力资本激励制度的理论基础。其主要内容在于对为本书提供理论支持的相关理论进行梳理和评价。西方人力资本理论为我们认识人力资本的生产性、创造性、人力资本为什么需要激励、如何激励等提供了深厚的理论基础；要想更好地发挥人力资本在技术创新中的作用，必须要承认并界定好人力资本产权，这是建立创新型国家中的人力资本激励制度的前提，并能改善人力资本的配置和增加人力资本投资，人力资本产权理论为人力资本激励制度的建立提供了理论基础；

由于创新型人力资本具有外溢性和收益递增性，要建立人力资本激励制度，对人力资本收益进行分割，就必须首先了解人力资本的价值，这就需要对人力资本价值进行测量。我们在总结国内外人力资本价值测量模型的基础上，创新性地提出了一个动态人力资本价值测量模型，这在一定程度上为激励制度的制定解决了一个技术上的难题。激励理论为我们针对不同类型的人力资本设计有利于创新的激励制度及多样化的激励方式提供了理论支持和政策思路。而技术创新与制度创新关系理论则为我们理解现阶段我国制度创新对技术创新的重要性、制度建设的迫切性等方面提供了理论支撑。

第3章对创新型国家建设与人力资本及其激励制度之间的关系进行了分析和论证。首先对人力资本在技术创新中的作用进行了探索，分别从理论分析和实证分析角度进行了论证。从理论分析角度看，人力资本既是技术创新的主体和源泉，又是技术扩散的必要条件，因而一国或地区所拥有的人力资本的数量、结构和配置影响了一国或地区的创新能力。从实证分析看，我们选用了我国的R&D投入产出数据进行了分析，得出了人力资本是影响技术创新的重要因素，增加人力资本投入可以提高技术创新能力。在此基础上，根据人力资本在技术创新和创新体系中的作用，我们将其划分为企业家人力资本、研发型人力资本、技能型人力资本、管理型人力资本和营销型人力资本，以便我们围绕各类人力资本，从微观、宏观和市场角度设计一套行之有效的激励制度。然后我们从技术创新的特性、人力资本的特性、人的行为特征和制度的功能等角度论证了人力资本的创新行为需要制度激励，因而得出在我国创新型国家建设中，构建人力资本激励制度是制度建设的一项重要内容。

在论证了创新型国家建设与人力资本及其激励制度之间的关

系后，我们在第4、5、6章就如何构建创新型国家中的人力资本激励制度进行了深入和系统的分析。

第4章从企业层面构建了创新型国家中的人力资本激励制度。企业是最重要的创新主体，而在企业内部实施和执行创新的是各类人力资本所有者，因此，企业人力资本创新激励制度建设就成为创新型国家建设能否成功的关键。在对企业人力资本及激励制度在技术创新中的作用和人力资本激励原则进行理论论证的基础上，我们围绕企业家人力资本、研发型人力资本、技能型人力资本、管理型人力资本和营销型人力资本，构建了针对各自特点的人力资本激励制度。企业家人力资本作为企业技术创新的决策者，其有效的企业创新激励制度安排就是剩余索取权和控制权激励制度。而对于企业技术创新链条中的核心人力资本——研发型人力资本，则主要采用产权激励制度（剩余索取权可包括股票期权、技术入股、技术持股、技术成果分成、与企业共享知识产权等形式）、职位晋升、培训、科技奖励、创新型企业文化等激励制度。而对技能型人力资本着重做好工资奖金激励、参与管理激励等工作，对营销型人力资本则应重点设计与新产品销售挂钩的薪酬制度和科技奖励制度。为了最大化地发挥各创新主体的作用，还要对实行协同激励，建立组织激励制度。

要充分发挥人力资本创新的积极性和主动性，除了建立科学合理的企业内部激励制度外，外部环境也是影响创新行为的重要因素。其中的一个外部环境就是市场环境。市场是能够对技术创新起持续性激励作用的一种根本制度。第5章论证和分析了市场制度对人力资本创新的激励作用。对企业家人力资本的创新行为而言，经理人市场、资本市场（包括产权交易市场）和产品市场都有着重要的激励约束作用。各类人力资本市场、技术产权交易市场、资本市场和产权市场在不同程度上也对研发型人力资

本、技能型人力资本、管理型人力资本和营销型人力资本的创新活动起激励作用。

但市场制度本身在激励创新方面也具有一定的缺陷：如市场不能自己创造有利于创新的外部环境，因此，政府对于技术创新和创新型人力资本的各项政策环境，会在很大程度上影响各类人力资本所有者的行为，从而影响企业、大学和研究院所的创新能力，最后影响到国家的技术创新能力。第6章是在借鉴国外经验的基础上，构建了我国激励不同类型人力资本创新的制度。政府对企业家人力资本的激励制度主要是引导企业家能力向创新性生产活动方面配置，这可以从知识产权制度、企业家选拔制度、财政税收制度等方面构建；而对研发型人力资本则主要从科技奖励、知识产权、科研和创新环境、财政税收、教育培训等方面进行建设；对技能型人力资本、管理型人力资本和营销型人力资本主要从承认他们在技术创新中的作用、提高他们的社会地位等方面来构建。

这样，我们就从企业、市场和政府三个层面构建了分别针对五种不同类型人力资本的激励制度。

本书的主要创新点有三个方面：一是将人力资本激励制度放入建设创新型国家的背景下研究，从企业层面、政府层面和市场层面系统研究创新型国家建设中的人力资本激励制度。二是构建了一个动态的人力资本价值测量模型。本书在借鉴人力资本价值测量的成本法、收益法和产出法的基础上，根据影响人力资本价值的因素即投入成本、个人特质和市场，构建了一个动态的企业内部的人力资本价值测量模型，从而为企业及政府制定具体的人力资本激励制度特别是产权激励制度提供了依据。三是按照在技术创新中的作用不同，将人力资本进行合理分类，分为企业家人力资本、研发型人力资本、技能型人力资



本、管理型人力资本和营销型人力资本五类，分别论证了各类人力资本在技术创新中所发挥的重要作用，在此基础上，从企业、市场和政府三个层面分别围绕这五种不同类别的人力资本构建相应的创新激励制度。

**关键词：**创新 创新型国家 人力资本 激励 制度



Now the abilities to innovate science and technology have become conclusive factor of national competitive power around the world. So it's an important strategy in the world to develop their country by building national innovation system and establishing national science and technology developmental strategy which enhance their national abilities to innovate technology. Although we are the biggest developing country but our abilities of technology innovation are under the midline in the world and we are badly short of the innovation abilities. Under the situation that more and more drastic competition concerned the integrative national power lack of the innovation abilities will restrict the economic and social development also threaten the safety of our country . So it can depress our international competition and restrict the style of conversion of economic growth and adjustment of economic structure. Thus, our country has to make the important choices – quicken the national innovation system and

create the innovative style nation. Human capital stock and institution arrangement which to achieve the value of human capital determine innovative abilities. Human capital contained innovative abilities is carrier of creation and innovation and is the core factor for building national innovation system. It's the gross quantity, quality, structure and employ, run mechanism and institution environment of human capital that determine the innovative abilities of their area or country. Rising the innovative abilities and establish institution are the key to building national innovation system of china; namely that we must create a good institution environment and system and a good atmosphere to encourage more and more people join the activity of creation; also means that we need high efficiency market-oriented system to encourage and inspire people to creation, innovation and carve out.

Based on above-mentioned background, this thesis use the technology economy theory, human capital theory, modern enterprise theory, institution economy theory, management theory and so on; and within the frame of building of innovative technology system to demonstrate mutual relationship between human capital incentive and building of innovative technology system, and through macro, macrocosmic and market levels, this thesis systematically demonstrate human capital incentive institution which can promote and rising the Chinese abilities of innovation; By link up with practice of china for inspiring positively of all human capital carriers to carve out, innovation and establishing a good environment beneficial to innovation and industrialization, this thesis forecastly put forward innovation measure and

policy advice which are beneficial to human capital growth and rise innovation abilities of our country, so it can offer the reference that beneficial to building innovative institution of human capital of the government and enterprises; therefore, this thesis have the important theoretical and academic and practical value.

This thesis contains 6 chapters;

Chapter 1 is the guide which put forward the background, theoretic and practical significance of researching; it define the concerned concepts of the thesis; it also introduce basic hypothesis, idea, method, contents of the researching and main innovative and inadequate points of the thesis.

Chapter 2 is the theoretical basic for incentive institution of human capital in building technology innovation system. the main purpose of this chapter is to tidy up and appraise the theory which support this thesis. West human capital theory is profound basic theory to understand productive, innovative trait of human capital and why and how to inspirit it. Accept and define human capital property right and improve its configuration and increase its investment are important to inspirit human capital exerts its ability in technology innovation; its the precondition to build-up human capital incentive institution within technology innovation system . The theory of human capital property right is the basis to build human capital innovative institution. The trait of innovative human capital are increasing return and externality, therefore, if we want to build human capital innovative institution and partition its income, we must know its value which need to measure at first. On the basic of summarize those model which measure

the value of human capital by others at home and abroad, we put forward a innovative dynamic model to measure human capital and it in some degree solved a technical difficult problem for foundation of innovative institution. The incentive theory provide us theoretical support and policymaking way benefit to design incentive institution and diversified incentive mode which aim at different types of human capital; and that, the theory of technology innovation and institution innovation provide us the theoretical support to understand imminence of institution building and essentiality of how technology innovation depend on institution innovation this moment in our country. Above theory provide stability theoretical support to our research from different angels.

In chapter 3 we analysis and demonstrate the relationship about building of technology innovation system and human capital and it incentive institution. We explored effect of human capital in technology innovation system at first and then analysis its effect from theory and demonstration aspects. From the theory aspect, human capital is the main body and headspring of technology innovation as well as the necessary condition for technology diffusion; thus the quantity, configuration, disposition of human capital which one country or area owned will affect its innovation abilities. From the demonstration aspect, through analysis the R&D input-output date, we find that technology innovation deeply affcted by human capital and so increase input of human capital can improve power of technology innovation. On this basis and depend on the effect of human capital in technology innovation and institution innovation system, we classified human cap-

ital in five kinds which named enterpriser type human capital, R&D type human capital, skilled type human capital, management type human capital and marketing type human capital, this classification easy us to design effective incentive institution from macroscopical and microcosmic or marketing aspects toward diversified human capital. And then, we demonstrated it from trait of technology innovation and human capital, behavior character of people, institution function that innovative action of human capital need institutional encouragement. As a result, we find that construct human capital incentive institution during building of technology innovation system is important matter to enestablish institution in our country.

After demonstrated the relationship about technology innovation system, human capital and human capital incentive institution, in chapter 4, 5, 6, we make a deeply and systematic analyzing for how to build human capital incentive institution during constructing of technology innovation system.

In chapter 4, this thesis from enterprise aspect analysis human capital incentive institution in building technology innovation system. Since enterprise is main body of technology innovation system and within the enterprise people that execute and implement innovation is owner of human capital then build enterprise human capital incentive institution is the key factor succeeds in constructing technology innovation system. Around the enterpriser type human capital, R&D type human capital, skilled type human capital, management type human capital and marketing type human capital we construct human capital incentive

institution towards their various characteristic on the basis of theoretical demonstration about enterprise human capital and enterprise human capital innovation institution and incentive principle of human capital. Enterprise human capital is the decision-maker of technology innovation in their enterprise, its effective incentive institution arrangement to encourage innovation is the incentive institution about the rights of profit gain and control. For the R&D type human capital - hardcore human capital on the chain of technology innovation, we can use the incentive institutions such as property right incentive institution, rights of residual claims (the way includes stock option, technology buy a share, technology holding shares, share by technical achievements, share knowledge property rights with the enterprise and so on), position advance, training, science and technology encouragement, innovation type enterprise culture and so on, to encourage them. For the skilled type human capital they emphasize the wage and bonus encouragement, or attach them to management and so on; for the marketing type human capital, it important to design the salary institution and science and technology incentive institution that link to new product sales. At the same time, to max the effect of the main body of innovation we need to practice concomitant encouragement and to construct organic incentive institution.

Except to construct scientific and reasonable internal enterprise incentive institution, external environment also important factor that influence the innovative action; if we want to fully bring into play the positivity and enthusiasm of human capital,

market environment is one of the influential factors belong to external environment. The market is the root institutions which can durative encourage technology innovation. We demonstrate and analysis incentive effect about market institution towards human capital innovation in chapter 5. For the innovative action of enterpriser type human capital, handlers market, capital market (include property rights trade market) and product market are all have the important incentive and constraint function. Diversified human capital market, technology property right trade market, capital market and property right market are in some extent have the incentive function towards R&D type human capital, skilled type human capital, management type human capital and marketing type human capital. The market institution itself has definite limitation at promoting innovation aspect; such as market itself can not create external environment benefit to innovation, so, diversified policy established by the government towards technology innovation and innovative type human capital can in great extent influence the action about the owner of diversified human capital; accordingly it can influence the innovation abilities of enterprises, college and research institute; and finally it can influence the technology innovation of ones country and whether or not to build a technology innovation system successfully.

In chapter 6, we construct our country's official innovation institution which can effectively encourage innovation towards diversified human capital. The main official innovation institution for enterpriser type human capital is lead them to configure their



ability towards production action, this can be achieved by construction of knowledge property right institution, enterpriser select institution, finance and revenue institution and so on; for R&D type human capital, science & technology reward, knowledge property right, finance and revenue, education and training and so on are main aspects we need to build-up; for the skilled type human capital, management type human capital and marketing type human capital the main way to construct innovation institution is admit their ability during technology innovation or improve their social class. In this way, from enterprise level, market level, government level, we have constructed different innovation institution towards five kinds of human capital.

This thesis includes three innovation points: the first is to study human capital within the background of building technology innovation system, systematically study human capital innovation institution during construction of technology innovation from enterprise, government and market level. The second is to build-up a dynamic measure model of human capital. This thesis on the basis of cost model, income model, output model relate to measure the value of human capital and rely on the factors influence the value of human capital (invest cost, individual trait and market factor), construct an internal dynamic measure model of human capital within the enterprise to provide a support for enterprise and government to establish concrete incentive institution especially the incentive institution of property right. The third is in reason classified human capital into five types according to its function under the technology innovation system and this clas-